PENTWATER TOWNSHIP BOARD MEETING
Special Meeting

April 26, 2023 at 10:00 a.m.
Pentwater Community Hall
500 N. Hancock Street, Pentwater, MI 49449

AGENDA

1. Call to Order/Pledge
2. Roll Call
3. Meeting Agenda - Review & Action
4. Public Comment on Agenda Items (Three (3) minutes maximum)
5. Old Business - None
6. New Business
   A. Review and Action: Clean Water State Revolving Fund (CWSRF) - Project Plan Review:
      - Presentation by Township Engineers Fleis & Vandenbrink
      - Public Comment
      - Consideration for a Resolution to Adopt the CWSRF Project Plan
   B. Review and Action: Grant for Infrastructure Improvements at Transfer Station.
7. Public Comments
8. Other Items from Board Members
9. Adjournment

PENTWATER TOWNSHIP

OCEANA COUNTY, MI

CLEAN WATER
STATE REVOLVING FUND (SRF)
PROJECT PLAN

WASTEWATER SYSTEM IMPROVEMENTS

March 2024
865690

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

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I. Introduction

The purpose of the Pentwater Township Clean Water State Revolving Fund Project Plan is to fulfill the project planning requirements under the Michigan's Natural Resources and Environmental Protection Act, 1994 PA 451 and to provide the basis for ranking of the Township's proposed wastewater collection and treatment system improvements under a Project Priority List for a low-interest Clean Water State Revolving Fund Loan.

The scope of the Project Plan includes a summary of the identified improvement needs for the Township's wastewater system, identification of principal alternatives to meet those needs, and evaluation of environmental impacts resulting from completion of a selected alternative in both the long term and the short term. The Project Plan also presents projected user costs for financing the selected alternative and a review of the public participation and public comments solicited by the Township on the selected alternative. The format of the report follows the January 2023 revised project planning guidelines for Clean Water State Revolving Fund projects issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

II. Project Background

A. Delineation of Service Area

The Pentwater Township wastewater collection system consists of three separate sewer systems, all near the middle and southeast portions of Pentwater Lake. Two of the systems discharge to septic tanks, and the third discharges to a lift station that then conveys flows to the Village of Pentwater wastewater collection system. The study area that this Project Plan pertains to only consists of the land immediately surrounding these three systems and, therefore, only includes a small portion of the Township land. A map of the Pentwater Township sanitary sewer system can be found in Appendix A.

B. Land Use

According to the 2023 Pentwater Community Master Plan, Pentwater Township is divided into six land use categories: unimproved, single-family residential, multiple-family residential, commercial, industrial, and public/semi-public. Almost the entire Township sanitary system is in single-family residential land, and the remaining small portion of it is in commercial land.

In the Master Plan, the following goals were identified for future development in Pentwater Township and the Village of Pentwater, collectively:

1. New commercial, tourism related, or industrial development will be planned in locations where they fit the fabric of the community, where existing and potential new homes will not be negatively affected, and where services are adequate.
2. New development will be of limited size, scale, and intensity, in keeping with the character of the Pentwater Community.
3. Pentwater Township and Village will cooperate to ensure that new commercial development does not detract from the economic vitality of the Village business district.
4. Land use decisions will foster the development of attainable housing for young families and seniors who wish to retire here.
5. Residential land uses will be provided for more attainable homes. Factors that may be used to make homes more attainable may include higher densities, wider areas of infrastructure/utilities coverage, inclusion of a variety of housing types, and providing paved roads.
6. New areas of residential development will have the same neighborhood characteristics as those already found in the Pentwater community. These characteristics include paved roads, sidewalks,

adequate low-emission lighting, well-placed open spaces for recreation, and a sensitivity towards natural features (woods, dunes, shoreline).

7. Launch a design study to increase public access to Pentwater Lake and develop a strategy to better cope with wide variations of water levels.
8. Develop an ongoing dredging plan for the channel to keep our channel navigable.
9. Leverage PLA, Friends of the Pentwater Watershed, and PLIB knowledge resources for the benefit of water and watershed quality and include consideration for a sanitary sewer system along the entire shore of Pentwater Lake.
10. Ensure continual access to Lake Michigan from Pentwater Lake as a thoroughfare for tourism, recreation, and a harbor of refuge.
11. Ensure expansion of water, sewer, and stormwater utilities to support residential and commercial growth.
12. Decisions regarding locations for new development within the Township will consider the capability of the Pentwater Community to provide a suitable level of public services, be of coordinated size and density, and preserve the natural character of the landscape.
13. Increased likelihood of downed trees as wildfire fuel warrants expansion of water main line infrastructure and vehicle access for fire suppression. Expand fire department education program targeting residents to create buffer zone around individual homes and beach access.

While land use changes were proposed for several areas of the Village of Pentwater in the Master Plan, land use changes were only proposed in one small portion of Pentwater Township. This portion is not in the Township wastewater collection area, so no land use changes were proposed within the Township wastewater collection area.

Further details about land use and future development plans for Pentwater Township and the Village of Pentwater can be found in the Master Plan, which has been attached to this report in Appendix B. The Master Plan includes existing and future land use maps for the Township.

C. Population Projections

Figure 1 (taken from the Master Plan) shows historical population data, as well as future population projections, for Pentwater Township and the Village of Pentwater.

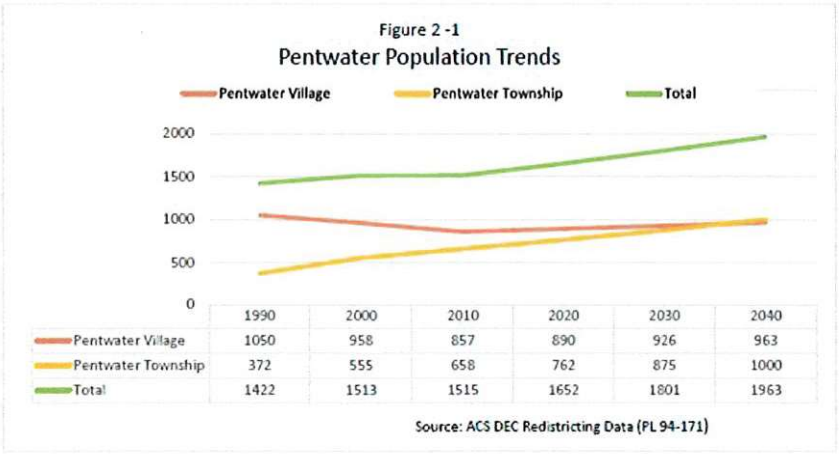


Figure 1. Pentwater Township and Village of Pentwater population data.

As shown in Figure 1, the Township population has been steadily increasing since 1990. Between 2010 and 2020, the Township population grew by 16%, and future population projections for the Township were approximately[1] (not exactly) based on this 10-year growth rate.

D. Environmental Setting

Climate

The climate in the region is continental, with cold winters and warm summers. According to the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center's 1991-2020 Normals Dataset, the annual average daily temperature in Hart (where the closest weather station to Pentwater is) is 46.3 °F. The climate can be further described by the following:

- Temperature: January is typically the coldest month, with an average temperature of 22.9 °F. July is typically the warmest month, with an average temperature of 68.8 °F.
- Precipitation: the average total yearly precipitation is 38.9 inches. Of the non-winter months, May is typically the wettest, with an average total monthly precipitation of 4.45 inches. September is typically the driest, with an average total monthly precipitation of 3.23 inches. The next-driest months are August and November, with average total monthly precipitations of 3.27 and 3.43 inches, respectively.
- Snowfall: Hart typically receives 78.5 inches of snowfall every year. January is typically the snowiest, with an average total monthly snowfall of 26.4 inches.

Historic and Natural Landmarks

Pentwater Township has one National Historic Place, which is the Dumaw Creek Site, which is located northeast of the Village of Pentwater and along Dumaw Creek. This site is far away from all three Township sanitary sewer systems.

Air Quality

Air quality trends in Michigan are defined by the measurement of certain air pollutants, carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), sulfur dioxide (SO_2), and air toxins or trace metals.

The Air Quality Index (AQI) was developed by the EPA to provide a simple, uniform way to report daily air pollution concentration on a numerical scale. The scale is related to potential health effects and has the following ranges: good (0-50), moderate (51-100), unhealth for sensitive groups (101-150), and unhealthy (151+). The unhealthy range also includes "very unhealthy" and "hazardous" sub-ranges.

From the EPA's AirData Air Quality System, the Ludington air monitoring station (the closest one to Pentwater Township) had air quality recordings for 190 of the 365 days in 2023. The AQI was in the good to moderate range (100 or less) for 188 of these days and in the unhealthy for sensitive groups range (101-150) for 2 days. Ozone was the primary contributor to the index for all 190 days. The 90th percentile AQI was 71, meaning the AQI only exceeded 71 for 10% of the recorded days, and the maximum AQI was 143.

Wetlands

Pentwater Township has many designated wetland areas. Most are concentrated along waterbodies, while others are isolated and in natural areas, such as forests. The wastewater collection area has two small sub-areas with wetland soils but not fully considered wetlands. These sub-areas are 1) the area

[1] More specifically, the combined population of Pentwater Township and the Village of Pentwater was assumed to grow by 9% every 10 years, the population of the Village of Pentwater was assumed to grow by 4% every 10 years, and each projected future Pentwater Township population was taken as the difference between each projected combined population and each projected Village population.

bounded by Pentwater Lake, Seminole Road, and Longbridge Road and 2) just northwest of the intersection of Monroe Road and Longbridge Road. Maps of the wastewater collection area from the Michigan Weland Map Viewer, which shows wetland areas designated by EGLE, and from the National Wetlands Inventory (NWI), which shows wetland areas designated by the USFWS, can be found in Appendix C.

Major Surface Waters

Pentwater Township has many surface waterbodies, including lakes, rivers, and streams. In the wastewater collection area, the most major surface waterbody is Pentwater Lake. All three sanitary sewer branches have at least one portion close to the shore of Pentwater Lake. Other nearby surface waterbodies include the Pentwater River, which discharges to the southeast corner of Pentwater Lake, the North Branch Pentwater River, and an unnamed tributary running mostly through the woods and discharging to Pentwater Lake immediately northwest of the intersection of Monroe Road and Longbridge Road. The USGS map in Appendix <<x>> shows the locations of surface waterbodies throughout Pentwater Township.

Floodplains

The Federal Emergency Management Agency (FEMA) has designated floodplains for Pentwater Lake and the Pentwater River. The floodplain for Pentwater Lake includes the lake itself and up to, at most, 50 feet inland from the shoreline. The floodplain for the Pentwater River includes the river itself and up to approximately 1,000 feet to inland from both riverbanks. Near the wastewater collection area, the Pentwater River floodplain only covers the river itself and natural areas.

The floodplain for Pentwater Lake is in Zone AE, which is subject to the 1% annual chance flood and has exact flood water surface elevations determined. Specifically, the 1% flood elevation for Pentwater Lake is 583 feet. The floodplain for the Pentwater River is in Zone A, which is subject to the 1% annual chance flood but does not have exact flood elevations determined. The FEMA Flood Insurance Rate Map (FIRM) for Pentwater Township, which shows the boundaries of designated floodplains near the wastewater collection area, has been provided in Appendix C.

National Wild and Scenic Rivers

There are no designated Wild and Scenic Rivers in or near Pentwater Township.

Coastal Zones

Pentwater Township is in an EGLE-designated Coastal Zone. A map showing the Coastal Zones of Oceana County has been provided in Appendix C.

Agricultural Resources

Pentwater Township has some land being used for farming, but none of that land is located near the wastewater collection area. Most land in Pentwater Township has been rated as "not prime farmland" by the United States Department of Agriculture (USDA). Within the wastewater collection area, only one sub-area, namely, Lakeview Drive, along with and its houses and some forestland to the north, has been rated as "prime farmland if drained." A map showing the USDA's Farmland Classification for the project area of Pentwater Township can be found in Appendix C.

Endangered Species

Oceana County has nine species listed as threatened or endangered by the USFWS. Four species are endangered, one is proposed endangered, and four are threatened. Designated threatened and endangered species are protected under the Endangered Species Act. Table <<x>> lists and provides further information about these species.

Table <<x>>. Oceana County Threatened and Endangered Species		
Common Name	**ESA Listing Status**	**Group**
Tricolored Bat	Proposed Endangered	Mammals
Eastern Prairie Fringed Orchid	Threatened	Flowering Plants
Piping Plover	Endangered	Birds
Eastern Massasauga	Threatened	Reptiles
Karner Blue Butterfly	Endangered	Insects
Indiana Bat	Endangered	Mammals
Pitcher's Thistle	Threatened	Flowering Plants
Rufa Red Knot	Threatened	Birds
Northern Long-Eared Bat	Endangered	Mammals

Topography, Geology, and Soil

The Quaternary and Bedrock Geology of Maps of Michigan can be found in Appendix C. A United States Geological Survey (USGS) Quadrangle Map showing the land topography for the Pentwater Township region can be found in Appendix C. The USDA Farmland Classification map in Appendix C shows areas of different soil classifications throughout Muir.

E. Existing System

South Apache Hills System

The South Apache Hills wastewater collection system is primarily composed of gravity-flow sewer. All wastewater in this system discharges to the Apache Hills Lift Station, which pumps the wastewater to the South Apache Hills District septic system for treatment. Most of the system was constructed as part of the 1978 original construction. However, a 1,200-foot sewer extension was constructed during 1984 along Ottawattamie Street west of Seminole Road and consists of a STEP system. In a STEP system, each individual residence is equipped with its own septic tank, followed by a chamber containing a single pump discharging wastewater to a common forcemain, which, in turn, discharges to a gravity sewer line.

Based on F&V's review of the record drawings and anecdotal evidence, at many locations in the South Apache Hills system, multiple homes appear to be connected to individual STEP pumps. Specifically, one STEP was constructed between two homes, and, presumably, each home connects to its septic tank. While this configuration would not meet current design standards and is not optimal, it is still currently operational. Future STEP pumps should be constructed one per home.

