



Protecting People and Property

A Business Case for Investing in
Flood Prevention and Control



CONSERVATION ONTARIO

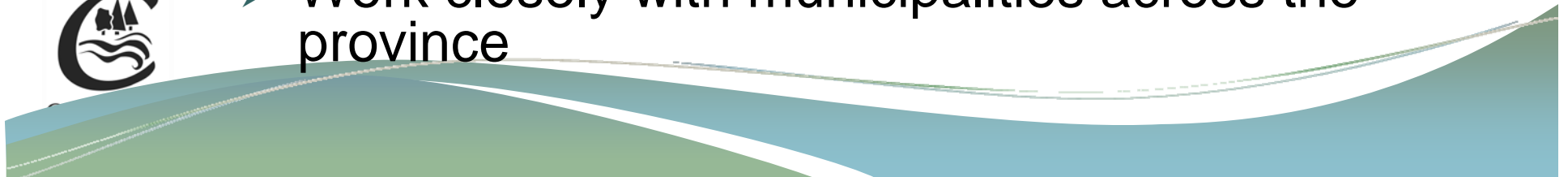
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www.conservationontario.ca



PROTECTING PEOPLE AND PROPERTY

- Flooding is the leading cause of public emergency in Ontario
- Climate Change impacts are creating more frequent and serious flood events. Expected to increase
- Conservation Authorities and Ministry of Natural Resources responsible for programs that are now being integrated into a new, provincial emergency management framework
- Work closely with municipalities across the province





OUR OBJECTIVES

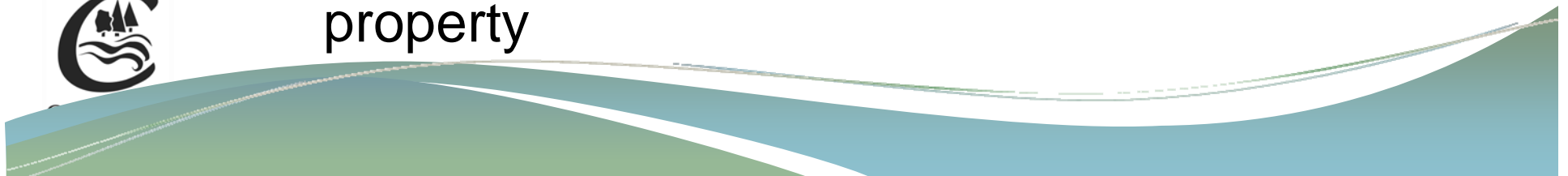
- Protect, manage & restore Ontario's rivers, lakes, streams, woodlands, wetlands, and natural habitats
- Develop and maintain programs that protect life and property from natural hazards such as flooding and erosion
- Provide opportunities for the public to learn from, enjoy and respect our natural environment





PROTECTING PEOPLE AND PROPERTY

- Protect 46,000 homes and prevent an average of over \$100 million/yr in damages
- Ontario programs which manage floods & regulate flood plains have proven to be very effective – significant loss of life has not occurred since the establishment of flood management programs
- Jeopardizing our ability to protect people & property





HOW DO WE PROTECT PEOPLE AND PROPERTY TODAY?

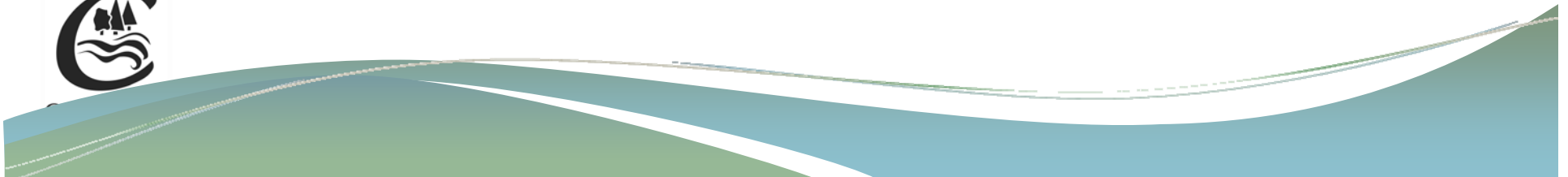
- Flood plain mapping
- Regulate development in flood plains in cooperation with municipalities
- Provide planning support & advice to municipalities to minimize flood impacts / Issue warnings
- Acquire important flood plain lands and flood vulnerable structures





HOW DO WE PROTECT PEOPLE AND PROPERTY TODAY?

