SOURCE WATER PROTECTION

AWWA Conference – Quebec City

Thursday, Nov. 10

Peter Krause, Chair, GRCA and Conservation Ontario

Source water protection

- Safeguard human health
- Cost effective
- Ensure enough safe, clean water for all our uses

SOURCE WATER PROTECTION

Source water protection

- First barrier in a multi-barrier approach to protect water quality and water quantity
- Ontario government has committed to source water protection planning

SOURCE PROTECTION

SOURCE WATER PROTECTION

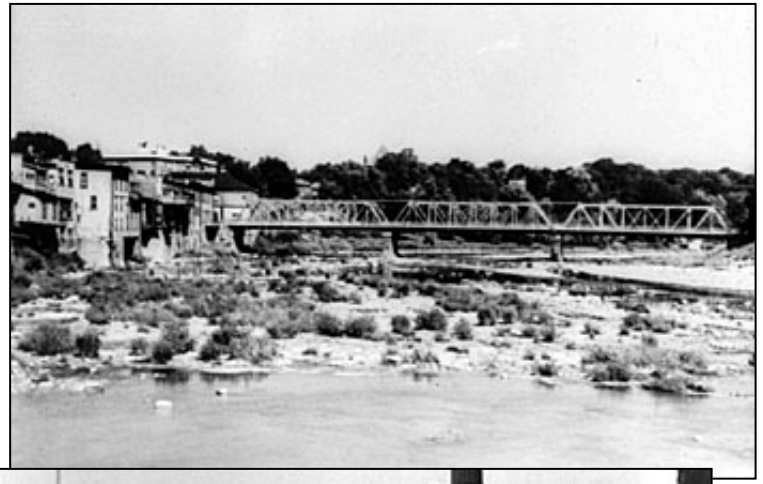
Conservation authorities in Ontario

In the 19th and 20th centuries, clearing the land and urban growth took a high toll on the natural system.

SOURCE WATER PROTECTION

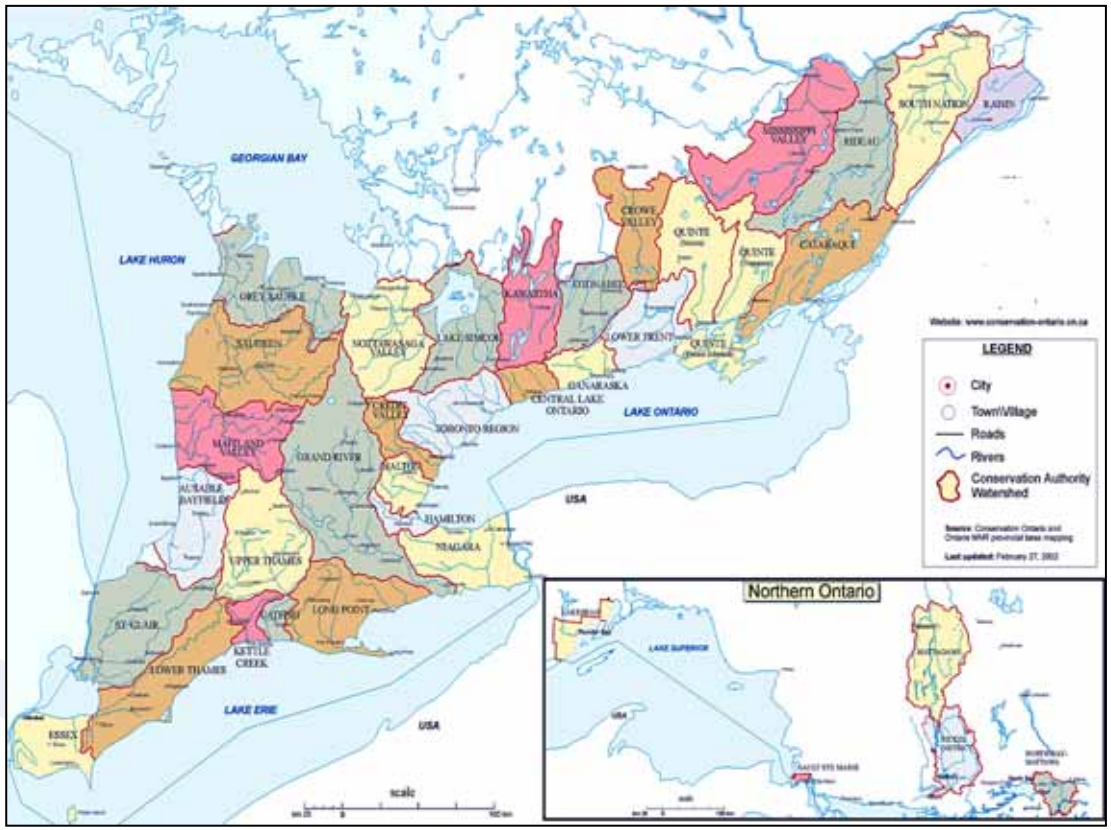
Conservation authorities in Ontario

- Spring floods became more serious and rivers ran dry in the summer.
- The conservation movement was born in early 20th century to protect environment and restore natural balance.
- Local initiatives led to creation of first conservation agencies



