



Sewer System Review And Capital Improvements February 2012

Grattan Township Sewer Systems

- Systems have been in operation since 1978
- \$5.6m current value of capital assets in Grattan and Grattan/Vergennes sewer systems
- Infusion of capital investment completed in 2011 at irrigation sites and pump stations to extend life of systems, improve reliability and conform to DEQ mandates/permitting
- Sewer systems serve over 750 households in Grattan Township and over 60% of the Twp. population

Grattan Sewer System

- Serves residents around perimeter of Big Pine Island Lake
- Gravity sanitary sewer, force mains, six pump stations and seven grinder pump stations
- Series of lagoons feed spray irrigation system covering 18 acres
- Drip irrigation system replaced 15+ years ago
- “Old Orchard” irrigated in 2009 to reduce high lagoon levels from 2005-2008. Will be improved for annual use in winter of 2012.

Grattan Vergennes Sewer System

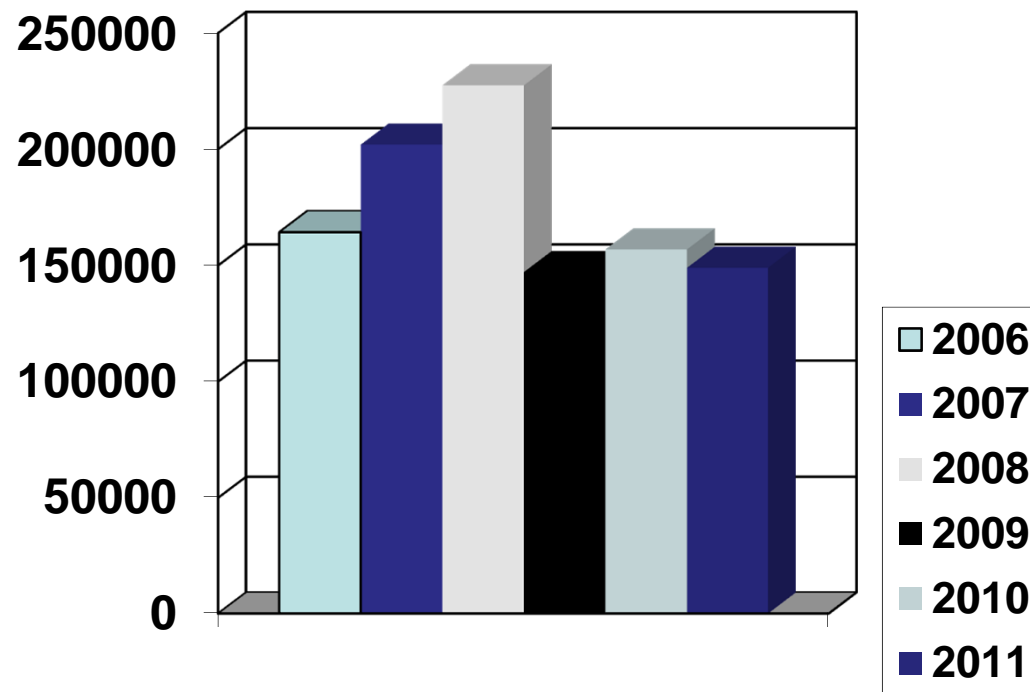
- Serves residents around Big Crooked Lake, Murray Lake and Ratigan Lake and areas along 5 Mile Rd.
- 8" gravity sanitary sewer, force mains, (17) pump stations and (21) grinder pump stations
- DEQ mandated replacement of drip irrigation system in 2011 as part of renewal of permit
- New center pivot irrigation system was installed in 2011 at cost of \$250,000.00. Operational in spring of 2012.

