# APPENDIX A

# BACKGROUND REPORT

# BACKGROUND REPORT

## Town of Erin
## Servicing and Settlement Master Plan

**March 28, 2012**

CVC
CREDIT VALLEY CONSERVATION

BMROSS
engineering better communities

mbpc
Monteith • Brown
planning consultants

# TOWN OF ERIN

# SERVICING AND SETTLEMENT MASTER PLAN

# BACKGROUND REPORT

March 28, 2012

B. M. ROSS AND ASSOCIATES LIMITED
Engineers and Planners
62 North Street
Goderich, ON N7A 2T4
Phone: 519-524-2641
Fax: 519-524-4403
www.bmross.net

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## EXECUTIVE SUMMARY

The Town of Erin has initiated a community-based process for completing a Servicing and Settlement Master Plan (SSMP). The Plan aims to address servicing, planning and environmental issues within the Town in a comprehensive, rational and environmentally-minded manner, while encompassing the community's visions and ideas for the future. Strategies developed through the SSMP process for community planning and municipal servicing over the next 25 years will be devised to be consistent with current provincial, county and municipal planning policies.

The SSMP process consists of two phases. The first is a **Data Collection and Review Phase**. The information collected during the first phase of the SSMP will be summarized into a **Background Report**. Phase 2 involves the development and evaluation of alternative planning and servicing strategies based on information gathered during Phase 1. Following the completion of the second phase, the Servicing and Settlement Master Plan report will be issued.

Four specific components are being considered during Phase 1 of the SSMP process: Community Design, Form and Function; Community Planning; the Environment; and Infrastructure. Data and information relating to the four components was collected and summarized into this Background Report.


Information regarding the current **Community Design, Form and Function** was collected through various avenues of public consultation. Strength-Weakness-Opportunity-Threat exercises were held with various community groups and the public to determine community values and impressions of the current identity and function of the Town. Community members identified a large number of characteristics, features, values and perceptions of the Town relating to the natural environment, small town atmosphere, housing and industry. Many residents described the Town as a bedroom community, with many residents travelling outside of the Town for employment. The Town's proximity to larger urban centres is perceived as a strength, related to employment and shopping opportunities. The small town atmosphere and sense of community are highly valued characteristics of the Town, as is its rural roots, local shopping opportunities and surrounding natural environment.

Concerns regarding high taxes and affordability within the Town were brought forward by community members. Additionally, residents recognized an absence of starter homes and homes suitable for seniors in the Town. Other weaknesses identified through community consultation include: the absence of sanitary sewers, a lack of commercial and industrial development, and truck traffic. Envisioning the future of the Town, many residents saw these weaknesses addressed with greater opportunities for industrial and commercial development; more local employment opportunities; and a wider range of available housing. Maintaining the natural environment and small town character of the community are also viewed as important to the future of the Town.

Building on the input and feedback garnered from the community, a community vision statement for the Town was developed. The following vision statement is intended to provide a clear, unified vision for the future of the Town, while expressing the unique qualities and common values of the community:

> THE TOWN OF ERIN WILL REMAIN A VIBRANT, SAFE AND SUSTAINABLE COMMUNITY, LOCATED AT THE HEADWATERS OF THE CREDIT AND GRAND RIVERS. THE TOWN WILL CONTINUE TO CAPITALIZE ON ITS PROXIMITY TO LARGE URBAN CENTRES, WHILE MAINTAINING ITS EXCELLENT COMMUNITY SPIRIT. WITH A STRONG EMPLOYMENT BASE, AND A RANGE AND MIX OF HOUSING, A HIGHER PERCENTAGE OF THE RESIDENTS WILL WORK AND CONTINUE TO LIVE WITHIN THE TOWN OF ERIN. VISITORS WILL ENJOY THE SMALL-TOWN ATMOSPHERE, UNIQUE SHOPS AND SURROUNDING RURAL CHARM. THROUGH RESPONSIBLE DEVELOPMENT AND SERVICING, THE TOWN'S RICH NATURAL ENVIRONMENT WILL BE PROTECTED AND PRESERVED.

The **Community Planning** component of the first phase of the SSMP involved a review of relevant policy directives, as well as analyses of existing land uses, community character, cultural heritage resources, current demographics and future population growth, housing, the viability of commercial cores and future goals for the community. A number of provincial, county and municipal policy documents were reviewed, as they pertain to the Town of Erin with respect to planning issues. The policy documents reviewed for the Background Report include: the *Provincial Policy Statement, Growth Plan for the Greater Golden Horseshoe, Greenbelt Plan, County of Wellington Official Plan, Credit Valley Conservation Watershed Planning Policies and Regulation Policies,* and *The Town of Erin Official Plan.*

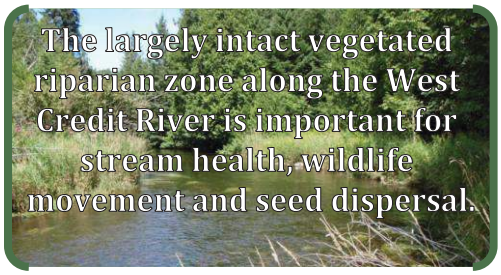
In the SSMP study area, the majority of residential development is concentrated in Erin Village and Hillsburgh. A vast majority of the residential development in the villages are categorized as single-detached units. There are two apartment buildings in Erin Village and none in Hillsburgh. Recent residential developments in the area have primarily been large, estate-type developments on the fringes of the urban areas. Most commercial and industrial developments within the Town are located within the urban areas. The majority of the commercial development in the Town is found along the main streets of Hillsburgh and Erin Village, and includes a range of businesses and services. Industrial development in the Town is concentrated north of Cataract Trail in Erin Village, and includes manufacturing, distribution and storage facilities.

The population of the Town in 2011 was 10,770, a 3.4% decrease from the 2006 population. The majority of the Town's population falls between the ages of 40-49, 10-19 and 50-59; these age groups are generally considered to be older professionals and their children. These age groups make up a growing percentage of the population of the Town while there is negative growth in the 0-10 and 25-29 age groups. The absence of these age groups suggests that the Town of Erin may be too expensive for young professionals and young families. Slow growth in the senior population

also suggests that seniors may be relocating away from the Town upon retirement. Analysis of employment data found 55% of the Town's workforce is employed in a different county, indicating a lack of available employment within the Town. In terms of future population growth, the County of Wellington estimates a total growth of 2,200 persons and 780 new units over the next 25 years. Presently in Erin Village and Hillsburgh there are 273 and 190 hectares of land, respectively, that could potentially be developed.

A scientific evaluation of the current environmental conditions within the Town of Erin was undertaken by Credit Valley Conservation (CVC) for the SSMP Background Report. The **Environmental Component** of the SSMP Background Report evaluated the current conditions of: hydrogeology, hydrology and hydraulics, natural heritage, fluvial geomorphology, macroinvertebrates and fisheries, and water quality, including a septic system assessment, in the study area.

The majority of the SSMP study area, including the Erin Village and Hillsburgh, are within the West Credit River watershed. In the watershed, much of the land is currently used by humans for agriculture (46%) and urban and rural development (9.5%). The remaining land uses include forests, wetlands, and aquatic and cultural areas. The wetlands in the West Credit River watershed are an important feature of the natural environment. The five wetlands in the study area are designated as Provincially Significant. In addition, there are four Areas of Natural and Scientific Interest (ANSI) and six Environmentally Significant Areas (ESAs). Protection of these areas within the study area is important as they are habitat for many rare or significant plant species. Species-at-risk recorded in the study area include: the butternut tree, Canada warbler, hooded warbler, red- shouldered hawk, Western chorus frog, Eastern snapping turtle and Monarch butterfly.




