Parma LDFA Special Meeting March 29th, 2023, 5:30 PM

Pledge of Allegiance given

Those present: Jim Jenkins, Joanne Havican, Mike Way, Dave Dawson, Keith Acker, Chris Crisenbery, Dwight VanWinkle, Chris Hendges, David Kuiper, Church Olson, Amber Moore, Brian Boyer, Gale Easton, Michael Smajda, Jill Yoxheimer, David Herlein

Parma Sandstone LDFA Activity

David Kuiper from Holland Engineering presents slides and discussion about Western Schools and Maci Lift stations and equalization Basin proposal.

The sewer capacity of the Dearing Road corridor on Maci Boulevard, up in Sandstone Township down to Kibby road Spring Arbor Township. It is about a three- or four-mile corridor. The capacity of the 10-inch force main from Maci Boulevard lift station to Spring Arbor Township equalization lagoons, which are further down King Road and a little bit south. Kuiper's shares that the capacity of that line is a concern. The limited capacity impacts Maci wastewater needs and the ability to develop other property along Maci Boulevard, as well as the ability to serve a proposed elementary school and future residential development along Dearing Road in Spring Arbor Township.

An underground equalization basin is currently planned for Maci Boulevard to equalize wastewater flow in the Maci Boulevard lift station, which is right on the corner of Dearing Road and Maci Boulevard. An equalization basin there will increase allowable flows to the lift station without increasing the size of the pumps. Equalization basin stores the peak flows that come in, wastewater flows that come in and allows the lift station to pump at a lower constant rate for a longer period. Equalization basin or EQ basin then empties at a later point in the day when the flow rate decreases to below the pump rates. This cycle is repeated multiple times a day. Under current conditions, the pumps at the Maci station cannot be replaced with higher capacity pumps due to the head or pressure that those pumps see trying to pump all the way to the Spring Arbor lagoons four miles away. Western schools are designing a new elementary school along Dearing Road across from their high school and middle school campus. The High school and middle school are currently served by a public lift station at six inches forced main that parallels the ten inch down to King Road. That six inch was built a few years before the 10-inch line was. The existing six inch forced main from the Western schools lift station cannot handle the additional flow from the new elementary school campus.

The Maci 10 inch forced main cannot accommodate the Maci Boulevard lift station wastewater and the Western School wastewater without being pumped at the same time. They cannot both just tie into that line because if both pumps are on around at the same time, they have reduced capacity, which is not good for either station or the area that it serves. Sewer backup could occur under that situation. There's no feasible way for western schools lift station to connect directly to the 10-inch forced main, for the school to connect to that forced main equalization of both the Western school's wastewater flow and all the flow from the north, including the Maci lift station, need to be equalized for everybody to be able to pump in from there to the lagoons. The proposed western schools EQ basin must equalize the flow from the school's campus, including the flow from Maci Boulevard lift station and all the flow must be equalized to eliminate the competing pump station scenario. Having an equalization basin at Western lift station site effectively splits the existing 10-inch force main into two separate sections from western schools to the north and then from western schools to the lagoons.

As a result of this split, the header pressure seen by the Maci lift station significantly decreases because the pumps will now only have to pump through a mile and a half of force main instead of more than four miles. So, with the resulting reduced head or pressure at the Maci lift station, larger pumps were evaluated at the station to see if equalization could be combined at one site, the school. Instead of having two EQ basins, one at Maci Boulevard and one at Western schools, having the two EQ basins would essentially mean that the wastewater flow from Maci Boulevard properties would be equalized twice. Projected future flows that were used to design and propose Maci Boulevard basin were evaluated and updated to reflect current projected flows from Maci. After reviewing these flow projections, we determined that by upgrading the existing pumps to new 800 hundred gallon per minute pumps from the current 600 gallon per minute pump capacity you would be able to pump propose future boulevard close to the Western schools EQ basin while maintaining a header pressure that is lower than the current pump station sees.