Grattan Township Sewer System Financials

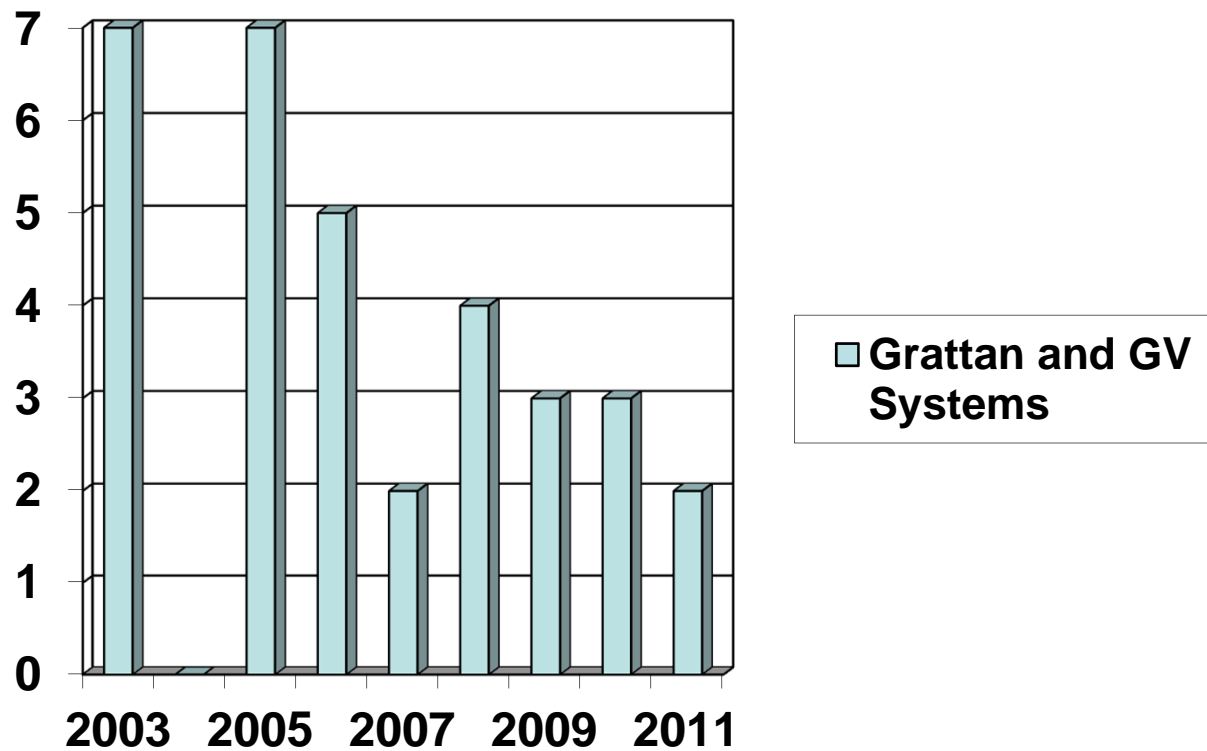
Sewer System Spending

- Strategy has shifted over past 5 years to investing a higher % of user fees into capital improvements and preventative maintenance
- “Proactive” versus “Reactive”
- Goal is to reduce routine O&M and emergency call out costs and prevent failures of key components and SSO's
- Playing “catch-up” now on improving system and reliability due to inadequate investment in sewer systems from 1980-2005