Water flows from the West Credit River are critical to water quality and levels downstream in the Credit River. Much of the West Credit River is classified as cold water habitat, essential for cold water species such as brook trout. Sections of the West Credit River show impacts from the presence of dams, wetlands, increased surface runoff from urban areas and reduced vegetation cover at stream edges. Currently, there are 11 man-made dams on the West Credit River and the ponds created by these dams retain sediment and result in warmer water temperatures, which has negative impacts on cold water species such as the brook trout.

Groundwater is the primary source of drinking water in the study area. Currently, the municipal groundwater wells appear to be naturally well protected, due to a clay layer above the bedrock, with little impacts from surrounding land-uses. However, in areas where the bedrock is not naturally protected, there is evidence of land-use impacts in the groundwater.

Surface water quality was evaluated through the examination of nutrient and contaminate levels throughout the watershed. Nitrate and phosphorus were found to be slightly elevated through Hillsburgh and in the northern and southern tributaries of the West Credit River, downstream of Erin Village. The increases in these nutrients are believed to be a result of stormwater runoff and

septic systems. Natural areas along the river system were found to be important with respect to nitrate uptake upstream of Hillsburgh and downstream of Erin Village. Chloride levels increased substantially from upstream of Hillsburgh to downstream of Erin Village, again indicating increased impact from urban land use activities. Despite this, water quality within the study area is considered good or fair.

The impacts of septic systems on the natural environment was also assessed by CVC for the Background Report. Septic systems are the primary method of wastewater treatment in the Town of Erin and the continued use of septic systems raises concerns with respect to potential negative impacts on the environment as the population grows. Examining water quality in the West Credit River through Hillsburgh, slight increases in nitrate and phosphorus were found and attributed to stormwater runoff and septic systems. The northern and southern tributaries of the West Credit River through Erin Village may also be impacted by septic systems.


Information regarding the current **Infrastructure** in the Town was compiled as part of the Background Report. Presently, there are two municipal drinking water systems in the Town, which service Hillsburgh and Erin Village. These systems, in addition to the estimated 2,300 private wells in the Town, draw from bedrock aquifers. The municipal water systems are serviced by two wells in each village and the Erin Village drinking water system includes an elevated storage tank. An analysis of water use and supply suggest that additional system redundancy is required for both municipal drinking water systems.

Presently, all wastewater in the Town of Erin is treated by private septic systems and holding tanks. There is no municipal wastewater treatment system in the Town. There have been numerous studies investigating wastewater disposal and the impacts of septic systems by a number of agencies. There are concerns regarding the continued use of septic systems, given the suspected age of many of the systems and issues regarding lot size and replacing systems. An analysis of lot sizes within Erin Village and Hillsburgh found that 54% of lots in Erin Village and 55% of lots in Hillsburgh are not large enough to accommodate a Class 4 septic system with current setbacks, even if the property does not include a well.

The information contained and summarized in the Background Report will be used to develop a clear **Problem/Opportunity Statement**. The Problem/Opportunity Statement will provide guidance and direction during the development of alternative community planning and servicing strategies in the second phase of the SSMP process.

## 1.0 SERVICING AND SETTLEMENT MASTER PLAN

The Town of Erin is a predominately rural municipality, located in south-eastern Wellington County. The town is bordered to the east by the Town of Caledon, the Town of Halton Hills to the south, Guelph and Eramosa to the west and the Township of East Garafraxa to the north. Located within the Town boundaries are the headwaters for the West Credit River, which drains into the Credit River; as well as the Speed and Eramosa Rivers, which are tributaries of the Grand River. Generally, the Town of Erin is characterized by scenic, rolling topography, interspersed by numerous wetlands and forest corridors.

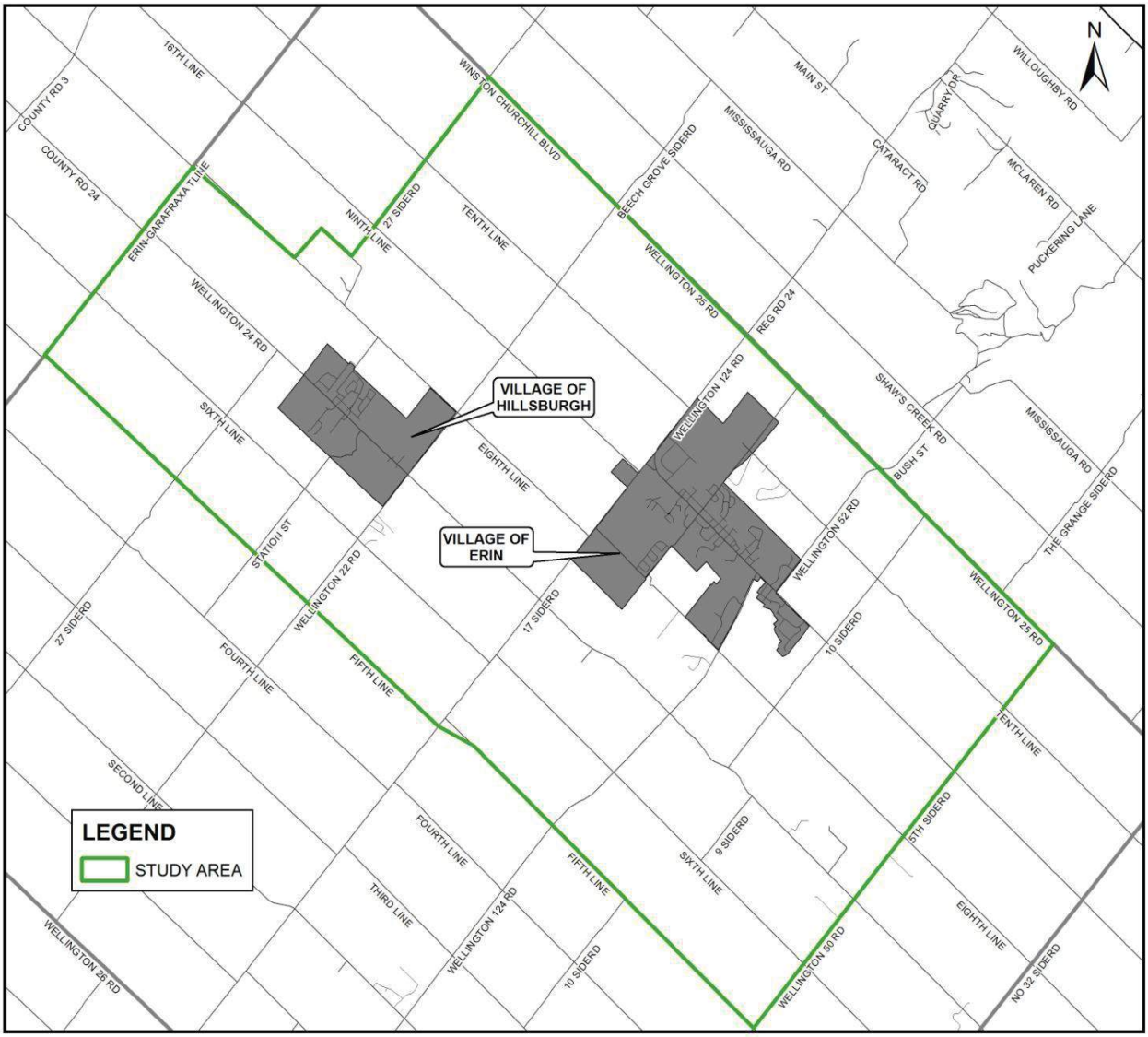
There are two urban centers in the Town: the villages of Erin and Hillsburgh. In addition to the two villages, there are six hamlets located within the Town: Ballinafad, Brisbane, Cedar Valley, Crewson's Corners, Orton and Ospringe. Approximately 11,000 residents live in the Town, with the majority of the population residing in the villages of Erin and Hillsburgh (Statistics Canada, 2007). In the villages, residents are serviced by separate, municipal groundwater systems for drinking water. Residents living outside of the urban boundaries of Erin Village and Hillsburgh are serviced by private wells. Throughout the Town, most business and homes rely on individual, privately-owned wastewater systems to treat sewage. In the downtown commercial core of the Village of Erin, many businesses are serviced by holding tanks (Town of Erin Building Department, 2001). A proprietary package plant services Center 2000.

