Merrimack Wastewater Treatment Facility

Challenges and Solutions from a Regional and Local Perspective

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Services Provided

- Local and regional septage treatment
- Local and regional ww sludge composting
- Local and regional compost marketing
- Bacteriology testing for Town water bodies and Souhegan Watershed Association (Wasserman Park, Naticook Lake, Horseshoe Pond, Souhegan River)

Types of Wastewater

- Domestic (residential)
- Commercial contributions
- Septic systems-on site treatment at homes and commercial establishments
- Industrial discharges that require Industrial Pretreatment.

Merrimack WTF

- Began operation in May 1970.
- Primary and Secondary Treatment. Design flow 5.0 mgd. Current flow 1.8 mgd
- Disinfection of treated wastewater prior to discharge to the Merrimack River
- Solids handling by on site composting
- Collections system consists of 90 miles of buried pipes, 6 pump stations, and 1,500 manhole structures!
- 5,500 residential, commercial, and industrial connections
- AB is our largest user at 50%

Wastewater Treatment

- Treatment is accomplished by both gravity settling of solids and through biological (bacterial) treatment of wastewater
- The end result is clean water that is discharged to Merrimack River and compost that is used as a valuable nutrient rich solid amendment

Regional Septage Issues and Solutions

- Septic systems require pumping every 2 to 3 years to maintain optimal conditions for treating ww at homes
- NH RSA requires communities without wastewater treatment facilities to have agreements with those that do
- Merrimack has agreements with 9 communities to accept their septage. These agreements provide a solution for the communities as well as revenue for Merrimack by charging a tipping fee
- The NHDES SAG Plus Grant Program was an incentive for the host community since it would provide additional grant funds for plant upgrades. SAG and SAG Plus programs are now on hold due to budget constraints. This creates less incentives to sign agreements.
- Capacity may be an issue for some communities

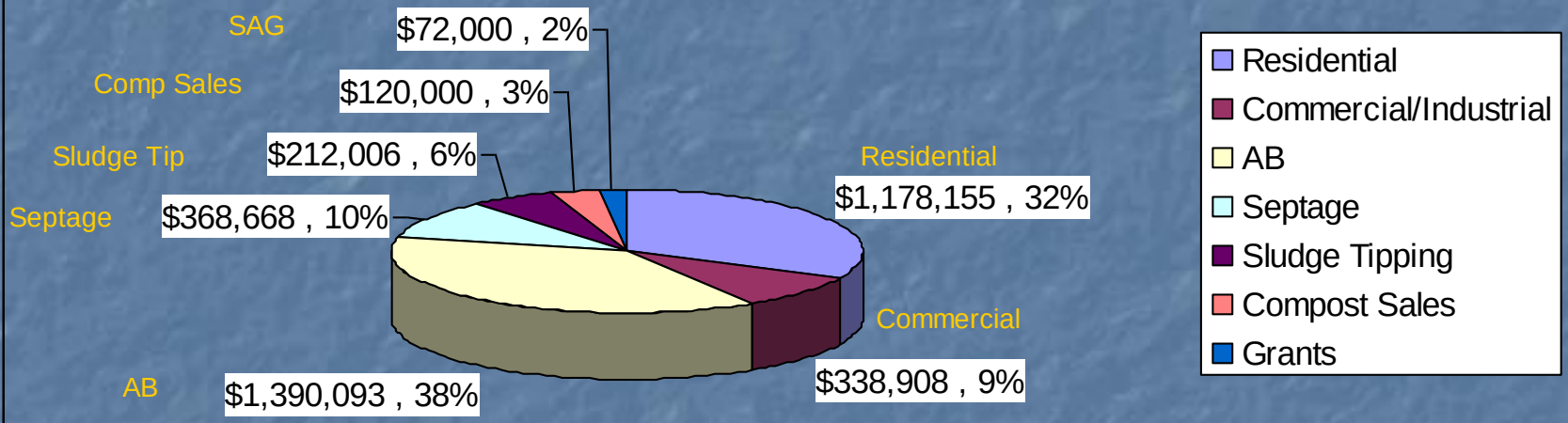
AB Wastewater

- Largest user on the system, AB contributes 50% of flow and load
- AB is the equivalent of 36,164 people!
- Since 2006 have reduced flows by 1.0 GPD from 1.6 MGD to .6 MGD
- Sewer user fees are based on how much of the facility is used, therefore revenues derived from AB have been reduced by approximately $400,000 per year
- Most costs incurred are fixed costs (personnel, operational, capital) therefore the cost to operate the facility remains relatively constant
- The Merrimack Facility is now 43 years old and is undergoing major capital upgrades that will drive future sewer rates
- The challenge is to replace old and inefficient equipment that has reached the end of its useful life, operate the plant efficiently, and meet tighter EPA permit limits all at a time when budgets are being squeezed and funding sources are hared to come by

Regulations

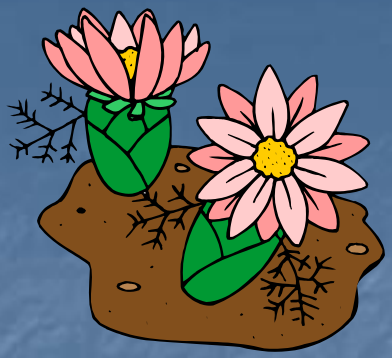
- NPDES discharge permit-parameter based and operating conditions
- DES Air Permit for biofilters and other fugitive emissions
- Compost: EPA Part 503, NHDES 800, Mass CMR 32
- EPA MSGP Storm water Sector T

Funding Sources



Proposed and Completed Projects: Treatment and Compost Facilities

- Phase I: Completed in 2006, $4.5 MM
- Dewatering Upgrade, completed in 2011 $2.824 MM
- Phase II: Under design @ $7.075 million that includes compost facility upgrades
- Phase III: Proposed for FY 18-19 at an estimated cost of $4.8 million
- Total plant upgrades costs through Phase III will be $19.199 MM to be paid for through user fees and funded by low interest loans with NHDES



Biosolids Compost

- Natural method of treating the byproduct of the wastewater treatment
- Combines sawdust, finished compost, and raw dewatered sludge and is composted under controlled conditions
- Is sold for use by landscapers, golf courses,and local residents to restore or improve soil conditions and is used as a component in top soil manufacturing

Marketing Compost

- Agresource markets 80% of our compost to NH, Mass., Conn., Vermont and New York. Majority is used in Mass and NH
- We market to local residents and landscapers (about 1-2,000 cu yd.)
- Market between 10,000 and 12,000 cu. yards

Top dressing

Mulch

Front lawn at plant

Revenue Generated

- We compost outside wastewater treatment plant sludge from the communities of Jaffrey, Hooksett, Amesbury, Ma. Bristol and Henniker and generate gross revenues of approximately $140,000
- Compost sales for Fiscal Year 12-13 was $120,000
- Because of the revenue generated composting is the least expensive method of treating wastewater sludge

Benefits for Lawns

4 applications of fertilizer

1” top dressing of compost

Conclusions

- Meeting regional needs also provides revenues to help stabilize sewer rates; creates a "win win" situation
- Funding the operational budget to meet level budget requests is a challenge
- Meeting more stringent permit requirements without adding staff or upgrading equipment is a challenge
- State and Federal cost sharing is shrinking putting more of the burden on local communities