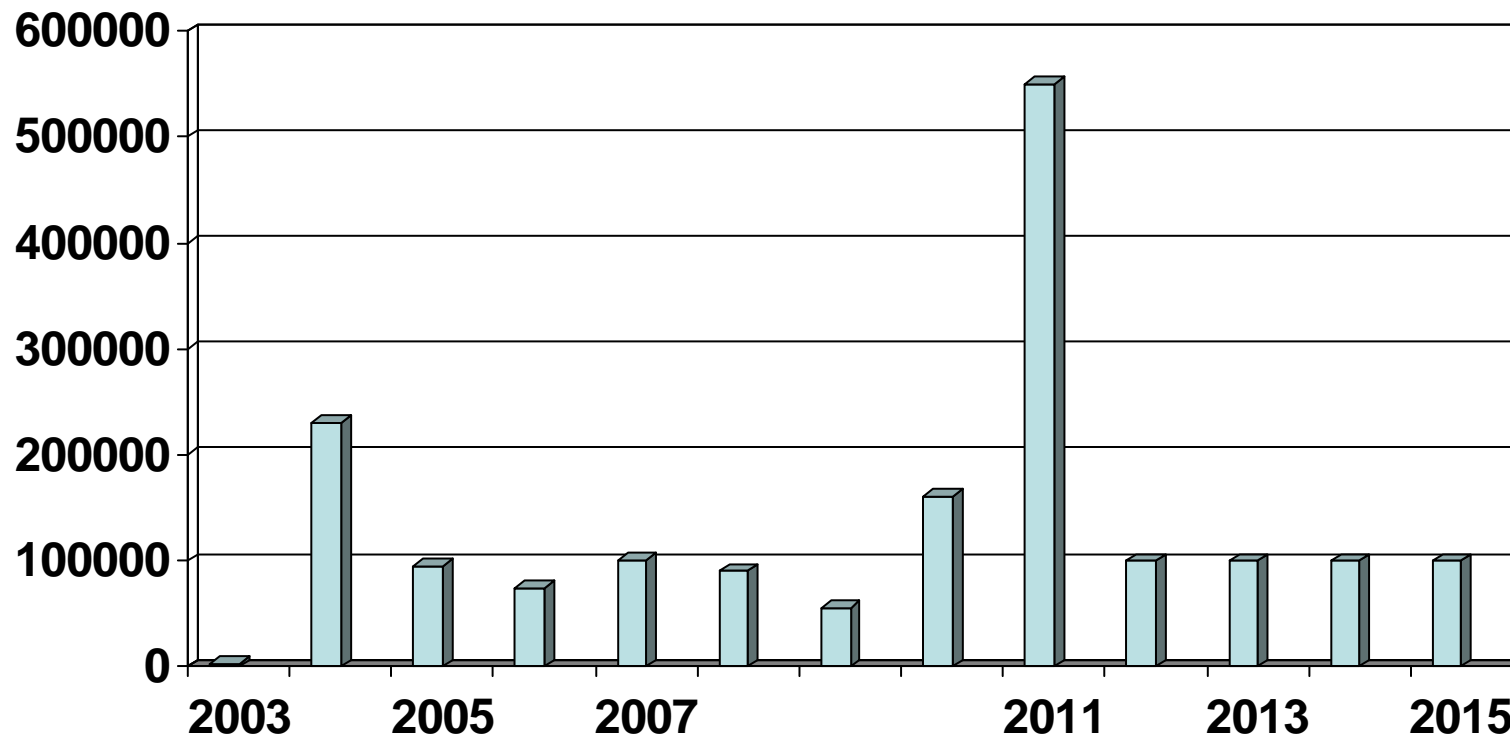
Sewer System O&M Costs



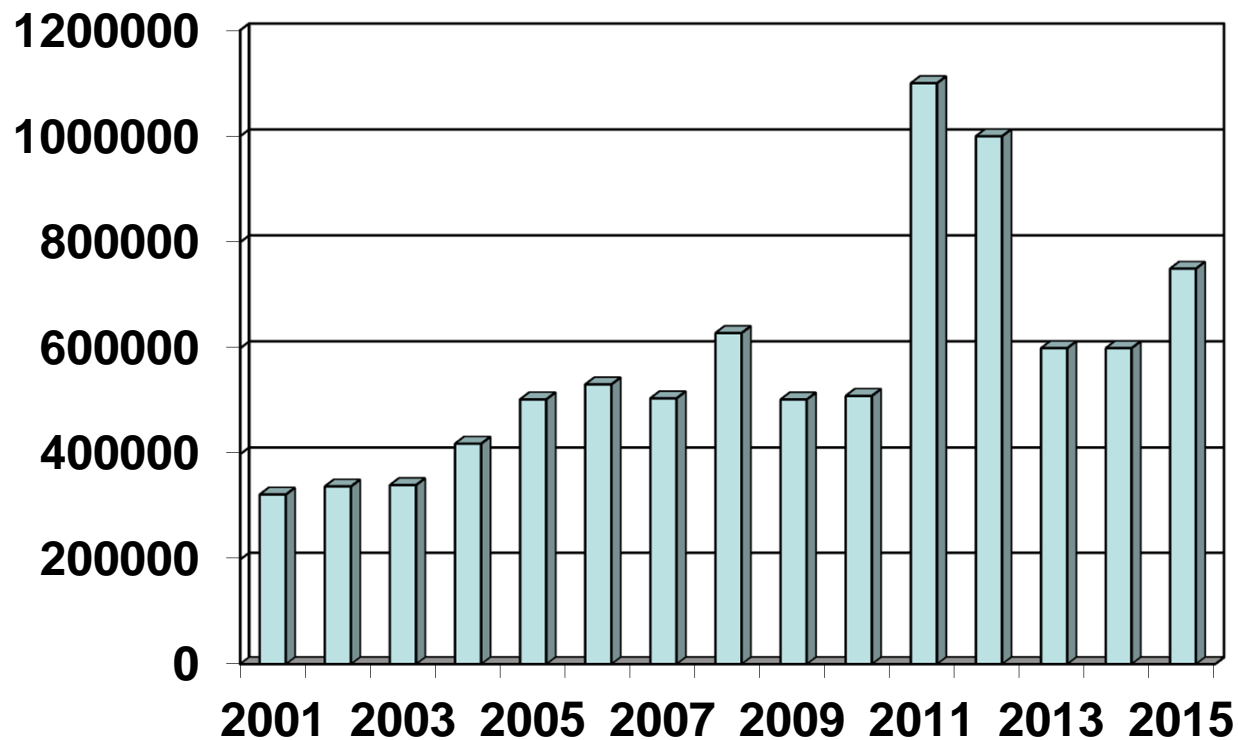
Grattan Township Sewer System Reported Sanitary Sewage Overflows



