

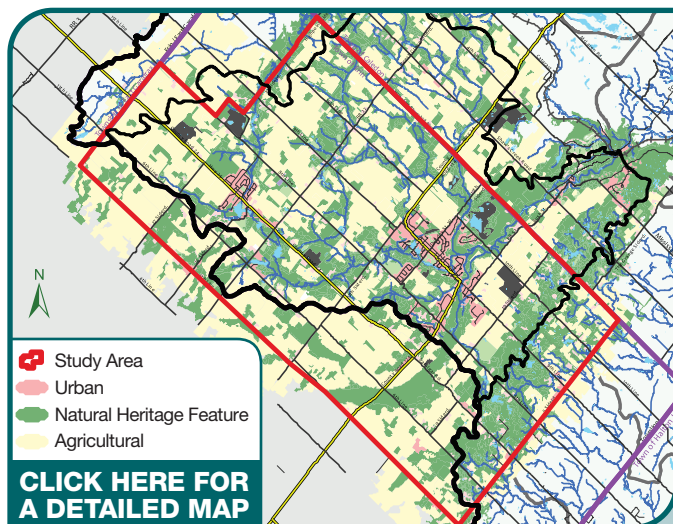


# Environmental Check-up

NEW STUDY EVALUATES ENVIRONMENTAL CONDITIONS AROUND ERIN VILLAGE AND HILLSBURGH

## Overview

The Town of Erin, in partnership with Credit Valley Conservation (CVC) and Wellington County, is working on a Servicing and Settlement Master Plan (SSMP) for Erin Village and Hillsburgh and surrounding area. The SSMP is a community-based process designed to plan for future growth in the area. A key step in the Erin SSMP process is the scientific evaluation of the current environmental conditions within the Town of Erin. This study – *Existing Conditions Report* – summarizes results of the environmental evaluation. This report serves as a tool to aid the Town, Core Management SSMP Team and the public in planning for future growth and keeping the area's natural resources healthy, abundant and safe.



## The SSMP Study Area

The majority of the SSMP study area is within the West Credit River watershed. This watershed is defined by the area of land - including the urban communities of Erin Village and Hillsburgh - that feeds its water (from groundwater, waterways and rainwater) into the West Credit River.

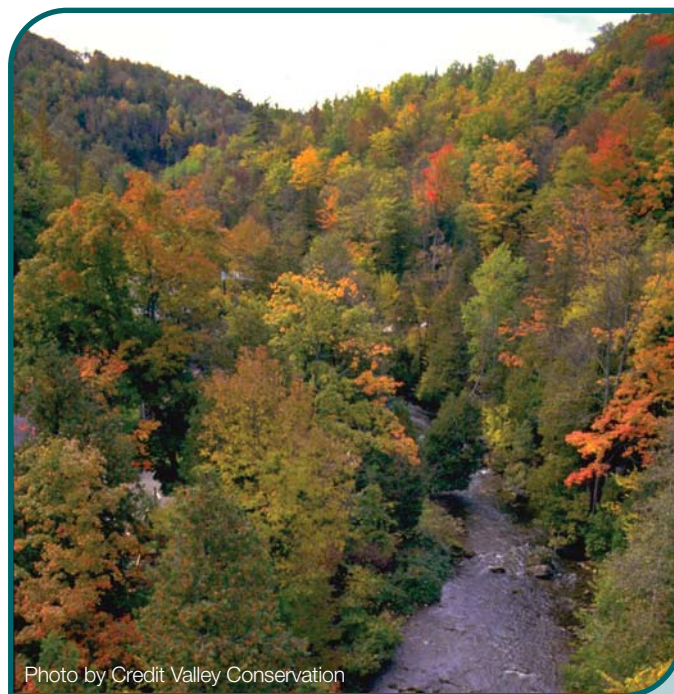


Photo by Credit Valley Conservation

## West Credit River Corridor

The West Credit River is a gem of Southern Ontario. The majority of this river corridor is natural and vegetated with lush wetlands, healthy forests and streams.