The Town of Erin was formed in 1998 from the amalgamation of the former Township of Erin and Village of Erin. In 2004, the County of Wellington approved the Official Plan (OP) for the Town of Erin. The OP reflects recommendations and guidelines from both provincial and county policies as well as previous studies completed by the Town. Provincial policy, as directed by the 1997 and 2005 Provincial Policy Statements (PPS), requires: the protection and enhancement of ground and surface water resources, including aquifers, recharge and headwater areas and planning at the watershed scale (Ministry of Municipal Affairs and Housing, 2005). Additionally, the PPS outlines specific policies with regards to municipal infrastructure and servicing. The Wellington County OP, adopted in 1999, directs growth to urban areas with municipal water and wastewater services, similar to the 2005 PPS. Guided by these policies, the Town of Erin OP outlined a community-based process for completing a Servicing and Settlement Master Plan (SSMP) to address servicing, planning and environmental issues within the Town.

The SSMP will result in strategies for community planning and municipal servicing, consistent with current provincial, county and municipal planning policies. Using the Master Plan approach, as defined by the Class EA, 2007, the study will examine related municipal servicing components, primarily water and wastewater systems. The SSMP consists of two phases, the first being the data collection and background study phase. The second phase will develop and evaluate alternative solutions. At the end of the second phase, the Master Plan document will be presented and available for public comment prior to approval by the Municipality. During the first and second phases, the SSMP will strive to consider innovative planning concepts and servicing technologies in order to recognize and address potential impacts to sensitive land uses, surface and groundwater resources, concerns of residents, and the long-term objectives of the Town. Using a planning horizon of 25 years (to the year 2035), the SSMP will examine four specific components: Community Design, Form and Function; Community Planning, the Environment; and Servicing.

The study area for the SSMP includes the villages of Erin and Hillsburgh, as well as a portion of the surrounding rural lands. **Figure 1-1** shows the study area. The inclusion of rural land in the study area allows for the consideration of a number of broader issues, including relationships between adjacent land uses, groundwater and surface water resources and other environmental features and functions. With a study area that includes a mix of urban and rural lands, the Master Plan affords the study the flexibility to consider a greater number and range of servicing and settlement solutions.

**FIGURE 1-1: TOWN OF ERIN SERVICING AND SETTLEMENT MASTER PLAN (SSMP) STUDY AREA**



### 1.1. PURPOSE OF THE BACKGROUND REPORT

This Background Report serves to summarize the findings of Phase 1 of the Town of Erin Servicing and Settlement Master Plan (SSMP). The first phase of the SSMP consisted of collecting and reviewing background information including: data, policy and issues relating to servicing and development in the Town of Erin. The information gathered during Phase 1 has been categorized into four broadly-themed components, as identified in the Terms of Reference: Community Design, Form and Function; Community Planning; the Environment; and Servicing. The research and information pertaining to the four components is summarized in Sections 2 to 5 of this report.

From the information contained in this report, an Problem/Opportunity will be derived and recommended for moving forward into Phase 2 of the SSMP process. This statement, as well as this report, will serve as the basis for identifying and evaluating planning and servicing alternatives in Phase 2 of the SSMP. The SSMP process is shown in **Figure 1-2.**

## 2.0 COMMUNITY DESIGN, FORM AND FUNCTION

To provide direction for the future of the Town of Erin, it is important to first develop a clear understanding of the existing design, form and function of the Town. Historically, the design, form and function of small rural communities have centered around historic core areas, with commercial services. However, as population demographics and types of development change, the form and function of communities may change as well. Also, as the form of development changes within a community, it creates differing perceptions as to which form is characteristic of the community. Often there are also differing opinions on a community's function; for example, some may consider a community a retirement centre, while others may view it as an agriculture service centre.

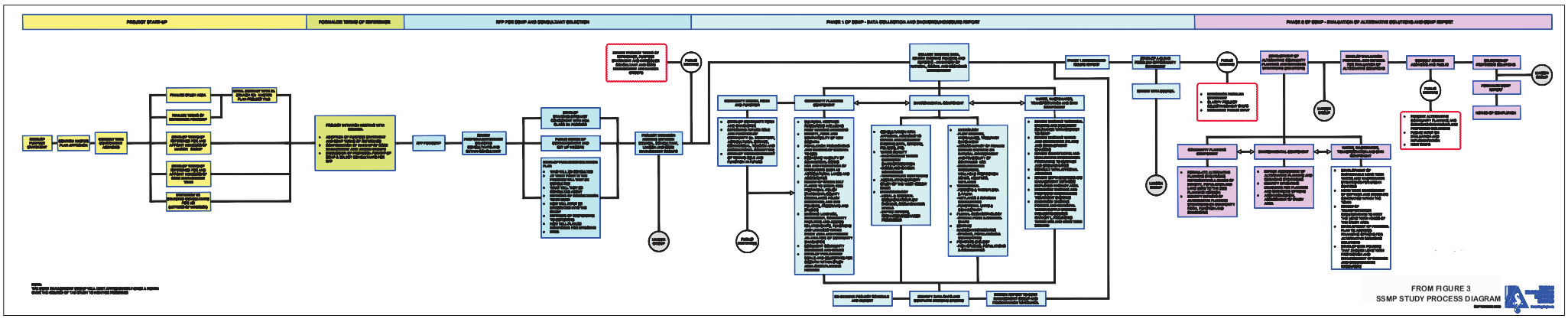
Varying perceptions of form and function may create divisions within a community as it moves forward. Thus, it is important to examine the form of the community, specifically the arrangement and relationships between adjacent land uses and developments to ensure strong linkages between areas of new and old development; the retention of traditional aspects of the community's character; and ensure that new development contributes to the character and quality of life of the existing community. This Section will examine the current forms and functions of the communities of Erin Village and Hillsburgh, as determined through community consultation, and provide a vision statement for the future of the Town. This vision statement will provide direction for future role and function of the Town.

