

**MINUTES OF THE  
COMMITTEE OF THE WHOLE MEETING  
VILLAGE OF NORTHFIELD  
TUESDAY, FEBRUARY 19, 2019**

The Committee of the Whole meeting was called to order by Village President Joan Frazier on Tuesday, February 19, 2019 at 6:00 p.m. Village Clerk Stacy Sigman called the roll as follows:

**Committee Members Present:**

Trustee Greg Lungmus  
Trustee Thomas Terrill  
Trustee John Gregorio  
Trustee John Goodwin

**Absent:**

Trustee Tom Roszak  
Trustee Allan Kaplan

President Joan Frazier

**Others Present:**

Village Attorney Everette M. Hill, Jr., Village Manager Stacy Sigman, Finance Director Steve Noble, Assistant to the Village Manager Melissa DeFeo, Public Works Director Mike Nystrand, and Engineer Pat Glenn

**Approval of the January 15, 2019 Report of Proceedings**

Trustee Lungmus made a motion, seconded by Trustee Goodwin to approve the January 15, 2019 Report of Proceedings. President Frazier had two suggested changes. On page 1, first paragraph last sentence, she wanted it to read that Fields intended to bring Mini Cooper to Northfield, which is why we might agree to the tax rebate program. On page 2, third paragraph it says "President Frazier added that we didn't have to enter into a sales tax rebate with Medline, but it's the wave of the future" when in fact, we did have a sales tax rebate agreement with Medline. All said aye.

**Discussion on the water system overview**

President Frazier introduced Engineer Pat Glenn to run through the details of the Village's water system. Some components are old, some are new and many are breaking. It will cost millions to fix or replace them. Moving forward, we will look at our rate schedule and decide what to fix when.

Engineer Glenn walked through the system in Northfield noting its age and recent improvements needed to make the system more robust and redundant. He then explained that the goal is to figure out how to prioritize the work that needs to be done and how the water fees need to be adjusted to pay for this work. A map was shown of the water distribution system as it exists today. The main supply of water comes from the Village of Winnetka through two connections; a north one at Willow Road, which is the primary feed, and a southern connection at Hibbard and Winnetka Road. Those two connections are always open and always flowing. Trustee Gregorio asked if those two pipes run all the way to the filtration plants. Engineer Glenn said Winnetka has a reservoir and pumping station in the golf course on Willow Road and their treatment facilities are by the lake. It goes through their whole distribution system and then it gets to Northfield.

Engineer Glenn explained that in 1987, the Villages of Glenview and Northfield did an interconnect project called the Mickey Lane interconnection. The systems tie the towns together. There is a small pump station to feed whichever Village needs water. It is manually operated and normally is off. It can be used to supply water from Northfield to Glenview or Glenview to Northfield. It was used last year when work was done at the reservoir. The reservoir had to be taken offline for repair. We were able to fire up the interconnect and supply the whole western part of town. VM Sigman indicated that we only use that one for emergencies. Engineer Glenn added that Glenview and Glencoe are both emergency interconnects. The primary difference is Glenview requires people to come out and turn on the pumps, while Glencoe is a fully actuated connection. When the pressure on Northfield's side gets too low, a valve automatically opens up and calls for water from Glencoe. It is a one way connection into Northfield and is normally off. Every day though it opens for a brief time to perform a system check. Trustee Lungmus asked what the sizes are of the interconnects. Engineer Glenn responded that Winnetka at Willow Road is two 12" lines, Winnetka at Hibbard is a 10" line, Glenview is a 10" line, and Glencoe is a 16" line. Trustee Gregorio asked if the Glencoe water comes from their filtration plant. Engineer Glenn said it is Glencoe's water from their water tower. He added that it also helps with pressures and flows.

In 1989 when Kraft was built, the Village got them to build the reservoir, which is one million gallons of storage, and a pump station. Engineer Glenn indicated the blue area on the map was the high pressure zone. Outside of the blue area, the Village is on Winnetka's pressure. Winnetka supplies the water and all the energy it takes to keep that system pressurized. Since the Kraft building was 3 stories and the reservoir boosts the pressure to it is able to get to the upper floors. So what is shown in the blue area, the high pressure zone, is what is not simply flowing out of Winnetka. It is pressurized by the Kraft reservoir. There are valves connecting the low pressure to the high pressure zones, so if we have breaks, we can open them up and flow back and forth. Engineer Glenn indicated that last year there were significant renovations and it had not been taken offline since it was built. That is when we activated the Glenview interconnect and everything worked. Trustees Gregorio and Terrill questioned who owns it. Attorney Hill said it was deeded to the Village. Engineer Glenn said the mechanicals are kept up with but the structure itself has a long service life which could be 100 years. The vaults are concrete.