As of September 2023, 39 homes appear to be connected to the South Apache Hills system, and another 31 vacant lots could have homes built and sewer service connections made in the future. Not all vacant lots appear to have immediate access to existing infrastructure to connect to the sewer system.

The South Apache Hills District septic tank has a volume of 19,000 gallons, and its dosing tank has a working volume of approximately 2,500 gallons. When each vacant lot has a home built, the average daily flow will be approximately 17,500 gallons per day, so the septic tank will provide approximately 26 hours of detention, which is more than the current standard minimum of 24 hours. The dosing tank volume is approximately 2,500 gallons, which would dose the drain field approximately 7 times per day, which is above the current design standard stating that a dosing tank shall dose "no more than three to four times per day at design flow".

The drain field is comprised of two identical fields, each having an infiltration area of 15,456 square feet, providing a total infiltration area of 30,912 square feet. The future average day flow of 17,500 gallons per day equates to an application rate of approximately 0.56 gallons per square foot per day, which is well within the limits of reasonable acceptability. In comparison, the native coarse sandy soil in the area would likely support application rates up to 0.75 gallons per square foot per day.

South Hilltop System

The South Hilltop District was constructed in 1984 and is entirely a STEP system. Wastewater from each home is routed through a septic tank and then pumped to a common forcemain, which, in turn discharges directly to the South Hilltop District septic tank and drain field.

As in the South Apache Hills system, at several locations in the South Hilltop District, evidence points to multiple homes being connected to individual STEP pumps. While this configuration would not meet current design standards and is not optimal, it appears to be working without significant problems. Future STEP pumps should be constructed one per home.

The South Hilltop District septic system consists of three 2,000-gallon tanks. Since each home in the South Hilltop District has a 1,000-gallon septic tank upstream of its STEP pumping system, the Hilltop system has an effective septic tank volume of 7,000 gallons. The dosing tank has a working volume of approximately 1,900 gallons. Currently, 31 homes are connected to the system, with 2 vacant lots identified. The calculated future, fully built-out average daily flow is approximately 7,750 gallons per day, so the septic tanks will provide a total of approximately 21.5 hours of detention, slightly below the current design standards minimum of 24 hours. The dosing tank volume is approximately 1,900 gallons, which would dose the drain field approximately 4 times per day, which is within the design standards for dosing tanks previously described.

The drain field is comprised of two identical fields, each having an infiltration area of 8,532 square feet, providing a total infiltration area of 17,064 square feet. At the calculated average day flow of 7,750 gallons per day, the application rate will be approximately 0.45 gallons per square foot per day, well within the limits of reasonable acceptability. Again, the native coarse sandy soil in the area would likely support application rates up to 0.75 gallons per square foot per day.

North Sanitary Sewer District

The North Sanitary Sewer District consists of approximately 4,000 feet of gravity-flow sewers and two pump stations called the Boathouse and Lakeview Pump Stations. The North District collection area was built as part of the 1984 sewer system project. All the sewer infrastructure within the North District collection area is within the Township Limits. The system begins near the intersection of Longbridge Road and Monroe Road, goes to the northwest, and ends where the Lakeview Pump Station forcemain discharges into the Village-owned gravity sewer system, near the intersection of Old State Road and Monroe Road. The Lakeview Pump Station forcemain is part of the Township system, and the manhole it discharges into is part of the Village system.

F. Summary of Project Needs

The proposed project includes improvements to numerous components of the Township's three wastewater collection and treatment systems, including the pump stations, STEP systems, and septic tanks. Multiple components of these systems are deteriorating and will fail if they are not repaired or replaced. Some components have other issues related to safety and reliability.

Specifically, the Township wastewater system has the following project needs:

- Addition of generators to the Boathouse and Lakeview Pump Stations. Currently, these two pump stations do not have a backup power supply. If a power outage were to occur, these stations

would be unable to operate over the duration of the outage, and wastewater backups and even surface flooding could ensue. Equipping these stations with generators will ensure that the stations always have a power source, even during a power outage, which will help them to continually operate reliably.

- Installation of alarm callout system for lift stations. Currently, the alarms for the lift stations and individual residential systems have a local alarm including a light and, in some cases, a horn. This system relies on someone noticing the light and calling in the alarm to the appropriate person. This system can be reliable at individual homes, but at municipal lift stations, the local alarm may not be seen in a timely manner. An upgraded alarm callout system, specifically, a dialer system, would send a callout when any station goes into alarm and would allow for a quicker response from Township staff and identification of what type of alarm has been triggered.
- Creation of an operations and maintenance (O&M) manual and Discharging Monitoring Plan. Currently, the Township has neither, so information about how to operate and maintain Township wastewater system equipment, along with safety and emergency procedures, cannot be conveyed to staff easily. Creation of both documents will allow for Township staff to learn this important information about the wastewater system equipment more easily.
- Replacement of the Apache Hills Pump Station wet well. Currently, this station's wet well, which is made of metal, is corroding. If no action is taken, the wet well will continue to corrode further and likely become structurally unsound. If the wet well were to structurally fail, the pump station would be unable to operate, leading to wastewater backups, surface flooding, or intrusion into the surrounding soil. The proposed project includes replacing the existing wet well structure with a concrete one. Concrete structures are known to be more reliable and corrosion-resistant, which is especially important for this particular site due to high groundwater levels.
- Installation of a surge protector for the Apache Hills Pump Station. Currently, this pump station does not have a surge protector and could sustain damage, even total failure, if it were subjected to a power surge. Installing a surge protector will protect the station from power surges and thereby help it to continually operate reliably.
- Bringing the Apache Hills STEP system conduits and junction boxes up to design code. Currently, some service lines to the STEP system pressure mains have multiple homes connected, when only one home should be connected per service line. While this configuration is not currently causing any operational issues, the hydraulic capacities of these service lines (including their grinder pumps) could become a concern as more homes connect to the STEP system in the future. The proposed project includes reconfiguring the STEP system so that each service line has only one residential connection, which will help make the system more hydraulically reliable for current and, especially, future wastewater demands.
- Installation of pump overtemp and seal fail monitors at the Lakeview Pump Station. Currently, this station's pumps have neither, so Township staff have no immediate way to be notified when, in the event that it occurs, these pumps begin to experience operational issues related to overheating, leakage, and localized cavitation. Pumps can fail when they experience these types of operational issues, so if Township staff are unable to respond promptly, the pumps could fail, which could lead to wastewater backups and even surface flooding. Pumps are essential to the functioning of pump stations. Equipping this station's pumps with overtemp and seal fail monitors will allow Township to respond quickly to pump operational issues, which will help the pump to continually operate reliably.
- Replacement of the lifting mechanisms at all three of the Township's pump stations. The existing pump lifting mechanisms at all three lift stations are either broken or made of materials known to be unreliable (e.g. cable). If these lifting mechanisms are not replaced, there is a high likelihood that, at some point, Township staff will be unable to perform maintenance and even emergency repairs to equipment. If staff are unable to complete maintenance and repair work, the station and

its equipment could be damaged or even fail, leading to further public safety and environmental damage. New metal chains will reliably allow Township staff to retrieve pump station equipment whenever necessary.

- Replacement of the floats at each residential service pump of the STEP systems. Numerous floats in the STEP systems are known to be in poor condition. If they are not replaced, they will continue to deteriorate and eventually fail. The pumps would fail to activate when the junction box is full, which could then lead to wastewater backups into residences or even surface flooding. New floats will help ensure that residential pumps in the STEP systems always activate when wastewater levels reach design levels in the junction boxes and thereby prevent wastewater backups and surface flooding.
- Tying the Apache Hills Pump Station generator into that station's alarm system. Currently, without the generator tied into the alarm system, Township staff have no immediate way to be notified when, in the event that it occurs, the station loses its primary power source and begins to rely on its generator for power. Power outages can result from causes that have safety concerns that Township staff need to address immediately. Tying this station's generator to its alarm system will allow Township to know immediately when a power outage occurs and for them to address any associated concerns with it promptly.
- Installation of a radar transducer at each of the three Township pump stations. Currently, all three pump stations have backup depth measurement devices that are outdated, in poor condition, or not considered to be reliable. If the backup depth measurement devices are not replaced, there is a high likelihood that, during a pump failure and malfunction of primary devices (e.g. floats) (an event that backup depth measurement is installed to protect against), wastewater would continue to fill to dangerous levels in the wet well, leading to backups or surface flooding, without Township staff being notified. Installation of radar transducers, which are known to be more reliable, will help protect the station, the public, and surrounding environment from damage resulting from pump activation failures.
- Regrading the land around the Boathouse Pump Station. Currently, the land around the Boathouse Pump Station has poor drainage, and stormwater is known to pond there frequently. Unwanted stormwater ponding is a hazard to public safety and is especially dangerous near pump stations because, if the stormwater were to flood into the station, it could cause damage or even full failure of the station. Regrading the land so that stormwater flows away from the station will help protect public safety and the station itself.
- Cleaning and televising of all sanitary sewer. It has been a long time since the Township's sanitary sewer systems were cleaned and televised. As a result, Township staff have little knowledge of whether structural defects or operational issues (e.g. excessive debris buildups) are present in the systems. Unaddressed structural defects and operational issues can lead to wastewater backups, pipe collapses, sinkholes, and other adverse events, which in turn cause public safety and environmental issues. Cleaning and televising will allow Township staff to learn of any defects that may be present in the sewer systems and to address operational issues (e.g. clearing debris buildups), where they are found and easy to mitigate.

G. Projected Future Needs

The South Apache Hills District has numerous land parcels dedicated as residential land but not yet developed. Even though the Apache Hills Pump Station has enough capacity to convey existing wastewater flows, that station will most likely not have enough capacity if all those now-vacant land parcels were to be developed. Though not included in the proposed project, upgrades will be necessary for the Apache Hills Pump Station as development of these parcels is more seriously considered.

All remaining parts of the Township wastewater system are deemed to have adequate capacity for both existing and future flows. The Township SSES can be found in Appendix <<X>> for further details.

III. Analysis of Alternatives

Alternatives for the proposed improvements were identified and analyzed.

A. No Action

Taking no action will reduce upfront capital costs but will not address the identified concerns with the wastewater collection and treatment systems. The various components of each system will continue to deteriorate until they fail, and the identified operational and safety hazards will continue to be present. Equipment failures and severe operational issues could result in substantial physical, environmental, public health, and financial damages, including replacement costs. No further analysis is presented for this alternative.

B. Optimum Performance of the Existing System

The optimum-performance alternative is defined as completing only non-construction improvements to the existing system, including operational changes, additional new equipment, and addition and training of operating personnel. This alternative does not, however, include replacement of large components of the system or major construction of new components. This alternative would not adequately address the identified concerns with the Township wastewater collection and treatment systems. As will be discussed in the following sub-sections, many components of the system are deteriorating, and the only way to address the hazards they pose is to fully replace them. Fully replacing even one of these components contradicts the precepts of the optimum-performance alternative, so no further analysis is presented for it.

C. Regional System Alternatives

The regional-system alternative is defined as completing connections between the municipality's wastewater system and one or more neighboring municipalities' wastewater systems, with all wastewater discharging to a single WWTF. For Pentwater Township's wastewater system improvements project, the identified regional-system alternative is the completion of connections between its wastewater system and those of one or both of Hart and Silver Lake, the closest two municipalities with wastewater systems, with all wastewater discharging to one of the existing WWTFs. Hart and Silver Lake are approximately 5 and 7.5 miles away, respectively. Due primarily to these long distances, among other factors, the design and construction work for connections to their wastewater systems would be costly, time-consuming, and complex. Also, since Pentwater, Hart, and Silver Lake have similar wastewater collection areas in size, the receiving WWTF would need to expand its treatment capacity. Even if it were not cost prohibitive, a regional system would not address the deteriorating components of the Township wastewater collection system. No further analysis is presented for this alternative.

D. Upgrades to Critical System Components

No alternatives have been identified for any of the components of the proposed project. As explained in the Township's SSES (included in Appendix <<x>>), each component of the proposed project is the best solution to the problem it would address. Therefore, the only alternative to each component is to not complete it. Equipment in the system will continue to deteriorate to failure, operational and safety hazards would persist, and physical, environmental, public health, and financial damages could result. No further analysis is presented for individual project component alternatives.

E. Environmental Evaluation

The primary potential environmental impacts identified for this project are temporary, during construction, and easily mitigated. On the other hand, there are significant potential environmental impacts if the proposed upgrades to critical components to the system are not completed. The environmental benefits of completing the project greatly outweigh the risks associated with it.

F. Delivery Methods

The Township has reviewed various methods for delivering the construction of their project. EGLE has published the State Revolving Fund and Clean Water Revolving Fund Project Delivery Methods Guidance Document in March 2015. The various delivery methods include Design-Bid-Build (DBB), Construction Management At-Risk (CMAR), Fixed-Price Design-Build (FPDB), and Progressive Design-Build (PDB).

The Township has reviewed all four methods. Summarized comparisons of these methods are outlined below.

Design-Bid-Build

Many public infrastructure projects are delivered using the DBB method. In the DBB method, an engineer works closely with the Township and prepares the project bidding documents, including the construction drawings and specifications.

General contractors submit bids based on the plans and specifications, and the lowest, responsible bidder is awarded the project. The general contractor pricing includes their subcontractors, or trade contractors, to perform specialized work such as electrical/controls, mechanical work, concrete work, etc. Typically, the engineering firm that developed the design provides construction observation and construction administration services during the construction phase. In this alternative, there are three parties: the Owner, the engineer, and the general contractor.

The DBB method offers the following advantages:

- Well understood and accepted.
- Independent oversight of Builder.
- Open to Owner involvement during design.

