

Homer Glen's Waste Water Treatment Plant and Visions for the Village

As many of us are aware, the Village of Homer Glen has been without its own wastewater treatment and water processing facilities since becoming a Village in 2001. While many Homer Glen residents utilize well and septic systems, a large portion of Homer Glen residents do not have that option and instead are serviced by Illinois American Water for their sanitary and water needs. Homer Glen residents who utilize Illinois American Water (ILAW) are well aware of the high costs associated with ILAW service. The cause of which is due to the lack of a master plan for both water and waste water treatment in place. The lack of a master plan coupled with the existing topography of Homer Glen has led to installation of force mains and expensive lift stations throughout the Village; the cost of which is bared by its users. Unfortunately, Homer Glen residents in both existing and new developments do not have a choice when it comes to their water and sanitary service. Our vision for Homer Glen aims to change that.

The Village of Homer Glen intends to design and construct a state-of-the-art Waste Water Treatment facility which will utilize sustainable design and the latest in engineering technology. It is the goal of Homer Glen to construct a WWTP which sets an example for future waste water treatment facilities by providing efficient and effective waste water treatment while minimizing impact to its surrounding area. However, construction of the new plant is not without its challenges. Currently, Homer Glen's Fiddymont Creek sanitary sewer system is treated by the city of Lockport through an Intergovernmental Agreement which will expire in 2030. The city of Lockport is expanding and is set on utilizing all available capacity of its water treatment facilities for its own use. Lockport will not be providing any waste water treatment services to Homer Glen beyond 2030 and Homer will need to construct their own waste water treatment facility before then. Constructing, staffing and operating a new waste water treatment plant will be a massive undertaking. It will not be easy and it will not be cheap, but with proper planning and management it can be accomplished in a cost-effective manner.

Roadmap General Overview

Start – Perform a high-level feasibility study. Determine estimated costs to construct, staff and maintain the proposed plant while factoring in a healthy amount of contingency. This allows us to grasp what the Village will need in terms of future personnel for the operation of the plant as well as general rate structure for future users of the plant. A request for engineering services has been made and Robinson Engineering has been selected to complete the feasibility study. This process will begin in the new year and can be completed in 120 days or less. Once the feasibility study is completed, information will be presented to the board of trustees. With the board's approval, the next phase can begin.

Plant Planning and Design – A Request for Professional Services will be developed and sent out to a multitude of engineering firms throughout the Chicagoland area. A large net will be cast for this phase to promote competitive bids for this large project and to ensure Homer Glen gets an experienced and quality firm specializing in WWTP design. The RFP will cover both Phase I and Phase II engineering for the proposed plant. The goal of Phase I being to analyze and determine an optimum location for the proposed plant as well as determine the required capacity and size needed for the plant. Phase II will be the actual design of the proposed plant and development of an engineering plan set to take it to bid. It is

anticipated that the issuance of an in-depth RFP, selection of the most qualified firm and completion of Phases I and II may take 3 or more years to complete. Obtaining the required permits for construction of the plant will likely also take place at this stage and may add additional time. All efforts will be taken to move the permitting process along as soon as possible. The firm selected to design the proposed WWTP will also be tasked with determining any and all sources of outside grants or funding to assist towards the overall cost of the WWTP project.

Construction – Construction of the proposed plant may be split into several phases to accelerate the overall schedule and allow for contractors to complete advance work such as tree clearing or grading. The Village of Homer Glen can provide input on the use of incentives and liquidated damages in the construction contract. Use of incentives provides contractors with a bonus for completing critical parts of the project before a specified date. Liquidated damages, depending on their magnitude, work in the same way but instead of a bonus, it penalizes a contractor for not meeting a required date. If the liquidated damages are heavy enough, it forces the contractor's hand to develop an appropriate schedule to meet the required dates whether it is accomplished through acceleration (overtime) or working multiple crews simultaneously. There are many options available to reduce the time needed for construction, depending on what is needed by what date any number of methods can be implemented to ensure we hit the target date. It can be assumed that full construction of the plant can be completed in 3 years or less. This timeframe may vary depending on the complexity and size of the final design as well as availability of necessary components.

Advance Work Options

- Site grading or tree clearing (in particular outside of NLEB windows)
- Extension/tie-in of the existing Fiddymont Creek sanitary line to the proposed plant. Facilities can be installed to accommodate the connection (leave a stub) so that it can be hooked up and ready to go once construction of the plant is complete. It may be viable to perform design and installation of this step while Phase I and II engineering is ongoing.

Additional Notes/Thoughts

The proposed plant should achieve a balance of both sophistication and simplicity in its design. Utilize the latest technology in waste water treatment while ensuring a simplicity of overall design to aid with speed of construction.

The proposed plant should be more than just a "slab of concrete". It should be aesthetically pleasing to look at whether by some unique architectural characteristics of the plant itself or through site beautification or landscaping. Perhaps remnants of the affluent sewer is used to fertilize vegetation on site? Flower beds or other visually appealing plantings? Community gardens or plots?

Design of the new plant should take into account the safe and effective removal of heavy metals from its solids. Many WWTPs dispose of their solids off site and they are re-used as fertilizer or fill. Most existing WWTPs do not screen or remove heavy metals prior to shipping the solids off and they are used as fertilizer which can contaminate crops and potentially pass these harmful metals to consumers. This is a relatively recent environmental concern; Homer Glen should make an effort to be in the forefront of this issue and be able to provide 'clean' solids which can be used safely as fertilizer or fill.

Construction of the new plant shall be inspected by a competent construction management firm during all phases of construction. Village Engineer will also be heavily involved in this process.

With the development of the WWTP, it answers the immediate need for our own facility but also allows us to develop a long needed master plan for our sanitary sewers. Knowing that ILAW's existing facilities are not in great shape and that ILAW would likely never sell their facilities to us for a fair price, perhaps down the road Homer Glen develops and installs it's own sanitary sewer. If sewer installation corresponds with resurfacing programs, brand new sanitary facilities can be installed in the roadway with the new layer of surface course paved over it. This would avoid any uneven patching etc. This would also allow us to eliminate the need for extensive force mains and ideally reduce the number of lift stations if planned accordingly. This is a long shot and is a concept for way down the road.

Depending on the complexity of the WWTP design and plan set, Homer Glen may need to construct a smaller section of the overall plant in order to bring operations online by 2030. Or, a temporary pop-up plant can be constructed to accommodate our immediate needs while the larger permanent plant is constructed. Maybe the pop-up plant is constructed in a different location and gets converted to a lift station similar to what Lockport plans to do with Bonnie Brae.

The proposed plant shall be designed in almost modular/sections. The necessary components constructed first with an ease for expansion when needed.

The current Lockport Division Street plant sits on approximately 11.5 acres and they are looking to have its capacity expanded to 11.2 MGD. It is a fair assumption to account for approximately 1 acre per MGD. With this estimation, a parcel with the area for future expansion should be considered. Anything 5 acres or above would be sufficient, however the larger the parcel the more MGD we would be capable of treating. On this note, perhaps the construction of a new plant entices surrounding areas to send their wastewater our way? This could potentially open the door for additional users/\$\$.

Once we determine a location for the town center, some estimates need to be made in regards to the use and density of the currently undeveloped land which would fall within the new Facilities Planning Area. These can likely be completed in house to save on costs.

Last but certainly not least, input should be provided by all of our staff through all phases.