A Plan for the Grand

A new water management study will address important issues in the Grand River watershed and provide strategies for addressing them over the next 25 years.

floodcontrol

water**quality**

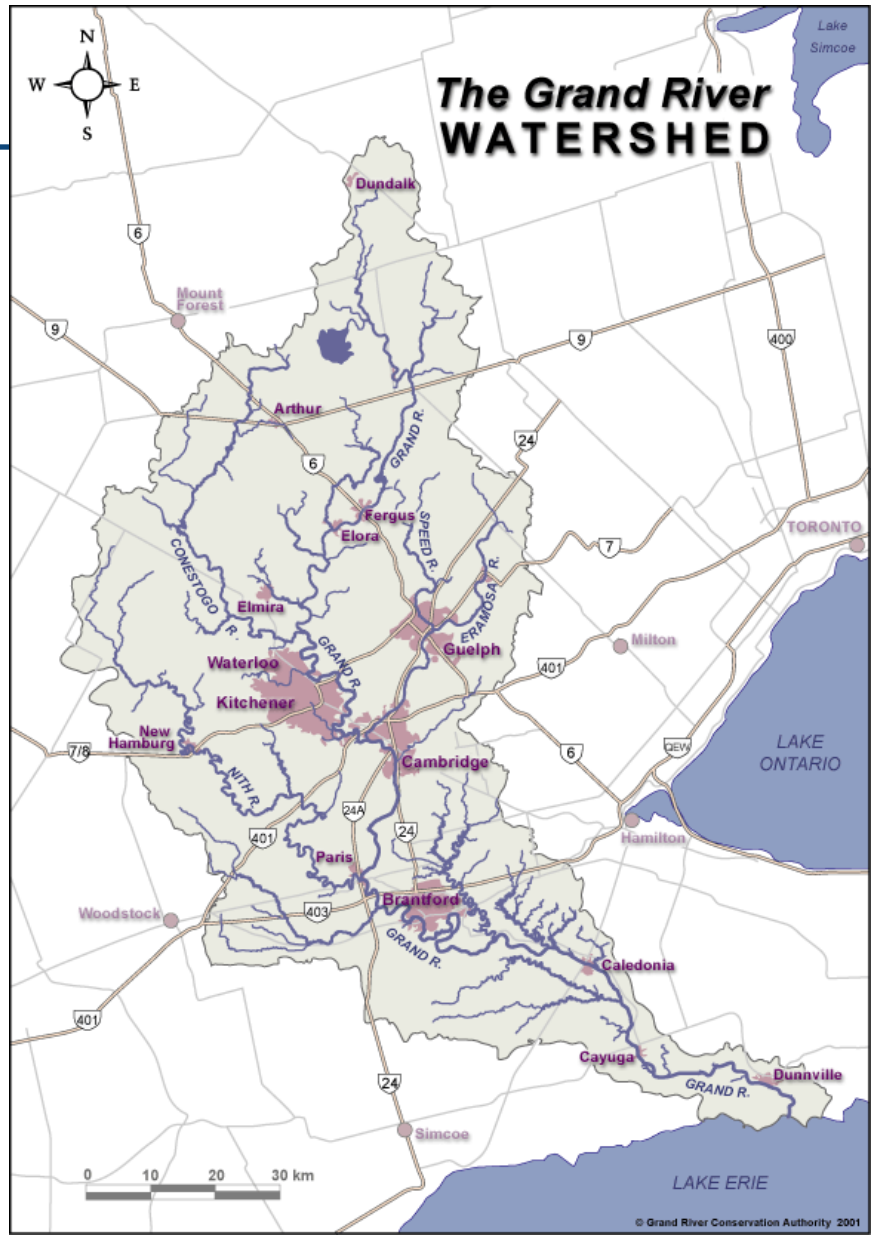
watersupplies

GRAND RIVER WATERSHED

Water Management Plan

Grand River watershed

- Major tributaries: Conestogo, Speed, Eramosa, Nith
- 39 municipalities, 2 First Nations
- 80% of people live in 5 cities
- 70% is actively farmed
- 70% of water supply from groundwater; 27% from the river
- 29 wastewater treatment plants
- 7 multi-purpose reservoirs