On the other hand, the DBB method has the following disadvantages:

- Pricing is not known until the design process is complete.
- Contractor selected based on low bid not on value, knowledge, and experience brought to the team.

Construction Management At-Risk (CMAR)

CMAR is similar to DBB in that the engineering/design contract is separate from the construction contract. However, in the CMAR method, a construction management firm (CM) is hired independently by the Township before or early on in the design process. An engineer works closely with the Township and the CM during the entire design process. The CM provides input to the engineer and Owner through the entire design process. The engineer prepares the construction drawings and specifications while the CM prepares the bidding documents and obtains pricing from their subcontractors and suppliers.

The CM develops a Guaranteed Maximum Price (GMP). In this alternative, there are three parties: the Owner, the engineer, and the independently contracted CM firm.

The CMAR method offers the following advantages:

- Open to Owner involvement during design.
- Early integration of Builder.
- Provides early and continuous constructability review.

- Provides early certainty of costs.
- Pricing and design may be conducted in parallel.
- Reduced likelihood of claims compared to the DBB alternative.
- Project can be ready for construction quickly.

On the other hand, the CMAR method has the following disadvantages:

- Not a single source of responsibility.
- No legal obligation linking Designer to Builder.
- Potential for disputes, claims and change orders.

Fixed-Price Design-Build (FPDB)

FPDB is a delivery method where the Owner designates one firm, a design-builder (DB), under one contract for the design and construction of the project. The DB provides a fixed price based on a defined scope, requirements, and schedule but before complete preparation of detailed design documents.

Owner involvement during the design process is typically very limited after the fixed price is accepted. The "book is closed" on pricing around the 30% mark of the design process.

This Township is increasing rates dramatically for this project and has indicated they want to be heavily involved in the design process to provide direction on design options to reduce overall cost. They will be involved throughout the entire design and construction process. Therefore, FPDB was not considered further for this project.

Progressive Design-Build (PDB)

The PDB delivery method is similar to the CMAR method but with one major distinction – the design-builder (DB) is under one contract for design and construction of the project. Therefore, the Township has one single firm responsible for the design, schedule, construction, and warrantee of the project. If issues arise during or after construction, the Township only has one entity it would need to address them with.

During the latter part of the design phase, the DB prepares the bidding documents and obtains pricing from its subcontractors and suppliers on an open-book basis.

If an agreement is reached on the pricing, the Township will move forward collaboratively to construction. With such flexibility, the PDB method allows the Owner to improve the project outcome by participating directly in design decisions. In this alternative, there are two parties: the Owner and the DB firm.

The PBD delivery method offers the following advantages:

- The Owner can transfer more risk to the DB, since there is a single point of responsibility for the design, permitting, construction, and performance warrantee of the project.
- Owner is involved during the entire design and construction.
- Early integration of Builder.
- Provides early and continuous constructability review.
- Provides early certainty of costs.
- Pricing and design may be conducted in parallel.
- Project can be ready for construction quickly.

IV. Principal Alternatives

The no-action, optimum-performance, and regional alternatives are not considered in this section, as they have not been deemed to be viable. None of the components of the proposed project have competing

alternatives, so this section will instead focus on several important considerations pertaining to the project.

A. Monetary Evaluation

Proposed Project Costs

Table <<x>> lists the cost estimates for each component of the proposed project. The sum of these costs is the total present-worth cost of implementing the project.

Table <<x>>. Proposed Project Costs.

Component	Cost
General Conditions, Bonds, and Insurance	$20,400
Add generators at Boathouse and Lakeview Pump Stations	$100,000
Install alarm callout system for lift stations	$20,000
Creation of O&M Manual and Discharge Monitoring Plan	$40,000
Replace Apache Hills Pump Station wet well	$150,000
Install surge protector at Apache Hills Pump Station	$1,000
Bring Apache Hills conduits and junction boxes up to code	$15,000
Install Lakeview Pump Station overtemp and seal fail monitors	$8,000
Replace all lift station pump chains	$3,000
Replace floats at each STEP system	$6,000
Tie Apache Hills Pump Station generator into alarm system	$5,000
Install radar transducer at each lift station	$10,000
Regrade land around Boathouse Pump Station	$10,000
Clean and televise all sanitary sewers	$40,000
Sub-Total	**$428,400**
Engineering	$77,100
Contingency	$42,800
Total	**$548,300**

Construction Delivery Methods

The Township will meet with the Engineer to determine the most cost-effective delivery method.

Environmental Impacts

The proposed project is not anticipated to have any environmental impacts. The project does not involve making any permanent changes to the land, let alone environmentally sensitive areas. The only identified environmental risks associated with this project can only arise during the completion of the project and can easily be mitigated. Specifically, the identified risks are wastewater spills, sediment travelling from work sites and into sensitive natural areas (wetlands, floodplains, and surface water bodies), and temporarily reduced air quality due to construction activities.

Implementation of mitigation measures can easily address all of these risks. As long as proper work protocols are followed, the likelihood of wastewater spills will be very low. Likewise, as long as adequate erosion and sediment control is employed throughout the entire project, the likelihood of sediment intrusion into sensitive natural areas will be very low. Negative impacts to air quality can be mitigated by properly maintaining construction equipment and using water to reduce dust problems.

Finally, it should be considered that the project is likely to help the long-term health of the environment in and near the Township. Since the project's goals include repairing and replacing numerous wastewater system components that are deteriorating and will eventually fail, completion of the project will help prevent environmental damage resulting from failures of these components. In contrast, the risks associated with the project are only temporary and can easily be addressed. The environmental benefits of completing the project outweigh the risks associated with it.

C. Technical Considerations

The primary technical considerations that went into the development of the project scope included:

- Wastewater collection and treatment system reliability
  - Ensuring wastewater is properly conveyed from a given customer to the wastewater treatment systems, including preventing sewer backups
  - Ensuring wastewater is properly treated, including meeting permitted effluent limits
  - Protecting the environment and the public from unwanted wastewater discharges from any part of the wastewater system
- Safety of wastewater system operations workers
- Township capital and assets, especially those related to the wastewater system
- Project environmental impacts
- Project cost
- Project implementation

V. Selected Alternative

The proposed project has numerous components. Each component was selected to address one or more specific identified improvements that the system needs. Descriptions of the components can be found in the Summary of Project Needs section.

A. Schedule

Table <<x>> presents the proposed project schedule, which follows the CWSRF FY2025 Q4 milestone schedule, assuming that funds will be available in FY2025. Dates are subject to change pending the final CWSRF milestone schedule.

Table <<x>>. Proposed Schedule for Design and Construction

Event	Date
EAs Published No Later Than	4/23/2025
Part I and Part II Application Due	5/14/2025
FNSI Clearance Plans & Specs Approved	5/23/2025
Bid Ad Published No Later Than	5/23/2025
Part III of Application Due Bid Data Submittal	7/7/2025
EGLE Order of Approval Issued	8/6/2025
Borrower's Pre-Closing with the MFA	8/20/2025
MFA Closing	8/28/2025
Notice to Proceed No Later Than	10/27/2025

VI. Environmental and Public Health Impacts

The proposed project does not involve making any permanent changes to land, air, or water resources. Permanent changes would only be anticipated if the project was to include construction of new facilities on vacant land or additions to existing facilities. In contrast, this project only includes upgrades and in-place replacements of existing facilities. The project will not involve modifications to treatment processes and, therefore, is not anticipated to impact effluent quality. Insofar as this project encourages future land development, environmental impacts from those developments will be taken into account and addressed as part of the Township's land use plan and zoning ordinance updates for those developments.

Based on these considerations, the project is not anticipated to cause any indirect or cumulative impacts. The only identified potential impacts it could cause are direct, ones that are temporary and during the completion of the project.

VII. Mitigation of Impacts

A. General

Structural and non-structural measures which avoid, eliminate, or mitigate adverse impacts on the environment were identified as part of this Project Plan. Mitigation costs were included in the cost estimates for the proposed project. Structural measures involve the specific design and construction of the improvements, while non-structural measures involve regulatory, institutional, governmental, or private plans, policies, or regulations of the Township. Mitigation of short-term, long-term, and indirect impacts were considered as part of this Project Plan.

B. Short-Term Impact Mitigation

Traffic Control

Construction of the proposed project will require temporarily restricting traffic where construction work is being performed. At the pump station and forcemain work sites, and at sewer work sites where only either repair work or trench work near the road shoulder will be performed, traffic restrictions will most likely only amount to single-lane closures over short road lengths. The pump station work will be completed off to the side of the road. Similarly, the directional drilling work for the forcemain replacements will only require temporary boring pits off to the side of the road. Depending on the site, where open trench work will occur toward one shoulder of the road, traffic may be able to pass by on the opposite side.

In contrast, where open trench work will be performed across the entire road width or near the center of the road, traffic will need to be restricted to local residents, visitors and employees of non-residential facilities, and emergency vehicles. Temporary detour routes will need to be implemented, and the Township will work with State authorities (e.g. MDOT) as part of planning them. If the sanitary sewer improvements include full sewer replacements: work sites with full sewer replacements are the most likely areas to require this extent of traffic flow restrictions.

Construction work can be strategically planned in advance with the intent of minimizing traffic impacts at and near each site. For example, in primarily residential areas, specific tasks requiring heavy construction work and significant traffic flow restrictions could be completed during business hours, when most residents would likely be at work and not in the neighborhood. Where only short, single-lane closures are needed, the Contractor could hire flaggers to direct traffic around the work zone. Residents and local employees will be notified when construction work is scheduled in their area.

Traffic control will be the responsibility of the Contractor. The Contractor will be required to maintain access to homes, businesses, and other facilities with accesses affected by project work.

Safety Hazard Control

Construction site safety is the responsibility of the Contractor. The Contractor will be required to have only trained persons performing all phases of the work. The Contractor will also be required to comply with the Occupational Safety & Health Act (OSHA), including using back up alarms on all equipment, having employees trained in hazard control, and maintaining materials safety data sheets (MSDSs) for materials that may be used or handled by construction personnel.

Dust Control

Construction sites will have elevated dust levels over the duration of construction work at them. Mitigation measures to minimize negative effects of dust on residents, construction workers, and other passersby will be defined in the project specifications. It is anticipated that dust control will be provided by the application of water and/or dust palliative during dry and dusty periods. The Contractor will be required to control dust in accordance with methods described in the project specifications.

Noise Control

Construction sites will have elevated noise levels over the duration of project work at them. Construction activities will only be allowed during the hours approved by the Township and would be subject to all local noise control ordinances. Construction workers and site visitors may be required to wear earplugs to minimize the effects of long-term noise exposure from construction operations.

Soil Erosion/Sedimentation Control

The Contractor will be required to obtain a soil erosion and sedimentation control permit from the local agency prior to the start of the work. Utilized mitigation measures will most likely include silt fence, straw bales, rip rap, geotextile fabric, and other similar methods, as appropriate.

Restoration of Disturbed Areas

Areas disturbed by project work will be restored in a timely fashion and in accordance with the project specifications. Restoration measures will most likely include placing temporary, protective fencing around trees, removing debris, raking, placing seed, and other similar measures, as appropriate.

C. Long-Term Impacts

Mitigation measures will be observed to ensure that sensitive environments do not suffer permanent damage. Every effort will be made to avoid potential long-term or irreversible adverse impacts during the construction of the wastewater system improvements.

Wetland, surface water, and floodplain mitigation will be handled through permit processes. Although wetland, surface water, floodplain, and other water resource impacts are not anticipated to result from this project, mitigation measures will be employed if the need for them arises and/or impacts cannot be avoided.

The design and project specifications will include the proper use of physical measures to reduce soil erosion to manageable amounts. Any disturbed slope areas will be immediately seeded, mulched and/or sodded to prevent soil erosion and/or sedimentation.

The proposed project will not affect wastewater treatment processes in the long term. Therefore, in the long term, the project is not anticipated to affect the WWTF effluent water quality or the ability of the WWTF to meet permitted effluent limits.

D. Indirect Impact Mitigation

Unrestricted growth in the Pentwater Township wastewater system service area is not anticipated, with or without the proposed project. If unrestricted growth were to occur, the most effective way of mitigating it would be to proactively update its land use and zoning plans and to effectively enforce its zoning ordinances. See the Master Plan in Appendix B for further details about plans to handle future land use and zoning plan changes.

VIII. Public Participation

<<Section to be completed after the public hearing>>.

PENTWATER TOWNSHIP

OCEANA COUNTY, MI

SANITARY SEWER SYSTEM EVALUATION

September 2023
860431

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

Table of Contents

Executive Summary

Overview

Fleis & VandenBrink Engineering (F&V) was hired by Pentwater Township (Township) to evaluate the sanitary sewer system located within the Township. From approximately 1984 and pursuant to an agreement between the Township and the Village of Pentwater (Village), the sewer system has been owned, operated, and maintained by the Village. The goal of this evaluation is to assess the condition of existing infrastructure and make recommendations for a Capital Improvement Plan.

The sewer system is divided into three unconnected and district systems. On the north side of Pentwater Lake is a series of gravity sewers and two lift stations (Boathouse and Lakeview) that flow into the Village's system for treatment, referred to as the North District. There are also two sewer systems on the south side of Pentwater Lake. The first is referred to as the South Hilltop District. This system is comprised of Septic Tank Effluent Pump (STEP) systems that flow to the Hilltop series of three septic tanks, dosing chamber, then drain field system. The second system on the south side of the Lake is the South Apache Hills System, which is comprised of a series of gravity sewers, one lift station (Apache Hills), STEP systems, and a septic tank, dosing chamber, and drain field.

Field Assessment

F&V and Fleis & VandenBrink Operations (FVOP) staff performed an onsite assessment of the three lift stations and two septic systems. In general, the assessment included testing alarms, noting size and components of the station, and performing drawdown tests on the pumps. To perform a uniform assessment of each lift station, a standard field assessment form was developed. At the septic treatment systems, the septic tanks and dosing tank were assessed, the inspection ports observed, and the valves operated.