Engineer Glenn then discussed the Glencoe interconnect and highlighted the mains that were installed in 1990. The mains west of North Happ Road went in during the early 1990's. The interconnect didn't happen until 2007, but the Village had a vision in the early 1990's that someday they wanted to get the interconnect done. During the course of various water main replacements along Sunset and Southgate, they put in the new 16" mains. In 2007, the Village replaced the two 12" lines from Winnetka and installed new 24" lines all the way to Central Road along east Willow Road. During that project, mains had to be installed under a river, on forest preserve property and under the Eden's Expressway. It was a substantial project but was necessary because those lines were almost 100 years old. The valves were in the interchange and the break history was high. Trustee Gregorio asked if it was a plastic pipe. Engineer Glenn responded that it is ductile iron.

Engineer Glenn indicated that the most recent improvement was the new 16" line on Willow Road from Happ to Sunset Ridge. Previously, the Village didn't have any water main along that section of Willow.

Engineer Glenn then showed a map which grouped the mains together by age. The red mains all went in prior to 1940. Trustee Lungmus said there seems to be a gap just west of the

highway, north of where Willow Road picks up. VM Sigman said that when we brought the main from Winnetka, we connected here. Trustee Lungmus said there is a north/south gap. Engineer Glenn said there is a new 12" main on Central. Trustee Gregorio asked if it goes 16", 12", 16"? Engineer Glenn said it goes from 24" to 12" and then down lower to other interconnects and individual streets. Trustee Lungmus asked Engineer Glenn if he had any problem with that design and he responded that he did not.

Engineer Glenn then showed a map of all the 6" mains in Northfield and noted a lot of them are pre-1970's. 6" mains were standard at the time. He then said the little red dots are the breakage history. Every time there is a water main break since 1991, they would record the date and the nature of the break, what happened and the address. The map scrubs out any place there was a break reported and the main was replaced. These are only the historical breaks on mains that have not been replaced. Trustee Gregorio asked if a main would be replaced because of breakage. Engineer Glenn said they just replaced Riverside last year because it just kept breaking and breaking. It got to the point that repairs weren't viable anymore. There are still areas that are breaking far more than we would like, but these maps show 30 years' worth of breaks. He then showed a map with the breaks on only the 6" mains. There was a large history of breaks on the oldest mains. The velocities are higher on the smaller mains so it makes sense to concentrate on those mains.

Engineer Glenn said the next maps are based on our water system models. He wanted to compare where the system was in 1991 so you can see the impact of the work that has been done over the last 25 years. The model showed the maximum pressures on a maximum demand day. The purple or magenta dots show the lowest pressures and the blue dots are the highest pressures. In the high pressure zone where it is all being fed by the Kraft reservoir we had good pressures on the maximum days. In the rest of the system we did not. The low pressures are really noticeable in a 2 story house. Trustee Gregorio asked what the standard is for a house. Engineer Glenn said about 40 PSI in the street. The size of the service that comes to the house is also a factor in the pressure. The houses off of Willow on the alphabet streets are still mostly 5/8" services. Nowadays, 1-1/2" is standard. Engineer Glenn showed maps showing where we were then and where we are today. The changes is now have us in the 40 PSI's range on Old Hunt. There is significant improvement north of Old Willow and it is the Glencoe interconnect that really helps that area. When Northfield's pressure falls to a certain level, it automatically opens up and brings the flow that we need to keep the pressure up. He said another thing that they look at when they run the models are fire flow capacities. Prior to various improvements, we had pressure problems in the alphabet streets west of Wagner. With the improvements, we really cleaned up a lot of that. The Village has done a lot to get the water to the neighborhoods, but it is now the pipes in those neighborhoods themselves (all 6" pipes) that are impacting pressure. They are the old cast iron pipes and the soils tend to corrode the pipes faster. PVC is used if replacement is needed. Trustee Gregorio asked if the PVC pipe costs more. Engineer Glenn explained that in the normal diameters, it is a little cheaper (12", 10" and 8"), but when you get the larger pipes like 24", the ductile iron is less expensive.

Engineer Glenn said there are various estimates that can be applied to the system, but there is no way someone can say that this pipe will last this long and then the day after that you need to replace it. A number of factors come into it such as break history. He said not all main breaks are created equal. There are some main breaks that have a higher likelihood or higher consequence if you have a break on that main. When you are faced with trying to prioritize things, it's good to identify mains that have a high consequence for failures. Every main is important because every time there is a main break, the main has to be depressurized to make that repair and there is a risk involved with that to try and maintain some flow while they are

working. It is risky to shut down the water system. They also send in chlorination tests and make sure it is properly disinfected, but you have to get it back in service so people aren't without water. Engineer Glenn said many times they go out in the middle of the night to go down the hole because traffic causes safety concerns. Trustee Gregorio asked if slip lining is used for the water mains. Engineer Glenn said yes, but it is generally cost prohibitive and only comes into play when you have a main that is installed in an inaccessible corridor and there is no way to dig to put a new main in. A lot of the pipes can't be sufficiently cleaned to get a liner to adhere to it.