Sewer System Capital Improvement Investment



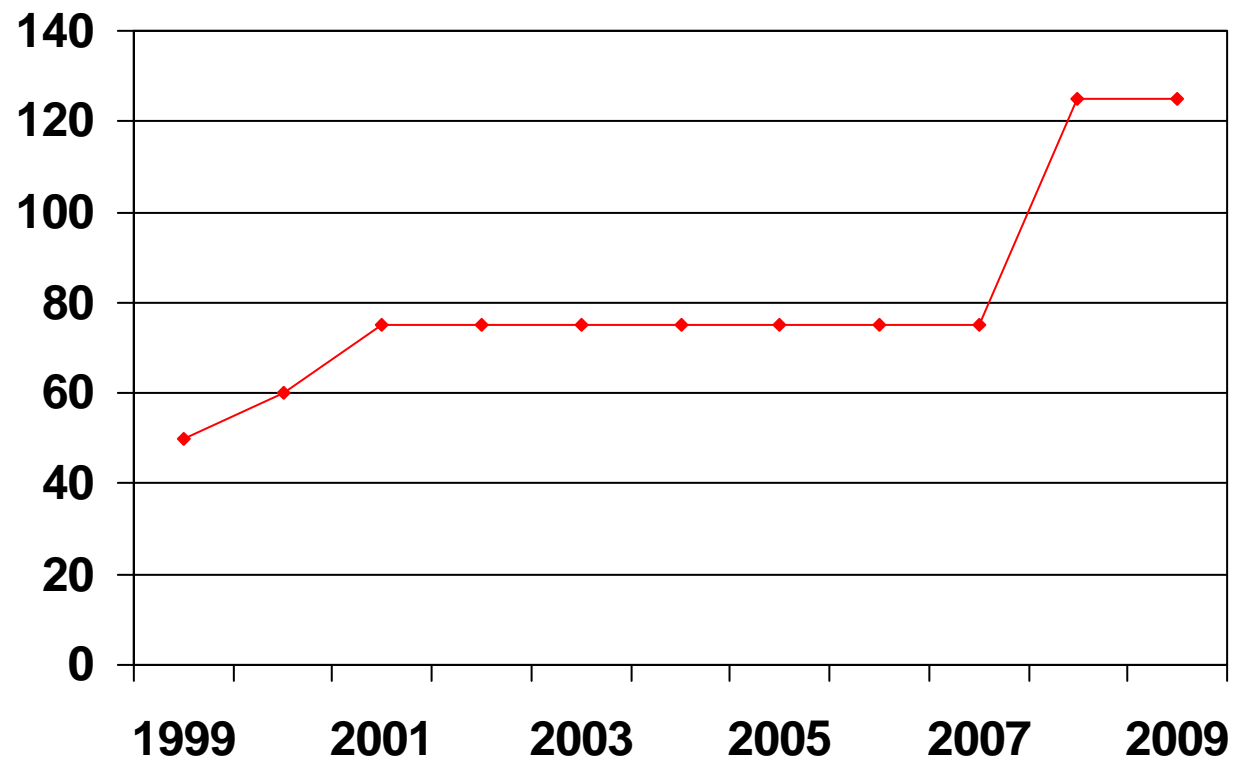
Grattan Township Sewer System Total Operating Expenses



Source: Auditors' Reports for years 2000-2009

Forecast for years 2010-2015 includes capital projects, including sludge removal from ponds in 2014-2015

Grattan Township Sewer Quarterly User Rates



Comparison of Sewer Rates in Area

<u>Community</u>	<u>Quarterly Rate</u>	<u># of Units</u>	<u>#Lift Stations</u>	<u>*Irrigation Systems</u>	<u>Age</u>
Caledonia	\$141.00	1,300	94	0	29
Cannon Twp	\$120.00	1,905	12	0	40 yrs
Courtland	\$130.00	459	50	0	34
Grattan Twp	\$150.00	749	53	2	31 yrs
Orleans Twp	\$ 63.00	249	**7	0	7 yrs
Wright Twp	\$204.00	229	3	0	

*Above communities that show "0" Irrigation systems discharge wastewater into municipal treatment systems or from lagoons into creeks/rivers.

**Orleans Twp has dedicated, permanent generators for each lift station

Prein & Newhoff Rate Study Recommendations-2007

“Based on life cycle evaluation, approx. \$115,000 per year is needed over next 7 years to cover replacement cost of assets....”

“It is recommended that the rate stabilization fund be built up to 25% of the annual budget...”

Prein & Newhoff Wastewater Rate Study Recommendations-2007

1. “Approve rates on an annual basis.
 2. Capital Improvement Fund should be built up so monies are available for projects in future.
 3. Develop a Capital Expansion Fund.
 4. Increase rates to begin implementation of above.”
- *Grattan Township has increased rates to \$150.00 per quarter to fund this strategy

Sewer System Rates & Assessment

- Periodic or annual increase in O&M quarterly rates not sufficient to cover capital/system improvement costs
- Continue to use quarterly rates to cover routine O&M and minor repairs
- \$25.00 increase in quarterly fees occurred in 2010 to build up reserve funds and fund future capital improvements
- Special assessment in 2011 to complete mandated replacement of GV irrigation system and to complete \$190,000 of capital improvements

2008-2011 Sewer Improvements & Progress

- (35) of (103) pumps in systems replaced
- Three major pump station wells relined and piping replaced
- All force main lines inspected with digital inline cameras
- Floats replaced in all lift stations and grinders
- Installed flow meters at primary pump stations that pump to Grattan and GV treatment sites
- Install of (25) Mission Dialers at pump stations
- (8) new pump station control panels installed
- New mower purchased for lagoon sites
- 2nd generator purchased
- New irrigation flowmeter and rainfall detection/irrigation pump shutoff controls at Grattan and GV treatment sites

2008-2011 Sewer Improvements & Progress

- Clean up and reorganization of Grattan & GV treatment site buildings
- Repair of heating systems, water supply and bathroom at GV site
- Corrective wiring, conduit and instrument replacement at 25 panels
- Extension of power line at PS# 3 at BPI Lake to enable easier generator hookup in winter
- Upgrading of power lines and sources at BPI by Consumers
- Pump station “draw down” study completed for all pump stations
- Completion of “Assessment of Facilities “ by Infrastructure Alternatives (IA)