### 2.1. COMMUNITY CONSULTATION

#### 2.1.1. PURPOSE

Public consultation and feedback is a key aspect of the SSMP. The goal of the SSMP is to form a plan for the future based on the input and ideas of the community. Prior to identifying a future plan for the community, the current role and function of the Town must be defined, with values and perceptions from the community. In order to develop an understanding and impression of the identity and function of the Town, a number of Community Form and Function workshops were held in the community. Residents were also invited to provide input on the current form and

FIGURE 1-2: PHASES OF
THE SSMP PROCESS

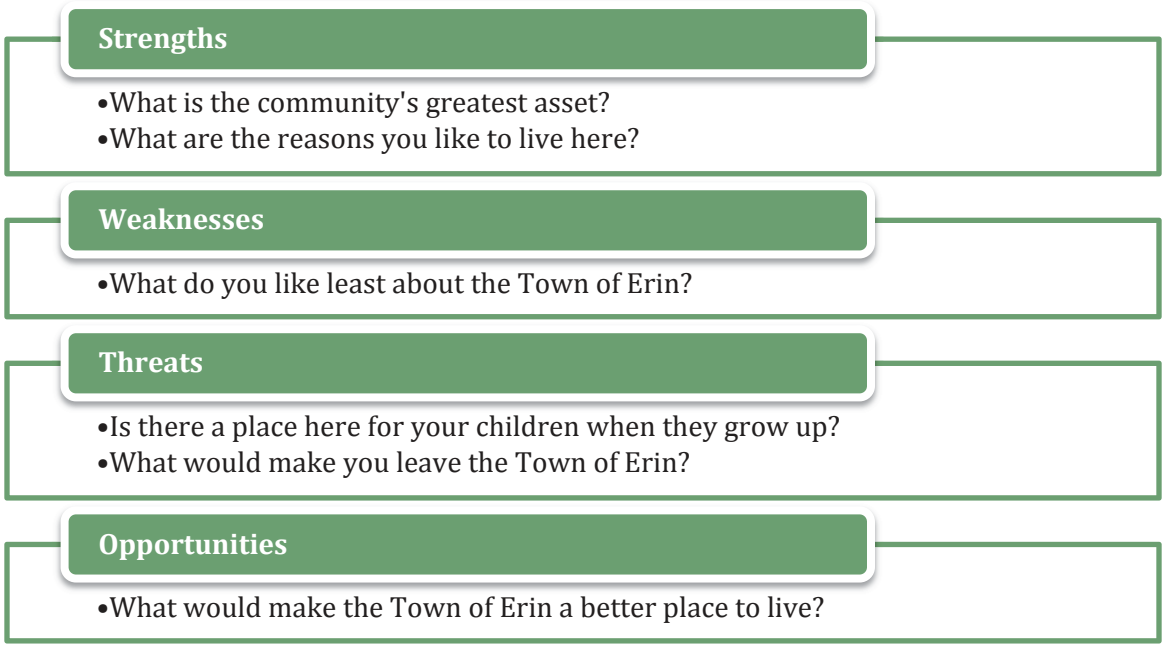


function of the community through the SSMP website, as further discussed in Section 2.1.3. A Liaison Committee, composed of representatives from interest groups and the public, also provided a range of community perspectives on the current characteristics of the community.

### 2.1.2. COMMUNITY FORM AND FUNCTION WORKSHOPS

To determine what features and characteristics are valued, missing from or desired in the Town of Erin, a number of Community Form and Function workshops were held in the community. These workshops were held with 3 different community groups, in addition to an open workshop to which the general public was invited. During each workshop, attendees were asked to participate in a Strengths, Weaknesses, Opportunities and Threats (SWOT) exercise. The purpose of the SWOT exercises was to develop an understanding of the values, perceptions and characteristics of the community, from the community. To better facilitate participation, large groups were split into smaller groups of 4-6 people. The groups were asked a series of questions to determine the strengths, weaknesses, opportunities and threats pertaining to the Town. The questions used as part of the SWOT exercises are shown in **Figure 2-1**.

**FIGURE 2-1: SWOT EXERCISE QUESTIONS**




Responses to the questions were recorded on flipcharts and then brought back to the larger group for discussion. The input and feedback gathered during these workshops is summarized in the following subsections, and was used to identify the current and future role and function of the Town, as discussed in Sections 2.2 and 2.3.

#### 2.1.2.1. COUNCIL AND TOWN STAFF SWOT WORKSHOP

A SWOT workshop was held with members of the Town of Erin council and staff on May 4, 2009. The workshop included a brief overview of the SSMP process and the importance of the Community Design, Form and Function component of the study. Council and staff were reminded that establishing the characteristics associated with the community's form and function would provide direction for potential growth; aid in the creation and maintenance of strong linkages between old and new development; and ensure new development contributes to the character and quality of life that already exists in the community.

The participants identified the Town's **proximity to larger urban centres**, such as the Greater Toronto Area (GTA) and the City of Guelph, as **a positive aspect of the community**. Proximity to larger urban centres provides residents with a wider range of job opportunities, as well as access to shopping, recreational facilities and health services within a reasonable distance from the Town. The small town character and charm of the Town, in comparison to nearby larger centres, are also considered a key component of the community. Phrases such as 'a place where you know your neighbours' and 'community spirit' highlight the small town appeal of Erin as well as an existing sense of community. The scenic surroundings, specifically the West Credit River, were also identified as a strength, as were local recreational facilities. The perceived safety and vibrant downtown cores of Hillsburgh and Erin Villages were also favoured characteristics of the Town.

The **proximity to urban centres was also thought to be a weakness** by staff and Council; related concerns included the impact of commuting, policy influences and high expectations for services similar to those provided by large urban areas. Many also perceived the **lack of local employment** as a limitation. Other limitations identified included the **absence of sanitary sewer services, lack of affordable housing, small tax base, and an absence of cell phone coverage and high-speed internet**.

Staff and council made a number of suggestions of **potential opportunities** in the Town. Most believed that the **natural environment** of the Town, including the West Credit River, offers numerous opportunities. These opportunities included tourism, potential for recreational facilities such as walking and bike trails, and the chance to protect and maintain the Town's natural beauty. Additionally, it is believed that in the future, the Town could support home-based business and increased local commercial businesses. The **SSMP** was also highlighted as an **opportunity, allowing the residents to be 'masters of our own destiny'** and allow for **expanded housing opportunities** that fit with the character of the Town.

**Losing or diluting the character** of the Town was brought up as **a potential threat**, associated with a changing community dynamic and aggressive development. Concerns regarding the impacts of **increasing government regulation and mandates**, such as the Greenbelt Plan, were also viewed as a threat. Potential risks to groundwater resources, such as local road infrastructure are considered threats related to the expansion of aggregate mining activities.

### 2.1.2.2. PUBLIC SWOT WORKSHOP

A public meeting and visioning workshop for the SSMP was held on May 4, 2009. The meeting was advertised in the Erin Advocate in the two consecutive weeks prior to the meeting. Council members, Town staff and members of the Liaison Committee were invited, in addition to the public. Held at Centre 2000, the purpose of the meeting was to introduce the public to the SSMP as well as conduct a SWOT workshop to aid in determining the important components of the community form and function. Approximately 25 members of the public attended and participated in the workshop. Following a brief presentation regarding the SSMP, the attendees were split into groups of six and completed the SWOT exercises.

A **strong sense of community was identified** by each group **as a strength** of the Town. Participants related the sense of community to other positive community characteristics such as knowing their neighbours, friendly and rural atmosphere, being a tight-knit community, a strong community spirit and a strong volunteer base. Many residents also reported feeling that the **small-town nature** of the Town provides for a slower pace of life compared to nearby urban centres. Participants viewed the Town's location, within a commuting distance of the GTA and other cities, favourably, providing residents access to a wide range of employment and shopping opportunities. The **natural and built setting of the Town** was also perceived as a strength of the community. Residents characterized the Town as **scenic, well-treed, clean**, and viewed the Credit River as a community asset. The heritage of the Town, as recognized by residents through numerous historical buildings and sites, is considered aesthetically desirable within the community. Participants also viewed the available recreation opportunities, through facilities such as Centre 2000 and walking and bicycle trails, as a strength.

