

Municipality of North Perth
North Perth WWTP Master Plan Update and
Small Communities Fund Application



Presentation to Council
December 15, 2014
(amended December 17, 2014)

Background

21 years old

- 1991 – Hwy 23 SPS and Forcemain
- 1994 – Extended Aeration
- 1999 – Sludge Treatment & Storage
- 2006 – Septage Receiving Station
- 2007 – BNR Process



Chapman Drain

Middle Maitland River

North Perth WWTTP

Hwy 23 SPS

Atwood Forcemain

Jan. 2012: Study Commencement Stakeholder Notifications issued

May 2012: Study Design Report completed

June 2014: Draft Master Plan report

Oct. 2014: Updated Master Plan

Nov. 2014: Meeting with MOECC

Dec. 2014: Consultation with Stakeholders

Feb. 2015: Public Information Centre

Winter 2015: Finalize Master Plan report





The Small Communities Fund (SCF) will provide \$1 billion for projects in municipalities with fewer than 100,000 residents.

Applicable Categories:

- Wastewater
- Disaster Mitigation



Critical Infrastructure

North Perth Wastewater Treatment Critical Upgrade Project

Item	Description	Cost (\$ million)
1.	Hwy 23 Sewage Pumping Station	\$ 0.9
2.	New Influent Forcemain	\$ 2.5
3.	Headworks Facility	\$ 3.0
4.	Lagoon Upgrades	\$ 1.5
5.	Sludge Management	\$ 4.0
6.	Tertiary Filtration and Disinfection	\$ 0.5
7.	SCADA	\$ 0.1
8.	Power Supply	\$ 1.0
Total:		\$ 13.5 million
(including engineering, project management and taxes)		

1. Hwy 23 Sewage Pumping Station

Description

- Failure of pump station would result in spill of raw sewage into Middle Maitland River

Proposed Work

- Install screening/grinding equipment to improve pump reliability, reduce clogging and minimize risks associated with manual cleaning by staff.
- Upgrade HVAC equipment
- Upgrade fuel storage/delivery equipment



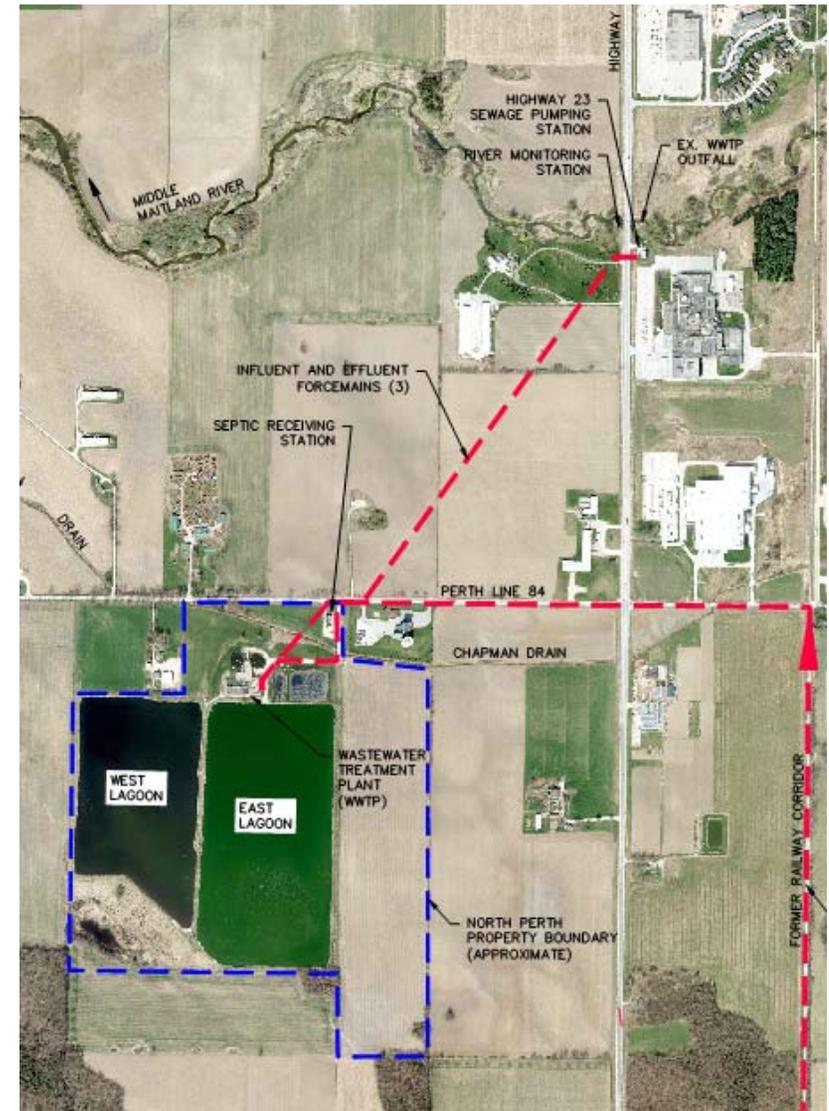
2. New Influent Forcemain

Description

- Existing forcemain is becoming plugged with grease and debris, reducing capacity
- Failure of forcemain could result in release of sewage into environment