Conservation authorities in Ontario

- Conservation Authorities Act adopted in 1946
- Led to creation of 36 conservation authorities
- Cover most of southern Ontario and several regions in north
- More than 10 million people live in a CA watershed



SOURCE WATER PROTECTION

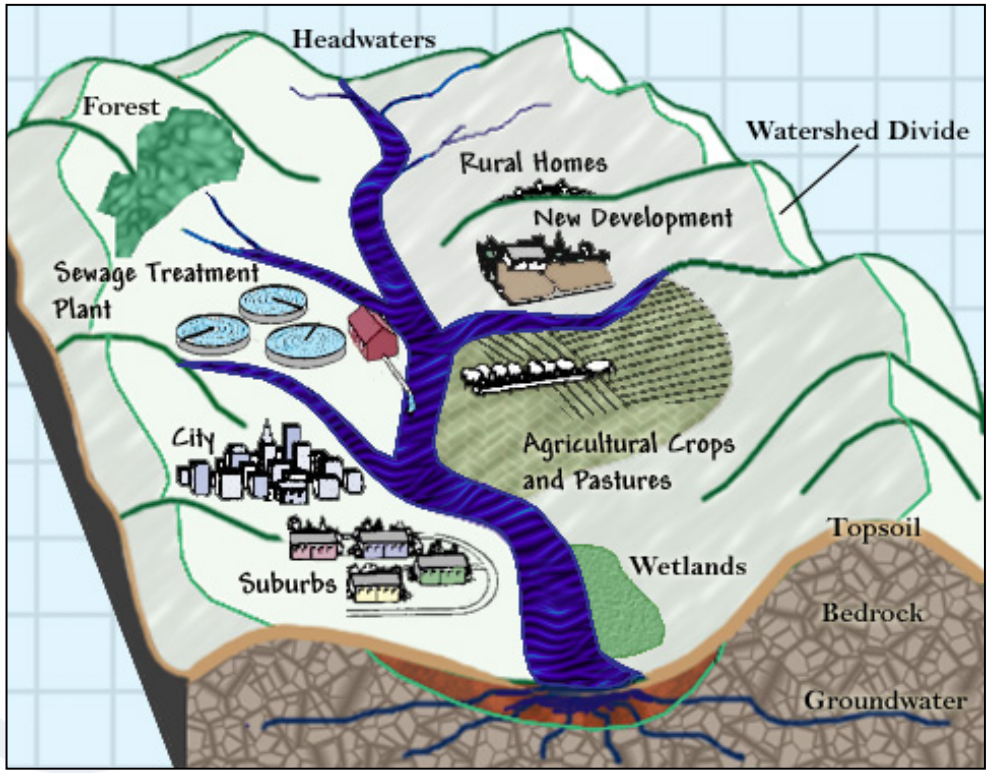
Conservation Authorities in Ontario

- Watershed based
  - ✓Address issues across local boundaries
- Shared costs
  - ✓core funding from municipalities and province
- Local initiative
  - ✓municipalities appoint board
- Healthy economy
  in a healthy environment
- Comprehensive approach
  to environmental issues

SOURCE WATER PROTECTION

Source water protection

- Water doesn't stop flowing at political boundaries
- Best unit for source protection planning is the watershed



