



Dodging the 'Perfect Storm'

Conservation Ontario's Business Case for Strategic
Reinvestment into Ontario's Flood Management
Programs and Services
September 2013

Dodging the 'Perfect Storm'

- 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





Conservation
ONTARIO
Natural Champions

CONSERVATION AUTHORITIES OF ONTARIO

90% of Ontario's population lives in a
Conservation Authority watershed

GEORGIAN BAY

LAKE HURON

LAKE SIMCOE

LAKE ONTARIO

LAKE ERIE

USA

USA

scale

km 25 0 100 km



Conservation
ONTARIO
Natural Champions

Website: www.conservation-ontario.on.ca

LEGEND

- City
- Town/Village
- Roads
- Rivers
- Conservation Authority Watershed

Source: Conservation Ontario and
Ontario MNR provincial base mapping

Last updated: February 27, 2002

Northern Ontario



Protecting People & 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
- Ongoing lagging investment is jeopardizing our ability to protect people & property



Examples of Flood Management Tools

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



Conservation Authority Responsibilities

- 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



Conservation Authority Responsibilities

- 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 Increasing

- 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





The Perfect Storm

Aging CA Infrastructure
Underfunded CA Flood
Programs



Increased Flooding & Runoff
Growing Population
Increasing Property Values



How Can We Respond?

- Ensure up to date, accurate flood plain mapping
- Increase rainfall and stream flow monitoring
- Update computer models to forecast stream flows
- Address aging infrastructure (dams, dykes, etc)
- Support Green Infrastructure (Low Impact Development), Stormwater Management, Watershed Stewardship / Conservation Practices



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



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



Address Aging Infrastructure

- Dams, dykes, channels & erosion control structures along rivers and shorelines help to control flooding
- Can directly threaten the safety of people and property
- Current program cost shared with municipalities
- Require ongoing maintenance, repair and replacement
- Current asset value: \$2.7 billion



Support Other Activities That Prevent or Reduce Flood Event Impacts

- Continue to invest in:
 - Green Infrastructure (including Low Impact Development, wetland protection and restoration)
 - Natural heritage systems
 - Watershed stewardship / conservation best management practices
- Often funded & implemented across various ministries (e.g. MOE, OMAFRA, etc.)
- CAs partner with municipalities, landowners, agencies and government to deliver

Reinvestments Are Cost Effective

- 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 Required

- Immediate: Floodplain mapping & streamflow monitoring systems, computer models (\$24.8M)
- Ongoing: flood management programs (\$50.7M /annually)
- Ongoing: Infrastructure maintenance, repair & replacement (\$27M /annually)
- Ongoing: policy and program support for complementary activities to manage runoff, water quality, etc. as result of floods



For More Information

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WE ALL LIVE DOWNSTREAM