

SEWERS AND LAKE HEALTH: WHAT IS THE CONNECTION?

The Town Board, Village Trustees, and Sewer District have been investigating the costs and feasibility of extending sewers into areas of the shoreline. We are making good progress, and have lots of detailed information to report. Before describing how we'll make this important decision, we have included some background material describing the relationship between sewers and lake health.

The State of the Lake

First, let's recognize just how important the lake is to our community. A healthy lake provides recreational opportunities, beautiful views, habitat for fish and wildlife, and a huge boost to our local property tax base. Because of the lake's immeasurable value to us all, the Town, Village and Lake Association have been collaborating on effective ways to protect and improve water quality. The lake has been plagued for decades by excessive growth of aquatic weeds. The chemical treatment program in 2009, 2010 and 2012 has been effective in controlling Eurasian watermilfoil and reducing the overall mass of aquatic plants in the lake. However, dense growth of weeds is still present in some areas, notably the northeastern region of the lake where the water is shallow and sunlight can reach the lake bottom.

This September, an algal bloom turned some nearshore areas of the lake bright green. The DEC tested samples from this bloom, and identified the presence of harmful blue-green algae (cyanobacteria). This finding led to a warning to avoid swimming in, and keep pets away from, areas of the lake with visible blooms.

Plants and algae are part of a healthy lake ecosystem, but excessive levels interfere with the lake ecology and our ability to use and enjoy the resource. Fortunately, there is a wealth of information that can help guide our efforts to protect Cazenovia Lake and minimize the risk of excessive plants and algal blooms. The importance of the plant nutrient phosphorus is well-established as the single most important factor affecting the quality of the lake; algae will grow until the supply of phosphorus in the water is used up. Most rooted aquatic plants, including Eurasian watermilfoil, draw their nutrition from the lake's bottom muds. Consequently, any long-term strategy for lake management must focus on phosphorus.

Sources of Phosphorus

There are three main pathways for phosphorus to reach Cazenovia Lake. First, about one-third of the annual phosphorus input washes into the lake from the watershed (the lands surrounding the lake where water flows toward the lake). The Town and Village have been working to reduce this source- by banning phosphorus-containing lawn fertilizers and by requiring better controls of runoff during construction. The Town is working with the Madison County Soil and Water Conservation District to identify "hot spots" of erosion in the watershed and design preventative measures to keep the soils on the landscape.

The second major source of phosphorus is seepage of groundwater containing effluent from on-site wastewater disposal systems (septic systems). The lake soils have a finite capacity to bind phosphorus and other materials in wastewater. We estimate that about one-half of the lake's phosphorus input comes from shoreline septic systems. Water testing has confirmed that groundwater affected by septic tank leachate is reaching Cazenovia Lake. In addition, indicators of wastewater impacts (salts and optical brighteners from detergents) are not present in the lake in areas served by sanitary sewers. Bacteria levels are variable, depending on weather and waterfowl, but are elevated adjacent to regions with a high density of septic tanks.

The third significant source of phosphorus is internal- phosphorus that entered the lake long ago and is continually recycled from the bottom muds back into the water column during the summer. Eventually, this source will diminish as the external sources (from the watershed and septic leachate) are reduced. Some lake communities have turned to a chemical treatment to help seal the bottom sediments and prevent this flux. This remedial measure works best once the external sources have been reduced to the extent possible.

Alternatives for Managing Wastewater

Our Town engineer, John Dunkle with Dunn & Sgromo, was tasked with identifying appropriate technologies and costs associated with extending sewers into unsewered areas. Many shoreline residents responded to an opinion survey last spring. Based on this input, and discussions with the Village, Mr. Dunkle expanded the scope of his efforts to include supplying public water in addition to sewers into certain areas.

Mr. Dunkle was the primary speaker at the Cazenovia Lake Association annual meeting in late August. At this well-attended meeting, John explained that the provision of sewer and water infrastructure around the lake shoreline is not a "one-size-fits-all" proposition. Because of density, distances and topography, he evaluated options for providing services to four unique areas. The details of his presentation can be reviewed on the Town's web site www.townofcazenovia.org. The four target areas are: Northeast Lake, West Lake, Overlook Terrace and Owahgena Terrace.

In order to manage such a large project, which will involve detailed evaluation of many parcels, the Town Board is considering proceeding in stages. Our hope is that the success of the first district will help the remaining property owners make this important decision to move forward.

Four Potential Districts

The Town Board has agreed that the logical first district to be created would be the Northeast Lake Sewer and Water District. This district would enable extending public sewer and water service to approximately 134 properties on East Lake Rd., North Lake Rd, Mark Lane, Allen Drive, Cazenovia Terrace, and Christian Drive. An additional 28 properties on East Lake Road from Wright Rd. to Hoffman Rd., already connected to the sewer, would be served by public water as part of this district.

The engineer's preliminary costs estimates for the Northeast Lake Sewer and Water District are \$2.6 million for sewers, and \$1.7 million for water. If the combined water and sewer projects are financed at 3% interest, Mr. Dunkle estimated that it will cost each property owner approx. \$160 / month (for the 20 year financing option), or approx. \$120/ month (for the 30 year financing option). For those 28 properties already on sewers, the cost for water is estimated to be approx. \$60/month for 20 years, or \$45/ month for 30 years. These figures assume that no grant aid is available. Any grants will reduce the costs to the property owners. The Town Board will work with CACDA, Madison County Planning and the IDA to pursue all options for grant funding.

Three other districts are being considered. West Lake Sewer and Water District would extend public water and sewer to 86 parcels, at a (30 year amortized) cost of \$120/month. The Owaghena and Overlook areas, which are too far from the current water and sewer lines to connect in a cost-effective manner, would create Septic Management Districts, with retrofits and maintenance of their existing individual on-site systems. The monthly fees for the 21 parcels in Owaghena and 55 properties in Overlook (again assuming 30 year borrowing) would be around \$40 per household for these two districts.

Next Steps

Members of the Cazenovia Town Board have concluded that eliminating or improving septic systems, will greatly benefit the quality of Cazenovia Lake, and enhance property values and the quality of life for residents. Provision of public water to the Northeast Lake and West Lake districts is an additional benefit. However, the decision to proceed ultimately rests with the affected property owners, who will finance the districts. The Town Board needs to assess whether members of the proposed districts will support the Town in pursuing this environmentally beneficial investment. We believe that public management of wastewater disposal will prove to be cost-effective for the property owners, given the relatively low monthly cost associated with each district.

There are many steps to go through before any district becomes a reality. The Town Board is mailing a letter and survey card to all members of the proposed Northeast Lake Sewer and Water District.

Please take the time to become informed about this important topic. Again, detailed information is on the Town of Cazenovia web site www.townofcazenovia.org. Stay tuned for announcements of public information meetings. We are investing in this conceptual design and public information effort because of the importance of the lake to our community. A healthy Cazenovia Lake sustains us all.

Submitted by: Liz Moran, Cazenovia Town Board