October 29, 2018
PUBLIC HEARING

Opening Statement

Good evening:

This public hearing is required in order for the City to move forward with major repair and replacements to the waste water system. There are three goals for this project. The first goal is to repair the system to reliably meet the current and future needs of the citizens of the City. The second goal is to complete repairs in such a way that the City is capable of growth when it comes. The third goal is to complete the necessary and ordinary repairs in order to stay in compliance with discharge permits from Idaho Department of Environmental Quality.

The waste water plant is quite literally the single most important and most expensive piece of infrastructure that the city owns. It is rare that citizens ever complain or even notice this important and expensive piece of infrastructure. That is until their sewer backs up. Needed maintaince and upgrades has been deferred for years, however this cannot be deferred any longer.

The Federal requirements for the discharge permit continue to get more expensive as do the myriad of testing that is required. Without a doubt, the cost of servicing, maintaining, and the replacement of major pumps, piping, and the associated equipment continues to escalate.

Most of the pumps that are in service saw their life begin over forty years ago. The technology of waste water treatment has progressed far beyond the capability of the current treatment plant. The system is barely reliable and that is only because of the ingenious work-arounds that our Public Works employees have put in place to make the system continue to perform barely adequately.

Unless people live in a cave, most people are aware of the booming growth that is barreling its way toward Parma. As of this date, our waste water treatment plant is at capacity. The city will and must deny future development because our treatment plant cannot support any new housing or business development.

Now, there are those in the community who would argue that Parma does not need to grow, that the city is OK just as it is. In the same breath, some of those people will say that it would be nice to have a second grocery store or a sit-down restaurant that is open all day and evening, or that another clinic would be good. I would say to those who would want those businesses, "That will not happen unless the city grows by at least another 2,000 citizens."

It is for all of the reasons I have outlined that there is a serious need for major replacement and repair for nearly all components of the water treatment plant. Thank you.

About Town – Major Upgrades –

At the August 27 City Council meeting, the council unanimously agreed to move forward with major upgrades to the waste water treatment facility. Right now, the treatment plant is at capacity. Everyone knows that future development is marching towards Parma. The city cannot begin any new housing development without overloading the treatment facility. To be able to allow development to occur, upgrades to the treatment plant must take place – sooner rather than later.

This article will outline the eight upgrades that need to occur to, one, be in compliance with forth coming discharge requirements from Department of Environmental Quality, and two, to be prepared for future housing development.

Item ONE: Replace the Influent Pump Station – This pumping station is the lowest point in the entire city waste water system. In order for the inffluent to get into the sewer ponds, it must go through this antiquated pump station. This station includes two 10 horsepower pumps and one gas auxiliary pump for power outages. Every piece of equipment is out of date or does not even work and there is no back up for power outages. This entire station needs to be replaced. The estimated cost is $1,132,000.

Item TWO: RI Bed pump station – This pump station is needed to move the treated effluent from the ponds into the Rapid Infiltration Beds (RI Beds). This station contains one 15 horsepower pump. This pump is beyond its recommended service life and needs to be replaced with two submersible pumps for redundancy. This replacement will cost roughly $81,000.

Item THREE: Rapid Infiltration (RI) Bed addition – The purpose of an RI Bed is to take the effluent from the ponds and allow it to permeate through a sand layer to remove any suspended solids (SS) that come from the ponds. Currently there are four RI Beds at 0.64 acres each. These beds are now at capacity. In order to build capacity, two additional RI Beds need to be constructed at approximately $293,000.

Item FOUR: RI Bed filter media addition: The sand media, at a depth of six feet, that is currently employed within the four RI Beds, has reached is useful life. That means that elevated levels of suspended solids (SS) are finding their way into the chlorination chambers which forces the use of greater amounts of chlorine. Though the elevated levels of SS are worrisome, it does indicate that each of the RI beds needs new sand media to reduce the levels of suspended solids (SS). The cost of replacing the media with new sand is about $453,000.

Item FIVE: De-chlorination – Within two years the city must implement a de-chlorination system to comply with chlorine limits as set by the federal government, as will as all cities in the United States. The system the city will build will include a mixing chamber, mixing pumps and a chemical feed equipment. The anticipated cost will be about $154,000.

Item SIX: Influent Pump Station SCADA – This a an electronic and computer monitoring system that will control and record all activity of the pumps, flow meters, and chemical feed machines for the entire waste water system. This anticipated cost will be $75,000. Total system SCADA - $200,000

Item SEVEN: Champion Lift Station – This is located on the east side of Champion Produce storage buildings and along side of the drain that runs through OFB Park and crossed the highway. The concrete in this structure is broken with exposed re-bar, the pumps plug up regularly, and there no way create redundancy. The anticipated cost for this is $168,000.