The peak flows from that came to about estimated to be 792 gallons a minute from Maci Boulevard. An eight hundred gallon per minute pump was chosen as a size that would accommodate all future flows from Maci Boulevard. The Western school's existing lift station would be used to continue to collect the flow from the middle school and high school, but also a gravity line would come under Dearing Road from the new school and tie into that station as well. The new pumps would be installed in this existing lift station to pump the increased flow up into the EQ Basin. A new pump station is required in addition to the existing one so that the EQ basin does not need to be twenty-six feet deep below grade.

Putting in an EQ basin about five feet to cover all the school flow would go through the existing lift station, be pumped up into that. Flow from the Maci Boulevard lift station would dump into the upstream end of it and serve as a flushing flow to keep it clean when the EQ basin drains out. The new lift station would sit just to the north of the existing lift station. EQ basin is proposed to be constructed out concrete box collars that are eight feet tall, eighteen feet wide, about forty-four feet long. Design construct cast in place, reinforced concrete, and walls on that to make the basin. The existing 10-inch force main that comes down the west side of Dearing Road from the Maci lift station would be diverted into that structure, the EQ basin.

The proposed lift station would pump that out and down to the township of lagoons and would have a nine hundred gallon per minute pump. They will operate like a traditional lift station except when the equalization basin fills, at which point the pumps would run continuously until the EQ basin is emptied. As part of the project an emergency generator would be installed on site as well that would power both stations during the power outages.

Jenkins asked how many gallons that EQ basin that is proposed to be eighteen feet wide, forty-four feet long and eight feet tall equals. Kuiper's answers the question that it is about 35,000 gallons.

There is a 10-inch force main that goes south from Maci and would be diverted and then tied back into to go back to the lift station. The closed valve in between that if there was an issue for maintenance could be open and flow continue as it does today for at least for the Maci Boulevard lift station.

Acker asked what the expected effect would be on Maci for sewer for this project? Kuiper responds that the effect would be limited. This whole EQ basin and lift station and piping except for the tie-ins can be completed tested and ready to run. This generally takes half a day per tie in. There are ways, whether it is pump and truck down. That will be evaluated during design. There's potential that some of that could be

live tapped that all will be worked out as far as how to limit the impacts the best. That would all need to be evaluated if the connections cannot be made at a low use time or no use time.

Acker asked if the pumps are going to be replaced at Maci, for pressure because the line would not hold. Kuiper responds that the way it is right now, we cannot replace the existing six hundred gallon per minute pumps with larger eight hundred gallon per minute pumps because the pressure is too high to force that water through all the way.

Acker asked for clarification about the replacement pumps put in. Olson shares that they are the same size as before. The theory was that replacing, or putting in an EQ basin up at Maci would allow us then to take the peaks off and pump more water over a 24-hour period because we will store it. Right now, we pump to peak. We got to pump it, we were going to take it so we could put it in there and equalize it. That is what the equal equalization takes.

Jenkins mentions that he was under the impression that the work was done before, besides the controls etc., but the pumps were replaced with bigger pumps. At the time Spring Arbor was under Marston and it was $50,000 or $75,000, replace the pumps.

Comment about if the pumps currently can manage it with an equalization basin, how couldn't they handle the additional flow from the school? Kuiper responds that with an equalization basin up on Maci Boulevard, they will continue to pump six hundred gallons a minute and for a longer period of the day to accommodate more increased flow of development along Maci Boulevard. Maci lift station would continue to pump six hundred. If they try to insert a lift station from the school, just tee it in both of those pumps and try to compete against each other. The two pumps competing together, neither are going to be able to put out their design flow. Maci lift station might only be pumping four hundred and the school pumping less than theirs is designed for because they are both trying to share the line at the same time. Backups could potentially occur. To maximize the use of that existing 10-inch force main for those four miles, inserting the EQ basin more in the middle at Western schools allows all the existing flow from Maci and future to come to there. Even if it is at the higher eight hundred gallon per minute rate, the excess gets stored in the equalization basin and until it can be pumped out.

