

Brief History of Escanaba's Wastewater Treatment.

<u>Year</u>	<u>Description</u>
<u>1890</u>	City records show that both sanitary and storm sewer systems existed in the early 1890's. The first Wastewater Treatment Plant was located near 12 th Avenue South and South 15 th Street. The discharge was to Butchers Creek then to the Bay.
<u>1932</u>	The Treatment Plant was relocated to its present site use WPA funds. It consisted of primary treatment and activated sludge secondary treatment.
<u>1959</u>	Plant was upgraded with the addition of a trickling filter and aerobic digestion.
<u>1973</u>	The WWTP was renovated again, eliminating the trickling filter and aerobic digestion. Added was a complete mix activated sludge system, anaerobic digestion and phosphorous removal. The discharge point was moved from Portage Creek to one mile out into Little Bay de Noc (Lake Michigan). Cost for this renovation was \$3,000,000.
<u>1981</u>	A sewage lift station was eliminated at the corner of 18 th Avenue South and Lincoln Road, and a gravity sewer line was installed (cost was \$500,000).
<u>1982</u>	A new cover was installed on digester #1 (cost was \$100,000).
<u>1984</u>	Aeration system was changed from coarse bubble to fine bubble diffusion in the activated sludge tanks (cost was \$12,000).
<u>1987</u>	A 400,000 gallon sludge storage tank and a storage garage were added. Also, the cover on #2 digester was replaced (cost was \$700,000).
<u>1991</u>	The Ludington Street Lift Station was renovated to facilitate the elimination of the overflow bypass (cost was \$200,000).
<u>1993</u>	New administration building was added along with an emergency generator and computer system. Replaced were the floating gas storage cover on digester #3, heat exchanger and process control instrumentation (cost was \$1,400,000).
<u>1994</u>	Clear-cut over 300 acres of forestland to be used as a sludge disposal/recycling site. This project generated over \$210,000 of revenue for the City.
<u>1995</u>	Purchased a 3,000 gallon tanker truck and implemented an in-house sludge disposal program.
<u>1996</u>	Rebuilt numerous pumps: Raw Sewage Pumps, Waste Activated Sludge Pumps, Raw Sludge Pumps, Digester Recirculation Pumps and the Non-Potable Water Pumps.

- 1997** Removed two 4,000 gallon steel ferric chloride storage tanks and replaced them with two fiberglass tanks of the same size. Also, replaced the old stone aeration diffusers with new very fine bubble neoprene diffusers.
- 1998** Removed the eddy current drive systems on the three raw sewage influent pumps, replaced them with process controllers and variable frequency drives. Another sewage lift station was added at Sand Point and started taking the sludge from the water treatment plant.
- 1999** Completed construction of a one million gallon sludge storage tank. (Cost was \$1,000,000) Received (in August) the EPA Region 5 Award of Excellence. Received (in October) the EPA 1999 National Operation and Maintenance Award.
- 2000** Upgraded the chlorine system. Purchased and installed direct mount vacuum regulators complete with controls and alarms (cost \$5,000). Installed a constant run variable speed non-potable water pump (cost \$3,000). Replaced the Sewer Jet/Vac Truck with a new model. Cost of the new truck was \$198,000 less the trade-in for the old truck of \$80,000. Added a 5 bay storage garage (cost \$30,000).
- 2001** Built a second floor storage area in the new garage and installed several new concrete sidewalks. Designed, built and erected a new entrance sign. Purchased and installed a new digester circulation pump. Refurbished the existing aeration diffusers and added 30% more diffusers to maximize oxygen transfer. Planted and harvested a crop of over 800 pumpkins. Received the Wastewater Utility of the Year award from Michigan's Rural Water Association.
- 2002** Rebuilt the number one final clarifier superstructure and the drive unit on the number two clarifier. Set a new City record for going the longest period of time without having a sewer blockage in a city line (One hundred and fourteen days, from August 26th to December 18th).
- 2003** Rebuilt the drive unit on the number one final clarifier. Torque overloads were installed and calibrated on both final clarifiers. The aerated grit machine was rebuilt. Construction was started on three new Lift Station electrical control panels. A new 3500 gallon sludge tanker truck was purchased (cost \$103,000).
- 2004** Converted old Greenhouse building into an oil storage shed. Gravity sewer line was constructed to the Ren Zone at the Delta County Airport.
- 2005** Installed two new 18" diameter influent valves weighing over 1000 pounds each (cost \$12,000). Extended existing asphalt driveway (cost \$34,000). Installed new lift station controls at Lake Shore Drive, 23rd Avenue, and CNW lift stations. Added electricity and a cement floor in the cold storage building. Rebuilt #2 clarifier drive (triple gear reducer)

2007 Replaced the old 2000 model Sewer Jet/Vac Truck with a new model. Price of new truck was \$269,000 (the trade in price of the 2000 truck was \$87,500 the new truck purchase price was \$181,500).

2008 Installed new Aeration Header supply pipes and diffusers in the secondary treatment process (cost \$15,000). Installed a new bar screen on the front end of the WWTP (cost \$150,000).

2009 Installed a new FM Radio SCADA and Alarm System for all sewage lift stations. (Cost \$75,000) Seal coated WWTP drive way (cost \$9,000). Replaced the two administration building heating boilers (cost \$20,000). Installed a TV Security System (cost \$4,500).

2010 Installed two new Dry Pit Submersible Pumps in the Lake Shore Drive Lift Station. (\$20,000). Replaced a continuous running blower on the front end to the plant with a high efficient vary speed blower (installation was done in-house) (\$15,000).

2011 Proposed:
Install a SCADA System at the WWTP (\$75,000).
Build and install an Automatic Bar Screen at Ludington Street Lift Station. (\$25,000). Purchase a new sludge hauling truck (\$140,000).