Capacity Evaluation

During the field assessment, drawdown tests were performed at each of the three lift stations. The percentage of capacity used at each lift station was calculated by comparing the average drawdown test results with the flow meter data, where available. At the Boathouse lift station, where there is not a flow meter, the peak flow was calculated for the station based on residential equivalent units (REUs).

All three lift stations have enough capacity to handle current peak flow conditions. The Apache Hills neighborhood has vacant lots with access to sanitary sewer connection; however, the current capacity of the Apache Hills lift station would not be able to handle full build out conditions of these vacant lots. Other deficiencies were noted as well at the Apache Hills lift station including the electrical and corroding structure.

Both septic systems appear to be of adequate size for the existing population they serve. Minor sizing deficiencies are likely overcome by the exceptional infiltration rate of the native sandy soil. Other deficiencies noted are operational in nature and we understand efforts are currently under way to correct them.

Recommendations

After evaluating the sanitary sewer assets, F&V has produced a list of recommendations shown in Table 1 below and listed in order of recommended prioritization. Each recommendation includes budgetary costs in 2023 dollars. Further cost analysis of each item should be completed at the time of individual projects are undertaken to refine costs.

The following report further describes what was observed and what improvements are recommended.

Table 1. Recommendations		
	Recommendation	**Estimated Cost[1]**
1	Pump out septic and dosing tanks	$ 15,000.00
2	Replace Apache Hills lift station control panel (completed 07/2023)	$ 3,500.00
3	Unplug Apache Hills dosing piping	$ 5,000.00
4	Investigate/ replumb Apache Hills dosing tank	$ 29,000.00
5	Investigate/ replumb Hilltop dosing tank	$ 29,000.00
6	Develop a schedule for regularly cleaning out STEP tanks[3]	$ -
7	Develop a schedule for regularly cleaning septic and dosing tanks[3]	$ -
8	Develop a schedule to switch flows between drain field halves[3]	$ -
9	Clarify NPDES flows and limits with EGLE[2]	$ 4,000.00
10	Add generators at Boathouse and Lakeview lift stations	$ 100,000.00
11	Install alarm callout system for lift stations	$ 20,000.00
12	Creation of O&M Manual and Discharge Monitoring Plan	$ 40,000.00
13	Clean Boathouse wet well	$ 5,000.00
14	Clean Apache Hills wet well (short term)	$ 5,000.00
15	Develop a schedule for regularly cleaning lift stations[3]	$ -
16	Investigate stormwater connections to sanitary system[3]	$ -
17	Replace Apache Hills wet well (long term)	$ 150,000.00
18	Install surge protector at Apache Hills lift station	$ 1,000.00
19	Bring Apache Hills conduits and junction boxes up to code	$ 15,000.00
20	Install Lakeview pump overtemp and seal fail monitors	$ 8,000.00
21	Replace all lift station pump lift chains	$ 3,000.00
22	Remove small trees in Apache Hills drain field[3]	$ -
23	Clean STEP septic tanks	$ 15,000.00
24	Replace floats at each STEP system	$ 6,000.00
25	Tie Apache Hills generator into alarm system	$ 5,000.00
26	Install radar transducer at each lift station	$ 10,000.00
27	Regrade around Boathouse to achieve drainage away from lift station	$ 10,000.00
28	Clean and televise all sanitary sewer	$ 40,000.00
29	Develop a schedule for future cleaning and televising sanitary sewers[3]	$ -

[1]Costs are in 2023 dollars.

[2]Cost assumes Township engineer supporting Township in discussions.

[3]Assumes done by FVOP & Township staff during normal operations.

Introduction

There are three sewer collection systems located within Pentwater Township, which have been owed, operated, and maintained by the Village of Pentwater since 1984. Two of the collection systems are septic tank drain field treatment systems and the third is connected to the Village's sewer system for treatment at the Village's wastewater treatment plant.

The following is a summary of the sanitary sewer assessment completed by Fleis & Vandenbrink staff. Note the individual Septic Tank Effluent Pump systems were not included in this evaluation.

General Observations

Alarms

Currently the alarms for the lift stations and individual residential systems have a local alarm including a light and in some cases a horn. This system relies on someone noticing the light and calling in the alarm to the appropriate person. This can be a reliable system at individual homes, but at municipal lift stations, the local alarm may not be seen in a timely manner.

F&V recommends an upgrade the local alarm system to a dialer system for the three lift stations. The dialer will send a callout when any station goes into alarm. This will provide a more reliable system and quicker response and allow for the callouts to identify what type of alarm has been triggered.

Permitting

The South Hilltop and South Apache Hills septic systems are regulated by EGLE's National Pollutant Discharge Elimination System (NDPES) permit. The Township's existing permit covering both the Apache Hills and Hilltop septic systems expired in 2016 and a current one is being reviewed by EGLE.

During this evaluation F&V has discovered many questions surrounding this permit. The current permit references a discharge monitoring point EQ-1. However, because the two systems are separate and physically disconnected, it is unclear what this discharge point is defined as. F&V's suspects that this is a combined flow of both systems, and since FVOP has begun operating the system, that is how it has been reported. Based on historical data provided, it appears that in previous years only the flows from Apache Hills septic system have been reported.

In 2018, 2019, and 2020, the system exceeded the annual discharge limit of 1.8M gallons. If flow from one of the two systems was being reported and EGLE's intent is that both be reported, then the limits were exceeded even further. It appears in the permit renewal application F&V was provided, a higher annual discharge limit was not requested. Annual flows since 2020 have gone back down as water levels in Lake Michigan and Pentwater Lake have receded, but this annual discharge limit could still present a problem in the future.

As lake water levels receded and annuals flows went down concurrently this is evidence of possible stormwater connections to the sanitary sewer. A likely connection is sump pumps in homes connected to the home's lateral. These connections should be investigated and if found, disconnected by the homeowner, so excessive clean water isn't being treated.

EGLE stated in a letter to the Township in August 2022 that an O&M Manual and Discharge Monitoring Plan are required as a part of the existing permit the Township is operating under and will also be required under the new permit.

F&V recommends the above issues be discussed and resolved with EGLE staff. If an O&M Manual and Discharge Monitoring Plan do not exist, F&V recommends the Township have these documents created.

Collection System

Apache Hills

The South Apache Hills District is primarily composed of a gravity flow sewer that is pumped to its septic system. Most of the system was constructed as part of the 1978 original construction. However, a 1,200 foot sewer extension was constructed during 1984 along Ottawattamie Street west of Seminole Road that consists of a STEP system involving a septic tank followed by a chamber containing a single pump which pumps to a common forcemain which discharges into the gravity flow sewer system.

Based on F&V's review of the record drawings and anecdotal evidence, it appears multiple homes are connected to individual STEP pumps. In many instances, one STEP was constructed between two homes and presumably each home connects to its septic tank. While this system would not meet current design standards and is not optimal, it is still currently operational. Future STEP pumps should be constructed one per home.

As of this writing, there appears to be 39 homes currently connected to the Apache Hills system with another 31 vacant lots that could have homes built and connections to the sewer system made. It appears this system's built-out condition includes 70 residential homes. Not all vacant lots may have access to existing infrastructure to connect to the sewer system.

Hilltop

The South Hilltop District was constructed in 1984 and is a STEP system. Wastewater from the homes are routed through septic tanks at each house and then pumped to a common forcemain which discharges to the septic tank and drain field within the Hilltop Septic System.

As stated with the Apache Hills system, evidence points to multiple homes being connected to individual STEP pumps. While this system would not meet current design standards and is not optimal, it appears to be working without significant problems. Future STEP pumps should be constructed one per home.

Anecdotal evidence from FVOP staff that are currently operating the system indicates the tanks our staff have visually inspected appear to be full of sludge and likely have not been cleaned out in a long time, well beyond the recommended 3-5 years.

North Sanitary Sewer District

The North Sanitary Sewer District consists of approximately 4,000' of gravity flow sewers and two pump stations called the Boathouse and Lakeview pump stations. The North District collection area was built as part of the 1984 sewer system project. All the sewer infrastructure within the North District collection area is within the Township limits and begin near the intersection of Longbridge Road and Monroe Road reaching northwesterly to where the forcemain discharges into the Village owned gravity sewer system near the intersection of Old State Road and Monroe Road. The forcemain is part of the Township system, and the manhole it discharges into is part of the Village system.

Recommendations (All Sewer Collection Systems):

- Clean out each home's septic tank. Approximately 6 in the Apache system and 21 in Hilltop system.
- Develop a regular schedule for pumping out the septic tanks, (3-5 years recommended).
- Clean and televise the gravity flow sewers. Thereafter, develop a system that cleans and televises the system on a regular basis, perhaps every 5 years.
- Long term recommendation: STEP system should be separated where multiple homes are connected to one STEP system when this system requires replacement.

Lift Stations

The following is a summary of each lift station. For the full field assessment reports, see Appendix A.

Boathouse

The Boathouse Lift Station is a duplex, submersible-style lift station built in 1985. Significant findings from the field review include:

- Pump lifting mechanism is a cable.
- Moderate grease and scum buildup on water surface in wet well.
- FVOP recently installed pump runtime meters, so there is no historical data on runtime hours or starts.
- Station runs off floats.
- Two 2 horsepower pumps.
- 2 inch PVC force main.
- Ground surface slopes towards wet well. This can cause rainwater to enter wet well and increase station runtimes.

Capacity Evaluation

The capacity of the station was evaluated comparing rated station capacity (based on average drawdown test results) to the peak flows. This station does not have a flow meter, so peak flows were calculated on REUs. Drawdown tests were performed on each pump during the evaluation. The breakdown of this evaluation can be found in Appendix A, Table A-1.

- The lift station currently runs at 55% capacity.
- Based on these drawdown test results, one pump would be able to keep up with the peak flows at the station.

Provided record information was used to create a basis of design for the lift station. Appendix A shows the system discharge curve with the pump curve overlayed.

Recommendations

After evaluating the lift station, F&V has the following recommendations:

- Replace pump lifting mechanism with a stainless-steel chain.
- Clean wet well.
- Install alarm callout system.
- Regrade around station to achieve drainage away from lift station.
- Install generator.

Lakeview

The Lakeview Lift Station is a duplex, submersible-style lift station built in 1985. Significant findings from the field review include:

- Pump lifting mechanism is not a stainless-steel cable and has broken.
- Station equipped with a flow meter.
- Station runs off floats.
- Pumps overtemperature and seal fail monitors are disconnected in control panel.
- Two 3 horsepower pumps.
- 3 inch PVC force main.

Capacity Evaluation

The capacity of the station was evaluated comparing rated station capacity (based on the design point) to the peak flows. The peak flows are based off the station's flow meter data. Drawdown tests were performed on each pump during the evaluation. The breakdown of this evaluation can be found in Appendix A, Table A-1.

- The lift station currently runs at 57% capacity.
- Based on these drawdown test results, one pump would be able to keep up with the peak flows at the station.

Provided record information was used to create a basis of design for the lift station. Appendix A shows the system discharge curve with the pump curve overlayed.

Recommendations

After evaluating the lift station, F&V has the following recommendations:

- Replace pump lifting mechanism with a stainless-steel chain.
- Install pump overtemperature and seal fail monitors.
- Install alarm callout system.
- Install generator.

Apache Hills

The Apache Hills Lift Station is a duplex, submersible-style lift station built in 1978. Significant findings from the field review include:

- Wet well walls are steel. The steel is beginning to corrode due to the wastewater and high water table. There is evidence of corrosion and bulging along walls of wet well. The bottom of the structure was not visible to evaluate.
- Pump lifting mechanism is a cable.
- Moderate grease and scum buildup on water surface in wet well.
- Station equipped with flow meter.
- Pump 2 making grinding noise while running.
- Generator says single-phase but confirmed three-phase power.
    - F&V suspects that a single-phase generator was ordered and then the alternator rewired for three-phase power. While onsite F&V confirmed that the generator does operate the station.
- Station runs on pressure transducer and backup float.
- Control panel is beyond its useful life.
    - 07/2023 panel components burnt out. Replacement parts were obsolete and cost prohibitive.
- No alarms on generator.
- Junction box and PVC conduits do not meet current National Electrical Code (NEC).
- Level control conduit does not have seal off.
- Two 5 horsepower pumps.
- 3 inch PVC force main.

Capacity Evaluation

The capacity of the station was evaluated comparing its rated capacity (based on the design point) to the peak flows. The peak flows are based off the station's flow meter data. Drawdown tests were performed on each pump during the evaluation. The breakdown of this evaluation can be found in Appendix A, Table A-1.

- The lift station currently runs at 55% capacity.
- Based on these drawdown test results, one pump would be able to keep up with the peak flows at the station.

In the Apache Hills neighborhood there appears to be 31 vacant lots able to connect to the existing sanitary sewer system. Based on the drawdown tests completed during the field assessment, one pump would not be able to keep up with full build up conditions at this station.

Provided record information was used to create a basis of design for the lift station. Appendix A shows the system discharge curve with the pump curve overlayed.

Recommendations

After evaluating the lift station, F&V has the following recommendations:

- Replace pump lifting mechanism with a stainless-steel chain.
- Clean wet well (short term).
- Replace wet well (long term).
- Replace control panel (completed 07/2023).
- Tie-in generator to recommended alarm system.
- Bring junction box and conduit up to meet current NEC.
- Install alarm callout system.
- Install surge protection.

Septic Treatment Systems

South Apache Hills Septic and Drain Field System

Capacity Evaluation

The South Apache Hills District septic tank has a volume of 19,000 gallons, and its dosing tank has a working volume of approximately 2,500 gallons. There are 39 homes currently connected to the system with another 31 vacant lots intended for single family homes. When each vacant lot has a home built, the average daily flow will be approximately 17,500 gallons; therefore, the septic tank will provide approximately 26 hours of detention which is more than the current standard minimum of 24 hours. The dosing tank volume is approximately 2,500 gallons which would dose the drain field approximately 7 times per day which is above the current design standard that states a dosing tank shall dose "no more than three to four times per day at design flow". Design standards should be taken into consideration when addressing dosing tank piping issues described below.

