

INDIAN / MCGREGOR CREEK FLOOD CONTROL PROJECT

The Flooding Problem

The Indian/McGregor Creek watershed has a long history of flooding. Flooding first became an issue in the early 1900's. At that time, a scheme was developed to hopefully solve the problem, but it proved ineffective.

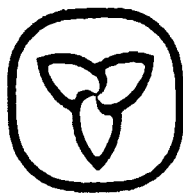
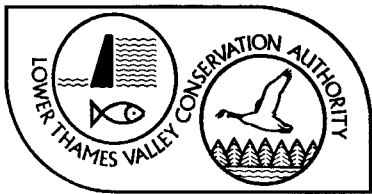
One of the most vulnerable floodprone areas are along Indian Creek in the City of Chatham and surrounding areas in the Townships of Harwich and Raleigh. Both *runoff* and *backup* flooding affect these areas.

Runoff flooding occurs as the result of heavy rain, sometimes accompanied by melting snow on the Indian and McGregor Creek watersheds. Runoff has increased over the years due to the loss of forests, as well as changes in farming operations and improved drainage practices. Under runoff conditions, flows on McGregor Creek are high enough to backup Indian Creek and flood a large, generally urban area. Channel restrictions on McGregor Creek in the City of Chatham also reduced the capacity for flow in the creek.

Backup flooding happens when significant runoff in the Thames River watershed reaches Chatham. Water in the Thames River rises and backs-up through the McGregor Creek inundating the same flood prone area.



South Chatham, one of the most vulnerable floodprone areas, has a long history of flooding.



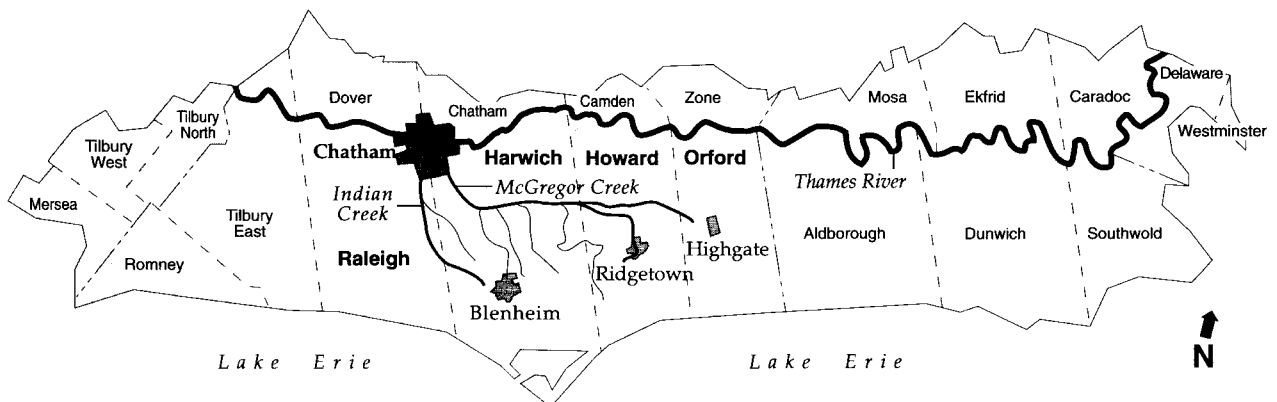
Project Goals:

The Indian/McGregor Creek Flood Control Project is designed to reduce flood risk in south Chatham and the surrounding areas of Harwich and Raleigh Townships, and to provide an adequate outlet for the McGregor Creek watershed.

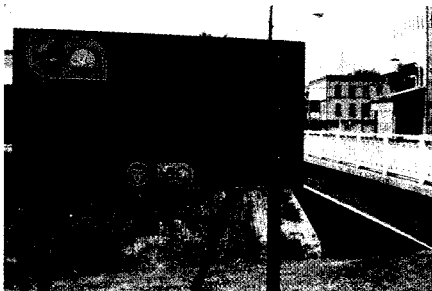
Where are the Indian and McGregor Creeks?

Watershed Characteristics

The Indian and McGregor Creek watersheds drain over 27,000 hectares of land in southern Kent County. They form one of the largest watersheds in the Lower Thames Valley Conservation Authority. The McGregor Creek has its headwaters in the Village of Highgate and the Town of Ridgetown. It flows generally west through the Townships of Orford, Howard and Harwich until it reaches Kent Centre, where it flows north to the City of Chatham. The Indian Creek flows north from Blenheim through Raleigh Township to the outskirts of the City of Chatham. It then flows east to join with the McGregor Creek.



The Project's Early Beginnings



Channel improvements along McGregor Creek, 1974.