Results of Sewer System Investments

- Downward trend in “Sanitary Sewer Overflows” (SSO’s)
- Downward trend in emergency call out costs (exclusive of power outages). 10% reduction forecasted in 2012
- Monthly average billings for routine O&M from sewer system O&M provider have decreased 33% from 2009->2011
- Grattan and Grattan Vergennes Irrigation systems will be updated and operating to current MDEQ permits and guidelines in 2012
- Reduction in sewer system back ups at residences over past 5 years
- Strategy of “proactive” equipment repairs and replacement intact to prolong useful life and dependability of sewer systems

Grattan Vergennes Building

June 2009



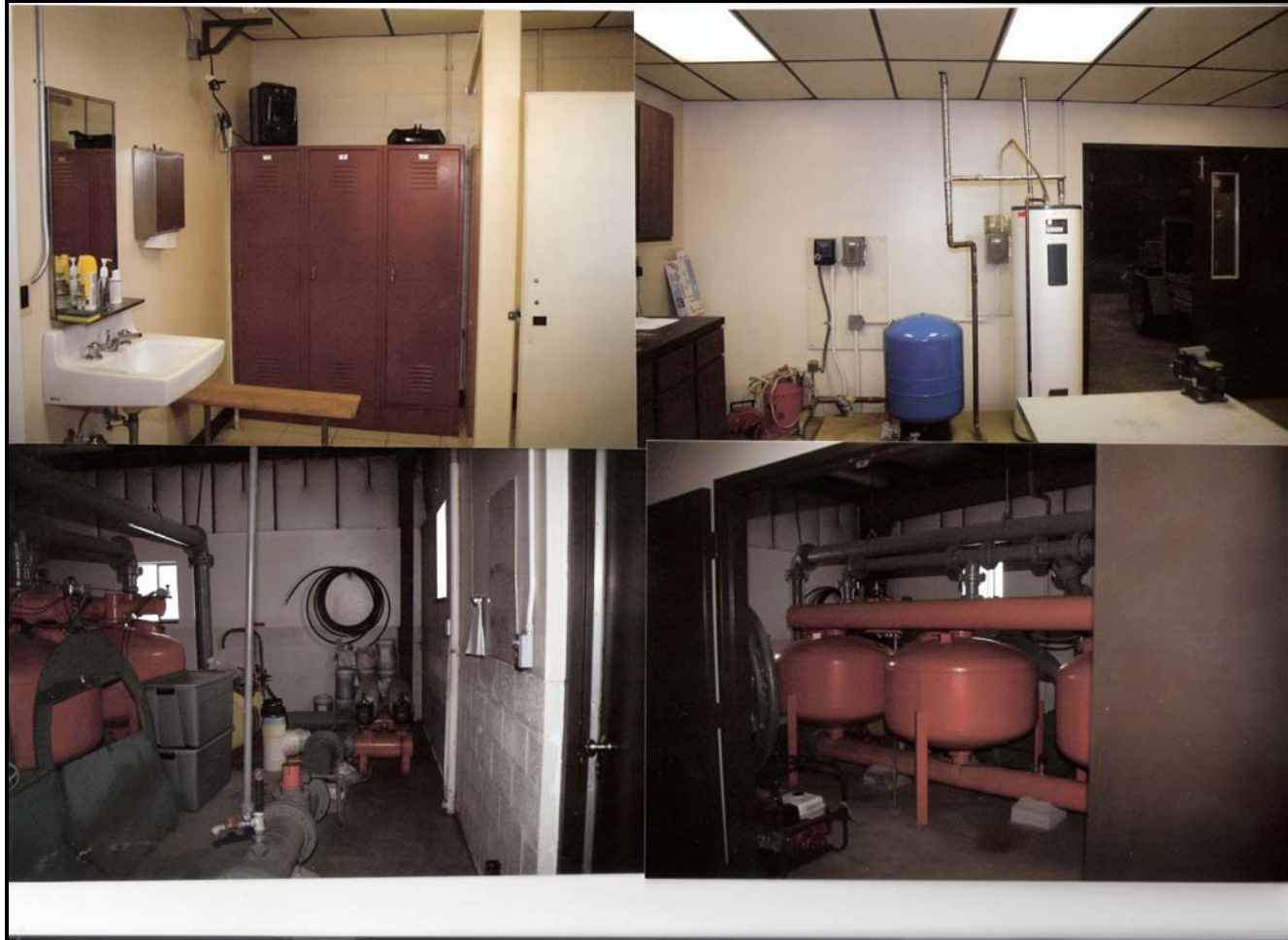
Grattan Vergennes Building

June 2009



Grattan Vergennes Building

June 2009



Grattan Vergennes Lagoon Control Panel-2009



New Panel PS#6



New Panel at GPS#4

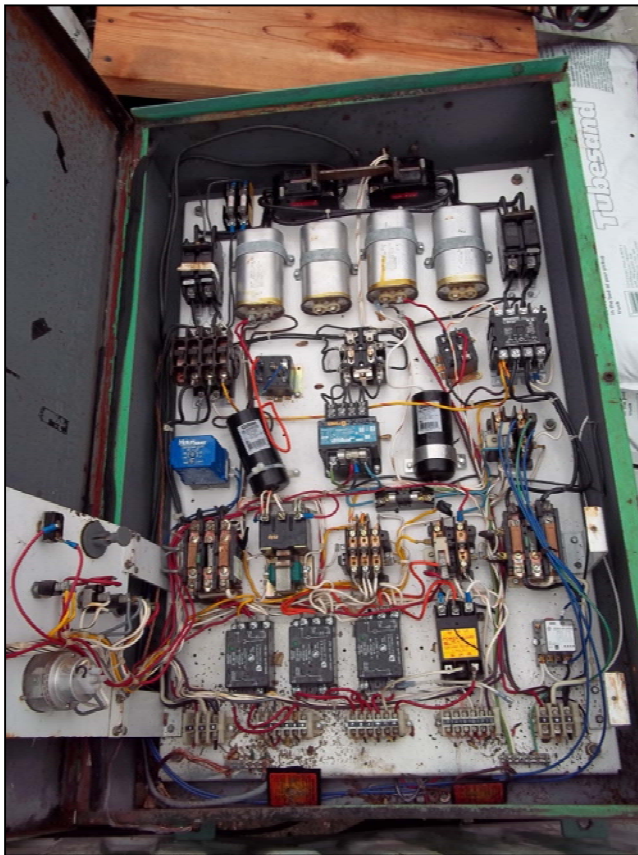


New Panel GVPS #12

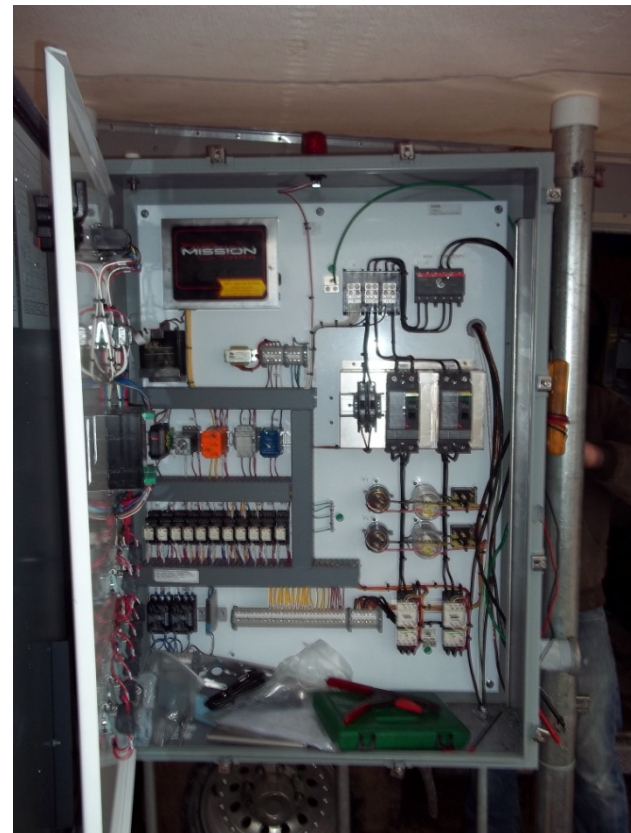


New GVPS#9 Panel

Old Control Panel

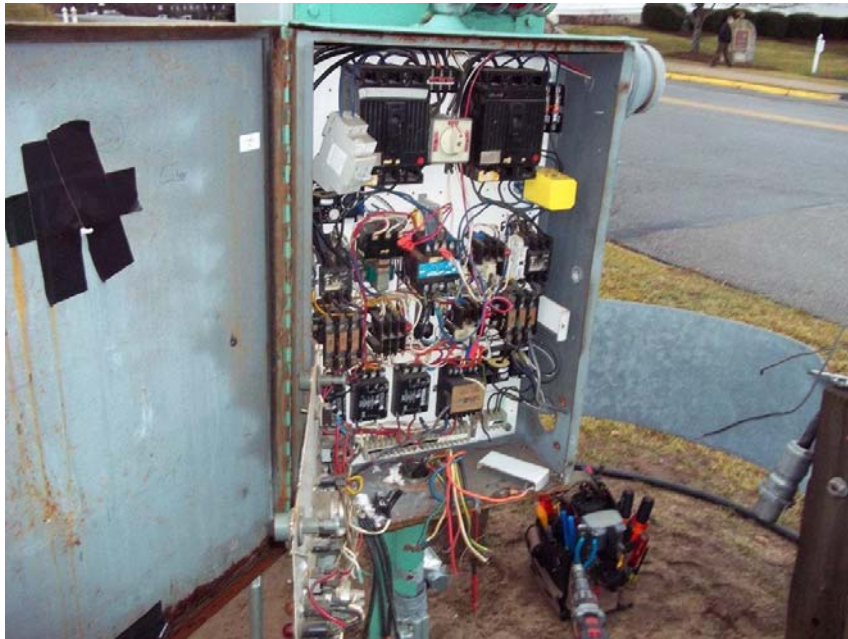


New Panel

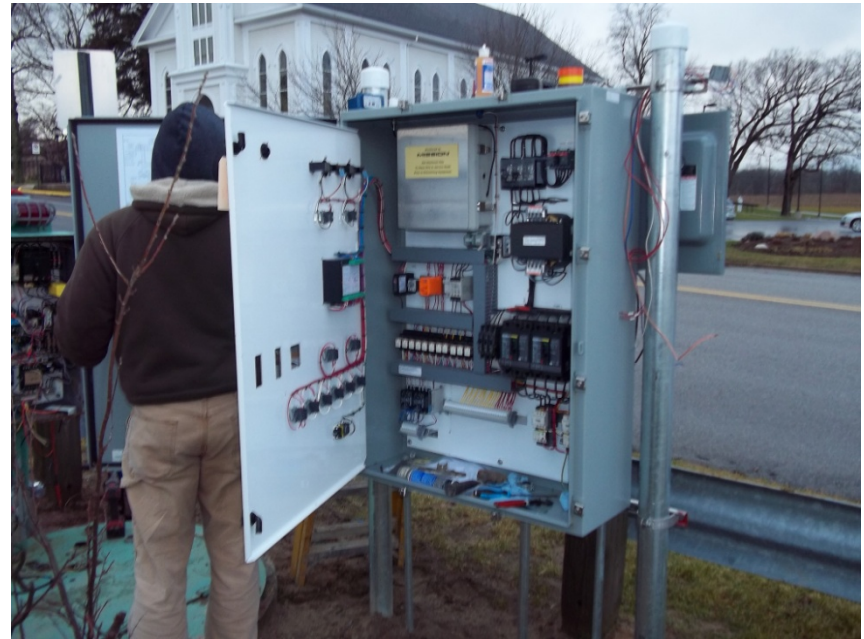


Panel GPS#15

Old Control Panel



New Control Panel



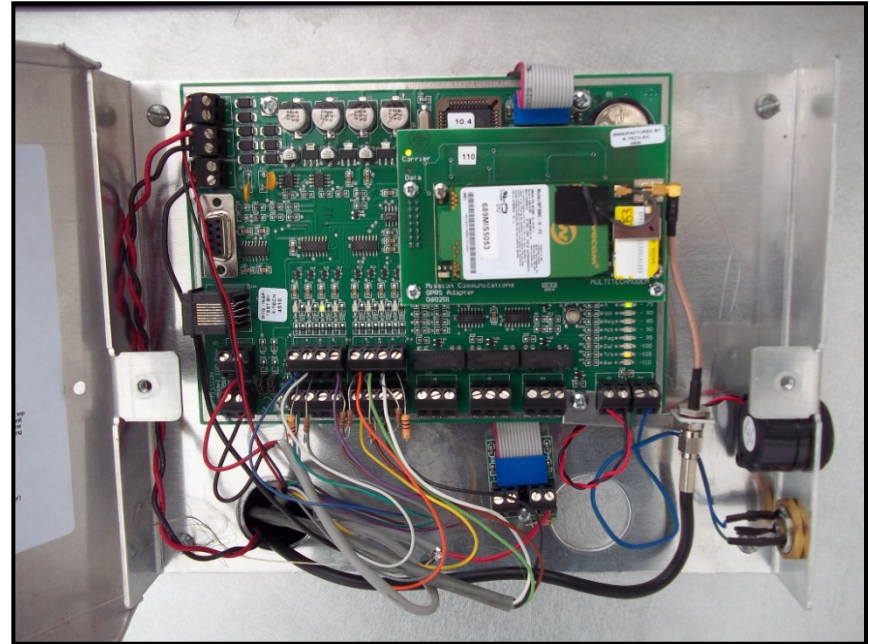
New Panel PS#2



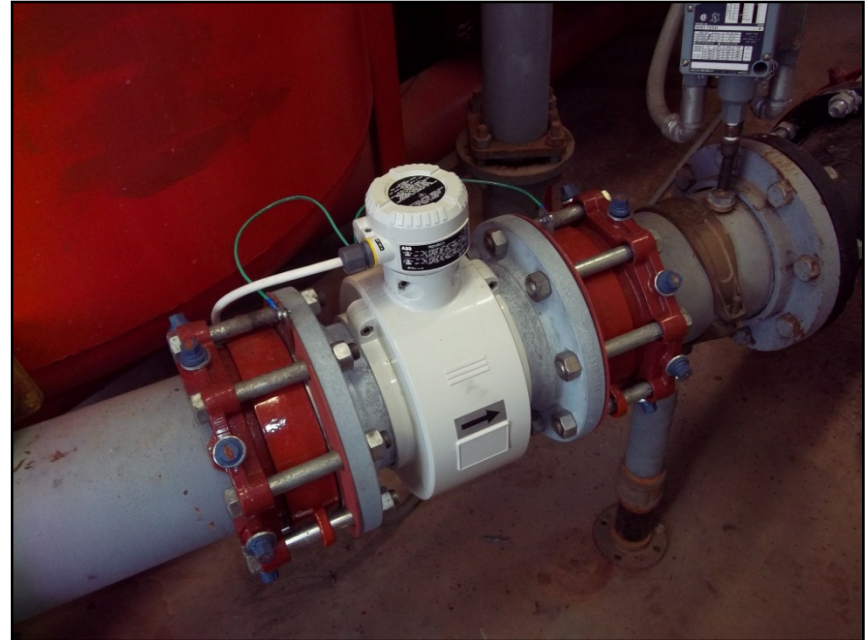
GVPS#5 Power Wire Replacement



New Mission Dialers (25)



New Flow Meters & Display for monitoring Inflow to Grattan & GV Treatment Sites



New Center Pivot Irrigation Systems at Grattan Vergennes-2011



New Center Pivot Irrigation Systems at Grattan Vergennes-2011



