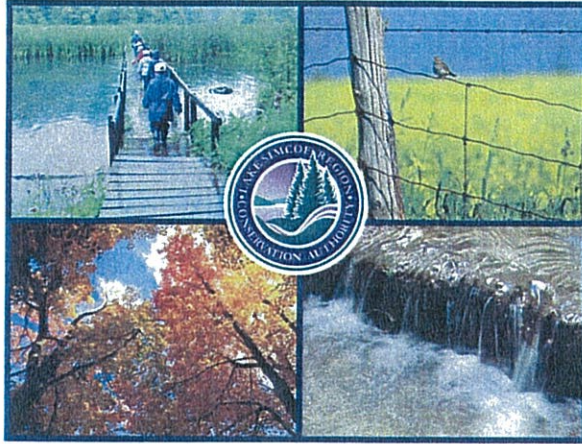


## Flood Management Project



Township of Uxbridge  
January 7, 2008

## Presentation Overview:

- Flood plain management,
- Existing Regulatory Flood Plain limits within the Town of Uxbridge,
- Flood control options for future consideration.



## Floodplain Management in Ontario

- In 1954, the Province establishes floodplain controls through legislation,
- Originally, flood plains were managed by structural measures i.e. dams, dykes, filled-in flood plains,
- Ontario no longer favours the use of structural flood control measures.



## Floodplain Management in Ontario

- Current Authorities manage floodplains by reducing the *Risk* which involves;
  - identifying flood plains through modeling and mapping work and
  - preventing or restricting development within these hazardous areas,
- Conservation Authorities in Ontario have been delegated to do this under Section 28 of the Conservation Authorities Act.





## Floodplain Management in Ontario

- Flood Plain Management in Uxbridge is based on this approach,
- This is an accepted practice in flood plains throughout all of Ontario.



## Floodplain Management in the Town of Uxbridge

- Like many communities, the Town of Uxbridge was established beside a waterway,
- Overland flow routes (flows greater than the capacity of storm sewers) were non-existent in these older communities,
- As a result major storms still can cause significant impacts in these older areas.
- In April of 1965, there was a major flood event through the downtown area.



## Current Conditions in the Town of Uxbridge

- Culvert under Brock Street (190 metres) runs from south of Pond Street to the parking lot on the north side of Brock St.
- At the culvert's deepest point, the culvert bottom is 6 metres below the surface of Brock Street,
- This pipe has 1:100 year storm capacity and is made up of five different sections of varying sizes and configurations.



## Current Conditions in the Town of Uxbridge

- **PROBLEM:** The regional storm (Hurricane Hazel) peak flow at this location are ten times (10X) that of the 1:100 year event,
- Consequently the Town experiences substantial flooding (upstream) of Brock Street during a regional event,
- Under a regional storm event, water would back up behind the culvert until it reached a height where it would flow through the downtown core at a depth of approximately 1-2 metres.







## Current Conditions in the Town of Uxbridge

- To manage risk current buildings, roadways and critical infrastructure within the floodplains have been identified,
- A database will be produced for each model storm event and provided to the Durham Region and Township of Uxbridge staff for their action should a flood occur.





## What Could be Done? Flood Control in the Town of Uxbridge

- One option is to remove the culvert and re-open the natural channel of the Uxbridge Brook.
- The preferred design would involve construction of a trapezoidal channel with 2:1 side slopes and a meandering low flow channel.
- At it's widest, the channel would be 42 metres in width with a bottom width of 20 metres.



## Results: Flood Control in the Town of Uxbridge

- The construction of a new channel through downtown Uxbridge will reduce flood levels (immediately upstream of Brock Street) under Regional storm conditions by approximately 4 metres (12 feet).
- This will substantially reduce the width of the flood plain in this area as well (from about 180 metres down to 50 metres).



### BENEFITS

- Reduces flooding, thereby reducing the potential for loss of life, property, and environmental degradation,
- Allows for redevelopment of the downtown core,
- Restores a natural channel improving fish habitat.

### DISADVANTAGES

- Cost
- Disruption (during construction)





## Example: Kidds Creek, City of Barrie

- Two enclosed sections were opened to reduce flooding and establish a natural channel to Lake Simcoe.



# Questions?