The Indian/McGregor Creek Flood Control Project was initiated after a particularly severe flood in 1968. The Conservation Authority, in cooperation with the benefiting municipalities, undertook a 4 year investigation of the problem. In 1974, an 8 year, \$750,000 construction program began, including the improvement of the outlet capacities of McGregor and Indian Creeks in the City of Chatham. These early improvements augmented the flow of water on the two creeks, but were still not sufficient to allow the creeks to handle excessive runoff flows. By 1984 the direction of the project was in question. The entire project became the subject of an Environmental Assessment.

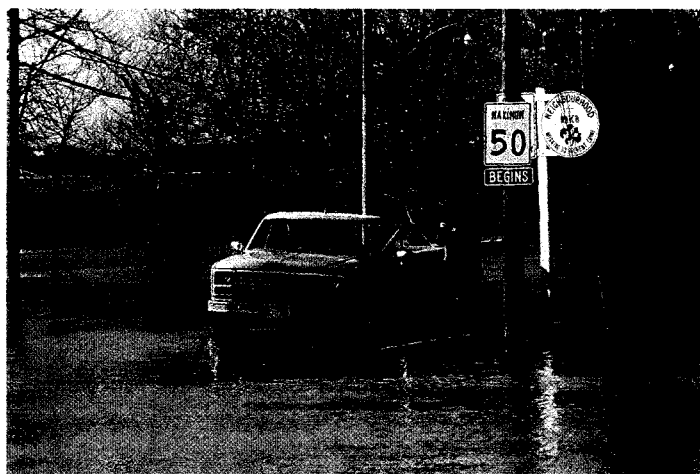
Aims of the Environmental Assessment:

1. To make McGregor Creek an adequate outlet for its tributary watershed.
2. To reduce flood risk in south Chatham and the Townships of Harwich and Raleigh, east of Rhodes dam.
3. To reduce flood risk in Raleigh Township due to over-topping of Rhodes dam.

The primary focus of the Environmental Assessment was the location of a diversion channel that could accommodate high runoff flows. The flood of 1985 certainly increased public awareness of the project. As a result, an upstream location for the diversion channel was chosen. This diversion would redirect almost the entire McGregor Creek flow through high land, upstream of the flood prone area.

Project Go-Ahead

Agreement was reached in early 1987 by the eight benefiting municipalities regarding project components and cost distribution. The final go ahead was given in September 1988, when the Province of Ontario promised funding for the project.



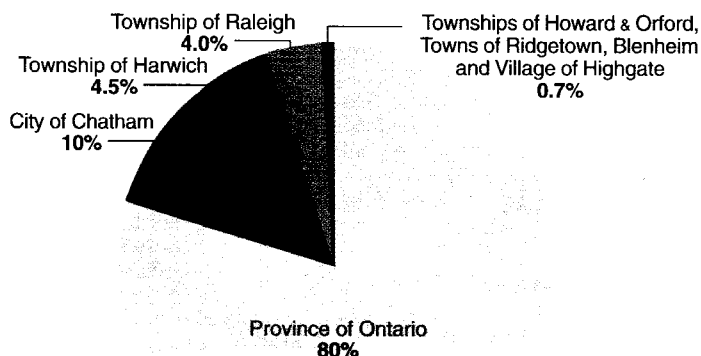
Above:

In 1985, a flood with an almost 50 year return period occurs in south Chatham, flooding nearly 400 homes and businesses for 6 days.

Left:

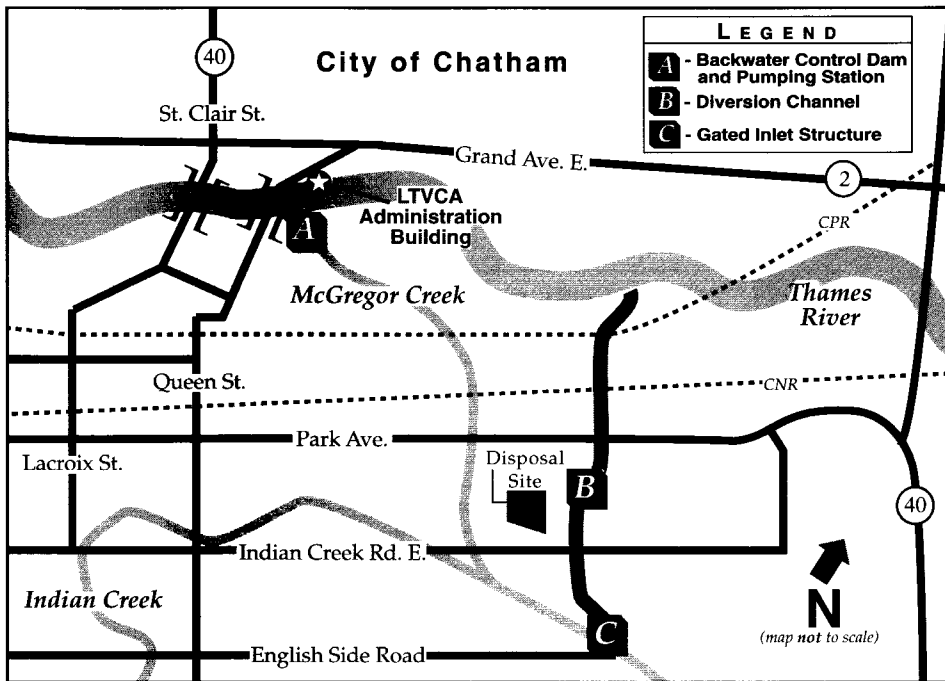
Agreement between all benefiting municipalities of the flood control project marks the turning point in the project's Environmental Assessment, 1987.