About the GRCA

- **Partnership of watershed municipalities created in 1932 to address water quality, flooding**

- **GRCA responsibilities:**
  - Reduce flood damages
  - Ensure adequate water supply
  - Improve water quality
  - Watershed planning
  - Protect natural areas
  - Environmental education
  - Outdoor recreation

Charting a Path Forward

- **A collaborative process leading to action**

- **Steering Committee:**
  - GRCA
  - Municipalities
  - First Nations
  - Ontario ministries
  - Federal agencies

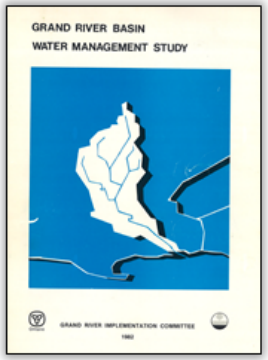
- **Builds on existing information and new studies**

We've Always Had a Plan

2011 WMP

1987

1982



1974

1971

1962

1932

- 75 year history of successful collaboration
- Shared responsibility required
- Goal is improved health, preparedness for population growth, climate change

Goals of the Water Management Plan

Improve water quality to improve river health and reduce impact on the eastern basin of Lake Erie

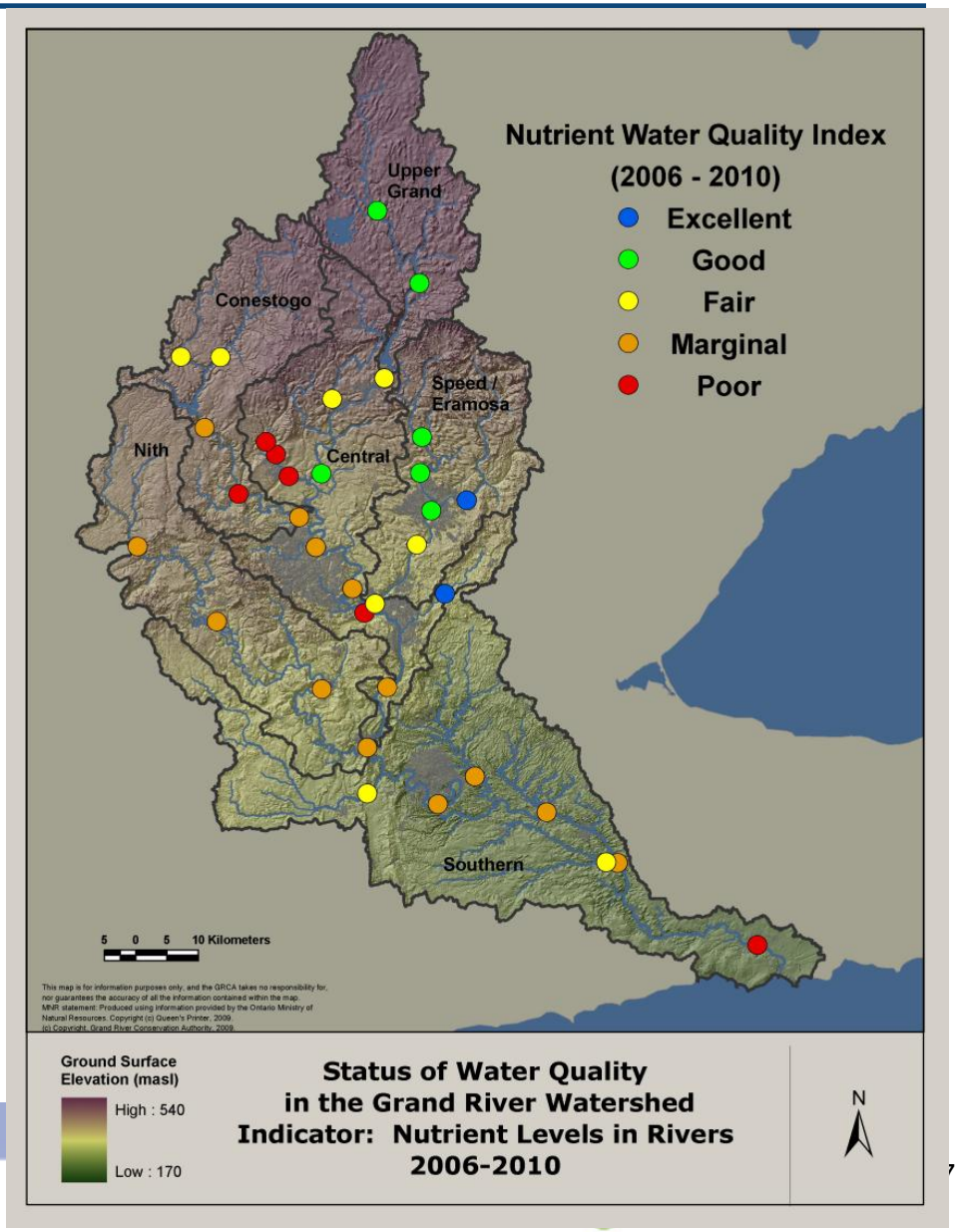
Increase resiliency to deal with climate change