Item Eight: Lagoon Sludge removal – The last time dredging was done was in 2009 and then only in ponds 2 and 3. Pond 1 could have as much as 2-3 feet of sludge on the bottom which reduces capacity of pond and creates more sludge ending up in the other two ponds. Estimated cost is upwards of $200,000.

About Town – Influent Pump Station Replacement

As was mentioned last week in this column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column mentioned six different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

This week I will explain what the influent pump station is and why it needs to be replaced. Generally, the waste water system operates on a gravity system. Waste water from sinks, toilets, and showers travels through pipes by gravity. The lowest collection point in the city is near our sewer ponds. In order for the influent to get up into the ponds for treatment, a lift station is needed.

The current lift station system of two 10 horsepower centrifugal pumps and one auxiliary gas centrifugal pump for power outages was installed well over thirty years ago. Though the pumps have been rebuilt several times, the pumps are not designed to do what current conditions require of them. The gas pump no longer is operable and should the need arise to have an auxiliary pump during an extended power outage or a mechanical failure of the other two pumps, we would have a dire situation on our hands.

The replacement of this pump station would require a new wet well. A wet well is similar to a septic tank only much deeper – at least 15 feet deep where the two new "chopper" pumps would be located. A chopper pump is designed to chew up any material that might clog the intake of a pump. These pumps would be installed in the wet well on rails that would allow them to be moved to the top of the wet well for service or inspection without disconnecting any piping or wiring. In addition, a gas generator would also be part of this facility that would allow for auxiliary power during outages. Redundancy is a necessary part of any water or waste water system. Keep in mind that during a power outage, people still use water and that waste water flows down-hill to the lift station where it still needs to be managed. This project is the first of eight upgrades to the waste water treatment system.

Next time, the Rapid Infiltration (RI) Bed pump structure facility.

Questions may be directed to myself at 208-722-5138 or by emailing me at nleigh@parmacityhall.net.

About Town – RI Bed Station Pump replacement

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the first of six different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

This week, the focus will be on the pumping station between the waste water pond and the Rapid Infiltration (RI) beds. Just like the influent pump station discussed last week, this facility requires the fluids from the ponds to be pumped into one of four RI beds. Each of the current RI beds are about .6 acres in size and are designed to filter the fluids from the ponds through about six feet of a sand to remove any suspended solids in the liquid before being discharged to the chlorine contact chamber and on into Sand Creek as allowed by the City's discharge permit.

This facility currently contains one 15 horsepower multi-service pump that is beyond it useful service life. Developing plans will include the removal of the old pump and installing two submersible pumps for redundancy attached to a rail system for ease of access for maintaince and or replacement. There is no indication that the wet well and vault will need to be replaced thereby keeping the cost of this part of the project down.

The transportation of the fluids along and through the three ponds or lagoon and the Rapid Infiltration beds to the chlorine contact chamber and on to the final discharge at Sand Creek are key to the overall operation of the sewer facility. Any failure of the different pumps within the system can cause difficulties through the system. That is why back up power and pump redundancy is critical to the overall success and operation of the system.

Next week I will discuss the addition of two more Rapid Infiltration Beds. Questions may be directed to me at 208-722-5138 or by emailing me at nleigh@parmacityhall.net.

About Town – Additional RI Beds

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. An earlier column discussed the first of six different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

This week I will discuss the need for two additional Rapid Infiltration (RI) beds. Currently, the waste water treatment plant consists of four RI beds that are 68 feet wide and 408 feet long with a surface area of about .64 acres each. Each basin (bed) contains about 6 feet of screened sand and gravel filter media with under drains that catch the filtered fluids before moving it to the chlorine contact chamber and then to the discharge point into Sand Creek.

Each bed can carry about two feet of fluids and requires about 48 hours to drain completely. It is recommended that each bed rest for a period of time to allow for any suspended solids to decompose before the bed is filled again. Conditions today do not allow for the resting of each bed and therefore the fluids that migrate to the chlorine contact chamber must be dosed with higher levels of chlorine in order to kill any bacteria that may be present. And of course, the higher levels of chlorine must be dealt with in the coming year or so.