Apportionment of Total Project Costs: \$16.5 million



Maurice Bossy, M.P.P. Chatham/Kent and Jim McGuigan, M.P.P. Essex/Kent announce funding approval from the Province of Ontario, 1988.

Project Components



The Indian/McGregor Creek Flood Control Project

In August 1989, the Lower Thames Valley Conservation Authority began construction on the Indian/McGregor Creek Flood Control Project. This project has been completed with the cooperation of the eight benefiting municipalities within the Indian and McGregor Creek watersheds and the Province of Ontario.



The ground breaking ceremony in 1989 marked the start of this \$16.5 million flood control project.



Diversion Channel

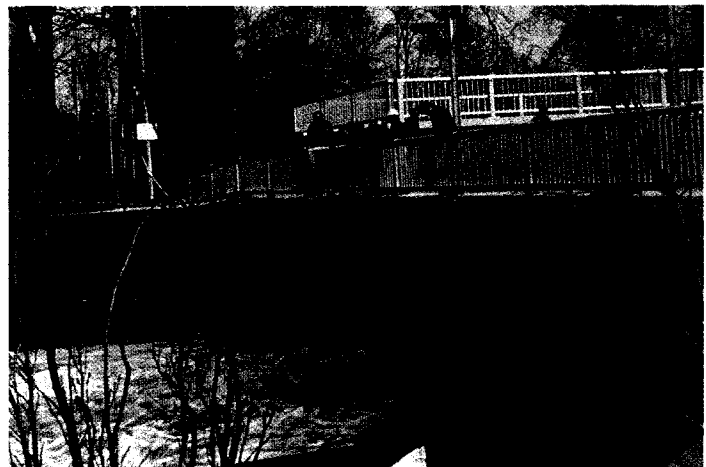
A major project component is a *diversion channel*, 3.3 kilometres in length, generally located along the eastern boundary of the City of Chatham. This channel has a top width of about 50 metres and depth of approximately 6 metres. Located on McGregor Creek at the entrance to the diversion channel is a *gated inlet structure*. This inlet structure contains gates, which close under runoff conditions on McGregor Creek. Closing the gates forces runoff water from the McGregor Creek down the diversion channel. Under normal flow conditions, the gates are open and allow these flows to go down McGregor Creek. The diversion channel is grass-lined and dry throughout the year except during flood periods. Halfway along the channel is a 12 hectare disposal site; a parcel of land containing excavated material from the channel. The diversion channel, completed in 1991, cost \$11.1 million.

Left: *Aerial view of the diversion channel.*

Backwater Control Dam and Pumping Station

The *backwater control dam* and *pumping station* are situated near the mouth of McGregor Creek. The *backwater control dam* has 4 gates, each measuring 3

metres by 5 metres. The gates are only closed when water in the Thames River is high. This prevents Thames River water from backing up into the flood prone area. The *pumping station*, which is adjacent to the backwater control dam, houses a battery of submersed electric pumps. When the gates on the backwater control dam are closed, these pumps force nominal drainage water from the Indian Creek over the dam and into the swollen river. The pumping station has the capacity to pump 8.5 cubic metres of water per second. The back water control dam and pumping station were completed in 1992 at a cost of \$2.7 million.



Backwater control dam and pumping station.

