

Stormwater Management: What's all the fuss about?

Council Workshop

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History of Stormwater Management

Prior to 1980s

- No / minimal SWM required
- Direct discharge to rivers and creeks



Early 1980's

- Quantity control
- Rapid conveyance to receiver or facility



Early 1990's

- Quality and quantity control
- Rapid conveyance to wet ponds



Today

- Paradigm shift
- Integrated Grey/Green solutions



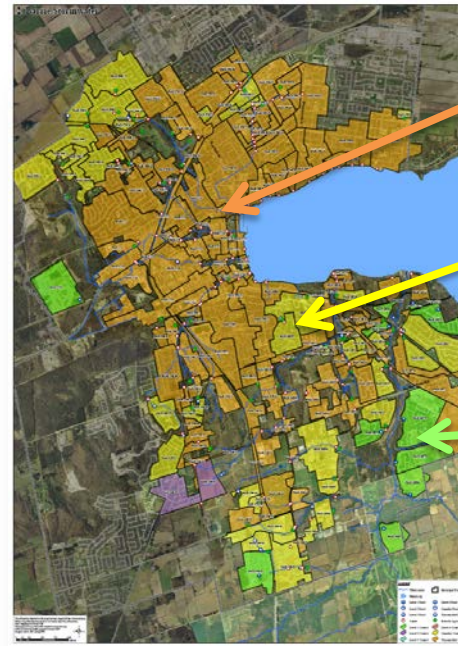
Legacy – Uncontrolled stormwater

~ 50% of urban area
uncontrolled

~ 15% of urban area quantity
control only

Impacts:

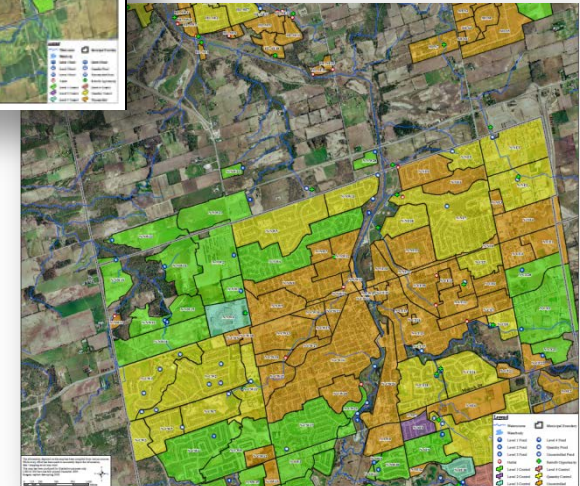
- Increased phosphorus load
- Increased flooding
- Increased erosion



Uncontrolled

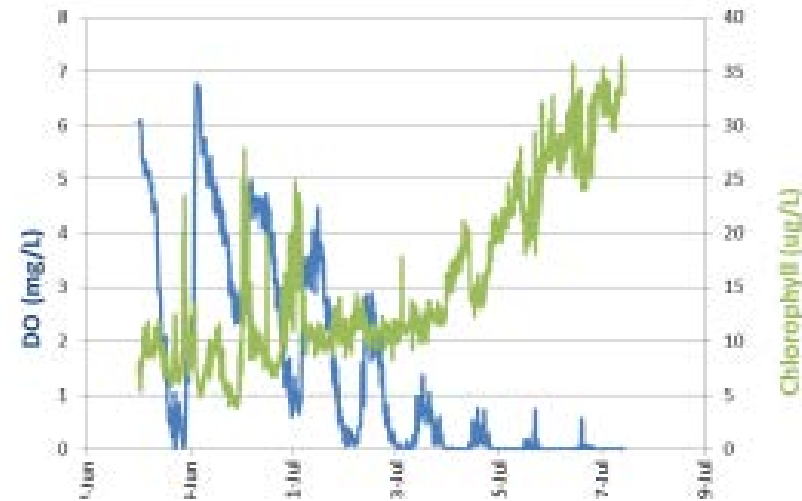
Quantity control

Quality and
Quantity control



Ponds are not a panacea

- Diverting stormwater to ponds reduces groundwater recharge
 - Reduce cold water habitat
 - Source of drinking water
- Stormwater ponds can become phosphorus **source not sink**:
 - Low dissolved oxygen causing dissolved phosphorus to be released from sediment