Reduce flood damage potential

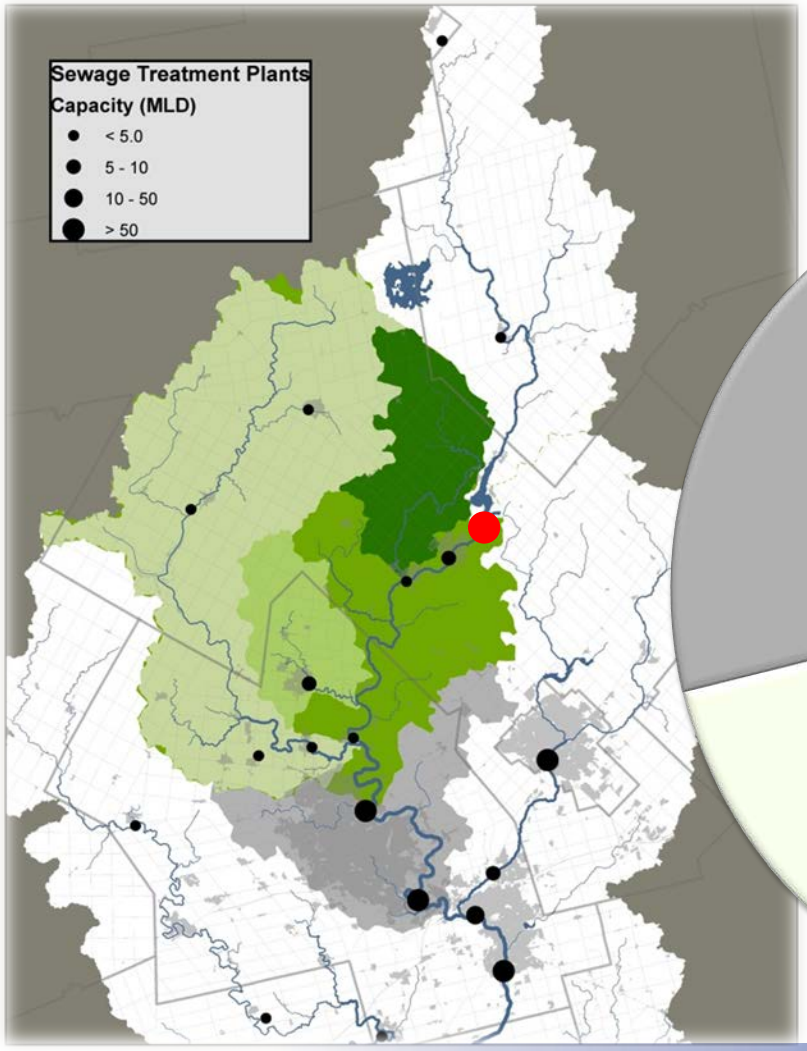
Ensure sustainable water supplies for communities, economies and ecosystems