Because the waste water plant is very near capacity, future plans call for the construction of two additional RI beds which will increase the capacity of the RI beds from 353,000 gallons a day to about 530,000 gallons a day while at the same time allowing for a 48 hour resting period before each of the beds are refilled again. The cost of construction of the two additional beds is determinate on the amount of material that can be used from land owned by the city next to the existing beds.

Next week I will discuss the RI Bed filter media. Questions may be directed to me at 208-722-5138 or by emailing me at nleigh@parmacityhall.net.

About Town – RI Bed filter media

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the one of several different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

This week, I want to educate the readers about the mechanics of how a Rapid Infiltration (RI) Bed works and why the city wants to spend about $184,000 on sand. Before I delve into the RI bed mechanics, a brief review of the waste water system is in order. Infiltrate or liquid from all the city sewers arrives in the first of three ponds. The liquid is aerated using five pumps to mix the air with the liquid to begin the decomposition process. Most of the solid mater will settle out in the first and largest pond. The liquid then travels into a second pond and is also aerated with only one pump to continue the removal of solid material. The third pond is called a finishing pond. Once in this pond the liquid travels to one of four rapid infiltration beds to filter out any remaining solids.

The rapid infiltration (RI) beds are designed to eliminate solid material from the liquid before it is moved to the chlorine contact chamber for disinfection so that no e-coli will be released into Sand Creek. Over the years, the sand filter media within the RI beds becomes coated with organic material something like algae. The algae that forms around each of the sand grains creates an environment that reduces the effectiveness of the sand to remove the suspended solids that are transported from the three ponds. If the algae cannot be treated or is not removed from time to time, the incidence of suspended solids (SS) moving into the disinfection chamber will increase. When in the disinfection chamber, suspended solids will require more chlorine to be used in order to ensure that all e-coli and other potential contaminants are neutralized before being discharged into Sand Creek.

Each of the four RI beds should also be allowed to rest after each fill is in order for any solid material to decompose before it is filled again. If this resting phase does not happen, then the sand media in each bed cannot dry out completely and it is likely that more solid material will move into the disinfection chambers which causes the use of more chlorine. Currently, the resting phase does not happen on a regular basis and for that reason, the effectiveness of the RI beds is also reduced, thereby creating a need for more chlorine to be used for disinfection.

Because the filter sand is not efficiently doing its job, it needs to be replaced. The cost of replacing all the filter media sand in the four existing RI beds is dependent on the amount of material that can be mined on property owned by the city adjacent to the current RI beds.

Next week I will discuss the monitoring equipment sometimes called S.C.A.D.A. Questions may be directed to me at 208-722-5138 or by email at nleigh@parmacityhall.net.

About Town – S.C.A.D.A.

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the one of several different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

The technical term for this week's upgrade is called S.C.A.D.A. The letters mean Supervisory Control And Data Acquisition. This computer system is a monitoring and control system that measures the flow, output, measurement, and recording of what equipment needs monitoring. The City already has a SCADA system at most of the water wells. The control system measures the output of each of the pumps, records when the pumps come on, and records the water in the main storage tanks.

A similar system is envisioned with upgrades in the waste water system. As in the water system, the SCADA on the waste water side will measure and record when the pumps come on, how much fluid is being pumped and will alert personnel should a pump malfunction, when power is interrupted, or when other issues present themselves.

The system is designed to monitor events as they happen so that city public works personnel can act in a timely manner to adjust, repair, and otherwise keep tabs on this particular piece of city infrastructure without physically being present and on site. The anticipated cost of this computer system and remote sensing equipment is still being developed.

Next time, I will be writing about the required dichlorination project. Questions may be directed to me at 208-722-5238 or by email at nleigh@parmacityhall.net.

About Town - Dechlorination

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the one of several different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

In two years, the City of Parma, like every incorporated city across the United States will have to have systems in place to remove certain percentages of chlorine from their waste water systems. Many smaller communities, just like Parma, uses a chlorine product in their waste water treatment to kill e-coli bacteria and other harmful bacteria before the waste water is returned or emptied into other waters. Chlorine and its useful by-products like many cleaners, bleaches, and other household detergents uses chlorine to kill unwanted bacteria. Chlorine is a very useful product when used in proper concentrations. However, under new federal guidelines for chlorine concentrations, all cities must monitor chlorine in their waste water discharge and remove higher levels.

By the year 2020, Parma must implement a dichlorination system to comply with the allowable chlorine discharge limits set by the Environmental Protection Agency (EPA) for our National Pollutant Discharge Elimination System (NPDES) Permit. The preliminary plan calls for the use of sodium bisulfite, chemical feed piping and accessories, a rapid mixing chamber, as well as mixing pumps to be housed in an existing facility at the waste water treatment plant.