The drain field is comprised of two identical fields each having an infiltration area of 15,456 square feet, providing a total infiltration area of 30,912 square feet. The future average day flow of 17,500 gallons per day equates to an application rate of approximately 0.56 gallons per square foot, if the 31 vacant lots are built out as single family homes. This is well within the limits of reasonable acceptability given the native coarse sandy soil in the area which would likely support application rates up to 0.75 gallons per square foot per day if the soil were tested.

Based on this data, F&V concludes that the capacity of the Apache Hills septic and drain field system appears to be adequate for the future build out condition of 70 homes.

Significant Findings

Dosing Tank Piping

The septic tanks and dosing tank were full of sludge during our field inspection and effluent water exiting the dosing tank was exiting via the overflow pipe indicating the other piping in the tank was plugged, likely with sludge. Sometime after the day of the field inspection, all tanks were cleaned out; however, F&V understands the dosing tank piping is still plugged and effluent water continues to exit the tank via the overflow pipe. This situation should be resolved, and the dosing tank piping reconfigured to dose the system.

Dosing is an integral part of the operation of larger septic systems. A quote that best describes why is taken from The Michigan Criteria for Subsurface Sewage Disposal; VIII.c which says, in part "... *The purpose of a dosing tank is two-fold. It provides a much better distribution of sewage effluent in large soil absorption systems and it provides intermittent periods of wetting and drying of the soil into which the effluent percolates, thus helping the system to remain aerobic. Experience has shown that this later advantage will improve the life of the system.*"

Sludge

Upon visual inspection of the septic and dosing tanks, it appears both have excessive amounts of sludge in them. Septic tanks are made to accumulate sludge; however, dosing tanks should not have any sludge in them. It appears the septic tank sludge storage was full, and sludge began to spill into the dosing tank.

Based on the amount of sludge in the septic and dosing tank, F&V is concerned that sludge has overflowed the dosing tank and has entered the drain field. If this has occurred, it will plug the surrounding soil and eventually make the drain fields inoperable. Access view ports exist on the four corners of each of the two drain fields. All eight were opened and dried sludge was noted in the SW, SE, and NW of the westerly drain field.

Other Observations

Areas of greener grass exist in a couple places such as above the septic tank nearest to the dosing tank and near the SW corner of the westerly drain field. This indicates these areas are wetter and getting more nutrients than other areas. This could potentially indicate septic tank overflows and effluent water preferentially going to that section of the drain field.

On the day of the inspection, the valves to both halves of the drain field were open. Only one valve should be open at any given time. Optimally, the system would have an automatic alternation feature, but the original design made this alternation a manual operation by opening and closing valves.

Very small trees were growing in the drain field. These trees should be removed to prevent their roots from interfering with the drain field piping network.

Recommendations

- Clean out dosing and septic tanks.
- Unplug the dosing tank piping to prevent effluent flowing through the emergency overflow pipe.
- Investigate reason why dosing tank is no longer dosing. If necessary replumb the dosing tanks to reinstate the dosing capability.
- Develop a regular schedule for pumping out the septic and dosing tank, perhaps every three years.
- Develop a regular schedule for switching flow between drain field halves, perhaps once a month.
- Remove the small trees from the drain field.

South Hilltop Septic and Drain Field System

Capacity Evaluation

Each home within the South Hilltop District has a 1,000-gallon septic tank upstream of the STEP pumping system. Additionally, three 2,000-gallon septic tanks exist at the drain field location. Therefore, the Hilltop system has an effective septic tank volume of 7,000 gallons. The dosing tank has a working volume of approximately 1,900 gallons. There are 31 homes currently connected to the system with two vacant lots identified. The calculated average daily flow is approximately 7,750 gallons; therefore, the septic tanks will provide a total of approximately 21.5 hours of detention, slightly below the current design standards minimum of 24 hours. Design standards should be reviewed when future updates to the system occur. The dosing tank volume is approximately 1,900 gallons which would dose the drain field approximately 4 times per day which is within the current design standards that dictate a dosing tank shall dose no more than three to four times per day at design flow.

The drain field is comprised of two identical fields each having an infiltration area of 8,532 square feet, providing a total infiltration area of 17,064 square feet. At the calculated average day flow of 7,750 gallons per day, this results in an application rate of approximately 0.45 gallons per square foot; well within the limits of reasonable acceptability given the native coarse sandy soil in the area which would likely support application rates up to 0.75 gallons per square foot per day if the soil were tested.

Based on this data, F&V concludes that the capacity of the Hilltop septic and drain field system appears to be adequate for the current built-out condition of 31 homes.

Significant Findings

The condition of the Hilltop septic system is very similar to that of the Apache Hills septic system and for sake of brevity of this report all findings noted in the Apache Hills section above are the same for the Hilltop Septic System except as noted below.

Dosing Tank Piping

Based on our analysis of the dosing piping within the original design documents, field observations and anecdotal evidence provided by the Township, we believe the dosing tanks no longer dose effluent to the drain fields. Instead, the effluent water flows through the dosing tank at the constant rate of inflow. Whether this is due to the initial design or modifications made after original construction is not clear.

Sludge

All eight drain field visual inspection ports were opened and inspected. These ports differ from the Apache Hills system and are not directly connected to the drain field piping. They are PVC pipes installed in the ground with visible access to the drain field soil. Each of the eight ports has clean dry sand in the bottom of it.

Other Observations

No other observations specific to the Hilltop system were noted.

Recommendations

- Investigate reason why dosing tank is no longer dosing. If necessary replumb the dosing tanks to reinstate the dosing capability.
- Develop a regular schedule for pumping out the 3 septic tanks and dosing tank, perhaps every three years.
- Develop a regular schedule for switching flow between drain field halves, perhaps once a month.

Potential Funding Sources

Several options for funding are available for consideration. Most of these sources are better suited for a substantial size project. These sources are primarily based on loans, but a grant may possible as well.

Clean Water State Revolving Fund (CWSRF)

The State of Michigan has a revolving loan program to assist communities in financing wastewater projects such as the recommendations considered in this report. The loan takes the form of municipal bonds which currently have government subsidized rates of approximately 1.875% with a term ranging from 20 to 40 years. The State is currently offering partial project grants with ARRA funds that have been placed in this funding system. It is not known if these grant monies will be available in FY 2025.

United States Department of Agriculture – Rural Development (RD)

The federal government offers funding for projects such as the recommendations considered in this report through RD. Each year Michigan's office of RD gets a grant funding pool that is highly sought after. Additionally, they offer loans from an extensive loan pool. Applications for this program can be submitted at any time of the year and will take about 6 months to prepare. The loan takes the form of municipal bonds which currently have government subsidized rates of approximately 3.5% with a 40-year term.

Self-Initiated Municipal Bonds

A municipality can pursue self-initiated municipal bonds without the requirements of federal and state loan administration paperwork that the CWSRF and RD programs require. However, these bonds would not

have government subsidized interest rates. These bonds currently have an interest rate of approximately 4.25% and a have a 20-year term.

Other Funding Sources

From time to time, various state and federal agencies offer funding sources for recommendations such as the ones considered in this report. F&V continually watches for these funding sources and communicates with our clients the kind of projects they want to fund to see if there is a fit. We will continue watch for these sources and advise if an opportunity arises.

APPENDIX A

Individual Lift Station Assessment Reports
Table A-1. Average and Peak Flows
Lift Station System Discharge Curve

LIFT STATION ASSESSMENT FORM

Client: Pentwater Township Date: 5/18/2023

Lift Station Number & Name: Boathouse

Lift Station Location: Near 5164 Monroe Rd.

Evaluators: Paul Harig and Danell Smith

Section 1: General Information

A. Year of Construction: 1985

B. Year(s) of Renovations(s): Unknown

C. Source of Information:

Section 2: Wet Well

A.	Material of wet well walls:	Concrete	**Fiberglass**	Steel	Other	
B.	Condition of wet well walls:	Excellent	**Good**	Fair	Poor	Very Poor
C.	Condition of pump removal guides:	Excellent	**Good**	Fair	Poor	Very Poor
D.	Condition of pump lift chain:	Excellent	**Good**	Fair	Poor	Very Poor
E.	Condition of discharge piping:	Excellent	**Good**	Fair	Poor	Very Poor
F.	Material of wet well top:	Concrete	**Fiberglass**	Steel	Other	
G.	Condition of wet well top:	Excellent	**Good**	Fair	Poor	Very Poor
H.	Condition of access hatches:	**Excellent**	Good	Fair	Poor	Very Poor
I.	Is wet well vented?	**Yes**	No			
J.	Amount of grease/scum/debris build-up on water surface:	None	Minimal	**Moderate**	Significant	
K.	Grease ring/water level staining above pipe invert?				Yes	**No**

L. Size of wet well: 3 foot dia.

M. Notes: Pump lift chain is cable not chain

Section 3: Valve Chamber

N/A

A.	Material of valve chamber wall:	Concrete	Fiberglass	Steel	Other	
	a. If steel, is cathodic protection is provided?					
	b. If steel, thickness:					
B.	Condition of valve chamber wall:	Excellent	Good	Fair	Poor	Very Poor
C.	Material of valve chamber top:	Concrete	Fiberglass	Steel	Other	
D.	Condition of valve chamber top:	Excellent	Good	Fair	Poor	Very Poor
E.	Condition of access hatches:	Excellent	Good	Fair	Poor	Very Poor

Section 4: Pump & Valve Housing

N/A

A.	Station Configuration:	Can	Built in Place			
	a. If can, condition of dehumidifier	Excellent	Good	Fair	Poor	Very Poor
	b. If can, condition of exhaust fan	Excellent	Good	Fair	Poor	Very Poor
B.	Material of construction:	Brick	Block	Steel	Other	
	a. If steel, is cathodic protection provided?					
	b. If steel, thickness (inch):	Access Tube				
		Ceiling				

Floor
Wall

C. Sump Pump: Yes No

Section 5: Valves

A. Does the station have a bypass connection? **Yes** No

a. Size of bypass connection: 2 inch

b. Material of bypass connection: Ductile Iron **PVC** Cast Iron Other _____

Section 6: Equipment

A.

	Pump No. 1	Pump No. 2
Make	Hydromatic	Hydromatic
Model No.	HP200M2-2	HP200M2-2
Run time (hours)	8.7	8.82
Design point	Unknown	Unknown
Drawdown Results (gpm)	24.9	29.6
Drawdown Both Pumps (gpm)	36.0	

B. Source of pump information: O&M Manual | Record Drawings | **O&M Staff (verbal)** | **Other** Ops staff pulled pumps

C. Are pumps noisy or vibrating? Yes **No**

D. Swirl in wet well while pump operates? Yes **No** N/A

E. Does the station have a flow meter? Yes **No**

a. If so, type and size of meter: _____

F. Notes: 2 HP pumps. FVOP only pulled one pump - assumed that pumps match. Runtime hours only since FVOP installed meters.

Section 7: Electrical

A. Service power: 120 **208** 480 Volts **1 phase** 3 phase

B. Condition of electric service: **Excellent** Good Fair Poor Very Poor

C. Is surge protection provided? **Yes** No

D. Seal of fittings provided between the wet well and electrical/ control panel? **Yes** No

E. Are electrical/ control panels located within 3' of wet well hatch or 5' of vent? Yes **No**

Section 8: Generator

A. Is there an on-site generator? Yes **No**

a. Size of on-site generator? _____

B. Transfer Switch: Automatic **Manual**

Section 9: Pump and Motor Controls

A. Condition of control panel: Excellent **Good** Fair Poor Very Poor

B. How many float switches are installed? 4 floats

C. Other level sensors (ultrasonic, radar, pressure transducer, bubbler) only floats

D. Pump controls (relay logic, PLC-based, VFD, proprietary controller) relay logic

F. Station alarm:

Alarm telemetry (autodialer, radio, cell phone, SCADA, none) None. Local - light and buzzer

Local Audio	Local Visual	Alarm Function	Alarm Telemetry

a. Pump Seal Fail	X	X		
b. High Level	X	X		

Section 10: Forcemain

A. Forcemain material: Ductile Iron | **PVC** | Concrete | Cast Iron | Steel | Other _____

B. Forcemain size (in): 2 inch

Section 11: Site

A. Positive drainage away from station?	Yes	**No**
B. Site maintained?	**Yes**	No
C. Can the site be easily accessed for maintenance?	**Yes**	No
D. Is the station locked?	**Yes**	No
E. Noticeable odor issues?	Yes	**No**

Section 12: Building **N/A**

A. Building construction: Brick | Block | Other _____

B. Roof construction: Asphalt shingle | Metal | Flat membrane | Other _____

C. Condition of building: Excellent | Good | Fair | Poor | Very Poor

D. Condition of roof: Excellent | Good | Fair | Poor | Very Poor

General Remarks:

Generators need cords. FVOP installed runtme hours and starts. Station now locked. Clean out wet well. Alarm callout.

Photographs

X	Assessment form showing name of lift station
X	Site
X	Wet well top
	Valve vault top
	Building exterior
	Building interior

	Transformer (pole or ground)
X	Electric service meter
X	Transfer switch
X	Disconnect switch
	Permanent generator
X	Control panel exterior
X	Control panel interior - backplane
X	Control panel interior - face of door
X	Seal off fittings (conduits to wet well)

X	Wet well hatch door & frame
X	Pump guide rails
X	Wet well interior
X	Pump nameplate
	Pump & motor

	Suction connection into wet well
X	Pump discharge piping
	Valve vault hatch door & frame
	Valve vault valves
X	Bypass connection
X	Bypass valve

LIFT STATION ASSESSMENT FORM

Client: Pentwater Township Date: 5/18/2023

Lift Station Number & Name: Lakeview

Lift Station Location: Near 5394 W. Lakeview Dr.