Question of what the intention of the six-inch line is that's currently being used. Kuiper responds that initially there are some houses connected to that further to the south and to keep that line with enough velocity to keep it clean. Initially we would tie that six to the ten at down at school and down at King Road and the flow would parallel through the two lines for the foreseeable future.

Question of would it increase capacity south of the high school complex, for potential development down Dearing Road? Kuiper responds that yes it would.

Question: Until then, we are using the ten and the six just to keep both clean, to keep pushing things downhill. And that reduction of that mile plus with the equalization basin allows you to step up to a larger pump eight hundred. Olson shares that now you have more capacity for the industrial part behind. Before we were somewhat limited, now we have 800-gallon pumps up there. We are going able to handle Maci future flow, plus right now we got parcel out the amount flow we can give away to the new customers back there. We will have more flow available. Our consumption is primarily less than two hundred days a year. That again helps with the development of future growth down the street.

Comment about we must design everything for your full use for everybody's full use because there are days when that will occur.

Question of if that is a big enough equalization basin? Excavating and digging in and again taking care of spring arbor, Western and industrial park. Is that bigger? Kuiper answers that yes because the peaks that we see, other than from an industry like Maci, the peaks are relatively short term. The peaks that you have at school during the day tend to occur at lunch hour and at breaks. But then you will have 40 minutes where your discharge goes down. We are trying to equalize it so that extra hundred gallons per minute that this pump, the pumps that the EQ would takes care of all those peaks, just storing that extra for short pumps of time.

A question was asked about 800-gallon minute pumps at Maci would they be able to in the future have bigger pumps than that if it was required if a big company came in? Kuiper answers that with combined equalization at the school site, not building an EQ basin up on Maci Boulevard. We need to get the same equivalent flow that an equal basin up there would provide. We need to increase the pumps eight hundred to pass those peaks down and then equalize up. You could put another EQ basin up in your industrial park. If you have somebody that had peak flows, if you get an industry that does some washing periodically and they have large value in water they must get rid of in a brief period of time. That would put a real burden on that pump station. If you stretch that out and keep it longer a period, then that pump probably would have no trouble getting rid of it.

Olson shares that Maci treats some of their wastewater and then releases it to us a two hundred gallon a minute over multiple hours. That goes through the Maci station and controlling how that happens maybe on the industry ground they hold more water releasing over a longer period. Then we can still pump the same queue. If needed an add on could be put on right next to it that is elongated. There is any number of things you could do to that basin. But right now, we feel that that is going to be adequate for the time being.

A question of if we have a 600-gallon pump up there now and that pumps it all the way, why do I need an 800-gallon pump into the location? Kuiper answers that the six hundred gallon per minute pumps that are currently there could not handle the future desired flows on Maci Boulevard. An equalization basin would have had, to go in on Maci Boulevard to continue the status quo. If EQ basin were put on Maci Boulevard, a second one would have to be put at the school for them to handle. And both are spending sizable money and then the township must maintain two sets of infrastructure instead of one. By replacing the pumps, we are moving to larger ones and that storage to one site.

Acker asks why was the 10-inch length put in? Olson replies “We're trying to make maximum use out of that 10-inch force meter, which we were forced to put in when we did Maci.”

Jenkins asked who forced to put it forced to put in a ten inch, not something larger and why? Olson replies that the Federal Government did. “They put money into that project, and they dictated how big that force main could be. We could not put a fifteen inch or an 18-inch force main in there to make the pumps bigger. We had to size it to adequately serve Maci. Okay. And their future growth.”

Question of the life expectancy of a sewer line? Kuiper responds that sewer lines are roughly a hundred years. To replace those four miles with something larger is probably 6 to 8 million dollars.

The sewer improvement costs, Maci Boulevard lift station replacement of the pumps would include the larger 800-gallon pumps, discharge piping, valves to check valves, and fittings. The concrete floor there is degraded and needs work done on it. All that is estimated to be around $250,000. The Western schools lift station and equalization basin, the existing pump station that is there would get new larger pumps that could manage the schools flow and pump it into the EQ basin. The EQ basin includes new lift station controls, generator, and site piping totaling estimate of just over a million dollars.