**Public SWOT workshop at Centre 2000, May 4, 2009.**

Each of the four groups of residents raised **concerns over the lack of employment and housing opportunities** available in the Town for young adults. Additionally, the **absence of senior housing** in the community is viewed as **a weakness**. Participants also identified **transportation as an issue**; many residents expressed concerns regarding truck traffic and congestion in the downtown cores of Erin Village and Hillsburgh. Other residents noted the **absence of public transportation** within the Town. The **small industrial and commercial tax base and lack of sewer service** in the Town was also identified as a weakness.

Opportunities related to recreation, housing and transportation were discussed by the groups. Participants suggested that the Town's **bicycle and walking trails** be expanded and there are **opportunities** for the Town to become a centre for recreation activities. Development of a recreational industry was perceived as an opportunity, aided by the Town's scenic environment and location near large population centres. Residents also suggested that **opportunities exist for**

**the development of affordable senior housing**. The **construction of a medical centre** was also identified as opportunity for the Town to pursue. With respect to transportation, residents saw **opportunities to reduce truck traffic** through the downtown cores via a bypass; as well as improve parking in the downtown areas.

When asked what would make residents leave the Town of Erin, the participants brainstormed a number of threats to the future of the Town. Residents expressed **fears over a lack of affordable housing for seniors, those looking to downsize, and young adults looking to buy their first home**. The **absence of job opportunities within the Town** was characterized as a threat as well. However, many of the participants also identified heavy residential and industrial development as a threat to the community, in despite of a belief in the need of jobs and affordable housing. **High taxation and a high cost of servicing** the Town's urban areas with water and sanitary sewer services were also brought forward as **causes of concern**. Lastly, residents believed **environmental pollution**, specifically air, surface and ground water pollution is **a direct threat** to the well-being of the Town.

#### 2.1.2.3. ERIN VILLAGE BIA SWOT WORKSHOP

A third SWOT workshop was held on Oct 13, 2009 in conjunction with a meeting of the Erin Village BIA. The members of the BIA provided perspectives on the form and function of the community, not only as residents, but also as business owners.

The strengths of the Town identified by members of the BIA were similar to those previously described during the public SWOT workshop. The **location of the Town was considered a strength** from a business perspective: close to larger urban areas that can be drawn upon for tourists. Members of the business community also viewed **the small town atmosphere and sense of community as important** and desirable characteristics of the Town. Other strengths listed by the BIA members include local heritage, low crime rates and overall safety of the Town.

The **absence of sanitary sewer services**, especially in the downtown cores of Hillsburgh and Erin Village was considered **a weakness of the Town**. Business owners, especially those currently using holding tanks for waste disposal, expressed concern over the long-term economic and environmental viability of holding tanks. Other members identified **truck traffic and a lack of crosswalks** in the downtown areas as **issues** that need to be addressed.

Members of the Erin Village BIA felt there were opportunities to recruit more doctors and improve accessibility to healthcare in the Town. As well, opportunities for recreation, particularly with a focus on youth recreation, such as a skateboard park and swimming pool were suggested. Members also felt there are **opportunities for an increased industrial tax base**, which in turn may provide some measure of tax relief for smaller commercial businesses and residents.
The group identified **aggressive development as the single largest threat to the Town**. Members felt that aggressive residential development would negatively impact the small town atmosphere and sense of community.

#### 2.1.2.4. BRAMPTON REAL ESTATE BOARD SWOT WORKSHOP

Members of the Brampton Real Estate Board, which includes many realtors who work and or live in the Town of Erin, participated in a SWOT workshop on October 13, 2009. Approximately 50 realtors participated in the SWOT exercise, as part of a professional development event at Centre 2000.

Many of the participants described the **location of the Town as an asset**, with the Town being in commuting distance of larger urban areas. Similarly to the other groups that participated in the SWOT workshops, the realtors identified the small town atmosphere and sense of community as a strength. The participants felt that the **close knit community was friendly, safe** and moved at a slower pace compared to larger towns. Also, the number of recreational facilities, such as the arenas and walking and biking trails, was thought to be a positive feature of the community. The downtown cores of Hillsburgh and Erin Village were perceived as vibrant and charming. Local schools were also praised for their quality of education and programming, specifically the availability of French emersion.

The **absence of starter, affordable and senior housing options** in the community was noted by the realtors. Also, the high cost of housing in the area was brought forward. The group expressed concern over **lack of starter and senior homes** and the demographic impacts that may result from people of these age groups being unable to live within the community. Another perceived **weakness** of the town is a lack of employment opportunities for teenagers and young adults. The **absence of employment opportunities** in general was linked to a lack of commercial and industrial businesses within the Town. During a discussion of the impacts of a lack of employment within the Town, participants also commented on the **negative connotations of the Town being a bedroom community, including the high cost of commuting, traffic impacts and environmental pollution**. The realtors also highlighted the **absence of public transportation** in the Town and **heavy truck traffic** through the urban centres **as weaknesses**. Lastly, participants raised **concerns regarding the impacts of the use of septic systems** as the primary method of waste disposal on the environment and on future development within the Town. The threats identified during the SWOT exercise, mirror many of the weaknesses previously identified by other groups: lack of affordable, starter and senior housing, high taxes, absence of public transportation and few employment opportunities.

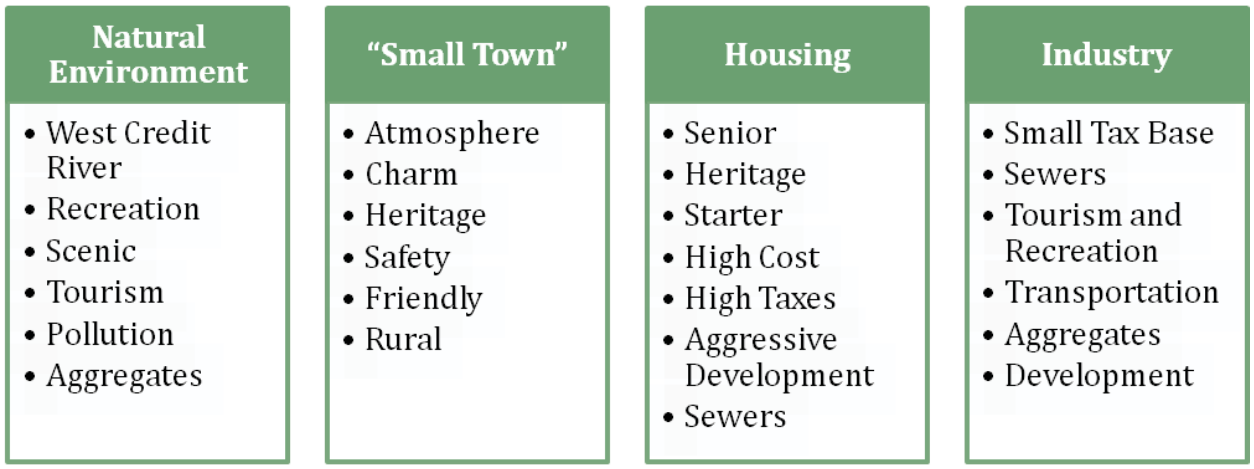
A number of opportunities for the Town were presented by the realtors during the workshop. Participants felt there were **opportunities for the development of housing targeted to young adults, young families and seniors**. Associated with the development of more starter and seniors homes, many of the realtors felt was the **opportunity to provide sanitary sewer services**. In turn, the **availability of full municipals services may attract commercial and industrial development** as well. Realtors also felt that there were opportunities for the Town to provide more social activities for kids and seniors and improve cell phone coverage and high-speed internet access.