Evaluators: Paul Harig and Danell Smith

Section 1: General Information

A. Year of Construction: 1985

B. Year(s) of Renovations(s): Unknown

C. Source of Information:

Section 2: Wet Well

A.	Material of wet well walls:	Concrete	**Fiberglass**	Steel	Other	
B.	Condition of wet well walls:	Excellent	**Good**	Fair	Poor	Very Poor
C.	Condition of pump removal guides:	Excellent	**Good**	Fair	Poor	Very Poor
D.	Condition of pump lift chain:	Excellent	Good	Fair	Poor	**Very Poor**
E.	Condition of discharge piping:	Excellent	**Good**	Fair	Poor	Very Poor
F.	Material of wet well top:	Concrete	**Fiberglass**	Steel	Other	
G.	Condition of wet well top:	Excellent	**Good**	Fair	Poor	Very Poor
H.	Condition of access hatches:	Excellent	**Good**	Fair	Poor	Very Poor
I.	Is wet well vented?	**Yes**	No			
J.	Amount of grease/scum/debris build-up on water surface:		**None**	Minimal	Moderate	Significant
K.	Grease ring/water level staining above pipe invert?				Yes	**No**

L. Size of wet well: 4 foot dia.

M. Notes: Pump lift cable broken

Section 3: Valve Chamber

N/A

A.	Material of valve chamber wall:	**Concrete**	Fiberglass	Steel	Other	
	a. If steel, is cathodic protection is provided?					
	b. If steel, thickness:					
B.	Condition of valve chamber wall:	Excellent	**Good**	Fair	Poor	Very Poor
C.	Material of valve chamber top:	Concrete	Fiberglass	Steel	Other	**MH cover**
D.	Condition of valve chamber top:	Excellent	**Good**	Fair	Poor	Very Poor
E.	Condition of access hatches:	Excellent	**Good**	Fair	Poor	Very Poor

F. Notes: Meter pit also concrete in good condition.

Section 4: Pump & Valve Housing

N/A

A.	Station Configuration:		Can	Built in Place		
	a. If can, condition of dehumidifier		Excellent	Good	Fair	Poor	Very Poor
	b. If can, condition of exhaust fan		Excellent	Good	Fair	Poor	Very Poor
B.	Material of construction:	Brick	Block	Steel	Other	
	a. If steel, is cathodic protection provided?					
	b. If steel, thickness (inch):	Access Tube				
		Ceiling				

Floor
Wall

C. Sump Pump: Yes No

Section 5: Valves

A. Does the station have a bypass connection? **Yes** No

a. Size of bypass connection: 3 inch

b. Material of bypass connection: Ductile Iron **PVC** Cast Iron Other _____

Section 6: Equipment

A.

	Pump No. 1	Pump No. 2
Make	Barnes	Barnes
Model No.	SGV3072L	SGV3072L
Run time (hours)	Unknown	Unknown
Design point	Unknown	Unknown
Drawdown Results	35.7	23.5
Drawdown Both Pumps (gpm)	40.4	

B. Source of pump information: O&M Manual | Record Drawings | **O&M Staff (verbal)** | Other: Ops pulled pumps

C. Are pumps noisy or vibrating? Yes **No**

D. Swirl in wet well while pump operates? Yes **No** N/A

E. Does the station have a flow meter? **Yes** No

a. If so, type and size of meter: ABB MagMaster

F. Notes: 3 HP pumps. FVOP only pulled one pump - assumed that pumps match.

Section 7: Electrical

A. Service power: 120 **208** 480 Volts **1 phase** 3 phase

B. Condition of electric service: **Excellent** Good Fair Poor Very Poor

C. Is surge protection provided? **Yes** No

D. Seal of fittings provided between the wet well and electrical/ control panel? **Yes** No

E. Are electrical/ control panels located within 3' of wet well hatch or 5' of vent? Yes **No**

Section 8: Generator

A. Is there an on-site generator? Yes **No**

a. Size of on-site generator? _____

B. Transfer Switch: Automatic **Manual**

C. Fuel Source: Natural Gas Propane Diesel

D. Generator Hours: _____

E. Exercise schedule frequency _____

F. Does generator start and run strong? Yes No

G. Does transfer switch load to generator? Yes No

H. Condition of generator and ancillary equip: Excellent Good Fair Poor Very Poor

Section 9: Pump and Motor Controls

A. Condition of control panel: Excellent **Good** Fair Poor Very Poor

B. How many float switches are installed? 4 floats

a. Do float switches properly operate pumps? [Yes] No

C. Other level sensors (ultrasonic, radar, pressure transducer, bubbler) no

D. Pump controls (relay logic, PLC-based, VFD, proprietary controller) relay logic

F. Station alarm:

Alarm telemetry (autodialer, radio, cell phone, SCADA, none) None. Local - light & buzzer

	Local Audio	Local Visual	Alarm Function	Alarm Telemetry
a. High Level	X	X		
b. Low Level				
c. Pup 1 Overtemp				
d. Pump 2 Overtemp				
e. Pump 1 Seal Fail				
f. Pump 2 Seal Fail				

H. Notes: Overtemp and seal fail disconnected and sitting in bottom of panel

Section 10: Forcemain

A. Forcemain material: Ductile Iron [PVC] Concrete Cast Iron Steel Other

B. Forcemain size (in): 3 inch

Section 11: Site

A. Positive drainage away from station?	[Yes]	No
B. Site maintained?	[Yes]	No
C. Can the site be easily accessed for maintenance?	[Yes]	No
D. Is the station locked?	[Yes]	No
E. Noticeable odor issues?	Yes	[No]

Section 12: Building [N/A]

A. Building construction:	Brick	Block	Other		
B. Roof construction:	Asphalt shingle	Metal	Flat membrane	Other	
C. Condition of building:	Excellent	Good	Fair	Poor	Very Poor
D. Condition of roof:	Excellent	Good	Fair	Poor	Very Poor

General Remarks:

Need to mount run time hours and starts meter in panel.

Photographs

	Assessment form showing name of lift station
X	Site
X	Wet well top
	Valve vault top
	Building exterior
	Building interior

	Transformer (pole or ground)

X	Electric service meter
X	Transfer switch
X	Disconnect switch
	Permanent generator
X	Control panel exterior
X	Control panel interior - backplane
X	Control panel interior - face of door
X	Seal off fittings (conduits to wet well)

X	Wet well hatch door & frame
X	Pump guide rails
X	Wet well interior
X	Pump nameplate
X	Pump & motor
	Suction connection into wet well
X	Pump discharge piping
	Valve vault hatch door & frame
	Valve vault valves
X	Bypass connection
X	Bypass valve

LIFT STATION ASSESSMENT FORM

Client: Pentwater Township Date: 5/18/2023

Lift Station Number & Name: Apache Hills

Lift Station Location: Near 5358 Longbridge Rd.

Evaluators: Paul Harig and Danell Smith

Section 1: General Information

A. Year of Construction: 1978

B. Year(s) of Renovations(s): Unknown

C. Source of Information:

Section 2: Wet Well

A.	Material of wet well walls:	Concrete	**Fiberglass**	Steel	Other	
B.	Condition of wet well walls:	Excellent	**Good**	Fair	Poor	Very Poor
C.	Condition of pump removal guides:	Excellent	**Good**	Fair	Poor	Very Poor
D.	Condition of pump lift chain:	Excellent	Good	**Fair**	Poor	Very Poor
E.	Condition of discharge piping:	Excellent	**Good**	Fair	Poor	Very Poor
F.	Material of wet well top:	Concrete	Fiberglass	**Steel**	Other	
G.	Condition of wet well top:	Excellent	Good	Fair	**Poor**	Very Poor
H.	Condition of access hatches:	Excellent	**Good**	Fair	Poor	Very Poor
I.	Is wet well vented?	Yes	**No**			
J.	Amount of grease/scum/debris build-up on water surface:	None	Minimal	**Moderate**	Significant	
K.	Grease ring/water level staining above pipe invert?				Yes	**No**

L. Size of wet well: 4 foot dia.

M. Notes: Pump lift chain is a cable not chain.

Section 3: Valve Chamber

N/A

A.	Material of valve chamber wall:	**Concrete**	Fiberglass	Steel	Other	
	a. If steel, is cathodic protection is provided?					
	b. If steel, thickness:					
B.	Condition of valve chamber wall:	Excellent	**Good**	Fair	Poor	Very Poor
C.	Material of valve chamber top:	Concrete	Fiberglass	Steel	Other	**MH Cover**
D.	Condition of valve chamber top:	Excellent	**Good**	Fair	Poor	Very Poor
E.	Condition of access hatches:	Excellent	**Good**	Fair	Poor	Very Poor

F. Notes: Meter pit also concrete in good condition and meter and valve pits filled with water

Section 4: Pump & Valve Housing

N/A

A.	Station Configuration:	Can	Built in Place			
	a. If can, condition of dehumidifier	Excellent	Good	Fair	Poor	Very Poor
	b. If can, condition of exhaust fan	Excellent	Good	Fair	Poor	Very Poor
B.	Material of construction:	Brick	Block	Steel	Other	
	a. If steel, is cathodic protection provided?					
	b. If steel, thickness (inch):	Access Tube				
		Ceiling				

Floor
Wall

C. Sump Pump: Yes No

Section 5: Valves

A. Does the station have a bypass connection? [Yes] No

a. Size of bypass connection: 3 inch

b. Material of bypass connection: Ductile Iron PVC [Cast Iron] Other _____

Section 6: Equipment

A.

	Pump No. 1	Pump No. 2
Make	Hydromatic	Barnes
Model No.	HPGH500M3-2	SGV5032L
Run time (hours)	Broken	33.8
Design point	Unknown	Unknown
Drawdown Results (gpm)	38.5	23.5
Drawdown Both Pumps (gpm)	39.5	

B. Source of pump information: O&M Manual | Record Drawings | O&M Staff (verbal) | Other | Based on information written in control panel

C. Are pumps noisy or vibrating? [Yes] No

D. Swirl in wet well while pump operates? Yes [No] N/A

E. Does the station have a flow meter? [Yes] No

a. If so, type and size of meter: Kent-Taylor Mag Master

F. Notes: Pump 2 is grinding.

Section 7: Electrical

A. Service power: 120 | [208] | 480 Volts | 1 phase | [3 phase]

B. Condition of electric service: Excellent | [Good] | Fair | Poor | Very Poor

C. Is surge protection provided? Yes | [No]

D. Seal of fittings provided between the wet well and electrical/ control panel? [Yes] No

E. Are electrical/ control panels located within 3' of wet well hatch or 5' of vent? [Yes] No

F. Notes: Generator says 1 phase but confirmed 3 phase.

Section 8: Generator

A. Is there an on-site generator? [Yes] No

a. Size of on-site generator? 25 KW

B. Transfer Switch: [Automatic] Manual

C. Fuel Source: [Natural Gas] Propane Diesel

D. Generator Hours: 91.8

E. Does generator start and run strong? [Yes] No

F. Does transfer switch load to generator? [Yes] No

G. Condition of generator and ancillary equip: [Excellent] Good Fair Poor Very Poor

Section 9: Pump and Motor Controls

A. Condition of control panel: Excellent Good Fair [Poor] Very Poor

B. How many float switches are installed? 1 float

a. Do float switches properly operate pumps? [Yes] No

C. Other level sensors (ultrasonic, radar, pressure transducer, bubbler) Pressure transducer

D. Pump controls (relay logic, PLC-based, VFD, proprietary controller) PLC-based

E. Operating levels:

a. Lead Pump	4
b. Lag Pump	6
c. Pump Off	2
d. High Level	5
e. Low Level	2
f. High Off	0.5
g. Low Off	0.5
h.	

F. Station alarm:

Alarm telemetry (autodialer, radio, cell phone, SCADA, none) None

	Local Audio	Local Visual	Alarm Function	Alarm Telemetry
a. High Float		X		

H. Notes: High float light, no generator alarms.

Section 10: Forcemain

A. Forcemain material: Ductile Iron | **PVC** | Concrete | Cast Iron | Steel | Other

B. Forcemain size (in): 3 inch

Section 11: Site

A. Positive drainage away from station?	**Yes**	No
B. Site maintained?	**Yes**	No
C. Can the site be easily accessed for maintenance?	**Yes**	No
D. Is the station locked?	**Yes**	No
E. Noticeable odor issues?	Yes	**No**

Section 12: Building **N/A**

A. Building construction:	Brick	Block	Other		
B. Roof construction:	Asphalt shingle	Metal	Flat membrane	Other	
C. Condition of building:	Excellent	Good	Fair	Poor	Very Poor
D. Condition of roof:	Excellent	Good	Fair	Poor	Very Poor

General Remarks:

Runtime meter - only one works. Steel wet well corrosion - see photos.

Junction box and conduits do not meet code.

