Sudbury Wastewater Treatment Plant Energy Optimization

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Greater | Grand Sudbury

Mission Statement

- "The City of Greater Sudbury Water/Wastewater Services Division is committed to providing its customers with **safe, reliable, and environmentally responsible** municipal water and wastewater services with a **sustainable, cost effective approach**."

Energy Optimization Initiatives

- Energy Savings identified as priority for W/WW Division
- W/WW energy budgets were reduced by $246,000 as per 2013 budget deliberations

Introduction

- Energy study partially funded by OPA
- Identified Potential Savings
- Subsidy to implement solutions in process
- Expect full implementation by end of 2014
- First full implementation in Ontario

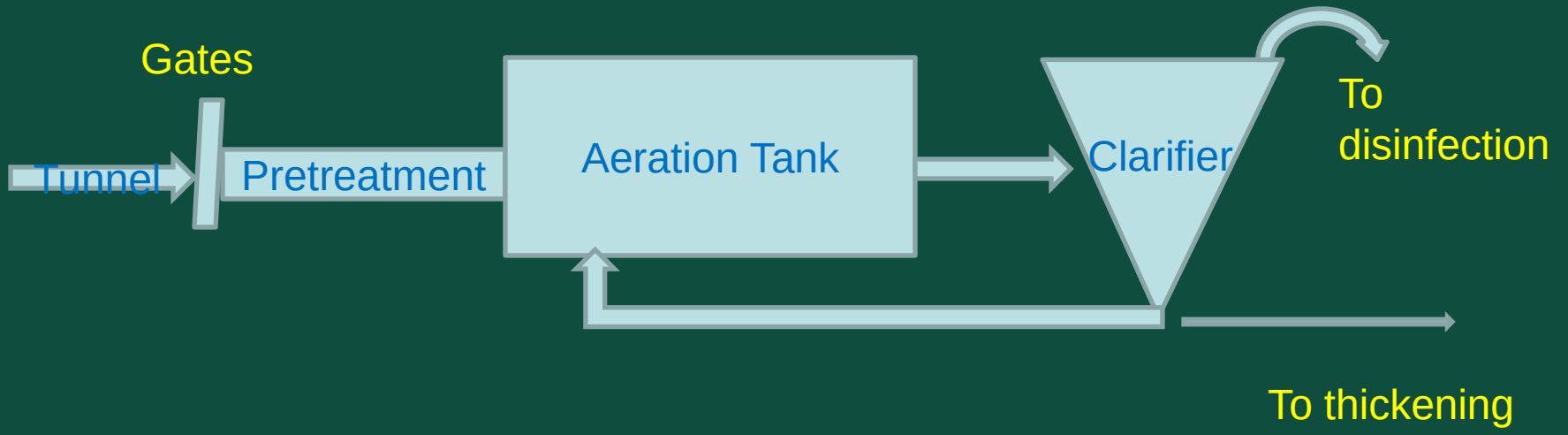
Study Team

- City staff – Sajeev Shivshankaran, Brad Johns, Mike Jensen and SWWTP Operators
- AMEC Environment & Infrastructure

Plant Energy Consumption

- Operating budget for the plant $2.67M
- Energy cost represents about 34% of Operating budget.

SWWTP Process



Aeration System

- Blower replacement/reconfiguration.
- Estimated energy savings of 454,000 KWh/year.
- Estimated cost savings of $54,000/year.
- Estimated capital cost $540,000
- Estimated potential incentive (Grant) $162,000
- Payback period of 6.9 years

Aeration Tanks

Automating the Control of Air to Aeration Tanks

- Control Blowers via DO
- Estimated energy savings of 363,000KWh/year
- Estimated cost savings $43,000/year
- Estimated capital cost $89,000
- Estimated potential incentive (Grant) $45,000
- Payback period 1 year.

Secondary Treatment Process Operation

- Modifying the treatment process
- Estimated energy savings of 606,000KWh/year
- Estimated cost savings $72,000/year
- Estimated capital cost $217,000
- Potential incentive (Grant) $95,000
- Payback period 1.5 years

Clarifiers

Recommended upgrades

- Replace one 250hp blower with new turbo blower system
- Modification to process operation
- DO control for aeration system

Next steps

- Complete upgrades
- Monitor process changes and adjust as required
- Review and study other plants and lift stations
- Continuous review and identification of potential savings

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Thank you