### 2.1.2.5. SUMMARY OF SWOT WORKSHOPS

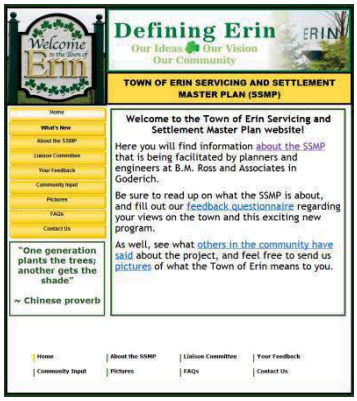
The SWOT workshops carried out in the community generated a large listing of characteristics, features, values and perceptions of the Town and its residents. The qualities and features brought forward by participants at the SWOT workshops describe the form and function of the Town from a number of perspectives. Following the workshops, the strengths, weakness, threats and opportunities put forward by participants were analyzed to determine key characteristics of the community.

Four broad themes emerged from the analysis of the data collected during the SWOT workshops. The themes, as shown below in **Figure 2-2,** encompass many of the qualities and features repeatedly brought forward by the different groups participating in the workshops. Specific values, features or characteristics that were frequently identified by the participants are included under the appropriate theme heading.

**FIGURE 2-2: THEMES AND KEY CHARACTERISTICS OF THE COMMUNITY FROM THE SWOT EXERCISES**



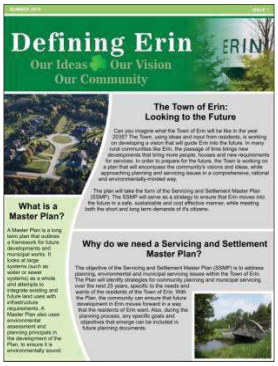

### 2.1.3. DEFINING ERIN WEBSITE




To further inform the public of the SSMP process and facilitate additional public feedback, a website dedicated to the SSMP has been made available from the Town of Erin website (http://www.erin.ca/definingerin). The website, titled 'Defining Erin – Our Ideas. Our Vision. Our Community.' provides access to current information about the SSMP, as well as minutes and presentations from Liaison Committee meetings. A feedback form also provides residents with an additional opportunity to provide comments or ask questions about the SSMP.

### 2.1.4. DEFINING ERIN NEWSLETTER

In the Fall of 2010, a 'Defining Erin' Newsletter was published. The newsletter was mailed to all properties owners within the Town of Erin. Additional copies were available at the Municipal Office. The newsletter provided an overview of the SSMP and the progress made to that point. Included in the newsletter was a summary of the Master Plan process, a map of the SSMP study area, a summary of the background information being collected, an overview of the community input received, information regarding the liaison committee and the vision statement. A copy of the newsletter can be found in Appendix A of this report.


Defining Erin
Our Ideas Our Vision
Our Community
The Town of Erin:
Looking to the Future
What is a Master Plan?
Why do we need a Servicing and Settlement Master Plan?

### 2.1.5. LIAISON COMMITTEE

A Liaison Committee, representing the public and various interest groups, was formed to provide input and direction on the SSMP process. The Committee consists of appointed members of Town Council and staff; representatives from environmental, heritage, economic development, community services and business committees and groups; developers; and members of the public. This group meets regularly and is actively involved in the progression of the SSMP. Members of the Committee are encouraged to bring forward public concerns, questions or opinions and share information regarding the SSMP process and topics discussed at Liaison Committee meetings. To date, eight Liaison Committee Meetings have been held. The dates and topics of previous Liaison Committee Meetings are listed below in **Table 2-1**. The minutes of these meetings are available on the Defining Erin website for public review and are also included in Appendix A of this report.

**TABLE 2-1: DATE AND TOPICS OF LIAISON COMMITTEE MEETINGS**

| Meeting | Date | Topic |
|---|---|---|
| **1** | April 8, 2009 | Introduction to the SSMP |
| **2** | June 9, 2009 | Brainstorming – Community Role and Function |
| **3** | October 19, 2009 | Septic Systems 101 |
| **4** | November 18, 2009 | Community Planning 101 |
| **5** | December 16, 2009 | Introduction to Vision Statements |
| **6** | July 25, 2010 | Drafting a Vision Statement |
| **7** | August 25, 2010 | Finalizing the Vision Statement |
| **8** | November 3, 2010 | CVC Draft Existing Condition Report |

## 2.2. CURRENT ROLE AND FUNCTION OF THE COMMUNITY

The current role and function of the Town was assessed from the community feedback obtained from the Community Form and Function workshops, the Liaison Committee and the Defining Erin website. During the Community Form and Function workshops, attendees were asked to respond to the following six questions:

- **What is the community's greatest asset?**
- **Name one reason you like to live here;**

- **What do you like least about the Town of Erin?**
- **Is there a place here for your children when they grow up?**
- **What would make you leave the Town of Erin?**
- **What would make the Town of Erin a better place to live in?**

Common responses to the questions, from different workshop groups, indicate that the Town has a general role and function that is recognized and shared by many of the residents. The complete list of responses to the questions can be viewed in Appendix A. Many residents recognized that the Town is a bedroom community, with many residents commuting to nearby, larger urban centres for employment. Residents identified the Town's proximity to larger urban centres as a strength, allowing them to work and shop in the larger cities, but still live in a small town. The Town is a place that has a strong sense of community, as well as being quaint, safe and friendly. Residents also identified the rural history and traditions, such as the Fall Fair, as being an important part of the community. The villages of Erin and Hillsburgh provide local shopping opportunities in vibrant downtown cores, as well as serving as centers for high quality education and recreational opportunities. Many residents also identified the West Credit River and scenic natural environment as an important features and characteristics of the Town.


High taxes and affordability were concerns commonly raised by residents. Many relayed concerns that young people were forced to leave the community for education and employment opportunities, or due to the absence of affordable starter homes. Similarly, appropriate housing for seniors was also identified as missing in the Town. The Town's dependence on individual, private septic systems is viewed as problematic by some residents, and is often linked to concerns for the environment and lack of commercial and/or industrial development. Other residents highlighted concerns regarding truck traffic through villages and the absence of high speed internet or cell phone services.

## 2.3. FUTURE ROLE AND FUNCTION OF THE COMMUNITY

During the community form and function workshops, attendees were asked to identify what would make the Town of Erin a better place to live. The responses provided a vision for the future role and function of the community. The responses, and linkages between them, were visualized in a mind map, shown in **Figure 2-3**. Many residents envisioned greater opportunities for industrial and commercial development within the Town, specifically opportunities for green or light