SOURCE WATER PROTECTION

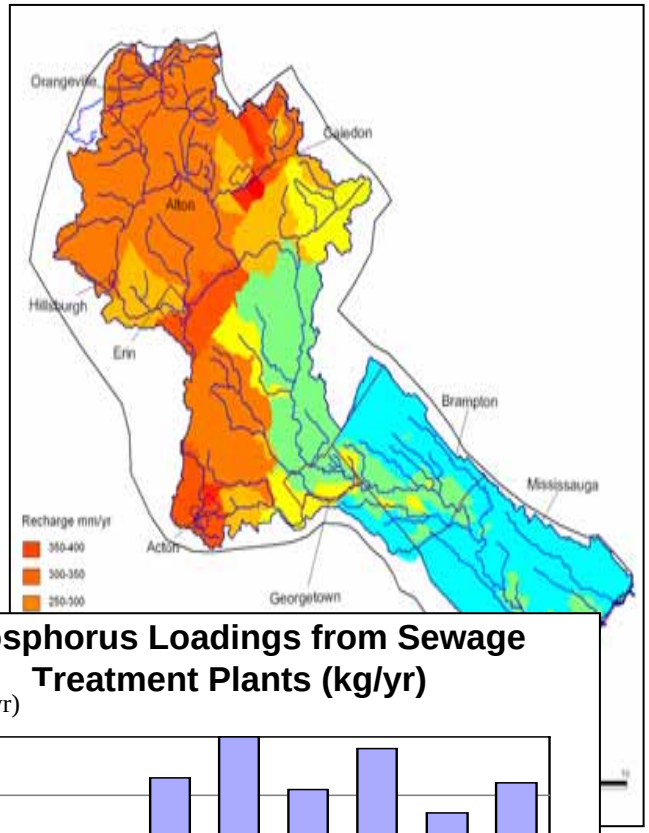
Source water protection

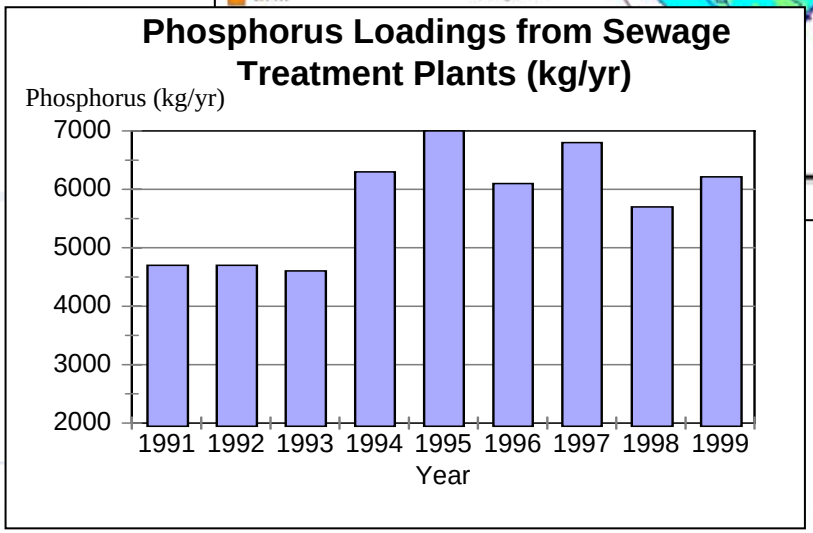
The plan represents an agreement among the people and municipalities of a watershed about the ways to protect water quality and quantity.

SOURCE WATER PROTECTION

Understanding our watersheds

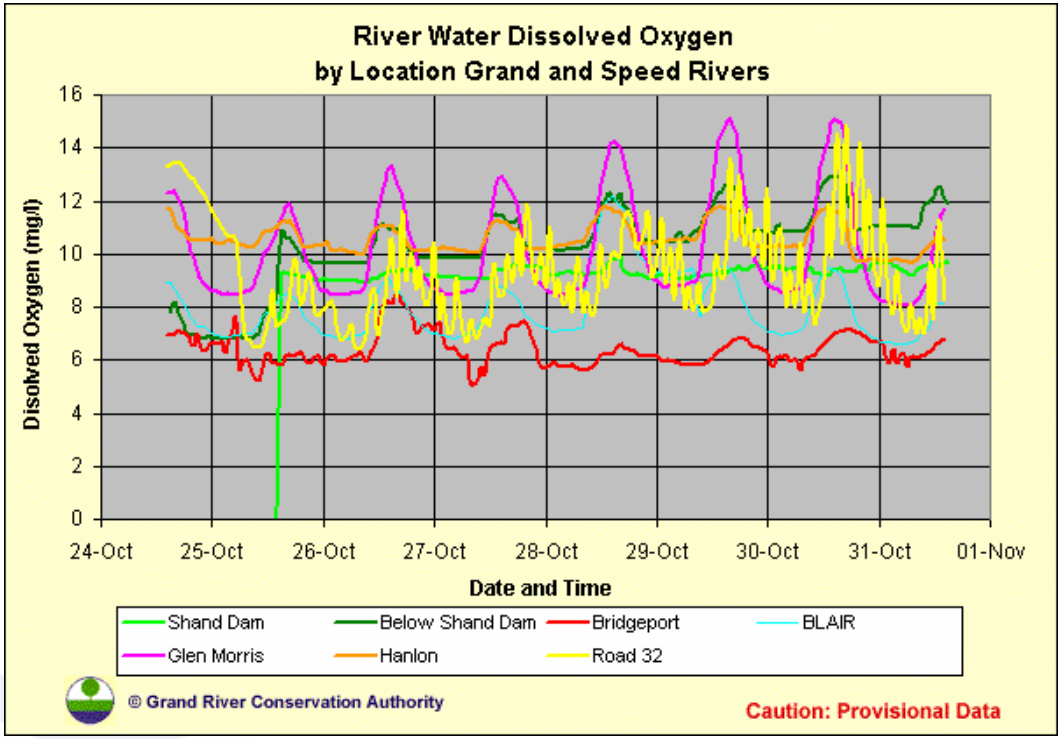
- We're not starting from scratch
- CA and municipal water experts have long record of sharing information on water issues
- Their work will be part of source protection plans:
  - ✓ groundwater studies
  - ✓ water quality analysis
  - ✓ wellhead protection





