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Water Quality Offsets vs. Trading to meet Wastewater Limits

Innovation in a World of Regulations, Policies and Guidelines
Blue Cities Conference
May 18, 2017



What are W.Q.O.s

- Water quality trading typically involve regulated entity paying for projects to address non-point sources of water pollution, gradually reducing capped loadings over time.
- Regulated entity purchases 'credits' that are applied towards compliance target.
- Water quality offsets apply to strict zero increase in loading (e.g. from wastewater), allowing offsets from non-point source reductions.
- Revenue, e.g. from development charges, goes into fund that is administered centrally to pay for non-point P reduction projects.
- Must demonstrate that offset is equivalent to unit of pollution from regulated entity.
- Achieve same level of pollution reduction for a significantly lower cost; and creates revenue stream to address unregulated non point sources of water quality impairments.

South Nation W.Q.O.



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Elevated levels of P in South Nation River, 90% from non point sources.

- MOECC mandated no new or expanded sewage system.
- Certificate of approval permitted offset program to meet point source P neutrality with non point P reductions, mainly agricultural.
- Requires 4:1 ratio.
- Funding made available through development charges, administered through South Nation CA.
- U of Ottawa study determined it required \$300 to remove 1 kg of P from non point sources vs. \$2,000 under traditional STP methods.



Nobleton WPCP W.Q.O.

Nobleton WPCP

- Policy 2 Deviation required for Nobleton WPCP (York Region) as it could not meet PWQO for phosphorus
- Phosphorus Offset Program approved by MOECC to support Deviation
- Tri-party agreement between Region, Developer and Conservation Authority (TRCA)





STP to STP Offsets

Haldimand County

- In final stages of renegotiating ECAs to allow Jarvis Lagoons to offset increase in TP from expanded Hagersville STP, with no additional loading to same receiver, Sandusk Creek.
- Hagersville STP capacity to increase from 3055 to 4,200 cubic metres per day. Can meet TP concentration limit, except occasionally during winter/spring high flow event.
- Offset seasonal TP loadings at Jarvis Lagoons that consistently achieve TP concentration limit of 0.5 mg/L.





Common Challenges with trading

1. Lack of strong driver, market does not materialize
2. Too large a geography
3. Administrative burden
4. Equivalency of credits, verification





Lessons from Successful W.Q.O.s

1. Necessary preconditions: new development pressures, acute water quality impairment
2. One primary participant (municipality) enshrines offsets into ECA as compliance requirement
3. It's Local and Simple
4. Credible Program Administrator for centralized fund management, project implementation
5. Science/Evidence Based
6. Build Trust by Engaging Participants and Stakeholders Early

Further Opportunities Lake Simcoe



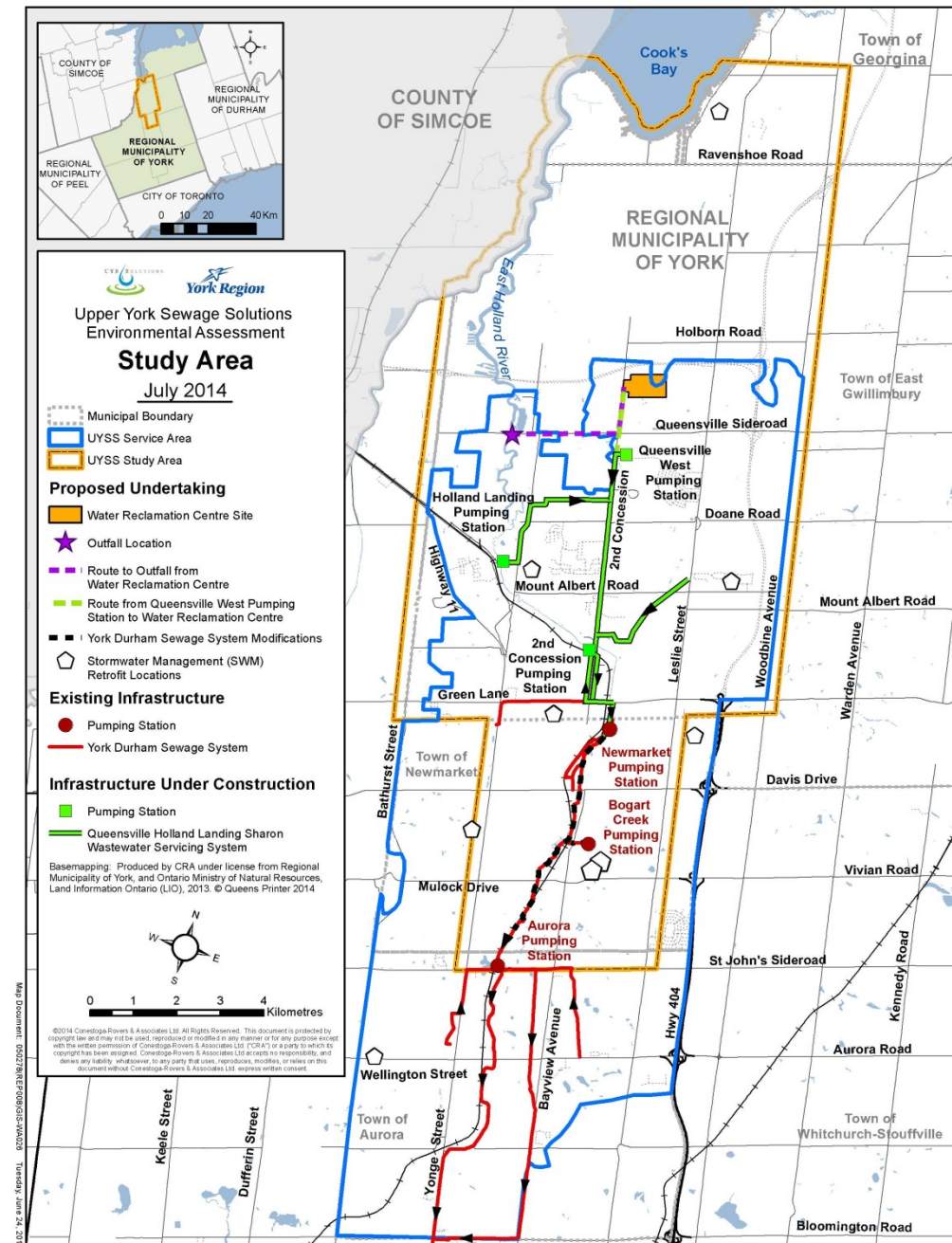
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- 9,000 acres of new urbanization by 2031, nearly 15,000 kg/y of P
- With offsets, could achieve 6,900 kg/y decrease in P
- New development would pay for retrofitting stormwater site controls in existing urban areas
- If charging \$35,000/kg, \$315 M in revenues



Further Opportunities Upper York Sewage Solution

- York Region needs to build 40 megalitre per day (MLD) plant that does not exceed P contribution of existing 1 MLD plant. (124 kg/y)
- York Region can get to 292 kg/year, needs to offset 168 kg/year.
- With 3:1 ratio, need to find 504 kg/year in offsets in stormwater pond retrofits (enhanced P removal through sedimentation, filtration processes).





Future of Offsets in Ontario

MOECC supportive of use of offsets in Lake Simcoe watershed

When proclaimed, Section 75 of OWRA will allow regulations to be established for offset programs.

Limited applicability due to necessary preconditions (acute impairment, significant new development pressures)

MOECC not so keen on trading, due to challenge of measuring progress, sophistication of sampling required.