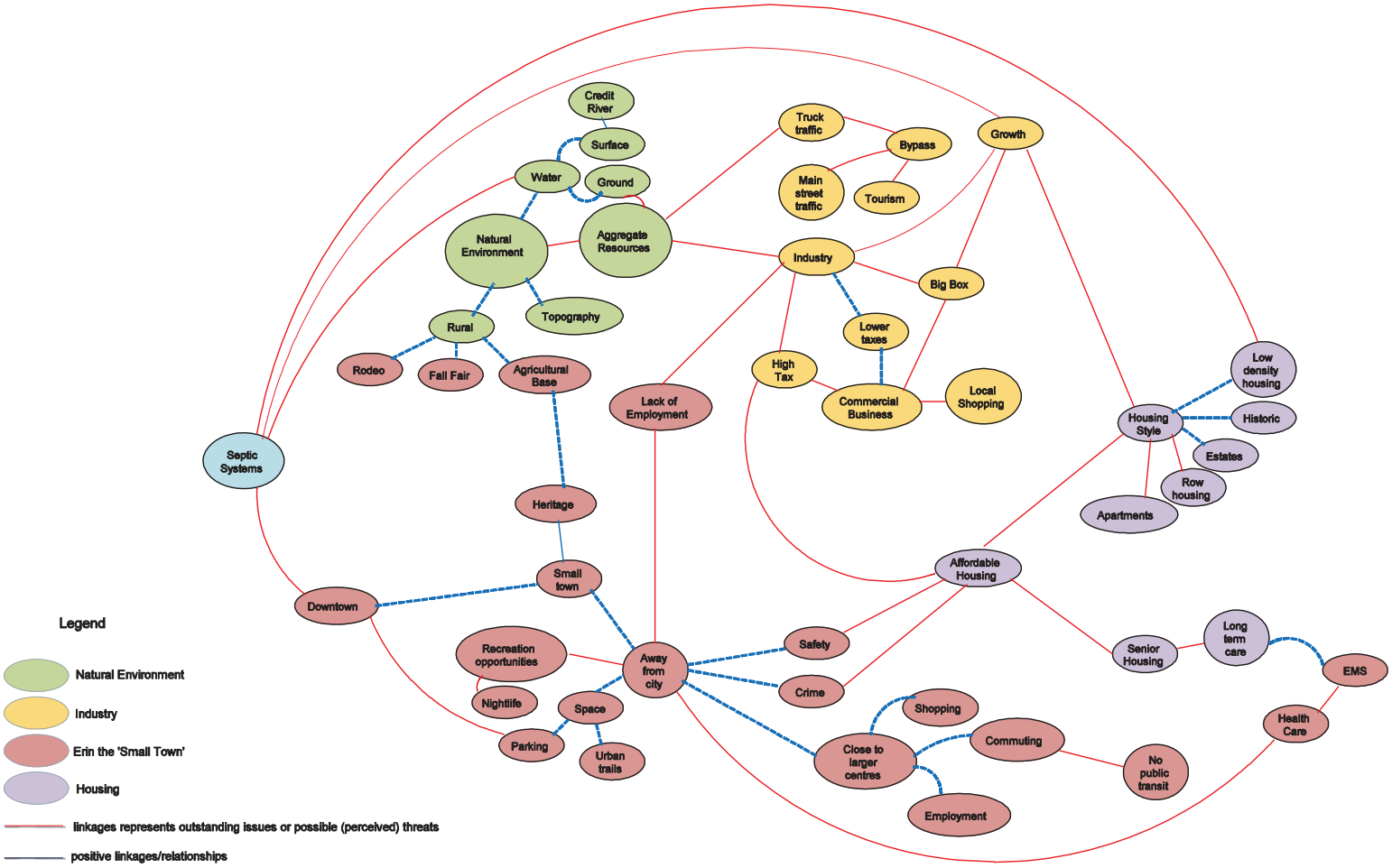
industries. Associated with new, green industries, residents expect increased local employment opportunities and a larger non-residential tax base. Heavy manufacturing or pollution from manufacturing is not desired for the community and residents see no place for such development in the Town in the future.

The retention of the Town's small town charm and atmosphere in the future is highly desired by the community. Some residents believe this will be achieved by resisting development and maintaining the status quo. Others believe the Town will still retain its character while providing a greater range of housing styles and opportunities, including starter homes, homes for seniors downsizing and affordable housing. This is expected to encourage seniors and young adults to remain in the community in the future.

Residents believe the health of the natural environment, including the West Credit River, will continue to be an important aspect and function of the community. It is envisioned that the scenic natural areas of the Town will continue to provide numerous recreational opportunities. Similar to the future of housing in the Town, opinions are split on how the natural environment will be protected in the future; some propose that future municipal services, such as sanitary sewers, will reduce environmental concerns related to the density, age and functioning of private septic systems. Others, however, raise concerns that municipal services will result in increased development which may have detrimental impacts to the environment. Servicing, as part of the future of the Town, was also linked to opportunities for commercial and industrial development.

The downtown cores of the villages of Erin and Hillsburgh are expected to continue to serve as the commercial centres of the Town in the future.

FIGURE 2-3: MIND MAP OF RESPONSES GATHERED DURING VISIONING EXERCISES



## 2.4. COMMUNITY VISION STATEMENT

A vision statement outlines a community's goals for the future. The community vision statement for the Town of Erin will serve as a guide, assuring that the development of the SSMP is consistent with the community's ideas for the future. Building on input and feedback garnered from the community during the public meeting, various workshops, and through discussions with and input from the Liaison Committee, a vision statement has been developed for the Town of Erin. It is the intent of the following vision statement to provide a clear, unified vision for the future while expressing the unique qualities and common values of the community:

**The Town of Erin will remain a vibrant, safe and sustainable community, located at the headwaters of the Credit and Grand Rivers. The Town will continue to capitalize on its proximity to large urban centres, while maintaining its excellent community spirit. With a strong employment base, and a range and mix of housing, a higher percentage of the residents will work and continue to live within the Town of Erin. Visitors will enjoy the small-town atmosphere, unique shops and surrounding rural charm. Through responsible development and servicing, the Town's rich natural environment will be protected and preserved.**

# 3.0 COMMUNITY PLANNING

This Section summarizes the background information collected related to community planning within the Town of Erin. The information in the following sections is summarized from the *Erin Settlement and Servicing Master Plan Community Planning Background Report* prepared by Monteith Brown Planning Consultants (included in Appendix B of this report). This Section addresses a number of aspects of planning within the Town including: a review of policy directives; an analysis of existing land uses; community character; cultural heritage resources; an analysis and forecast of population and housing; the viability of commercial cores; and future goals. This information will serve as the basis for the development of appropriate planning strategies for the Town of Erin.

## 3.1. POLICY REVIEW

A number of provincial, county and municipal policy documents pertain to the Town of Erin with respect to planning issues. A review of applicable planning policies and directives was carried out as part of the first phase of the SSMP.

### 3.1.1. PROVINCIAL POLICY STATEMENT

Issued under the authority of Section 3 of the Planning Act, the *Provincial Policy Statement* came into effect on March 1, 2005 and provides policy direction on matters of provincial interest related to land use planning and development. Planning authorities are required to be consistent with the Provincial Policy Statement when making decisions affecting planning matters and it is intended that Municipal Official Plans will serve as the main implementation vehicle of the these policies.

The Provincial Policy Statement is based on three fundamental principles: building strong communities; the wise use and management of resources; and protecting public health and safety.

*Section 1.1 – Managing and Directing Land Use to Achieve Efficient Development and Land Use Pattern* – addresses planning issues such as: efficient and cost effective development; focusing growth in settlement areas; and the promotion of intensification and redevelopment.

Section 1.1.3.8 states that "*planning authorities shall establish and implement phasing policies to ensure the orderly progression of development within designated growth areas and the timely provision of the infrastructure and public service facilities required to meet the current and future needs*."

*Section 1.3 – Employment Areas* – provides policy direction that is aimed to promote economic development and competitiveness. One of the ways planning authorities are expected to achieve this is by "*ensuring the necessary infrastructure is provided to support current and projected needs*" (Section 1.3.1 d).

*Section 1.4 – Housing* – addresses the provision of housing in terms of range, mix, density and supply. Section 1.4.3 c) guides "*the direction of the development of new housing towards locations where appropriate levels of infrastructure and public service facilities are or will be available to support current and projected needs*."