Other Project Components

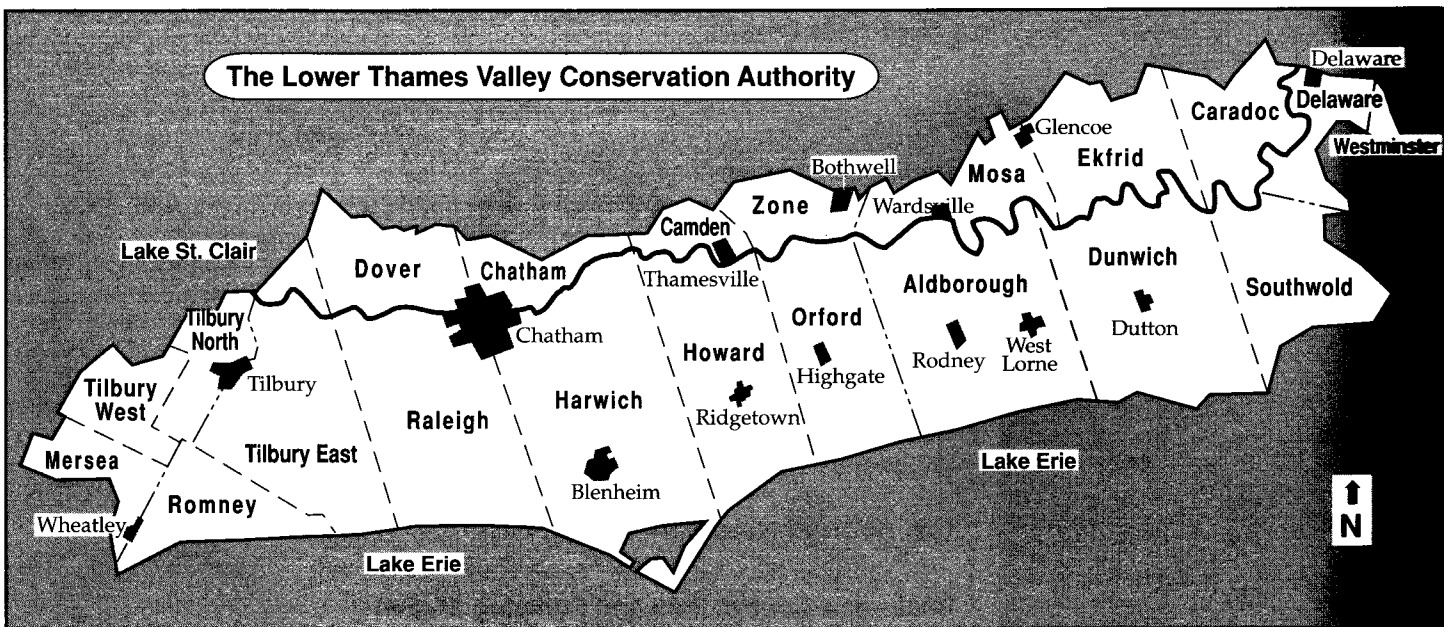
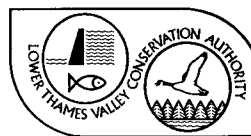


In 1993, a new culvert at Indian Creek bridge under Queen St. in Chatham increases the carrying capacity of the creek's channel, decreasing the risk of flooding to surrounding areas.

Improvements to upstream sections of Indian Creek, Gregory Drain and McGregor Creek will bring these channels to a consistent and acceptable capacity for runoff. Enlargement of the culvert on Indian Creek at Queen St. and improvements to the McGeachy farm bridge were completed in 1993. Including the improvements to the upstream section of the McGregor Creek, the cost of these other project components is \$2.5 million.

Community Benefits:

The final cost of the Indian/McGregor Creek Flood Control Project was \$16.5 million. This amount came in at only 10% above the engineer's estimated cost and 20% below that which was budgeted. With this project in place, the area will experience over \$30 million worth of benefits. Flood damage to over 2,000 homes and businesses will now be eliminated.



About the Lower Thames Valley Conservation Authority

Historically, residents of the Lower Thames River watershed have experienced frequent river and stream flooding. The need for organized action in flood control was recognized and in 1961 the Lower Thames Valley Conservation Authority was established. This Conservation Authority is one of the largest in southwestern Ontario. Municipal residents are appointed as Authority members to work co-operatively with the Ontario Government on water and land management affairs. The acquisition of flood prone hazard lands, wetlands, forest and valley lands, as well as the construction of water control structures are priority Authority projects. The Lower Thames Valley Conservation Authority aims to increase the conservation, restoration, development and management of all our natural resources.

Authority Objectives

The Lower Thames Valley Conservation Authority promotes the wise use and management of our renewable natural resources through active involvement in:

- the prevention of floods
- the preservation of wetlands
- the conservation of water
- the promotion of reforestation and proper woodlot management techniques
- the promotion of proper land use practices
- the preservation and increase of wildlife
- erosion control
- the establishment of conservation areas
- the promotion of conservation education

Conservation Authorities

Conservation Authorities are corporate bodies established under the Conservation Authority Act, passed in 1946. This Act produced an administrative and financial framework for Conservation Authorities to function in partnership with local municipalities and the Ontario Government in matters of conservation. To clearly identify the area over which the Conservation Authorities have jurisdiction, the boundaries are set around one or more watersheds - the land drained by a river and its tributaries. Conservation Authority programs are designed to promote awareness and the importance of wise use and management of our renewable natural resources - water, soil, vegetation and wildlife.