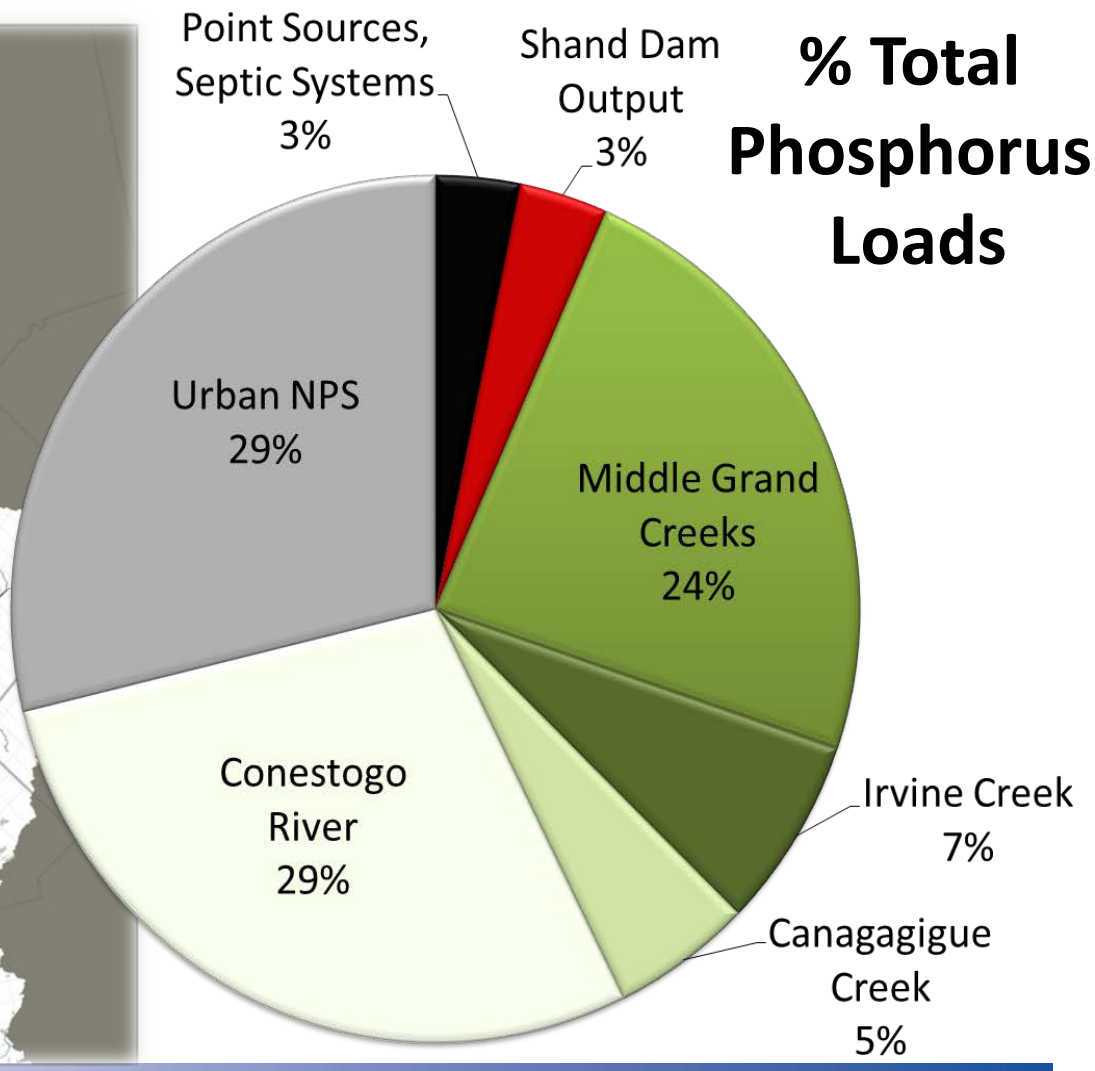
Water quality in the watershed

- **Nutrients**
  - High Phosphorus
  - Increasing Nitrates
- **Low dissolved oxygen**
- **High suspended sediment**
- **Chloride**
- **Pathogens**
- **Trace Contaminants**