- Operate over 900 dams, dykes, channels and erosion control structures along rivers and shorelines
- Monitor stream flow, rainfall and snow packs
- Model and forecast floods





HOW DO WE PROTECT PEOPLE AND PROPERTY TODAY?

- Protect significant natural heritage features such as wetlands and forests which help to mitigate the impact of flooding and erosion
- Inform and educate the public on flooding
- Contribute to municipal emergency planning and preparedness activities





IMPACTS OF CLIMATE CHANGE

- Experiencing more extreme precipitation events (more heavy rain and snow creates more flooding)
- ‘Flood season’ is year round
- Storm runoff is made worse because rain is more intense.
- Increased urban development compounds the damaging effect

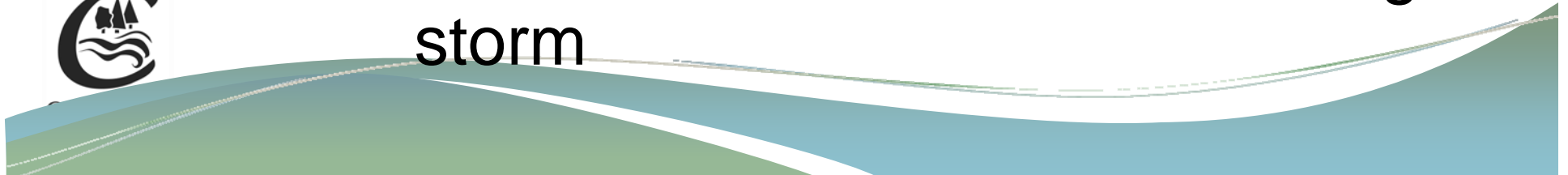




PETERBOROUGH 2004



- Unprecedented rainfall amount and intensity since 1866 records
- Rain: 100 mm to 240 mm
- Flood damage: >\$109 million to private and public property
- Approx 4500 homes had flood damage
- Exceeded Hurricane Hazel design storm

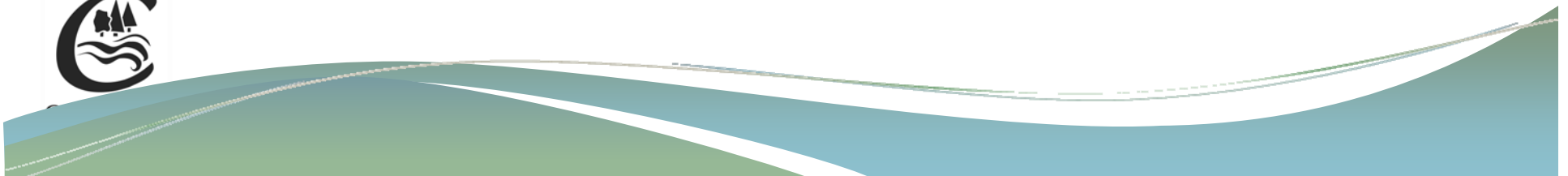




TORONTO 2005



- 175mm of rain in less than one hour across parts of Toronto and York Region
- Over 9,000 basement claims
- \$155 million in damages
- Exceeded Hurricane Hazel design storm