Proposed Work

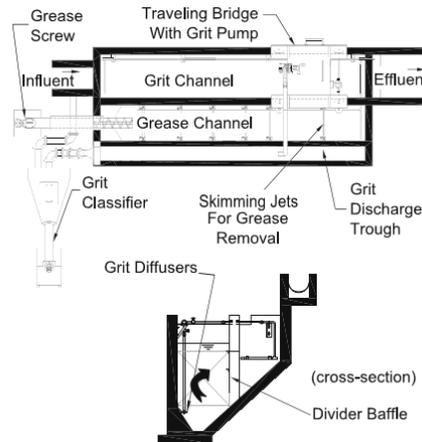
- Construct second forcemain
- Rehabilitate and clean existing forcemain to extend life



3. Headworks Facility

Description

- The existing facility is 21 years old and nearing the end of its useful service life
- Manual coarse bar screen is labour intensive, and ineffective at capturing debris
- No redundancy
- Excessive grease in plant influent causes performance issues downstream.



Proposed Work

- Enclose headworks in building
- Replace manual bar screen with dual automated fine screens
- Construct new flow splitting chamber, second inlet channel and second grit chamber
- Replace undersized grit classifier
- Remove fats, oils and grease at headworks
- Combine headworks facility with biosolids management facility



4. Lagoon Upgrades

Description

- East Lagoon is full of accumulated sludge, posing a liability for Municipality
- West Lagoon is used as wet weather flow buffer and normal secondary effluent polishing, and requires redundancy
- Old flow distribution chambers and piping between lagoons in need of immediate repair



Proposed Work

- Decommission portion of east lagoon
- Divide West Lagoon into two cells for redundancy, including upgrades to flow distribution chambers
- Decommission old abandoned structures



5. Sludge Management

Description

- Aerobic digester at end of useful life
- Sludge storage does not meet MOECC guidelines
- No redundancy in digester and storage basin
- Sludge operations produce nuisance odours

Proposed Work

- Construct two new concrete lined aerobic digesters
- Improve sludge management and operation, and install sludge thickener
- Expand sludge storage for additional capacity



Example of Rotary Drum thickener (Parkinson)