Sodium bisulfite is used in some food processing as well as water purification following chlorination in order to remove the chlorine prior to water storage. In waste water applications sodium bisulfite (NaHSO3[subscript]) removes the chlorine by giving up heat and carbon dioxide. The chemical reaction is a bit confusing to the layman however it is a safe and harmless alternative to more expensive options.

The addition and implementation of a dichlorination system at the waste water treatment plant using an existing structure on the grounds is needed and required by the Department of Environmental Quality and the Clean Water Act as amended. Costs are yet to be determined for this required upgrade.

Next week I will be discussing the need to replace the Champion Lift Station on the east side of town. Questions may be directed to me at 208-722-5138 or by emailing me at nleigh@parmacityhall.net.

About Town – Champion Lift Station

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the one of several different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

This piece of waste water infrastructure, located at the east end of the Champion warehouses next to the drain that runs through Old Fort Boise Park, is in the worst shape of all waste water equipment. This lift station is about one mile from the sewer ponds and collects waste water from Boys Better Burgers, the Senior housing, Old Fort Boise Park and several other residences. Because this fixture is so far from the main waster water facility, a pump is needed to help push the waste water along toward the main facility.

The existing concrete wet well is cracked with re-bar protruding into the wet well. The old pumps have plugged up on several occasions and need to be replaced with new style grinding pumps. The wet well needs to be replaced with a precast ten-foot diameter well at least 10 to 15 feet deep which then would allow for sewer storage capacity when there is an extended power failure without having to add an electrical generator.

In addition, the design of the architecture of the pump housing requires that the new pumps be built on rails so that the pumps can be raised to be inspected and repaired as needed without having to physically crawl down into the well as is done now.

One difficulty with any sewer work is that sewer fluids still collects while work is being done on any part of the system. We cannot tell the entire city to stop using water or their toilets, showers, and sinks. Because of that, the city will need to continuously pump any part of the system that is being repaired. This is an added cost that must be considered while work is being done.

Next week I will be discussing the need to dredge the three waste water ponds. Please call me with questions at 208-722-5138 or by email at nleigh@parmacityhall.net .

About Town – Sewer Lagoon Dredging

As was mentioned in an earlier column, at their August 27 meeting the City Council approved moving forward with developing a plan to make major investments in upgrades to the waste water treatment facility. Last week's column discussed the one of several different but related areas that have been identified as needing replacement or rehabilitated in order to 1) meet Clean Water Act requirements, or 2) to increase waste water treatment capacity with an eye toward future growth.

The existing sewer lagoons, of which there are three, are designed to remove solid waste by maintain a high level of oxygen within the lagoons so that bacteria can attack the solid wastes and break the material down into an inert sludge. The three lagoons were originally constructed in 1963 and enlarged and lined in 1989. Lagoon 1 has a surface area of about 6.5 acres, lagoon 2 an area of about one acre, and lagoon 3 is about ½ acre. Each of the three lagoons are eight feet deep and carry about 5 to 5 ½ feet liquid.

In addition, lagoon 1 and 2 also contain aerators. An aerator is an electric air pump that forces air into the lagoon to aid in the decomposition of the active solids that are contained within the liquid. In order for decomposition of solids to occur oxygen is needed to keep the bacteria alive while they do their work. As bacteria digest the solids, what is left over is called sludge. This material settles to the bottom of the lagoons. Most of the bacteria and the decomposition occurs within lagoon 1. Fluids from lagoon 1 moves to lagoon 2 where another aerator is located. By this time, most solids have been removed. The fluid then goes into lagoon 3, called a finishing pond, where any left-over solids settle out before moving into the rapid infiltration (RI) beds.

The lagoons must be cleaned every 15 to 20 years. The last time this was done was in 2009 at a cost of $36,000 for the dredging of lagoons 2 and 3. All lagoons need to be cleaned again. During dredging, the sludge from the lagoons is scraped from the bottom and placed into large sacks. The sacks have holes in the bottom where liquid may drain away. Once the material is relatively dry, it is trucked to a landfill and disposed of like other household debris.

It is likely that the cost of cleaning all three lagoons will be at least seven to ten times the cost of cleaning only the two smaller lagoons in 2009. Figures have yet to be finalized. Questions may answered by calling me at 208-722-5138 or by email at nleigh@parmacityhall.net .