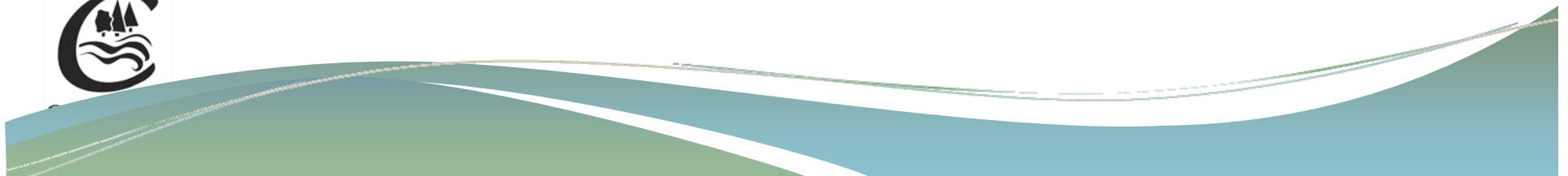




TODAY: THE PERFECT STORM

- Aging infrastructure
- Increased flooding & storm runoff
- Growing Population
- Increasing property values

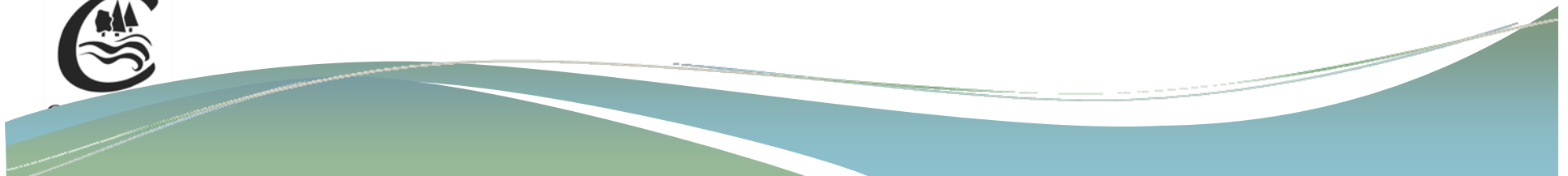
**Greater risk and projected
increase in flood damage costs
of between 20 % & 60 %**





HOW CAN WE RESPOND?

- Ensure up to date, accurate flood plain mapping
- Address aging infrastructure (dams, dykes, etc)
- Increase rainfall and stream flow monitoring
- Update computer models to forecast stream flows
- All these tools contribute to effective emergency management





ACCURATE MAPPING IS ESSENTIAL

- Accurate digital maps are the foundation of effective flood management, helping to save lives, prevent property damage and reduce emergency response and recovery costs
- 80% of existing maps need to be updated (cover 44% of the people living in flood plains; 72% of the buildings and 76% of the bridges located on mapped flood plains)
- Need to incorporate the newest mapping technology.



Smaller municipalities at greater risk



ADDRESS AGING INFRASTRUCTURE

- Directly threatens the safety of people and property
- 256 CA dams; 391 MNR dams help to control flooding
- Require ongoing maintenance, repair and replacement
- Few municipalities can afford any new flood control structures beyond minor erosion control works





MAINTAIN OPERATIONS

- Operation & inspection of flood control structures
- Monitoring of stream flow, weather conditions & snow accumulation
- Maintaining, updating & applying flood forecasting & warning systems
- Undertaking watershed, infrastructure and other planning studies
- Administering the flood fill regulations





COSTS AND BENEFITS OF IMPROVEMENTS

- Based on actual experiences, damage estimates from severe storms in Ontario from 2000 – 2005: **\$60 million**
- Insurance claims for flooding & sewer backup in four of Ontario's largest cities : **\$100 million**
- Easy to assume that average flood damages are more than \$100M/yr





COMMITMENT NEEDED

- Infrastructure maintenance, repair & replacement (\$27M)
- Flood plain mapping & streamflow monitoring systems, computer models (\$78M)
- Ongoing flood management programs including monitoring, studies to plan for climate change & other emerging threats (\$16.5M annually)