Understanding our watersheds

- Water quality monitoring is a key part of source protection planning
- Grand River CA and municipalities operate network of live, on-line water quality stations



Understanding our watersheds

Risk of contamination

Vulnerable areas + **Threats**

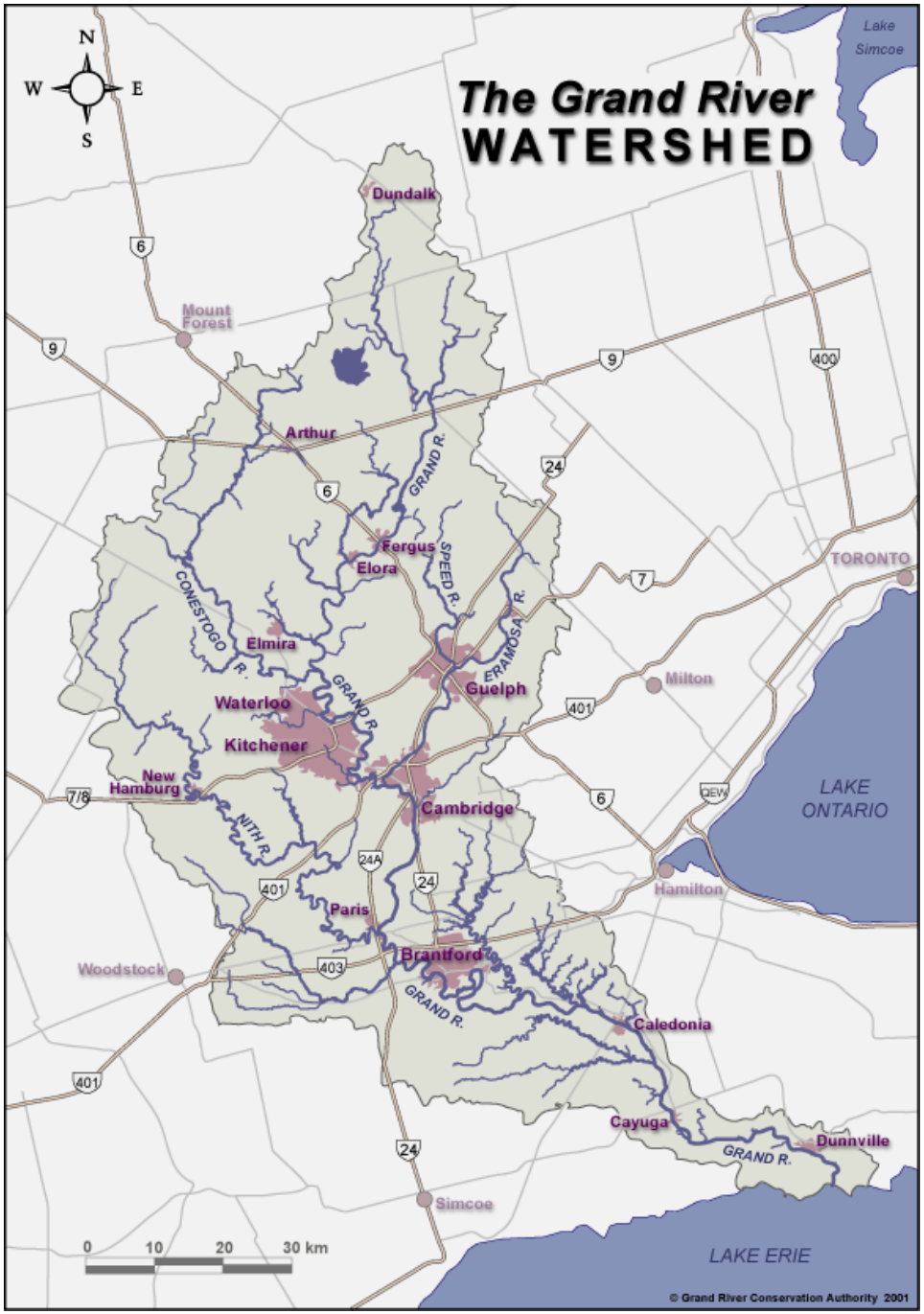
(Based on geology and lay-of-the-land)

- Wellhead areas
- Intake areas
- Areas susceptible to contamination
- Recharge areas

(Based on activity)