## How does the environment fit into the Servicing and Settlement Master Plan?

Provincial and County policy encourages future growth in established urban areas and also requires that important natural resources, such as ground and surface water, are protected and preserved. Guided by these policies, the Town of Erin developed the SSMP to incorporate protection and enhancement of the natural environment while addressing servicing and settlement issues.

## What was studied?

The study investigated the area's land uses, surface water, groundwater, and animal and plant life. The study presents a broad picture of the area's current environmental conditions.

## What are the main findings of the study?

**Land** – Almost 60% of the study area's land is currently in use by humans, mostly for agriculture (46%), and urban and rural development (9.5%). The remaining 40% includes forests, wetlands, aquatic and cultural (e.g., agricultural fields left to renaturalize) areas.



Photo by Credit Valley Conservation

### Erin Agriculture

Forty-six percent (46%) of the study area's land is currently used for agriculture.

Wetlands are an important natural feature in the study area. They filter pollution from water, prevent erosion, and recharge groundwater. These areas, in addition to forests, also protect groundwater recharge areas and are home to many plants and animals.

The Province of Ontario protects significant wetlands and environmentally sensitive land areas from development to maintain rare species habitat and protect local ecosystems. Ontario's Ministry of Natural Resources considers all five wetlands in the study area to be Provincially Significant. The study area also includes four Areas of Natural and Scientific Interest (ANSI) and six Environmentally Significant Areas (ESAs). Protection of significant land and wetlands within the study area is important because many of the more than 450 plant species found here are considered significant or rare. Six species-at-risk were recorded in the study area: the butternut tree, the Canada warbler, the hooded warbler, the red-shouldered hawk, Western chorus frog, Eastern snapping turtle and Monarch butterfly.

**Surface water** – The flow of water from the West Credit River watershed is vitally important to water quality and water levels in the Credit River. The cold water of the West Credit River is essential for coldwater species such as brook trout.



Photo by Credit Valley Conservation

### West Credit River

The cold water that feeds into the river is vital in providing habitat for the area's self-sustaining population of brook trout. A healthy population of brook trout is an indicator that the river system is healthy and stable.

The eleven man-made dams on the West Credit River help control flooding. However, the ponds created by the dams, retain sediment and cause the water in the ponds to warm up. Water temperatures are quite high in certain stretches due to the presence of dams, wetlands, increased surface runoff from urban areas, and reduced vegetation cover at stream edges. The waterways that are frequently dammed between Hillsburgh and Erin Village result in the warmest flowing water in the West Credit River. This warming results in negative impacts to significant coldwater species like brook trout. Beaver dams are a common and natural part of the ecosystem and do not negatively affect streams in the area.



Photo by Martin Lamprecht

## Hillsburgh Pond

The eleven man-made dams on the West Credit River system help control flooding, but the succession of ponds make water temperatures warmer. West Credit River water flowing between Erin Village and Hillsburgh has the warmest water - causing stress on fish and aquatic habitat.

The many small streams in the study area are important elements of the area's water flow system and help reduce unwanted flooding. Future development should ensure that the function of the existing water flow system is protected.

**Groundwater** – The constant movement of water above, on, and below the earth's surface is known as the water cycle. Groundwater is part of this cycle, through the infiltration of precipitation into the ground. In certain areas, such as in very sandy or gravelly soils, greater amounts of water infiltrate into the ground and reach groundwater aquifers.

Some of this water moves only short distances through the ground, discharging to local streams or the West Credit River. Some water moves deeper to recharge the underlying bedrock aquifer. Bedrock aquifers are the source of water for municipal water wells. Current municipal water supply wells appear to be naturally well protected (e.g., by a clay layer above the bedrock). The water shows little evidence of impacts from land use activities, such as road salt application or septic systems. There are some areas of the bedrock aquifer that are not naturally protected; the water in these areas shows evidence of impacts from land use activities.