Ponds have been neglected

SWM ponds not being maintained

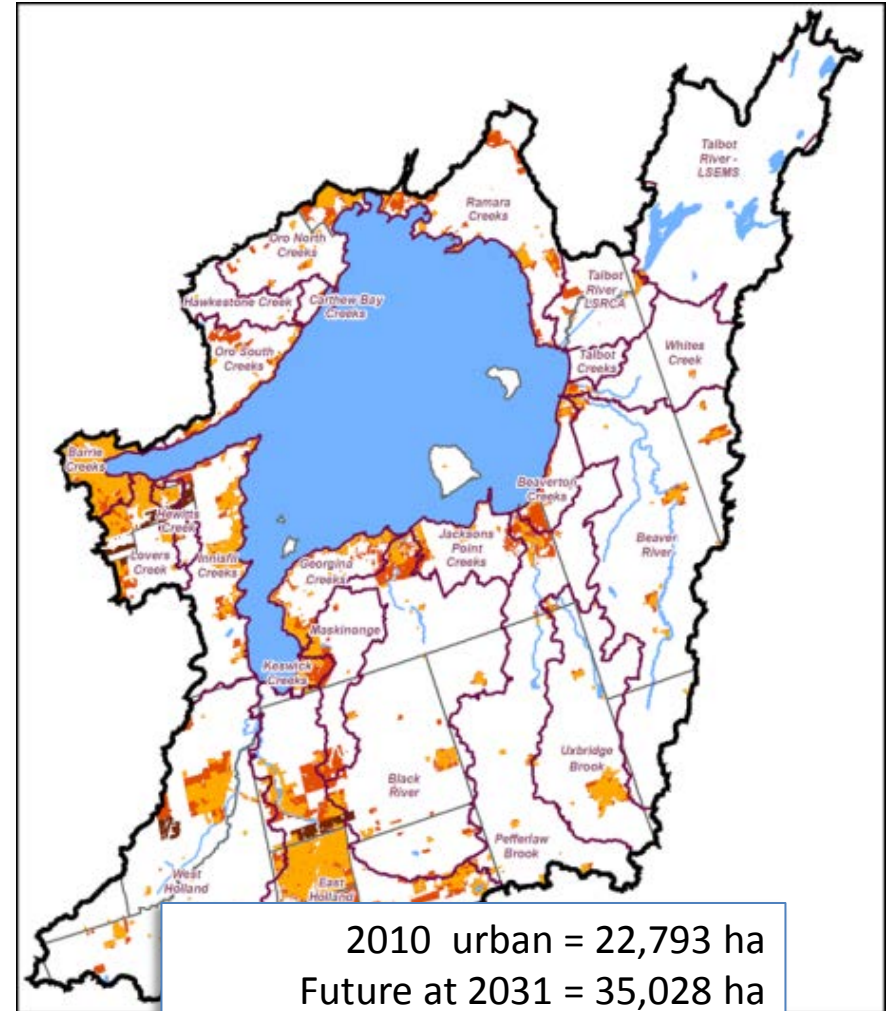
- ~60% ponds below design level
- Costly to maintain
- Backlog to continue unless start to address

Impacts:

- Increased phosphorus load
- Increased flood
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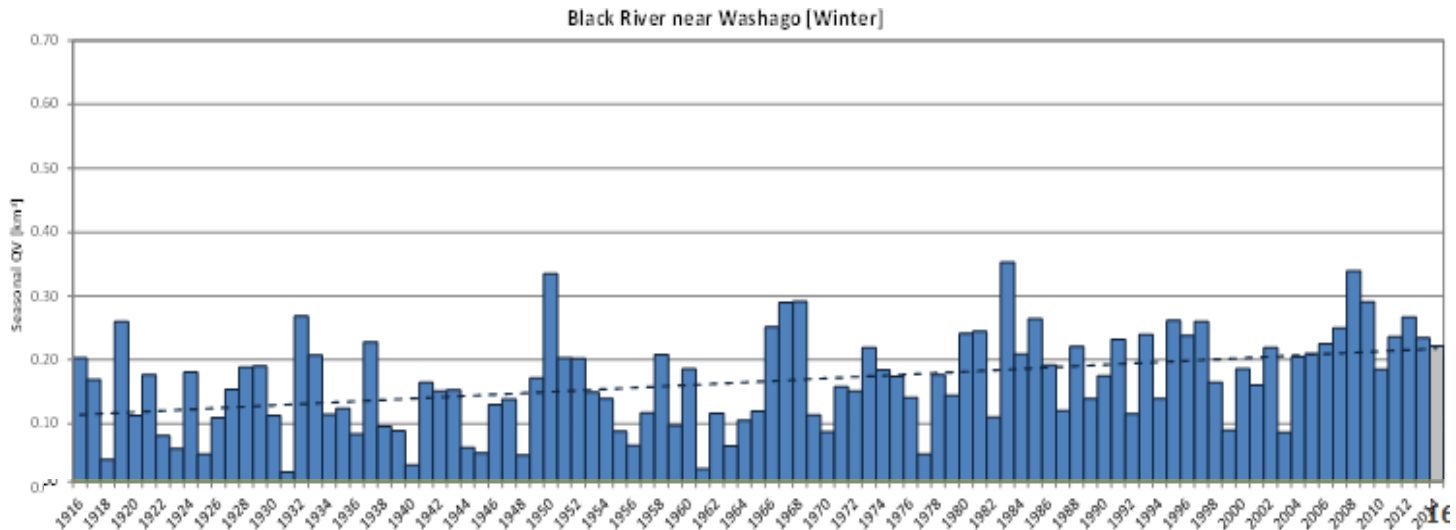
Only going to get worse unless we change the way we do business...Meeting Growth Plan targets



Only going to get worse unless we change the way we do business...Climate Change

- Increased storm frequency and intensity
- 1 in 100 event now 1 in 10 year
- Increased winter flow

Return Period	1944-1975	1985-2016
2	131.86	126.42
5	156.06	163.87
10	165.28	187.26
20	171.07	208.81
50	175.72	235.73
100	177.86	255.38





Barrie (Janice Dr.) June 9, 2005



Aurora (Industrial and Wellington) - June 17th, 2017



February 2018: The floods continue in our watershed



Mara Road N of Whites Creek

Bellaire Beach, Road at Maple



Planning our stormwater management

- Stormwater planning based on municipal boundaries, not natural flow (watershed)
- To date our restoration pilot projects opportunistic locations

We need to ensure our SWM planning is undertaken at watershed scale & optimized to achieve greatest outcomes for least cost.



**Clearly a paradigm shift in
stormwater management is needed**