- Waste disposal
- Chemical use
- Handling practices

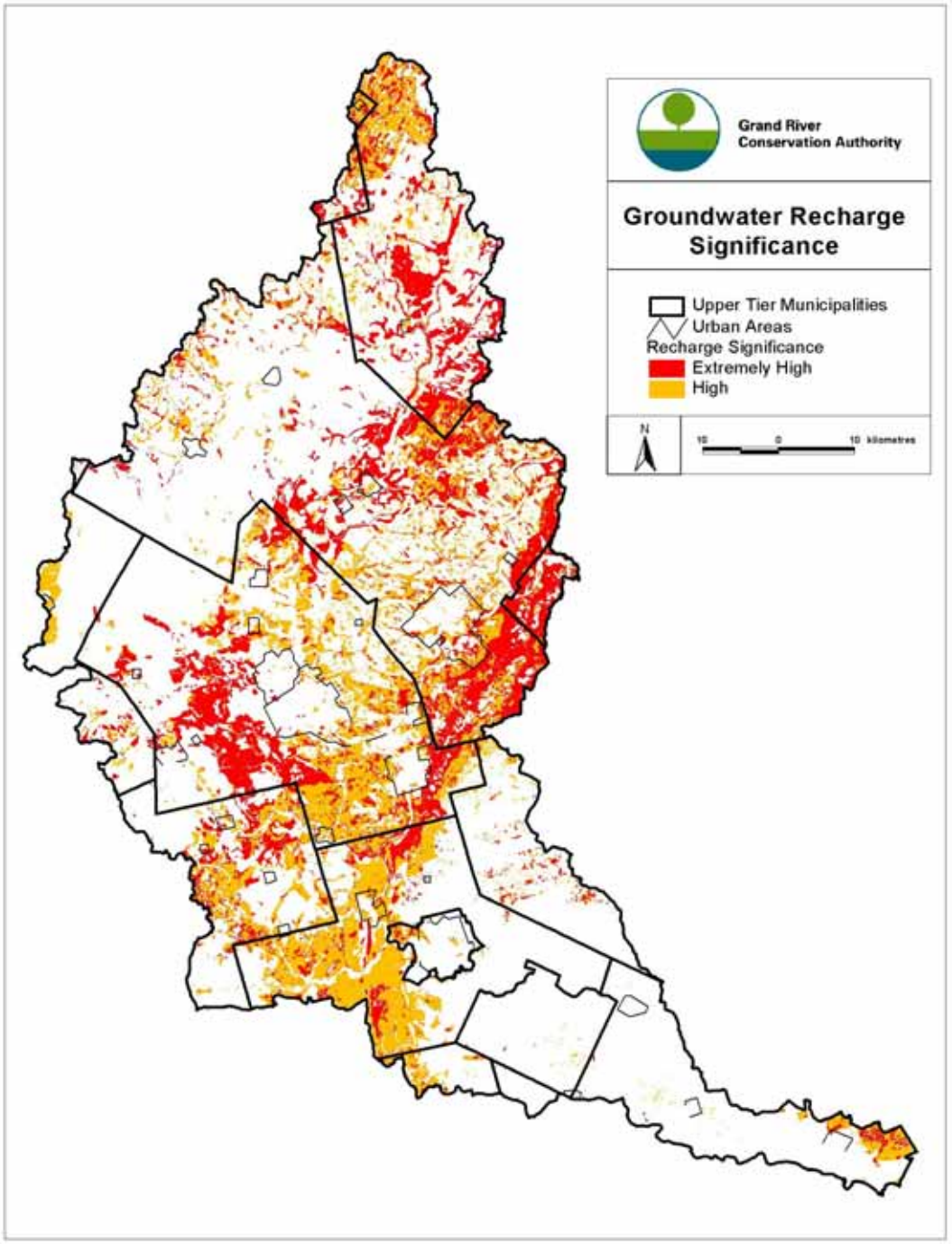
High vulnerability + **High** threat =
High risk of contamination



Conservation ONTARIO

The Grand

- 300 km long
- Area of 7,000 sq. km
- Rich agricultural region
- Heavily urbanized
- Population booming



