

# Wastewater Project Update

Summer Village of Ma-Me-O Beach  
July 9, 2016

# Today's Update

- ▶ Status of Regional System
- ▶ Local collection system design
- ▶ Estimated Costs and Funding
- ▶ Next Steps and Timing

# South Pigeon Lake Regional Wastewater System

- ▶ Regional Line Phase I: Lagoon to Village at Pigeon Lake (VPL)
  - Started about eight years ago
  - Lagoon upgrade, pump stations and pipe cost \$13.5M
  - Fully commissioned and operational in March 2016
- ▶ Regional Line Phase II: VPL to Grandview and Poplar Bay
  - Water for Life funding approved for Engineering design at 90% of cost.
  - Estimated cost of the Ma–Me–O Beach share of the Phase II line is approximately \$100,000.

# Management Structure

- ▶ New Regional Wastewater Commission is in process of being approved
  - Six municipalities including the County of Wetaskiwin will own and operate system
  - NEPL will provide lagoon services under contract

# Regional System Costs

- ▶ Operating cost of the Regional system, is estimated at \$144,755 shared by six municipalities.
- ▶ 2015 truck data Ma-Me-O has moved 850 loads of 5,698.
- ▶ This is 14.7% of the total so our share of the cost, is \$21,300
- ▶ There are 283 residences so cost will be \$75 to \$80 per year.

# Local Collection System Design

- ▶ STEP (Septic Tank Effluent Pump) design.
- ▶ The pump will be a ½ hp, 370 watt motor with a capacity of 10 gpm.
- ▶ Grinder pumps not recommended considering long pipeline to Westrose
- ▶ Sewage is 99%+ wastewater.
- ▶ The STEP pump will move this wastewater to the pumpstation at Westrose, from there pumped to the lagoon
- ▶ Less than 1% solids remain in the tank
- ▶ This will be digested and removed once every 10 to 15 years depending on use.

# Local Collection Line Design

- ▶ Pipes will be 3", 4" and 6" diameter HDPE (High Density Poly Ethylene).
- ▶ HDPE is an inert plastic in use for over 60 years.
- ▶ Due to the high water table and sandy soils burial depth is four to five feet below surface.
- ▶ Pipe will be insulated and heat traced for frost protection.

# Local Collection Line Design

- ▶ Geotechnical and survey data collected
- ▶ Detailed Design is underway now
- ▶ The project will be tendered this August, construction in the fall
- ▶ Directional drilling may be used to reduce disturbance to ground surface and remediation costs
- ▶ Total maximum estimated cost of Ma–Me–O Beach system: \$3.1 M



# Local Collection Line Design

- Hydraulic design considered various rates of flow and pipe sizes.
- Design includes cross connection so line repair can be done with minimal loss of service.
- The use of the STEP system significantly reduces the potential for pipe sedimentation.
- Flushing points will be provided to occasionally clean the pipeline.
- Connection fittings for First Nations will be included
- The line on Highway 13A will be done by a grant.

# Municipal Infrastructure Costs

Infrastructure Construction	\$3.1 M
Building Canada Grant	(\$2.0) M
Reserves and Deferred Revenue	<u>(\$1.1) M</u>
Cost per lot for main infrastructure	\$ 0

*Based on the information we have at this time, the total cost of the municipal portion of the system will be funded through grants and reserves.*

# On Lot Costs

## Base Costs – all Cases

Pump, Biotube and Electrical (installed)	\$4.2 K – \$4.8 K
Service Connection to Property line	\$0.6 K – \$1.7 K
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	\$4.8 K – \$6.5 K

## PLUS

### Case I Existing good 2 compartment tank

Frost plugs, pump out, inspections, plumbing	\$1.3 K – \$1.5 K
Contingency	\$0.3 K – \$0.4 K
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<b>Total Case I</b>	<b>\$6.4 K – \$8.5 K</b>

### Case II Single compartment new pump vault

Ultra Rib basin, insulation, installation	\$1.9 K – \$2.3 K
Frost plug, pump out, inspections, plumbing	\$1.5 K – \$1.6 K
Contingency	\$0.4 K – \$0.5 K
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<i>Existing tank at least 1000 gal</i>	<b>Total Case II</b> <b>\$8.6 K – \$10.9 K</b>

*\*based on contractor pricing for materials, does not include surface costs/landscaping*

*\*\*Higher costs shown allow for longer pipeline distances, longer electrical service lines, obstructions, electrical panel modifications.*

# Costs Con't:

**On Lot Costs**– based on contractor pricing for materials, does not include surface costs/ landscaping

## Base Costs – all Cases

Pump, Biotube and Electrical (installed)	\$ 4.2 K – \$ 4.8 K
Line and Connection at/to Property line	\$ 0.6 K – \$ 1.7 K
	<u>\$ 4.8 K – \$ 6.5 K</u>

## PLUS

### Case III Single Compartment with new concrete tank

New 500 gal tank installed and insulation	\$ 3.4 K – \$ 4.0 K
Frost plug, pump out, inspections, plumbing	\$ 1.3 K – \$ 1.4 K
Contingency	\$ 0.5 K – \$ 0.6 K
<i>Existing tank less than 1000 gal</i>	
<b>Total Case III</b>	<u><b>\$10.0 K – \$12.5 K</b></u>

### Case IV New 2 compartment tank

New 1200 gal tank, insulation, installation	\$ 6.4 K – \$ 7.1 K
Inlet sewer plumbing	\$ 0.3 K – \$ 0.8 K
Contingency	\$ 0.6 K – \$ 0.7 K
<b>Total Case IV</b>	<u><b>\$12.0 K – \$15.5 K</b></u>

