Current & Potential Threats to the Grand River Watershed & Necessary Directions

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Great Lakes United

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Grand River Environmental Network

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The proactive voice for the environment in the Grand River watershed
We are citizens, environmentalists, conservationists, labour unions, First Nations, tribes, hunters, anglers, academics, and progressive businesses.

Together, we work to protect the world’s largest freshwater ecosystem.
One of Canada’s fastest growing communities.

1973 - 268,000
2011 - 543,700
2031 - 729,000
Animal Waste Management
Grand River

**Flow Regulation and Fragmentation**
- Flow regulation and fragmentation strongly affect the river and its tributaries.
- The watershed is highly regulated by more than 100 dams and control structures.

**Withdrawals and Diversions**
- Withdrawals in the watershed are among the highest from any watershed in Ontario.
- Demand for water is expected to grow by 57% between 2001 and 2031.

**Climate Change**
- Average air temperature in the watershed is expected to rise by 2.6 to 5.6°C over the next century.
- Precipitation is predicted to increase by 11 to 18% by 2090.

**Environmental Flows**
- Regulation has provided flood control and flow augmentation, but has also modified the natural flow regime extensively.
- Dams have fragmented the watershed and curtailed high flows that would naturally flush nutrients and sediment downstream.
-Withdrawals peak when flow is at its lowest; the provincial government classifies the lower Grand as a “high use” watershed during summer low-flow conditions.
- At peak demand, in the middle Grand as much as 20% of flow is withdrawn; in the Whiteman’s Creek sub-watershed, permitted withdrawals exceed summer mean flows.
- Warmer winters could lower water supply and reduce flows; a predicted 10% reduction in spring peak flow will decrease flushing and further reduce water quality.

Canada’s Rivers at Risk (2009) - WWF
Figure 1. The location of municipal wastewater treatment plants in the Grand River watershed.
Fish are becoming easier to catch 'because traces of anti-depressants are getting into water supply and making them more relaxed’

Antidepressants in water trigger autism genes in fish

The United States Geological Survey has found “intersex fish, or male fish that develop female sexual characteristics, in the Potomac River and its tributaries, raising questions about whether hormone residues might be responsible.

What happens to fish that swim in waters tainted by traces of drugs that people take? When it’s an anti-anxiety drug, they become hyper, anti-social and aggressive, a study found. They even get the munchies.
(Szukovenyi/The Globe and Mail/Thomas Szukovenyi/The Globe and Mail)
“In the Grand River Watershed, there is an overlap of significant high quality aggregate resource deposits and landform features that are important for groundwater recharge, e.g. some moraines and outwash deposits.”

Horizontal Hydrofracking for Natural Gas
Figure 6.1.1. Distribution of black shale with shale gas potential in Ontario. Note: Black shale is the term used to identify dark-coloured shale rock that is a potential source for natural gas. Black shale rocks typically contain 1 per cent or more of organic carbon. Source: Ministry of Natural Resources.
Water Usage

• Average daily use of water in Waterloo Region 150 million litres

• 7-19 million litres of water for each “frack” at each well (approximately 10% of total average regional use)
Lake Erie Fall 2009
Have fun on the water, but know that blue-green algae are in many Ohio lakes. Their toxins may be, too.

Be Alert! Avoid water that:
- looks like spilled paint
- has surface scums, mats or films
- is discolored or has colored streaks
- has green globs floating below the surface

Avoid swallowing lake water.

For more information, visit ohioalgaeinfo.com or call 1-866-644-6224.
Eastern Basin Total Phosphorus Loading
996 MTA (2004)
Data: D. Dolan, U Wisconsin – Green Bay

GRCA, Water Management Plan: Technical Memorandum, December 2010
The Big Shift??

Growth Management in Waterloo Region

Rob Horne, Waterloo Region, Commissioner, Planning, Housing & Community Services
Why Shift?
The Consequences of Not Shifting

- Intrusion onto environmentally sensitive areas: 80% of our water supply comes from the ground
- Loss of prime farmland: 225,000 acres in Waterloo Region
- Negative health impacts: Commuting and "unwalkable" subdivisions
- Lack of global competitiveness: Waterloo Region as a "Complete Community" is critical to success

Rob Horne, Waterloo Region, Commissioner, Planning, Housing & Community Services
# More Density with Design Excellence

<table>
<thead>
<tr>
<th>Subdivision</th>
<th>Density (p/h)</th>
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</thead>
<tbody>
<tr>
<td>Traditional (Post War 1950s) St. Mary's Hospital Area</td>
<td>44 p/h</td>
</tr>
<tr>
<td>1970s Subdivision: Beechwood/Idlewood</td>
<td>28 – 30 p/h</td>
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<tr>
<td>1990s Subdivision: Eastbridge/Branchton Park</td>
<td>41 – 43 p/h</td>
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**Growth Plan Requirement**

- **50 p/h**

**Typical Subdivision Today : Limerick/ Mattamy**

- **57 – 58 p/h or more**

**Typically Subdivision of the Future**

- **60 + p/h**

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Rob Horne, Waterloo Region, Commissioner, Planning, Housing & Community Services
Living Within Ecological Limits

30-in-30
“The goal is to accommodate Calgary’s future population growth with the same amount of water we removed from the river in 2003.”

No New Water

The aspirational target scenario of no new water by 2051 used a back-casting methodology by assuming total water used across all sectors in 2051 is equivalent to that used in 2011.

Calgary’s residential demand

Based on litres per capita per day, for residential single family homes.
A Tale of Two Cities
Industrial Transformation

Our goal is a day when our factories have no smokestacks and no effluents. If successful, we’ll spend the rest of our days harvesting yesteryear’s carpets, recycling old petro-chemicals into new materials, and converting sunlight into energy. There will be zero scrap going into landfills and zero emissions into the biosphere. Literally our company will grow by cleaning up the world, not by polluting or degrading it.

Ray Anderson, President, Interface Carpets Inc.
“Now! We are coming to exchange to new types...” — High Moon

Note: Under these circumstances, EPR (Extended Producer Responsibility) could be realized.
Grand River Fire, Justin Fabian Conservation Photography  www.justinfabian.com
Celebrate Lake Superior Day!

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