Conservation ONTARIO

Major recharge areas

10% of the land area

50% of the recharge

\+

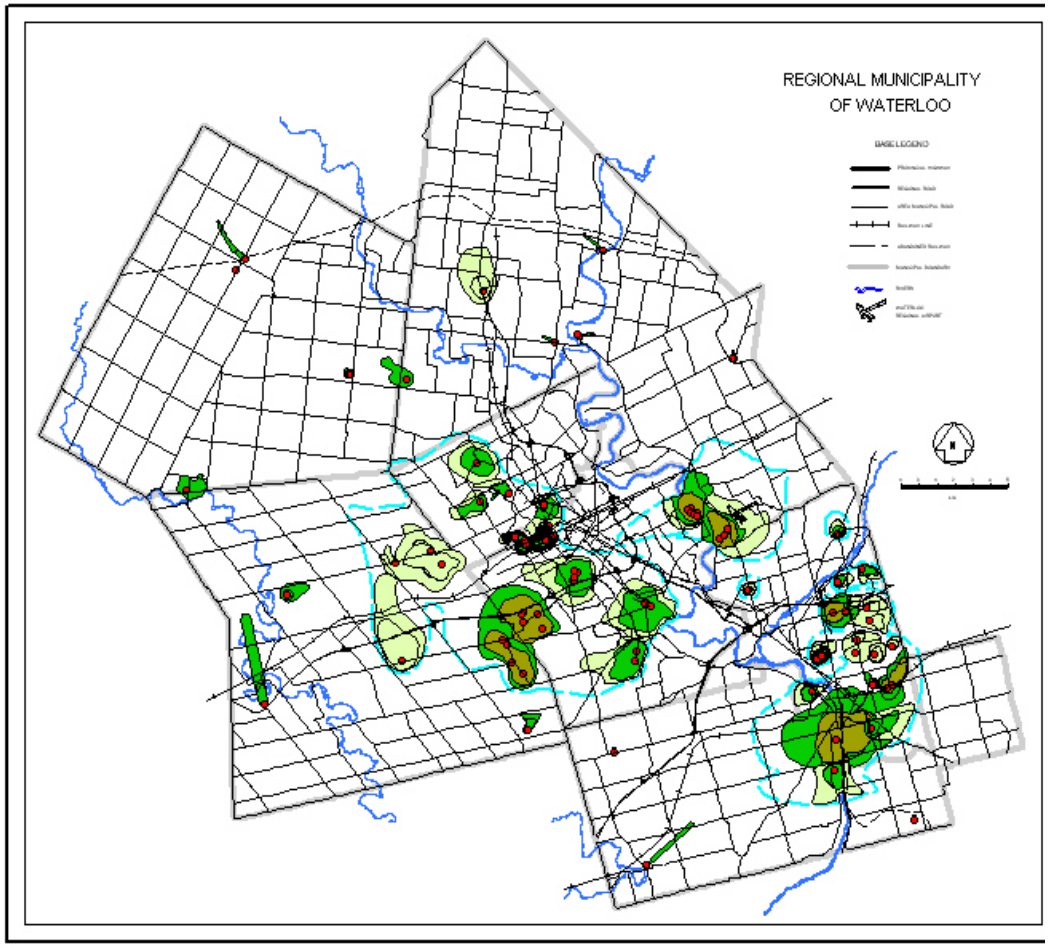
30% of the land area

80% of the recharge

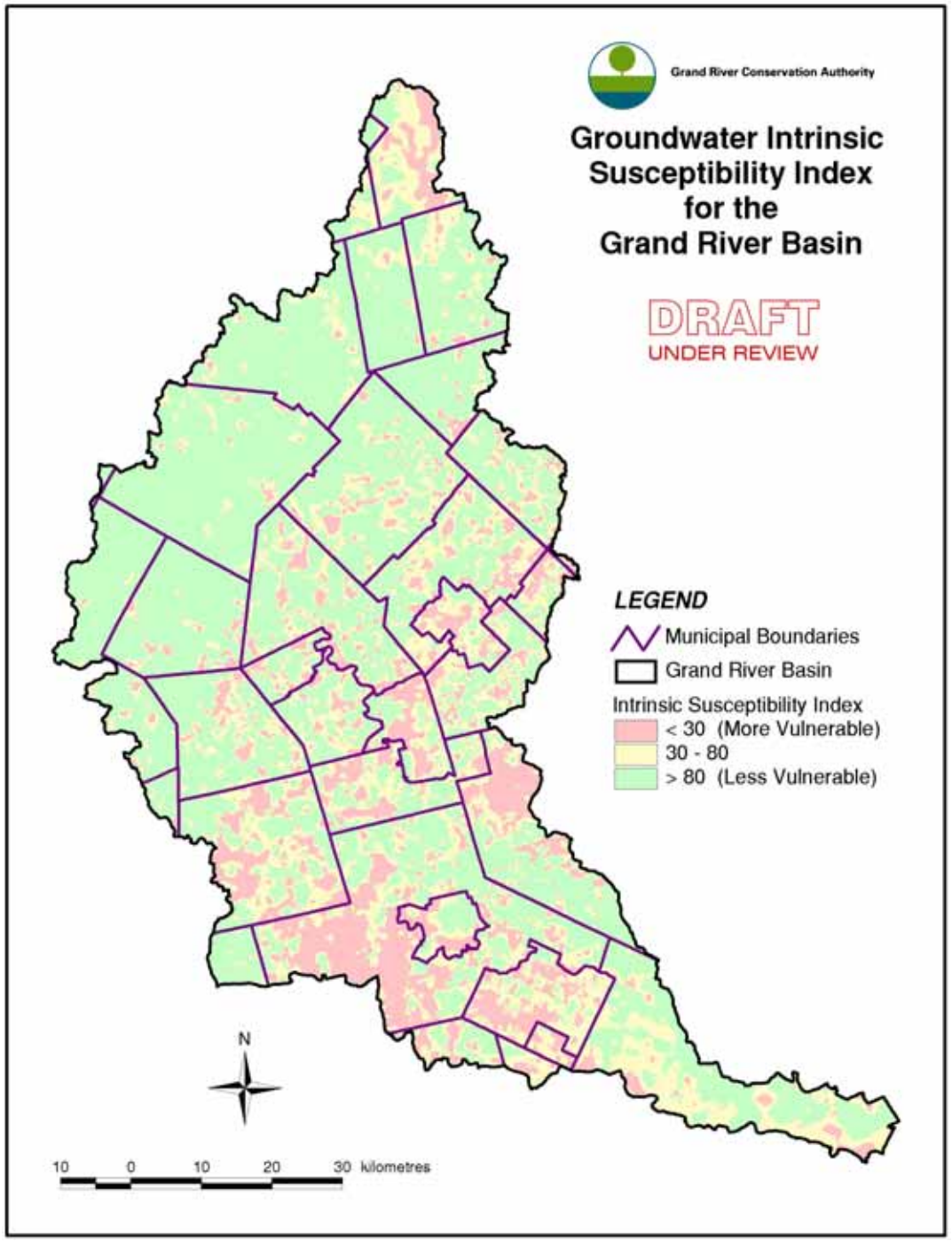
Understanding our watersheds

Sensitive areas

- Wellheads
- Areas of coarse and shallow soils
- Major recharge areas



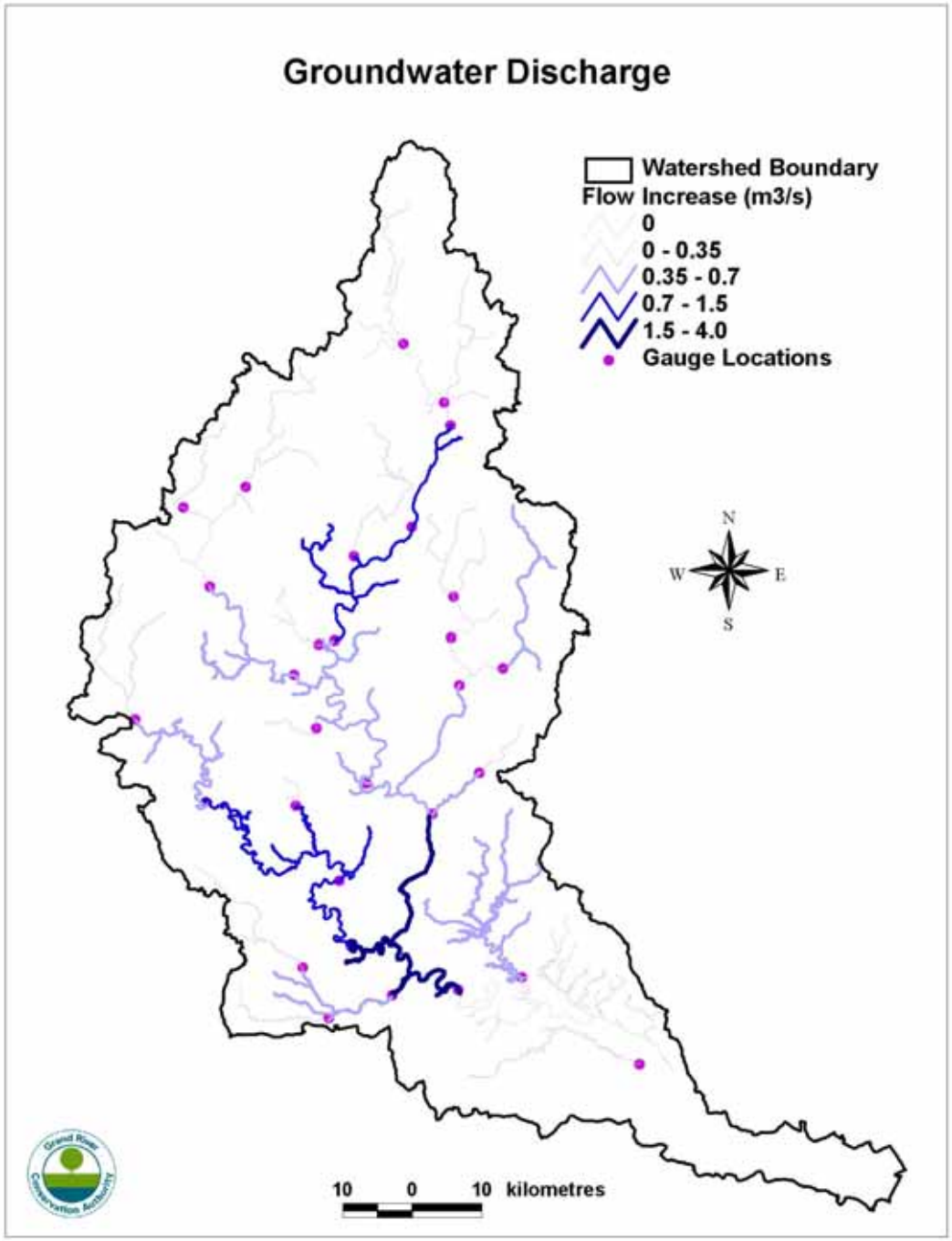
SOURCE WATER PROTECTION



Conservation ONTARIO

Areas susceptible to contamination

- Coarse soils
- Shallow soils
- High water table



Groundwater discharge

- Blue lines show areas where groundwater enters surface water system
- Significant source of clear, clean water for communities that draw from rivers

Protecting water

- Control contaminants from farms, urban runoff
- Rural Water Quality Program offers incentives to protect water on the farm

Before

After

Protecting water

- Identify cumulative impact of wastewater treatment plants
