

Sheldon Dunes Water System

Capital Improvement Plan Options

The following capital improvement plan options are a follow up to the Prein & Newhof report, dated April 3, 2025. In addition, the

Status of existing system:

This year, we need to inspect well #3. We propose to include televising the well as part of the inspection. Based on the results of this work, we will adjust the long-term plan for well replacement.

Phase 1 – Electrical Improvements, Possible New Building

The biggest concern from a reliability perspective is the hydropneumatic tank. The tank is a single point of failure, is critical to the operation of the well system, and is currently operated in a manual mode. Variable frequency drives would allow us to operate the well pumps and bypass the tank. Given the age of electrical equipment, the fact that we want to replace pumps with the most modern features, and the age of the generator, we recommend the electrical improvements as the first phase of the project. While the existing building could be used, it will be difficult to work and keep the existing system in service. Building a small addition or purchasing a prefabricated pump house has value for staging the next phases of the improvements.

Phase 2 – Hydropneumatic Tanks, Piping and Valves

With the electrical improvements complete, we could schedule the construction of two small hydropneumatic tanks in the existing building or the new building. We are also adding an allowance for piping and valves. After the new tanks are put into service, the existing tank can be taken offline and inspected and cleaned. We could perform a condition assessment of some type to determine if it makes sense to rehabilitate the tank or abandon it. The tank has 2,350 gallons of storage and the smaller tanks would be adequate for operations but would not supply much emergency storage.

Phase 3 – Replace Well #2, Piping and Valves

Depending on the assessment for well #3 and the assumptions we can make for the other wells, we recommend replacing well #2, as it is undersized. The well would need to be located outside the building(s), but relatively close to allow easy connections to the power and water mains. In this phase, we will also know the long-term fate of the existing tank, so we will have a better understanding if we should keep or demolish the existing building. We will also need to install buried water main to connect well #2 to the existing system. This will

provide us with an opportunity to cut into and remove a section of the 8-inch asbestos cement pipe. We can use this pipe sample to make a better estimate of the remaining useful life of the existing buried water main.

Phase 4 – Replace Well #1, Piping and Valves

Depending on the annual performance tests, maintenance, and inspections, well #1 would be the next well to replace. This would be located outside the building, but relatively close to allow easy connections to the power and water mains. Depending on the condition of the buried water main, you may also want to replace some of that in this phase.

Phase 5 – Replace Well #3, Piping and Valves, Yard Piping

Depending on the annual performance tests, maintenance, and inspections, well #3 would be the last well to replace. This well is about 140 feet away from the other two wells and it is assumed that the replacement would be in the same general vicinity. There is about 1,000 feet of 8-inch water main located on the wellhouse property. The water main will eventually need to be replaced and was included in Phase 5. This could be delayed until Phase 6 if it is in good shape.

Phase 6 – Replace Water Mains, Abandon/Remove Old Mains, Paving

Eventually, the water main will degrade and start to fail. When the failure frequency warrants, replace the existing water mains with new water mains. The estimate in the P&N study was for ductile iron pipe, which is recommended. However, in this phase, you could evaluate several pipe materials and ask the engineer to provide pros and cons for each. The new mains need to be put into service first. Customers would then be connected and disconnected from the existing mains until all are off the old system. The old system would then be drained, and the pipe would likely need to be removed, due to the asbestos material. The impact on the road will likely require paving and that is assumed in the estimate.

Inflation

The prices provided by P&N and the OCRC are 2025 dollars and are intended for budgeting and planning purposes. When a phase or part of a phase is implemented, the Township will need to hire an engineer to prepare plans and specifications so we can obtain a permit from EGLE. The engineer will update the cost estimate and work with the Township to budget an appropriate amount for contingencies. We recommend a 3 to 5% inflation factor be added to these cost estimates if they are to be used in future planning.

Connection to Grand Rapids Water – Grand Haven Township Option

The other option considered is to extend water mains from the Grand Haven Township water system. In this scenario, it is assumed that only those in the existing Sheldon Dunes district are petitioning for water. We recommend oversizing to 16-inch to allow for future extensions to the south. The township water system would typically contribute to the oversizing of the water main and recover those costs from users of the system through a trunkage fee, a one-time fee per residential equivalent unit charged at the time of connection. In this example, we estimated that \$51,000 would be attributable to oversizing. The remaining cost would be split between the east and west sides of the road. The township has also established a policy for sharing in the cost of paving, so a portion of the road paving was allocated to the township. The remaining costs were allocated to the Sheldon Dunes district.

In this example, the allocated costs were simply divided by the existing users of the system, which according to township records is 93. If a project is approved, the township and engineer would review the detailed cost estimates and may decide to break the assessment into two or more components, with a fee based on the parcel frontage to the road and another fee based on a cost per user or parcel.