*\*based on contractor pricing for materials, does not include surface costs/ landscaping*

*\*\*Higher costs shown allow for longer pipeline distances, longer electrical service lines, obstructions, electrical panel modifications.*

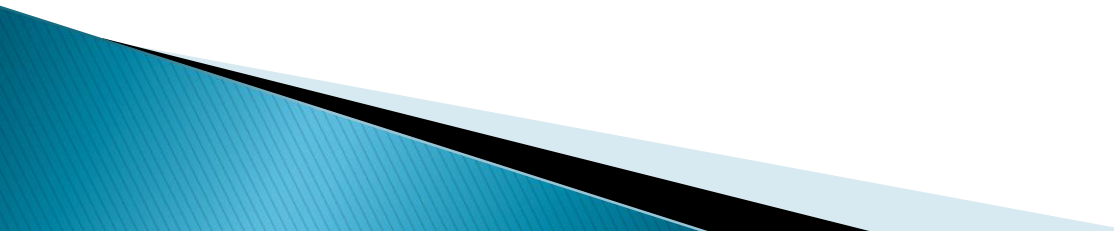
# Financial Assistance for On Lot Costs

- ▶ Costs quoted above are a conservative estimate
- ▶ Engineers and other communities have indicated construction costs this year are 20% to 30% lower than previous years.
- ▶ We are actively seeking opportunities to fund the pump and related connections under grant
- ▶ Council is considering options to use reserve funds for a portion of on lot costs.
- ▶ Work on these cost savings for residents are underway now and we will keep you informed

# Estimated Annual Operating Costs

- ▶ **Regional System Operation**
  - ▶ includes NEPL lagoon, power costs, operators, administration, equipment replacement costs and general maintenance. **\$80**
  
- ▶ **Direct Costs to Owners**
  - ▶ includes power, pump servicing, tank cleanout (10 years) and local system maintenance **\$75**
  
- ▶ **Total Annual Operating Cost: **\$155****
  - or about \$13 per month**

# When?

- ▶ Design Engineering is underway completion this July.
  - ▶ Tendering during August and construction will follow after the September long weekend.
  - ▶ Service connections will be constructed the same time as the main line
  - ▶ Should be operational by Christmas
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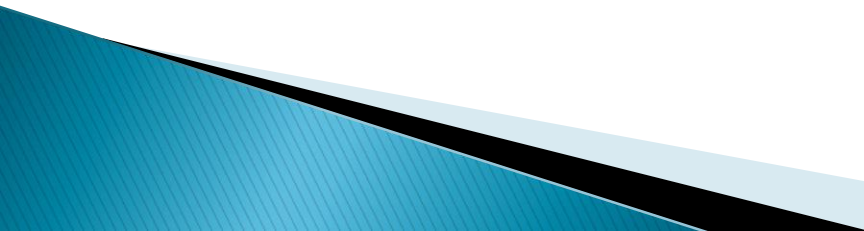
# Pump Station Data

March to June 2016

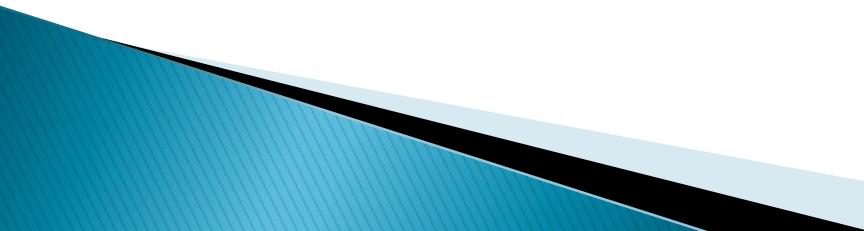
<b>Municipality</b>	<b>Number of Loads</b>	<b>Gallons</b>	<b>%</b>
<b>County of Wetaskiwin</b>	<b>719</b>	<b>1,566,710</b>	<b>60.2%</b>
<b>Leduc County</b>	<b>18</b>	<b>34,226</b>	<b>1.3%</b>
<b>Crystal Springs</b>	<b>112</b>	<b>200,648</b>	<b>7.7%</b>
<b>Poplar Bay</b>	<b>101</b>	<b>184,208</b>	<b>7.1%</b>
<b>Norris Beach</b>	<b>62</b>	<b>103,900</b>	<b>4.0%</b>
<b>Grandview</b>	<b>131</b>	<b>236,086</b>	<b>9.1%</b>
<b>Ma-Me-O Beach</b>	<b>158</b>	<b>275,442</b>	<b>10.6%</b>
<b>First Nation</b>	<b>1</b>	<b>1,745</b>	<b>0.1%</b>
	<b>1302</b>	<b>2,602,965</b>	



# Why a Local System

- ▶ A complete “flush and forget” sewer system has been the request of a majority of people around the lake for the past 20 years.
  - ▶ No sewage in the lake or in the lake basin is the only option
  - ▶ Considering the grant availability and current construction market 2016 is the optimum time to build.
  - ▶ Inter-municipal and government cooperation has made it possible to provide wastewater management for the entire southwest portion of the lake.
  - ▶ We all depend on other communities.
  - ▶ The system works for everybody; anybody can connect at a later date.
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# Why a Local System

- ▶ Convenience, no emergency calls when guests arrive and the tank is full
  - ▶ No noise, offensive odour, road damage, etc
  - ▶ No large sewage spills; fortunately we have not had a major accident yet.
  - ▶ Eliminate small spills during each pumpout.
  - ▶ Inflation; fuel costs, operator's salary and truck maintenance will increase costs more than system operation costs
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Questions?