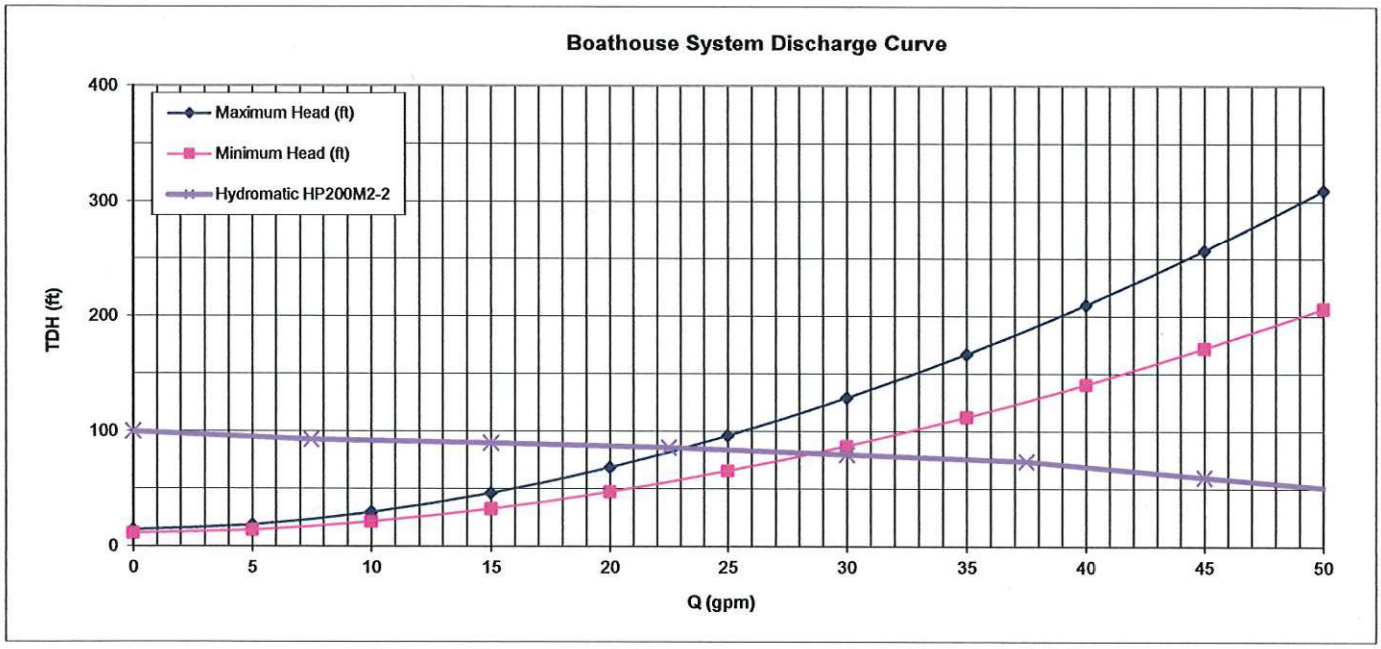
Photographs

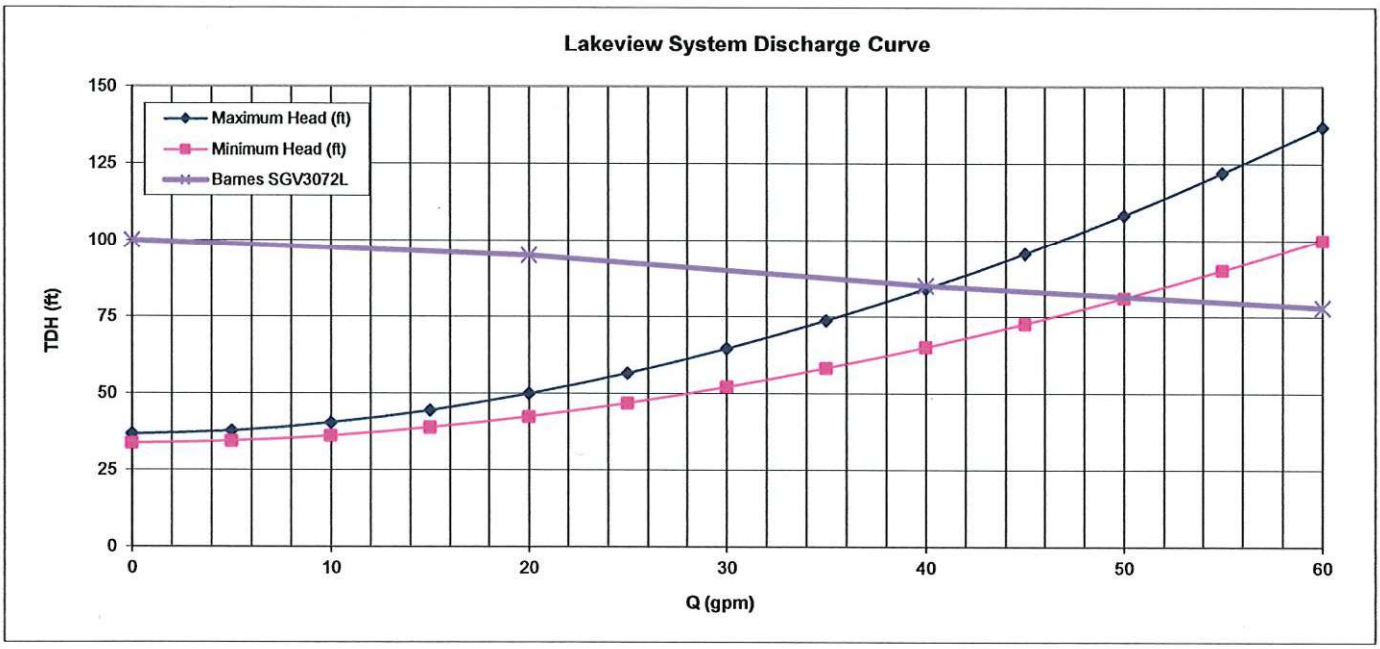
X	Assessment form showing name of lift station
X	Site
X	Wet well top
X	Valve vault top
	Building exterior
	Building interior

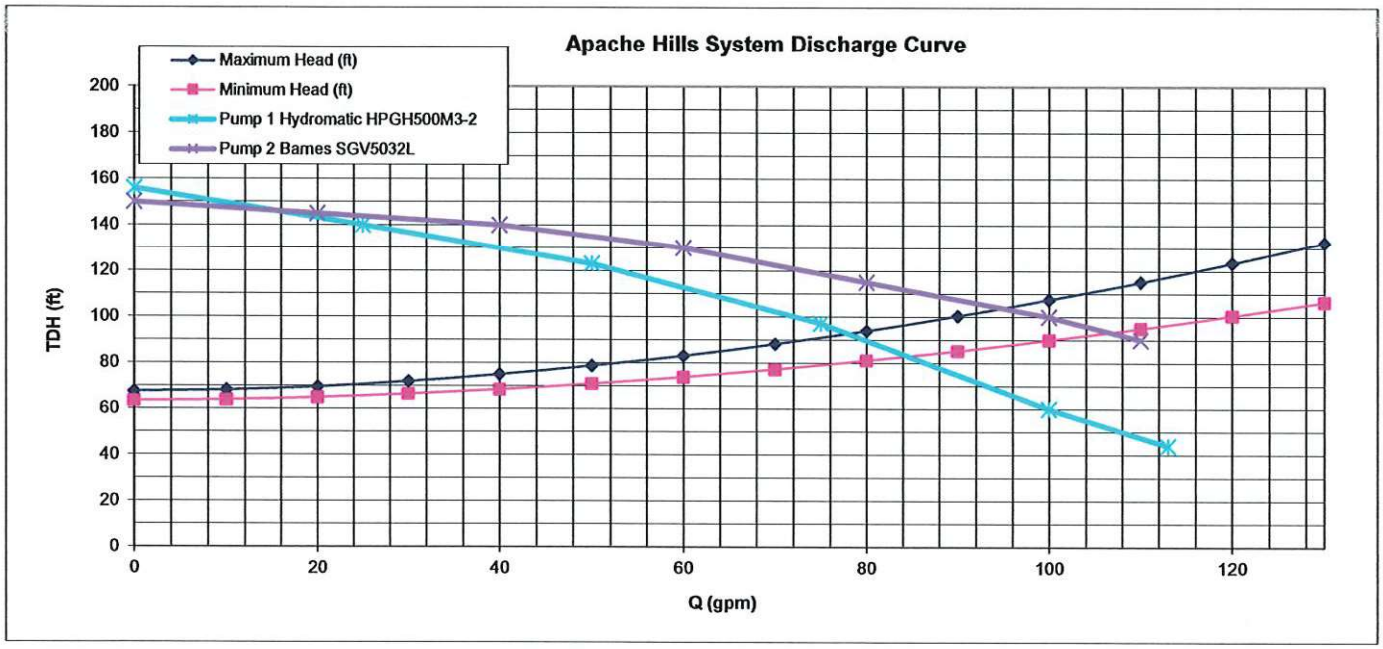
	Transformer (pole or ground)
X	Electric service meter
X	Transfer switch
X	Disconnect switch
X	Permanent generator
X	Control panel exterior
X	Control panel interior - backplane
X	Control panel interior - face of door
X	Seal off fittings (conduits to wet well)

X	Wet well hatch door & frame
X	Pump guide rails
X	Wet well interior
	Pump nameplate
	Pump & motor
	Suction connection into wet well
X	Pump discharge piping
X	Valve vault hatch door & frame
X	Valve vault valves
X	Bypass connection
X	Bypass valve

Table A-1. Existing Average and Peak Flows.						
LS Name	Average Drawdown Test (gpm)	Average Flow (gpm)*	Population Equivalents	Calculated Peaking Factor	Peak Flow (gpm)	Percentage of Capacity
Boathouse	27.2	3.5	50	4.3	14.9	55%
Lakeview	29.6	3.9	57	4.3	16.9	57%
Apache Hills	31.0	4.0	57	4.3	17.1	55%


Boathouse System Discharge Curve
Maximum Head (ft)
Minimum Head (ft)
Hydromatic HP200M2-2
TDH (ft)
400
300
200
100
0
0
5
10
15
20
25
30
35
40
45
50
Q (gpm)


Lakeview System Discharge Curve
Maximum Head (ft)
Minimum Head (ft)
Barnes SGV3072L
TDH (ft)
150
125
100
75
50
25
0
0
10
20
30
40
50
60
Q (gpm)


Apache Hills System Discharge Curve
Maximum Head (ft)
Minimum Head (ft)
Pump 1 Hydromatic HPGH500M3-2
Pump 2 Barnes SGV5032L
TDH (ft)
200
180
160
140
120
100
80
60
40
20
0
0
20
40
60
80
100
120
Q (gpm)

TOWNSHIP OF PENTWATER

COUNTY OF OCEANA, MICHIGAN

At a special meeting of the Township Board of the Township of Pentwater, held at the Pentwater Township Hall, 500 N. Hancock Street, within the Township, on the 26th day of April 2024, at 10:00 a.m.

PRESENT: Members: _____

ABSENT: Members: _____

The following preamble and resolution was offered by Member _____ and supported by Member _____:

RESOLUTION NO. 24-_____

RESOLUTION ADOPTING A FINAL PROJECT PLAN FOR SANITARY SEWER TREATMENT AND COLLECTION SYSTEM IMPROVEMENTS AND DESIGNATING AN AUTHORIZED PROJECT REPRESENTATIVE

WHEREAS, the Township of Pentwater (the "Township") recognizes the need to make improvements to the sanitary sewer treatment and collection system located within the Township; and

WHEREAS, the Township authorized Fleis & VandenBrink to prepare a Project Plan (the "Project Plan"), which recommends improvements, including upgrades to three existing pump stations and cleaning and televising gravity flow sanitary sewer and all related work, for the sanitary sewer system located within the Township (the "Sewer System Improvement Project"); and

WHEREAS, the Project Plan, in the form on file with the Township Clerk, was presented at a Public Hearing held on April 26, 2024 and all public comments on said plan have been considered and addressed.

NOW, THEREFORE, BE IT HEREBY RESOLVED AS FOLLOWS:

1. The Township Board of the Township of Pentwater formally adopts the Project Plan and agrees to implement the Sewer System Improvement Project.

2. The Township Board hereby designates the Township Supervisor, a position currently held by Lynne Cavazos, as the authorized representative for all activities associated with the project referenced above, including the submittal of said Project Plan as the first step in applying to the State of Michigan for a revolving fund loan to assist in the implementation of the selected alternative.

3. All resolutions or parts of resolutions in conflict herewith shall be and the same are hereby rescinded.

AYES: Members: _____

NAYS: Members: _____

RESOLUTION DECLARED ADOPTED.

_____
Maureen Murphy, Township Clerk

STATE OF MICHIGAN)
) ss.
COUNTY OF OCEANA)

I hereby certify that the foregoing is a true and complete copy of a Resolution adopted by the Township Board of the Township of Pentwater at a special meeting thereof held on the date first stated above, and I further certify that public notice of such meeting was given as provided by law.

_____
Maureen Murphy, Township Clerk

MEMORANDUM

TO: Pentwater Township Board

FROM: Dean Holub

DATE: April 22, 2024

SUBJECT: Recycling Infrastructure Grant Application

I am attaching a proposed grant application for funding from the Michigan Department of Environment Great Lakes and Energy for infrastructure improvements at the Pentwater Township Transfer Station. The subject grant application supports three upgrades to the site including; improvement to the road from the gate to the fenced area; extension of electrical service to the site; and the installation of a new larger pre-built shed.

I have received quotes on all of the improvements with the exception of the electrical service extension from Consumers Energy. I have submitted an application for service while it is currently being reviewed and a subsequent cost estimate will be forthcoming.

The total amount of the grant application is $89,000 with the Township share at 25% or some $22,000. If you recall during our budget and capital improvement discussions, the Board allocated some $30,000 for site upgrades, while $4,500 has already been spent on surface improvements within the fenced area, leaving a balance of over $24,000 for the enhancements included in the grant, so there will be no need to amend our current budget for the Transfer Station, assuming that the grant estimate for the extension of electrical service comes in as anticipated.

I am also attaching a copy of a letter reflecting the Board's approval and endorsement of the grant application for your review as well as authorizing the Township Supervisor to sign and submit the application. The deadline for submitting the grant application is May 17, 2024.

Should you have any questions regarding the grant application in the interim, please feel free to contact me at your earliest convenience.

CC: Bob Miller

Michigan Department of Environment Great Lakes and Energy

Ladies/Gentlemen.

This is to inform you that at its special meeting on April 26, 2024, the Pentwater Township Board of Trustees unanimously endorsed the submittal of a Recycling Infrastructure grant application for improvements to the Pentwater Township Transfer Station and Recycling Center. It is our hope that a successful grant award will significantly enhance our site including the ability to increase recycling activity in our community as well as an adjoining township.