- Determine assimilative capacity of the receiving stream
- Invest in plants so water quality can improve while cities grow

Source water protection planning

- Source Protection Planning Committees develop plans
- Committee membership will be broad-based with municipal representatives and other stakeholders

Source water protection planning

How do we make sure that water is clean as it enters the ground or river?

- Should some areas be set aside from development?
- What do we do with source waters areas designated for development?
- What do we do with areas that are already developed?



SOURCE WATER PROTECTION

Source water protection planning

Source water protection planning

PROVINCE:

- Legislation & standards
- Research/Science
- Audit
- Current regulatory roles
- Funding mechanisms

CONSERVATION AUTHORITY:

- Coordinate plan development & bring stakeholders together
- Maintain plan, monitor, report progress
- Provide technical info/advice to municipal & provincial agencies
- Education

MUNICIPALITY:

- Growth strategies, water/wastewater infrastructure plans
- Land use planning/zoning, licencing of onsite activities
- Wellhead protection programs

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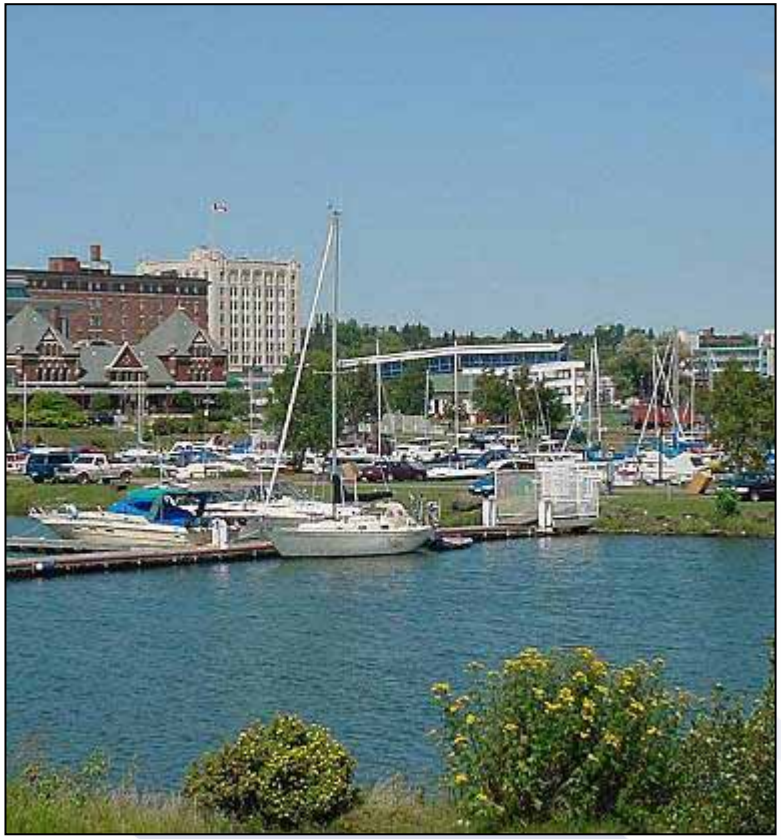
Source water protection planning



A source water protection plan will become a guide to urban and rural development

- Protects health
- Is sustainable
- Is environmentally responsible

SOURCE WATER PROTECTION

Source water protection planning

Ingredients for success

- A clear framework in legislation and regulations
- Stakeholder involvement
- Technical information is robust and defensible
- Local (watershed) leadership support
- Plans must be maintained and updated

SOURCE WATER PROTECTION

Everyone lives downstream from somebody

Watershed Connections

SOURCE WATER PROTECTION