Cost sharing that are involved are Spring Arbor Township, Parma LDFA and Western School District. Spring Arbor Township has developed an asset management plan for all its substations and wastewater system. And as part of the rate structure puts away money to pay for replacement pumps every 15 years. The Maci Boulevard lift station, Spring Arbor has as part of their asset management plan would be paying whatever the cost would be for the work within the pump station.

The Western school site of the existing station, Spring Arbor Township asset management plan shows needs work done there due its age. The cost for that, new control panel, one new pump, and new valves. Extending the length of the EQ basin to be able to manage some residential development. This work is estimated to be about $64,000. Out of roughly the 1.3 million dollars Spring Arbor is estimated to pay about $445,000. Parma LDFA cost would be around $250,000. Western School District costs are roughly $592,000.

There was a question about the money already spent on the work at the Maci lift station and what amount is left. With a request to get more details on the money spent so far and what was originally budgeted.

Hendges ask for clarification about what size of pumps are needed at the lift station and retention tank at Western school to be able to manage eight hundred gallons a minute coming from Maci? Where does it go if we cannot outflow anymore from that? Kuiper answers that the eight hundred gallon per minute pumps at Maci lift station if new ones were installed to handle all the peaks and bring them to the EQ basin. The pumps for the new lift station that is pumping to the EQ basin at Spring Arbor Township lagoons would be sized at nine hundred. A hundred gallons per minute, more capacity. The peaks that are above that a hundred gallon per minute extra capacity are what is stored in the EQ basin until Maci lift station shuts off or the school stops sending flow. The EQ basin is sized to manage the flow so it would not be full and then still have more peaks trying to get into it.

There is room designed at the Maci Boulevard to accommodate another developer at the current set up. The EQ basin is not designed for another Maci with substantial amounts of water demands. There is room designed to accommodate the development of the land at Maci Boulevard. If another large water demand factory came in there would need to be changes made.

Discussion of how many factories are recycling their water so it is not all going down into the sewer.

Question about any possible EGLE issues with this project? There needs to be operation and maintenance plans in place. Getting a permit from EGLE can vary in time.

Jenkins asked Jill from Maci about long term activities. She shares there will be a big dip in discharge as equipment is removed to make space for new equipment. Once the new equipment is in place there will still be a dip in discharge. They use holding tanks they use and are investigating ways to recycle even more water. She mentions that if they must close for this possible work that communication is going to be very important. They do not shut down at regular times now due to changes in the auto industry. They have three holding tanks and are currently discharging one a day.

Acker asked about the schools need for this with their timeline for building the new school. The school is projected to open in Fall 2025.

Acker asked: “Is the basin that we were putting in at Maci originally that had some capacity planned for it. Did I hear that that this proposal matches whatever capacity that we were thinking we were going to get even though that capacity may not be enough for a large water user.” Kuiper’s responds “The flows

we used to size the basin at Maci Boulevard are the same flows that the 800 gal per minute pumps can handle to accommodate equalization at the school."

Verification that the current Parma LDFA budget shows $160,000 left to be used towards lift station improvements.

Smajda from Western Schools shares that the amount suggested for the school's part of the project is not part of their original project budget.

Hendges asks if Parma LDFA decides to go the route, they were already going does that change things for the school. The school could still do their project.

Jenkins asks to have it investigated if we can use PLDA monies for property outside of the Parma LDFA area.

Havican asked that we find out if we can use TIF monies for things not on the approved project list.

Jenkins shares that we need to set up another meeting to go over information. We will need to get some answers to the questions the board has. Meeting is set up for April 12th at 5:30 PM

Hendges moves for adjournment of meeting at 7:09, Acker seconds. Motion passes

Respectfully submitted,

Joanne Havican
Secretary