Mandated Improvements by Michigan DEQ

- Replacement of Grattan Vergennes Irrigation system in 2011
- Above part of renewal of GV Irrigation Management Plan (IMP) in 2010
- Improvements and expansion of Grattan irrigation site per renewal of IMP in 2010
- Grattan and Grattan/Vergennes #1 Ponds have never had sludge removed. Potential issue with DEQ in future

Grattan Vergennes Pond #1



Grattan Vergennes Pond #1



Pond bottom 2.5 ft. below pipe

Facility Assessment by IA in 2010

- Detailed inspection and analysis of Grattan and Grattan Vergennes treatment sites and all pumping stations (53)
- Specific, prioritized, capital equipment replacement plan for next 5 years
- Objective is to improve useful life of systems and to reduce failures and emergency call outs
- Recommended investment of \$800,000.00 over next 5 years. **\$200,000 of improvements completed in 2011**
- Approximately 50% of \$800,000 is replacement of (32) control panels. Eight (8) replaced in 2010/2011.

Excerpt from IA “Analysis of Facilities”

Recommendations

“The Township should be prepared to budget for the replacement of at least two control panels per year over the next several years to address the aged panel problems, the same number of stations to address the discharge fitting problems and the access hatch problems until complete.

Replacement of float switches in two stations per year should be budgeted for the next three years to complete the float change out program, and high water floats should be added to two stations to prevent unnecessary sewage overflows by alerting the operator of an impending overflow even during power outages.”