Engineer Glenn said as we home in on the various projects, we can get estimate costs and prioritize the projects. He said they can take all those costs and annualize over a 10 or 20 year period. Once we have determined what needs to be done and what it's going to cost, then it can be handed off to the rate guys. He then showed a picture of a water main from a break on Harding looking inside of the pipe. This is common example of a pre-1940 water main. What is inside the active mains is well sterilized. The Village takes regular water quality tests and this is just shows there a lot of mineral deposits over 80 years.

VM Sigman wrapped up by saying that the point of this discussion was to give the Board some context with respect to our system. As we look at the budget in the next couple of weeks, we plan to take a little bit of a pause in projects and focus on getting a handle on our system, rates and how we prioritize things. We are trying to take what we know and come up with a plan on exactly what segments need to be done. We are also exploring bringing in another set of eyes. Heather Himmelberger with the University of New Mexico is a water main specialist who we are hoping may help us. Unlike sanitary, you can put a camera down and see the exact condition to know what we need to fix. Water mains are more of a guessing game and we are hoping that she can give us a better idea as to how to rate/weigh the factors to come up with a plan. Staff developed the chart of our system. Green shows things are good and we don't need to worry about them in the near future. Yellow are ones that are beginning to show problems or issues and red are things that are more concerning.

Staff provided the Board with something similar for roads. She thinks it's important for this Board and future Boards to have the global picture. Having the full map of the system is great. What we will start playing with is the equation that gets the red to yellow and yellow to green.

VM Sigman indicated there is money in the draft budget for these studies. Looking at the 5 year projections, next year will look great. But the 5 year water and sewer plan will work bad as we pay for these projects. However, that will be refined over the next year. Trustee Gregorio asked if Northfield will use plastic going forward and can we buy the material ourselves. Engineer Glenn said that if it is only his decision, yes. He didn't think by buying it ourselves that it would save us much. The vendors don't want to undercut their clients which are the contractors. If you did find the pipe, you would have to store it somewhere. He believes the market forces are sufficient to see that we aren't getting gouged on the cost of the pipe. It's the labor and equipment that drive the costs. Engineer Glenn noted that at the bottom of the spreadsheet, Northfield has \$75 million worth of water infrastructure and that's not even counting the reservoirs. It could add up to \$100 million of stuff and it's a similar number with the sanitary side. VM Sigman was told by Engineer Glenn, Ms. Himmelberger and Melissa that age is the least reliable predictor of when it can go. Some of our breaks are on really old pipes, the red being really old, but there are other areas with breaks where the pipes aren't nearly as old. There are other factors to consider such as how it went in, soils, workmanship, the material used and age. We are looking at what else can we add to that data to help us prioritize and come up with a plan for the next 10 or 20 years. Ms. Himmelberger was sent all the information

and staff will set up a conference call with her. We are optimistic that she will do all this work for free. She has a grant that can help communities as long as you're under 10,000 population. We are looking for direction as to the additional things we can do and can she help us.

Trustee Lungmus asked how many complaints have there been about water pressure. Engineer Glenn said that once Glencoe went online, hardly any. Director Nystrand indicated that prior to Glencoe interconnect, they received lots of complaints. If someone is not getting good pressure, that alerts public works to go out and look for breaks. Not every water main break will come to the surface. That Glencoe interconnect helped the residents to get the water to the second floor better, but it doesn't give us the pressure we need for the hydrants and the fire fighting. When we replace the old 6" mains it will be with an 8" pipe and we expect to see a huge benefit from that.

Trustee Gregorio asked if there is any federal money for this. VM Sigman indicated that staff is constantly looking for grants. The only thing she is aware of at the moment is a low interest loan. Director Noble looked at this and it would not save us money.

President Frazier asked how we answer when residents just want to fix it after it breaks and how do we determine when it would be more cost efficient to replace rather than patch them up. There is a risk every time you have to depressurize a main. It's not just a straight line and if we go out one more time on this main, then we cross that line and it would be more economical to replace it. Ms. Himmelberger will help us to better prioritize them. If you lived on a block where the main was shut down twice a month because of breaks, it would become a big deal. The Village Board and staff will need the tools to be able to answer those sorts of questions.

VM Sigman said it was about 8 or 9 years ago that Northbrook lost one of their major feeder mains. They lost water to about 80% of the town and didn't fully get it back for 9 days. It can be catastrophic when that happens and it isn't something you can instantly fix.

There being no further discussion or issues to come before the Board, Trustee Gregorio made a motion, seconded by Trustee Goodwin to adjourn the meeting.

The meeting adjourned at 6:48 p.m.