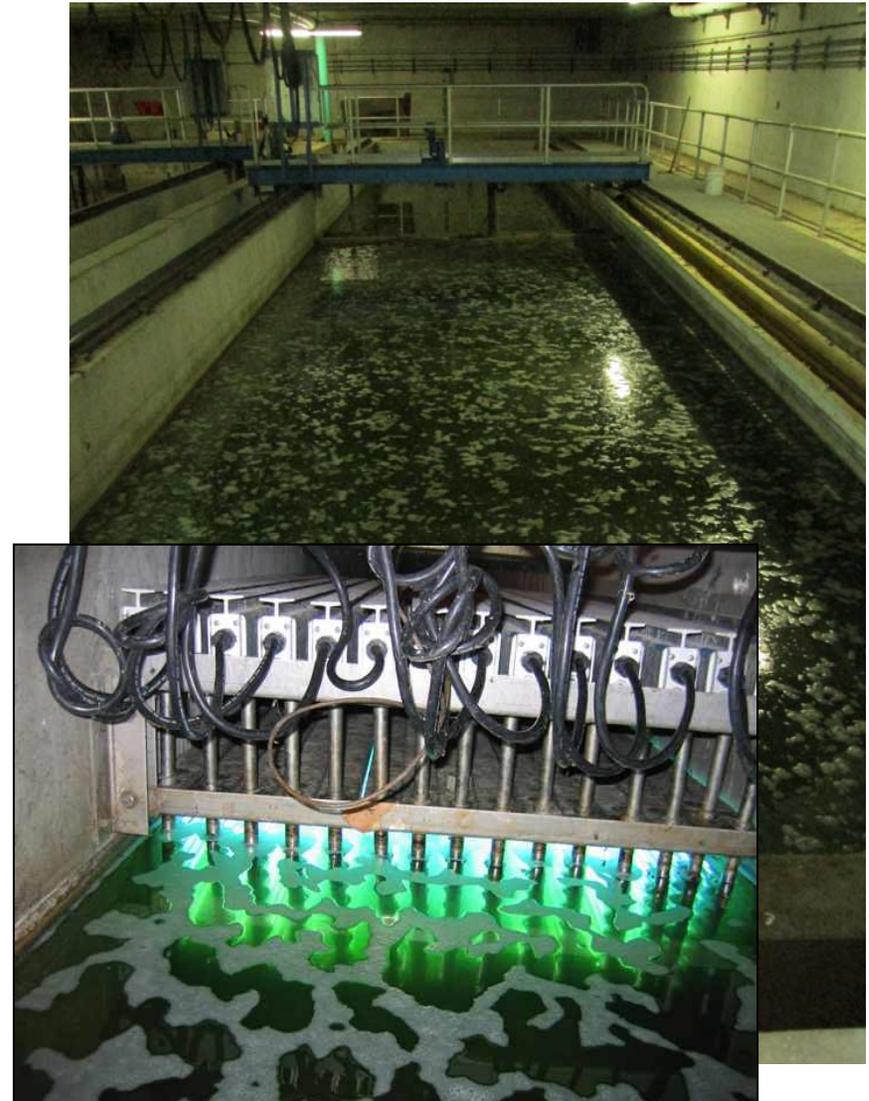
6. Tertiary Filtration and Disinfection

Description

- Existing filters cannot handle peak flow capacity
- Filters near end of useful life
- UV disinfection equipment at end of useful life

Proposed Work

- Rebuild tertiary filters to restore original flow capacity
- Upgrade equipment for improved performance, operation and reliability
- Install new UV disinfection equipment



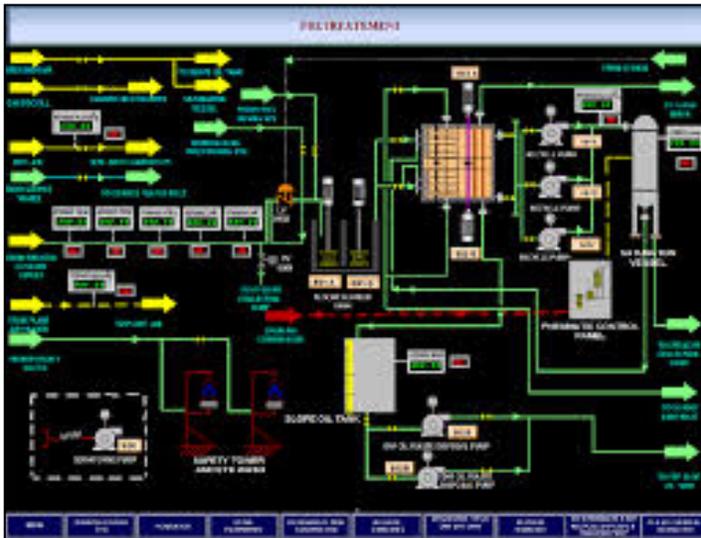
7. SCADA System

Description

- Existing SCADA has limited secondary data storage and security

Proposed Work

- New generation SCADA with additional monitoring and control capabilities, and increased data security



8. Power Supply

Power Supply

- Existing power supply and substation nearing capacity
- Plant not equipped with emergency standby power. Prolonged power failure could compromise effluent quality



Proposed Work

- Optimize energy management and install high efficiency equipment to maximize capacity of existing power system and substation
- Complete upgrades to existing substation to extend useful life
- Install emergency standby power generator to ensure continued operation during power outages



Project Cost Timeline

Activity	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	TOTAL
Environmental Assessment	\$ 50,000						\$ 50,000
Design/Engineering		\$ 869,400	\$ 372,600	\$ 210,000	\$ 210,000	\$ 210,000	\$ 1,872,000
Project Management		\$ 19,832	\$ 19,832	\$ 19,832	\$ 19,832	\$ 19,832	\$ 99,160
Construction			\$ 2,000,000	\$ 3,200,000	\$ 3,200,000	\$ 3,028,000	\$ 11,428,000
Communications Materials		\$ 7,910	\$ 3,390				\$ 11,300
Miscellaneous		\$ 11,300	\$ 11,300	\$ 11,300	\$ 11,300	\$ 11,300	\$ 56,500
Total Project Eligible Costs							\$ 13,516,960
Less Rebatable Tax Amount							\$ 1,344,494
Net Total Eligible							\$ 12,172,465
Total Requested Provincial Funding							\$ 1,966,766
Total Requested Federal Funding							\$ 1,966,766

- Submit SCF Funding Application
- Public Consultation
- Complete Master Plan
- Finalize Budgets
- Proceed with Detailed Design and Construction



Questions?