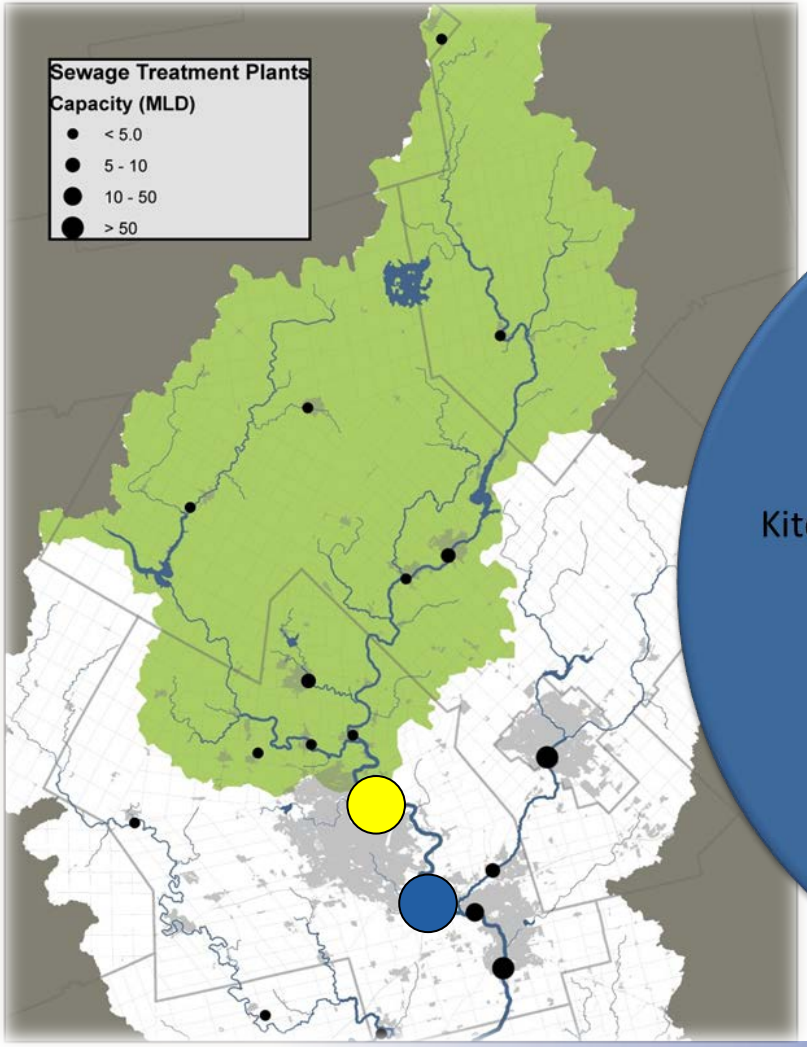


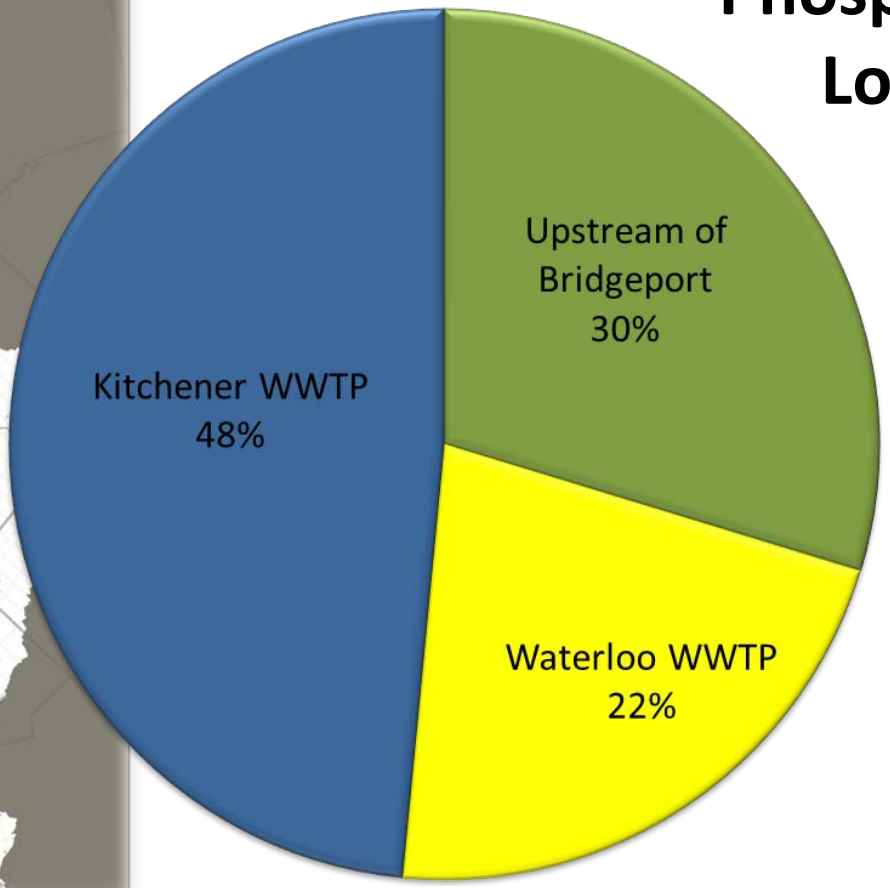
Agricultural and urban NPS's are important





Point sources dominate during summer