**Water quality** – Water quality in the West Credit River was tested by checking levels of nutrients, such as phosphorus and nitrates, and other contaminants. Water quality testing typically showed that there was a slight increase in nitrate and phosphorus through Hillsburgh, likely from stormwater runoff and possibly septic systems. Water quality in the northern and southern tributaries of the West Credit River, downstream of Erin Village, also shows evidence of impacts from septic systems and from urban land use.

On a larger scale, the total nitrate in the West Credit River increased only slightly from upstream of Hillsburgh to downstream of Erin Village. This is likely due to uptake of nitrate from the wetlands and riparian areas. Therefore, maintaining these natural areas along the river system is important to ensure that nitrogen removal is continued. In contrast, there is a substantial increase in the total amount of chloride in the West Credit River from upstream of Hillsburgh to downstream of Erin Village, indicating the increased impact from urban land use activities, such as road salt and to a lesser degree, septic systems. Overall, water quality in the study area is considered good or fair.



Photo by Martin Lamprecht

## Creek Filtration

The vegetated areas adjacent to creeks create the effect of a large filter and aid in cleaning water prior to it entering the river system.

**Stream life** – Good water quality is indicated by the presence of certain amounts and types of water-dwelling insects, worms, and crayfish. In general, streams in the study area were found to contain healthy populations of these important species, indicating good water quality.

Despite improvements in the last three years, fish health in the study area is poor and declining. Where waters are warmer due to ponds, especially between Hillsburgh and Erin Village, coldwater species such as brook trout are not able to survive. In addition, high levels of nutrients such as phosphorus and nitrates lead to increased algae growth and reduced oxygen levels, negatively affecting brook trout habitat. The best brook trout populations and spawning areas are found downstream of Erin Village. Despite urban influences, river sections contained within the villages of Erin and Hillsburgh also support brook trout spawning.

**Septic systems** – Septic systems are the primary method of wastewater treatment in the Town of Erin and can be a potential source of groundwater contamination if not properly installed and maintained. Bacteria, nitrate, phosphorus and chloride are all potential contaminants from septic systems. Septic systems are a concern as population growth occurs within the study area; the greater the number of septic systems, the greater the risk for negative impacts on the local groundwater system.

Water in the West Credit River through Hillsburgh showed slight increases of nitrate and phosphorus, likely from storm-water runoff and septic systems. The northern and southern tributaries of the West Credit River through Erin Village may also be impacted by septic systems. Increased levels of nitrates and chlorides were found in localized areas serviced by septic systems, but exact sources of contamination were not determined. In the area from upstream of Hillsburgh to downstream of Erin, the nitrate levels increased a small amount. Nitrate levels can be reduced by plant uptake and filtration in wetlands. In localized areas, increased salt concentrations are likely the result of urban impacts due to use of road salt and to a lesser extent water softener discharges to septic systems. Higher phosphorus levels may be due to urban runoff rather than septic systems.

Overall, the study concluded the area appears to have relatively healthy water and ecosystems despite signs of impact from septic systems, agriculture, and urban activity.



Photo by Martin Lamprecht

## Erin Village

Currently, the West Credit River watershed has limited urbanization, with urban development totaling 9.5% of the study area. However, for further development to occur, the Town of Erin must plan for future growth in a sustainable manner using data from the 'Environmental Report' and through the Servicing and Settlement Master Plan process to keep the Town of Erin's natural resources healthy, abundant and safe.

## What are the next steps?

The information and recommendations from the Existing Conditions report, as well as other background planning and engineering studies, will be included in the Background Issues Report. The Background Issues Report is expected to be completed in Fall 2010. The report will be presented in a public meeting and made available for comments. From the Background Issues Report, a problem/opportunity statement will be defined and will serve as a guide for evaluating servicing and settlement strategies in the second phase of the SSMP.

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