



# Risk to Resiliency

## Conservation Authority Flood Management in Ontario

Flooding is the leading cause of public emergency in Ontario.

Through their flood management programs, Ontario's 36 Conservation Authorities work with municipalities, and other levels of government to prevent and manage the impacts of flooding to Ontario communities.

### Conservation Authorities' responsibilities around flood management:

- Undertake floodplain mapping, modelling, and monitoring streamflow, rainfall and snowpacks
- Regulate development in flood prone areas in cooperation with municipalities and the Province
- Provide planning support & advice to municipalities to minimize flood impacts and issue warnings
- Acquire important floodplain lands and flood vulnerable structures
- Operate over 900 dams, dykes, channels and erosion control structures (asset replacement value: \$2.7 billion)

### Building Resilient Watersheds Prevents Flooding

Conservation Authorities bring added protection and benefits through watershed planning, watershed stewardship/natural heritage system management, stormwater management, low impact development, monitoring and many other programs they deliver.

Collaborating with Conservation Authorities has enabled municipalities and other levels of government to rely on a cost effective and streamlined approach preventing more than \$100 million in damages annually.

The long history of Conservation Authority flood management programs guidelines and standards have significantly reduced risk to people and property , avoiding costly disruptions to businesses and clean up and repair costs for residents and communities.

# Conservation Authority Approach to Flood Management

PREVENTION	MITIGATION	PREPAREDNESS	RESPONSE	RECOVERY
Prevent the effects of flooding	Reduce Flooding	Develop capacity to respond	Take action during a flood	Deal with flood aftermath
<b>ACTIVITIES</b>				
Planning and regulation to minimize vulnerabilities	Evaluate risks and implement mitigation programs	Develop plans for emergency preparedness	Implement emergency measures	Help administer relief / recovery programs
Regulate floodplain land use Stormwater management Green infrastructure / Stewardship Watershed planning Public education Purchase floodplain land and structures vulnerable to flooding	\$2.7 in flood control structures (over 900 dams, dykes, channels and erosion control structures) Flood proofing Flood forecasting & warning systems	Flood contingency planning Partner training Public education	Monitor storms and stream flows Issue flood warnings	Assess overall damage Post audit of flood response
<div style="border: 1px solid #ccc; border-radius: 15px; background-color: #D9E1F2; padding: 10px; width: fit-content; margin: 0 auto;"> <p style="margin: 0;"><b>Conservation Authorities map floodplains</b></p> <ul style="list-style-type: none"> <li>Along inland rivers, lakes and streams</li> <li>Great Lakes shorelines</li> </ul> </div>				

## Conservation Authority Flood Programs Need Investments

Climate change, intensified development, and long term lagging investments in flood control structures, tools and programs impair Ontario’s ability to maintain existing levels of protection and deal with emerging threats.

Investments are needed in:

- ✓ Floodplain mapping
- ✓ Ongoing flood management operations (monitoring, regulation, facility operations, watershed planning and technical studies)
- ✓ Aging infrastructure



## General Facts About Conservation Authorities and Flooding

### Infrastructure

**To keep water away from people**, Conservation Authorities:

- Own and operate \$2.7 billion worth of infrastructure: 900 dams, dykes, channels and erosion control structures
- In 2012, 840 erosion works and 180 flood works have been constructed to protect structures

### Floodplains – why do we need them?

- **To keep people away from water**, Conservation Authorities rely on floodplain mapping, regulations, and flood forecasting and warning.
- **Floodplains are needed to control flooding.** Floodplains are natural areas along watercourses such as streams, rivers, and lakes – including the Great Lakes. In times of floods these areas can allow watercourses to swell and accommodate additional water. As well, regulating activities within floodplain areas is an important tool to protect people and prevent property from being flooded. Floods can require significant costly clean ups. They disrupt our lives and businesses.
- **The average age of CA floodplain mapping is 1991. 74% to 78% of mapping (by length) requires updating.**
- 90% of CA floodplain mapping is along watercourses such as lakes, rivers and streams. Of this, almost 4% is Great Lakes shoreline.
- There are 102,927 buildings vulnerable to flooding within the CA regulated floodplains.

### Regulations

To protect people and control flooding and erosion, Conservation Authorities are required by the Conservation Authorities Act to regulate and prohibit activities taking place in areas prone to flooding.

This includes land in or adjacent to river or stream valleys, Great Lakes and large inland lakes shorelines, watercourses, hazardous lands and wetlands.

- In regulated areas, **8,695 requests for permits** were received and reviewed in 2012 by CAs and **7,733 permits were issued**.
- A total of **498 violation notices** were issued in 2012 to landowners for undertaking unapproved activities.

### Other Conservation Authority activities that help to prevent or manage flooding:

- Modelling, and monitor streamflow, rainfall and snowpacks
- **Provide planning support & advice to municipalities to minimize flood impacts and issue warnings**
  - 171 flood messages were issued in 2012 to municipalities and others

- Conservation Authorities own land within floodplain areas
  - CAs are the second biggest landowner in Ontario, behind the Province. Approximately a third of these lands are designated as natural hazards lands and help to prevent and control flooding and erosion.
  - The types of programs that Conservation Authorities deliver that help to build the natural resilience of these lands include:

#### Reforestation/Tree Planting Programs (2012 statistics)

- Almost 3 million trees planted on 5,205 hectares of land
- 3,037 landowners engaged, resulting in 1,959 projects
- \$5 million in grant dollars given out (total value of \$7 million)
- 29% of grant dollars came from municipal sources, 24% provincial, 5% federal and 42% from other sources

#### Habitat Rehabilitation/Restoration Projects (2012 statistics)

- 495 landowners engaged resulting in 609 projects
  - 82 wetland projects
  - 277 habitat projects
  - 210 shoreline riparian projects
  - 40 stream/fish habitat projects
- 367 hectares and 83 km of streams restored or rehabilitated
- Conservation Authorities also address flooding issues through their climate change strategies and climate change adaptation activities
  - In 2012, eight Conservation Authorities reported that they had developed a **climate change strategy** or policy direction for their Authority to date.
  - 18 CAs confirmed that they had undertaken **climate change technical studies/pilot projects** to date
  - 11 CAs indicated that their CA was implementing **climate change mitigating or adaptive actions** or substantially modifying current actions as a specific climate change response