Action to improve water quality

➢ Point sources

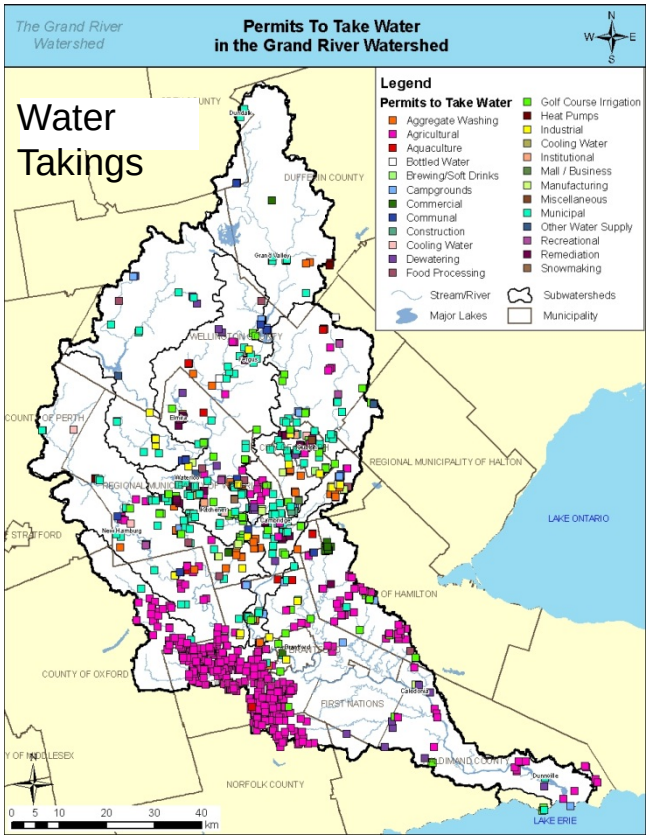
- Planned WWTP upgrades
- WWTP performance optimization