The Township considers the facility as its primary service to our citizens, while the site has been in existence for over thirty years and is in need of certain upgrades to continue its operation.

Should you need further information or have any questions regarding our application, please feel free to contact me at your earliest convenience.

Sincerely,

Lynne Cavazos, Supervisor

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

(/sp/egle_recycling_grant_program)

Grant Application

Save Draft | Mark Complete | Close

You will submit this online application as your response to the EGLE Request for Proposal (https://www.michigan.gov/documents/egle/MMD-Recyling-FY2022_-RecyclingGrant_-RFP_742689_7.pdf). Wondering what success can look like? See success stories (https://www.nextcyclemichigan.com/stories) and opportunities NextCycle Michigan (https://www.nextcyclemichigan.com/) provides to be sure your project is ready for funding.

For general inquiries regarding this RFP, please contact Emily Freeman, Recycling Specialist, Materials Management Division, EGLE, at 517-256-9466 or freemane@michigan.gov (mailto:RichardE1@Michigan.gov)

Grant Category:

Select which Grant you are applying to: *

× Recycling Infrastructure

The Recycling Infrastructure Grants are designed to increase the statewide recycling rate, with the goal of achieving a 45 percent statewide recycling rate by 2025. Additionally, the Recycling Infrastructure Grants work to increase collection and processing capacity of recyclable materials or food waste and increase access and participation rates in recycling or food

waste composting programs while promoting diversity, equity, and inclusion across Michigan, and they will support Governor Whitmer's climate change priorities through measurable reductions in greenhouse gas emissions.

Grant Recipient and Fiduciary Information:

The primary contact selected for this application should be the individual responsible for executing a grant contract. If the fiduciary is different than the primary contact the fiduciary information must be provided in addition to a letter of support. Double check your profile information if you plan to use that for your primary contact information.

Primary Contact *

Same as Profile

Return to the main portal page to double check your profile information.

Is the fiduciary a separate entity than the grant applicant?

- ○ Yes, the fiduciary is a separate entity than the grant applicant contact information provided.
- ◉ No, the primary contact information provided is for the entity applying for the grant and having the fiduciary role.

Please self-identify your organization type: *

Public Sector

Project Information:

Project Title *

Pentwater Transfer & Recycling Center

Brief Project Description *

The Pentwater Transfer & Recycling Center has been in operation for nearly 30 years. Access to the site is via a 1/4 mile sand based road which requires frequent maintenance to repair large pot holes and washouts.. In addition, the site is not serviced with electricity which prevents opening of the site in the winter months since there is no heat for the Center's operator. In addition the small shed that houses the operator is in disrepair and requires significant improvements or replacement. The project as envisioned would entail upgrading 1/8 mile of the road with appropriate road building

Word Count: **121 / 100**

NOTE: This concise description will be used in reports and other documentation.

What is the primary focus of your project? (select all that apply)

- ☐ Collection Carts
- ☑ Drop off site construction, improvement or equipment
- ☐ Facility construction, improvement, or equipment
- ☐ Organics
- ☐ Vehicle(s)
- ☐ Public space collection
- ☐ Multi-Family collection
- ☐ Other

Concisely explain how your project achieves the selected focus? *

The proposed project will enable the Township to extend/expand services to its residents on a year-round basis. Currently the Center is only open from April through October each year. In addition, the Township is in preliminary discussions with an adjoining unit of government to allow its residents to utilize the Center, thereby increasing access and participation in waste reduction via recycling to a community that currently does not have that opportunity. In summary, the proposed project will enhance waste reduction potential for existing residents served by the Center as well as expansion

If new materials are collected ensure that is described. Please be concise.

Funding Needs and budget

What items will be purchased with grant funds and what is the intended use?

Grant funds will be utilized to pay for the installation of road building materials (gravel/slag) to enhance accessibility to the Center. It is estimated that the road portion will require some 375 yards of gravel/slag. The current access road is sand based and experiences washouts in heavy rainstorms. The majority of funds will be used to extend electrical service to the site as well as the installation of a new pre-built shed for the Center's operator.

Word Count: **76 / 100**

Please provide an itemized list of project expenses and specify in "amount requested" how much grant funding will be used for each budget item. Note, the amount requested for each budget item may be less than the total cost of that budget item or some budget items may not be covered by any grant dollars.

Budget Line Item

Road Enhancement

Quantity

Unit Price

$

Amount Requested

$ 15,000

Match Amount

$ 5,000

Budget Line Item

Extension of Electrical Service

Quantity

Unit Price

$

Amount Requested

$ 45,000

Match Amount

$ 15,000

Budget Line Item

Shed

Quantity

Unit Price

$

Amount Requested

$ 7,000

Match Amount

$ 2,000

Total Grant Request:

$ 67,000.00

Total Project Budget (Grant Request + Match)

$ 89,000.00

Match Percent:

25

(+) Add additional Budget items (select the number of additional rows needed):

For larger projects, please upload a full project budget (any format)

+ Select a file

If your grant request if over $500,000, please upload the most recent audit of the fiduciary entity.

+ Select a file

The Recycling Partnership (TRP) may have funding options to support your initiative. NextCycle Michigan staff could also be an additional resource to support navigating funding pathways and connecting with funding partners.

Current Activities and Program Impact

Fill in any applicable fields regarding your current program:

Collection Method:

Drop-off

(curbside, drop-off, single stream, dual stream, source separated, etc.)

Collection Frequency:

Center is open twice a week

(weekly, bi-weekly, etc.)

Volume of Containers:

One 30 yard commingled container & two 8 yard container for paper & cardboard

Current Material List:

Paper
Cardboard
Newsprint
Glass
Plastic (No. 1,2 & 5)
Kitchen metals

Describe your service area including geographical reach (counties, municipalities, institutions) and/or those serviced (number of households, population served, units, serviced or others).

The Pentwater Township Transfer and Recycling Center is open to all 1,600 residents (including the Village of Pentwater) of the Township. It should be noted that the Village of Pentwater and its 800 residents are serviced by curbside recycling on a bi-weekly basis. As noted previously, the Township is in preliminary discussion with Weare Township to extend access to the Center to its 1,300 residents who currently do not have access to a waste reduction program.

Where does your material go? Please include the name and location of your processor, broker and/or end market.

Pentwater Township contracts with Republic Services to transport its recycling materials. The contractor transports to and processes all of the recyclable materials at the Republic Services Westshore Recycling and Transfer Station at 4368 60th St. in Holland, MI.

Describe your operation funding sources such as user fees, millage, special assessments, general funds, etc.

The Township utilizes both user fees and subsidizes the balance of the operation of the Center from its General Fund. Residents are charged a fee of $3.00 for the drop-off of recyclables. The subject fee is not volume based and consequently a resident may drop off a bag full or a carload of recyclables for the same $3.00 charge. It should be noted that often times, a resident may drop off their recyclable materials as well as one or more neighbors to minimize costs and maximize volumes.

Describe your existing program partners and/or collaborators:

Check all that apply to your existing recycling education / outreach program:

- [x] Website
- [ ] Traditional media (print, television, radio, outdoor, etc.)
- [ ] Social or digital media (Facebook, Instagram, paid search, etc.)
- [ ] Mailer
- [ ] Public-facing database (ReCollect, Waste Wizard, Recycle Coach, etc.)
- [ ] Facility tours

☐ Special events

Describe how this project will show improvement from your current program: *

This project will enhance the Township's current recycling program by; expanding the duration of drop-off recycling from a six month period to a year-round basis; and, by potentially extending the availability of drop-off recycling to another community and its residents.

Select which project metrics apply:

For each project metric selected, additional fields will display for you to input known data.

☑ Collection Volume

☑ Service Population

☐ Collection Capacity

☐ Processing Capacity

☑ Type of Materials

☐ Commodity Value

☐ Residuals, contamination rate

☐ Labor Costs

☐ Safety (personnel or public)

☐ Other

Current Annual Collection Volume:

Expected Annual Collection Volume:

Unit used:

Tons

Annual Increase:

0

Current Service Population:

1,600

Expected Service Population:

2,900

Unit used:

Annual Increase:

1300

Expected Material List:

Current Annual Collection Volume: Commingled = 10.28 tons
Paper/Cardboard = 448 cubic yards

Projected Annual Increase: +20%

Supporting Data (optional):

+ Select a file

Describe how your project will benefit Environmental Justice or underserved and/or vulnerable populations: *

The project will potentially expand waste reduction opportunities to a rural community with a population of 1,300 who currently do not have access to a recycling program.

Briefly Describe any new education efforts that will be undertaken as a result of the grant project.

It is anticipated that if the project is successful as proposed, the Township will take advantage of EGLE's "The Recycling Partnership" program to develop an informational mailer particularly if recycling services are expanded to the unserved rural community.

Type N/A if there are no new education efforts.

Describe how your project addresses Greenhouse Gas emissions: *

The project will continue to reduce greenhouse gas emissions via the use of the current fee structure for the drop-off of recyclable materials. As a result, residents may drop off personal recyclable materials in large volumes and/or from one or more residents for the same charge, thereby reducing the number of trips/visits to the site via gasoline powered vehicles. In addition, the alternative to providing power to the Center would be via the installation of a gasoline generator. The extension of electrical service will enable the provision of electric heat and other associated

Please upload any supporting data for environmental and climate metrics:

(Optional)

+ Select a file

Guidance on measuring environmental outcomes is included in "Measuring Environmental and Economic Impact" (https://drive.google.com/file/d/1pIJK7vv-WUAAOwZl_G3GdAcWZNs7JBa3/view?usp=sharing).

What County or Counties will your project impact? *

Montmorency County
Muskegon County
Newaygo County
Oakland County
[illegible]
Ogemaw County
Ontonagon County

To select multiple counties hold "Ctrl" and click each county name. To unselect, continue holding "Ctrl" and re-click a highlighted county name

How would you categorize your geographical impact? *

Rural area

Regional impact refers to if your project impacts multiple counties or areas. County-wide projects should impact the whole county including in large cities and rural areas. Rural would consider any communities not in an urban area.

Briefly describe the geographical impact of your project (How will a specific area, region, city, or county be impacted?): *

The project will continue to serve the Pentwater community as well as the potential expansion of recycling services to an additional 1,300 residents in an adjacent rural community, which is currently unserved.

Upload any additional supporting data or information regarding this project:

(Optional)

+ Select a file

Partnerships and Collaborations

Describe community support and/or partners for the grant project. Describe how/if the funding provided in this grant is leveraging additional investment from partners. *

The grant project is supported by the Village and Township of Pentwater as well as Weare Township. As noted the grant funds will greatly enhance recycling to Township residents on a year-round basis as well as service to an unserved community. Since the Center is funded via both user fees and the Township's General Fund, expansion to include another community will require a contractual arrangement for "buy-in" to the Center on behalf of its residents, thus leveraging additional investment in the Center.

Please upload a letter of support from each of the project partners. Select the number of letters you plan to attach. *

3

You can save this draft to add letters at a later time or once you submit your application edit before the Grant Cycle closing date to attach Letters. If you have more than 10 letters please combine pdfs.

If new drop-off locations will be established on property not owned by the fiduciary entity, please upload a letter of support from the property owner.

Letter of Support

+ Select a file

Letter of Support

+ Select a file

Letter of Support

+ Select a file

Work Plan and Timeline

Long Term Viability: Describe how the project will be sustained beyond the grant timeline. *

The Pentwater Transfer Station and Recycling Center has been in operation for over 30 years and is supported by user fees and Township General Funds. It is anticipated that the Center will continue to provide services well into the future as it is a priority Township service. Residents have come to rely on the Center for the deposit of recyclables and other materials and no change is foreseen in its operation and/or funding. It should be noted that in addition to providing for the drop-off of typical household recycling materials, the Center operates as a transfer station and receives a

Provide a brief narrative describing the work plan and timeline: *

It is anticipated that upon receiving the grant award, all of the grant items will be initiated for action and completion within six months. The Township has already solicited costs for all of the grant items. Consumers Energy, the local electric service provider has indicated that extension of service to the site can be accomplished within ninety days. A local contractor has stated that the road upgrade would take some 7-10 days, while construction lead time and delivery of a new shed can be completed within 3-4 weeks. Thus, if the grant award and agreement is consummated prior to

Work Plan and Timeline Upload: *

✚ Select a file PENTWATER TOWNSHIP INFRASTRUCTUI

(/sp/file_redirect/egle_recycling_grant_program/22778111/40fb909977bc16aba370d67ff1375da9)

🗑

Please attach a descriptive work plan and timeline which includes:

- Identification of the tasks and responsible party for implementation of the project.
- Identification of the tasks and party responsible for preparing quarterly progress reports and the final project report.

- A timeline of activities, showing when each task described will be started and completed.
- Identification of when quarterly milestones will be achieved.

Closing:

UEI Number of fiduciary entity

If known, use www.sam.gov to find your UEI number if you have one. This process is free, but may take multiple days to receive your number.

Federal ID Number of fiduciary entity

38-2166251

Will be required if selected for final review

Has the fiduciary entity applied to or received a grant from the State of Michigan? *

☐ Yes

☑ No

E-Signature of authorized individual *

Lynne Cavazos

By typing your name you are signing this application and confirming that all information is accurate to the best of your knowledge.

Signed Date *

After you complete this form, submit your application on the next page.

PENTWATER TOWNSHIP INFRASTRUCTURE GRANT

WORK PLAN & TIMELINE

Task	Timeline*	Responsible Party
Electric Service	90 days	Dean Holub
Shed	3-4 weeks	Dean Holub
Road Improvements	3-4 days	Dean Holub

*As noted in the summary, Mr. Holub will be responsible for project oversight and implementation, as well as all progress reports and final reporting. All of the project tasks will be initiated simultaneously as soon as the grant award and contract is finalized. It is anticipated that all of the project tasks will be completed within six months of the grant contract.