Summary of IA Recommendations

See “Assessment of Facilities Report”

September 2009

Summary Table: pages 36-39

Can be accessed on Grattan Twp website

Summary of Estimated Capital Improvement Costs over Next 5 years

• Capital Improvements to Grattan and Grattan Vergennes systems	\$300,000.00
• Sludge removal at Grattan pond#1 (Completion 2015)	\$100,000.00
• Sludge removal at GV Pond#1 (Completion 2015)	<u>\$100,000.00</u>
Total:	\$500,000.00

Financing of Sewer Improvements

- Bonds, grants and rural development loans investigated. Increased cost and complexity to finance via these methods. Grattan Township and project do not qualify.
- Conventional loan was acquired for 10 years at 4.00% interest. Users were be given option of one time payment or annual payment over life of loan.

User Rates for Sewer Improvements

- Review quarterly user rates annually to determine if they will fund O&M and normal sewer system expenses.
- Initiated \$25/quarter capital improvement fee in 2011 to cover some of proposed IA capital improvements over next 5 years. Review annually.

Summary

The Grattan Township Board, Sewer Advisory Committee, Infrastructure Alternatives, various engineering firms and contractors have been proactive in the past 3 years to ensure that the sewer systems are restored to satisfactory operating condition.

The strategy of “break and fix” has been replaced with one that emphasizes engineering analysis of key components of the pumping systems, water treatment sites, and irrigation systems to determine a prioritized list for upgrades/replacements. The likeliest failures or ones that would likely cause a SSO are priority #1.

Our objectives are to increase the dependability of the systems, reduce emergency break downs/call outs, increase the useful life of 30+ year old systems, meet new/changing MDEQ requirements and to provide for the health, welfare and safety of the sewer customers and our lakes.

Summary

Difficult decisions have been made to increase rates for funding of these capital improvements to the systems. The investments are beginning to pay off and the sewer systems are gradually improving. Unfortunately most sewer customers do not physically see the improvements made to the systems as most are at irrigation sites or underground. Many sewer customers will notice new pump station control panels around the lakes.

Moving forward, the prioritized list of needed capital improvements will be reviewed by the Township Board, the Sewer Advisory Committee and Infrastructure Alternatives. As funds become available and budgeted, monies will be spent to continue the revitalization of the sewer systems.

Additional details on your sewer systems can be reviewed on the Grattan Township website. Feel free to attend any Sewer Advisory Committee or Township Board meetings if you would like to learn more about the Township sewer systems.