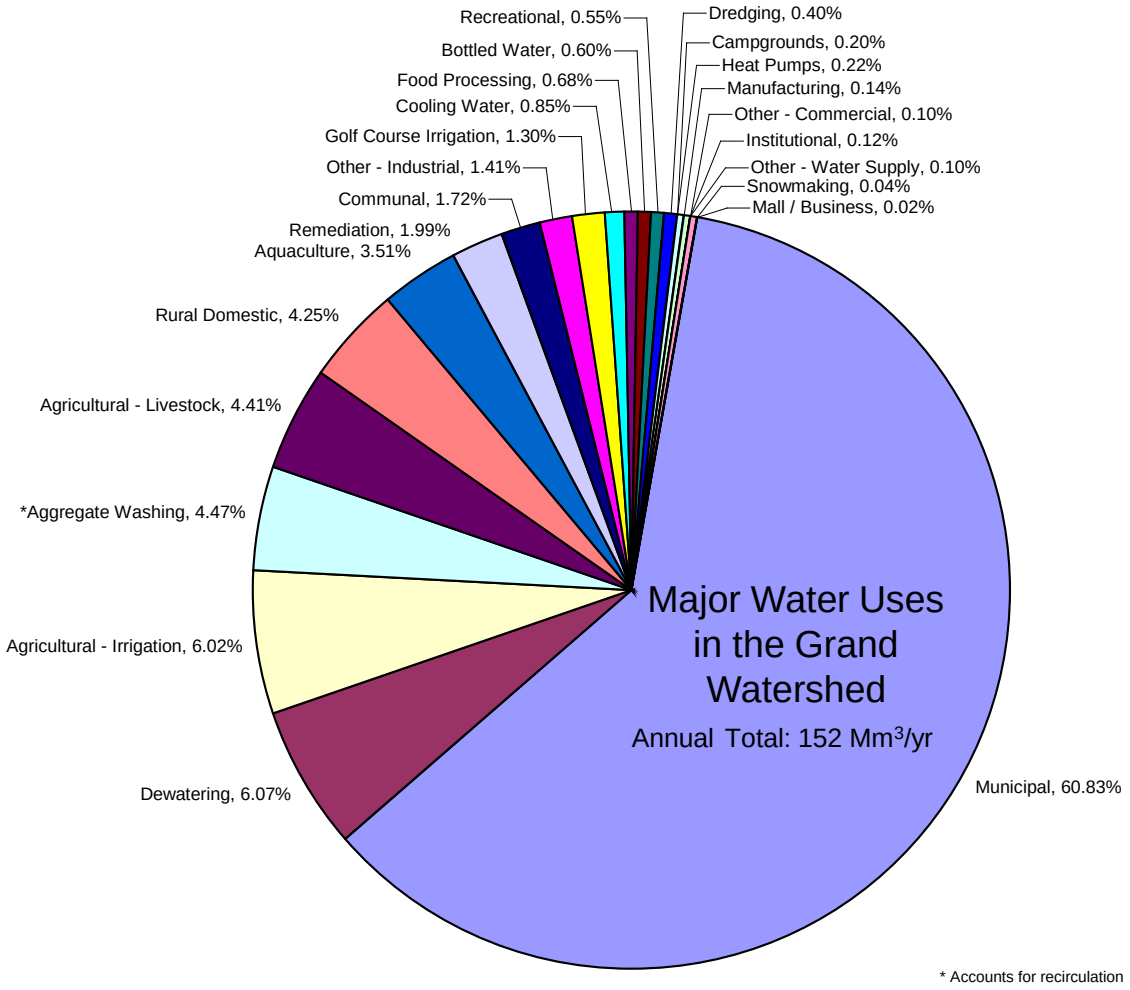
➢ Non-point sources

- RWQP expanded to practices, rural non-farm, all watershed
- Urban SWM best practices
- In-river works

Water Quantity and Supply

- **86% of population served by municipal supplies**
- **70% from groundwater**





* Accounts for recirculation

Climate Change Scenarios

Key findings:

- Air temperature increases of 1.8 to 4.0°C with temperature increases in all months
- Changes in precipitation ranging from -6% to +12% with a trend towards more precipitation in the winter, less in the summer
- More frequent winter melts with less frozen ground conditions, earlier spring
- Longer low flow season now extending from April/May through October

Conclusions:

- A range of variability in future climates similar to that experienced in the past.
- Increased frequency of extreme events, both floods and droughts.

Action for sustainable water supplies

Municipal supply

- Demand management as part of municipal supply planning

Irrigation

- Reduce dependency on the creeks
- Efficient equipment

Reservoir Operations

- Current operating procedures / discharge targets are most reliable
- Investigate filling procedures to improve reliability of filling as winters warm

Implementation

- An Implementation Committee that meets annually to report on progress
- An annual progress report on plan implementation
- A five year review/update of the plan