*Section 1.6 – Infrastructure and Public Service Facilities* – provides policy direction regarding water and sewage systems, transportation systems and the provision and location of public service facilities. Section 1.6.4 identifies that municipal water and sewage services are the preferred forms of servicing and the use of partial services shall be only be permitted: to address failed individual on-site sewage and water services; or within settlement areas to allow for infilling and rounding out of existing development provided that the development is within the reserve capacity of the system and site conditions are suitable over the long-term. Section 1.6.1 states that *"planning for infrastructure and public service facilities shall be integrated with planning for growth so that these are available to meet current and projected needs."*

*Section 1.7 – Long-Term Economic Prosperity* – requires that the long-term availability and use of land, resources, infrastructure and public service facilities be optimized.

*Section 2.3 – Agriculture* – protects prime agricultural lands, which are specialty crop areas, and/or Canada Land Inventory Classes 1-3 soils, for the long term use of agriculture. The Greenbelt Plan, discussed below, provides further protection for agricultural lands.

*Section 2.5 – Mineral Aggregate Resources* – aims to protect mineral aggregate resources for long term use. It ensures that extraction minimizes social and environmental impacts, conserves resources, and protects operations from development. Extraction is permitted in prime agricultural areas as an interim use provided that the site is restored to agricultural uses. These policies are reflected in the County of Wellington Official Plan.

*Section 2.6 – Cultural Heritage and Archaeology* – promotes conservation of significant built heritage resources and significant cultural heritage landscapes. Development and site alteration are only

permitted on a protected heritage property where it has been demonstrated that the heritage attributes of the property will be conserved.

### 3.1.2. PLACES TO GROW

Issued under the authority of Section 3.5 of the *Planning Act*, the *Growth Plan for the Greater Golden Horseshoe* came into effect on June 16, 2006 and recently amended in January 2012 and guides urban growth in the Greater Golden Horseshoe. The Growth Plan aims to build compact, vibrant and complete communities; plan and manage growth to support a strong and competitive economy; and protect, conserve, enhance and wisely use the valuable natural resource of land and water.

The Growth Plan divides land into five classifications; Agricultural Area, Rural Area, Designated Greenfield Area, Built-up Area, and Intensification Areas. All land use classifications except the Agricultural and Rural Areas exist within Settlement Areas. Settlement Areas are urban and rural areas within municipalities where development is concentrated and has a mixture of land uses. In addition, Settlement Areas consist of land that has been designated in an official plan for development over the long term planning horizon. Intensification Areas are lands identified by a municipality or the Ministry of Energy and Infrastructure within a Settlement Area where growth will be focused. Built-up Areas outline lands that are currently developed areas and are designated by the Ministry of Energy and Infrastructure. Designated Greenfield Areas are areas within the settlement area that are not built-up. Prime Agriculture Areas exist outside of settlement areas and include specialty crop areas and/or Class 1, 2, and 3 soils. Rural Areas are any lands located outside of settlement areas that are not prime agricultural areas.

*Section 2.2.1 – Growth Forecasts* – The Growth Plan provides population and employment forecasts for all major urban areas in the Plan. The forecasts for the County of Wellington are currently combined with the City of Guelph, although a new separate forecast will be prepared by the Ministry of Energy and Infrastructure. **Table 3-1** below shows the population and employment forecast for the County of Wellington and the City of Guelph.

**TABLE 3-1: GROWTH PLAN POPULATION FORECAST**

| | Population | | | | Employment | | | |
|---|---|---|---|---|---|---|---|---|
| | 2001 | 2011 | 2021 | 2031 | 2001 | 2011 | 2021 | 2031 |
| County of Wellington | 85,000 | 91,000 | 269,000 | 321,000 | 36,000 | 41,000 | 137,000 | 158,000 |
| City of Guelph | 110,000 | 132,000 | | | 63,000 | 76,000 | | |

(Source: Growth Plan for the Greater Golden Horseshoe, Ministry of Public Infrastructure Renewal, 2006)

*Section 2.2.2 – Managing Growth* – directs growth to within settlement areas and even more so in intensification areas. The policy aims to reduce automobile dependence by developing mixed-use transit-supportive, pedestrian-friendly urban environments.

*Section 2.2.3 – General Intensification* – states that by the year 2015 a minimum of 40 per cent of all residential development will be within a municipality's built-up area. It continues that "*All municipalities will develop and implement through their official plans and other supporting*

*documents, a strategy and policies to phase in and achieve intensification and the intensification target*" (Section 2.2.3.6).

*Section 2.2.7 – Designated Greenfield Areas* – allows new development to take place in designated greenfield areas that are planned, designated, zoned and designed to create complete communities, sustain viability of transit services, provide diverse mix of land uses, and creates high quality public open spaces. Overall, developments in the designated greenfield area will have a minimum density target of 50 residents and jobs combined per hectare, which will be calculated over the entire designated greenfield area of a municipality.

*Section 2.2.8 – Settlement Area Boundary Expansions* – A settlement area boundary expansion may only occur as a part of a municipal comprehensive review which, among other things, demonstrates that; sufficient opportunities to accommodate forecasted growth through intensification and designated Greenfield areas are not available, the timing and expansion will not adversely affect the achievement of the intensification target and density target and other policies of the Plan, impacts on agricultural operations are mitigated to the extent feasible, for expansions of small cities and towns within the outer ring, and municipalities will plan to maintain or move significantly towards a minimum of one full-time job per three residents within or in the immediate vicinity of the small city or town.

*Section 2.2.9 – Rural Areas* – encourages municipalities to plan for a variety of cultural and economic opportunities within rural settlement areas to serve the needs of rural residents and area businesses. Development outside of settlement areas may be permitted in rural areas if the use is a resource-based activity and cannot be located settlement areas. For lands within the Greenbelt, relevant Greenbelt policies apply.

### 3.1.3. GREENBELT PLAN

Issued under the authority of Section 3.5 of the *Planning Act*, the *Greenbelt Plan* came into effect on December 16, 2004 and offers land use protection to agricultural areas in the Greater Golden Horseshoe. Planning Authorities are required to conform with the *Greenbelt Plan* when making land use decisions. The *Greenbelt Plan* designates where not to build, while the previously mentioned Growth Plan designates where to build.

The Greenbelt consists of 1.8 million acres of permanently protected land which protects against the loss and fragmentation of the agricultural land base and supports agriculture as the predominant use; gives permanent protection to the natural heritage and water resource systems that sustain ecological and human health and that form the environmental framework around which major urbanization in south-central Ontario will be organized; and provides for a diverse range of economic and social activities associated with rural communities, agriculture, recreation and resource uses. A large proportion of the Study Area is occupied by the Greenbelt, which can be seen in **Figure 3-1**.

*Section 3.1 – Agricultural System* – provides long term agricultural protection and is made up of specialty crop areas, prime agricultural areas and rural areas. The land use protection increases from rural areas to specialty crop areas by limiting permitted uses and land use designations. Prime agricultural areas are designated in Schedule A-1 of the Town of Erin Official Plan. These

areas permit agriculture uses and the Greenbelt Plan states that "*prime agricultural areas shall not be re-designated in municipal official plans for non-agricultural uses except for:*

*Refinements to the prime agricultural and rural area designations, subject to the criteria identified in the municipal implementation policies of Section 5.2; or*

*Settlement area expansions subject to the settlement areas policies of Section 3.4*."

Rural Areas may contain a range of recreational, tourism, institutional, agricultural and resource-based commercial/industrial uses; as well as historic highway commercial, non-farm residential and other uses.

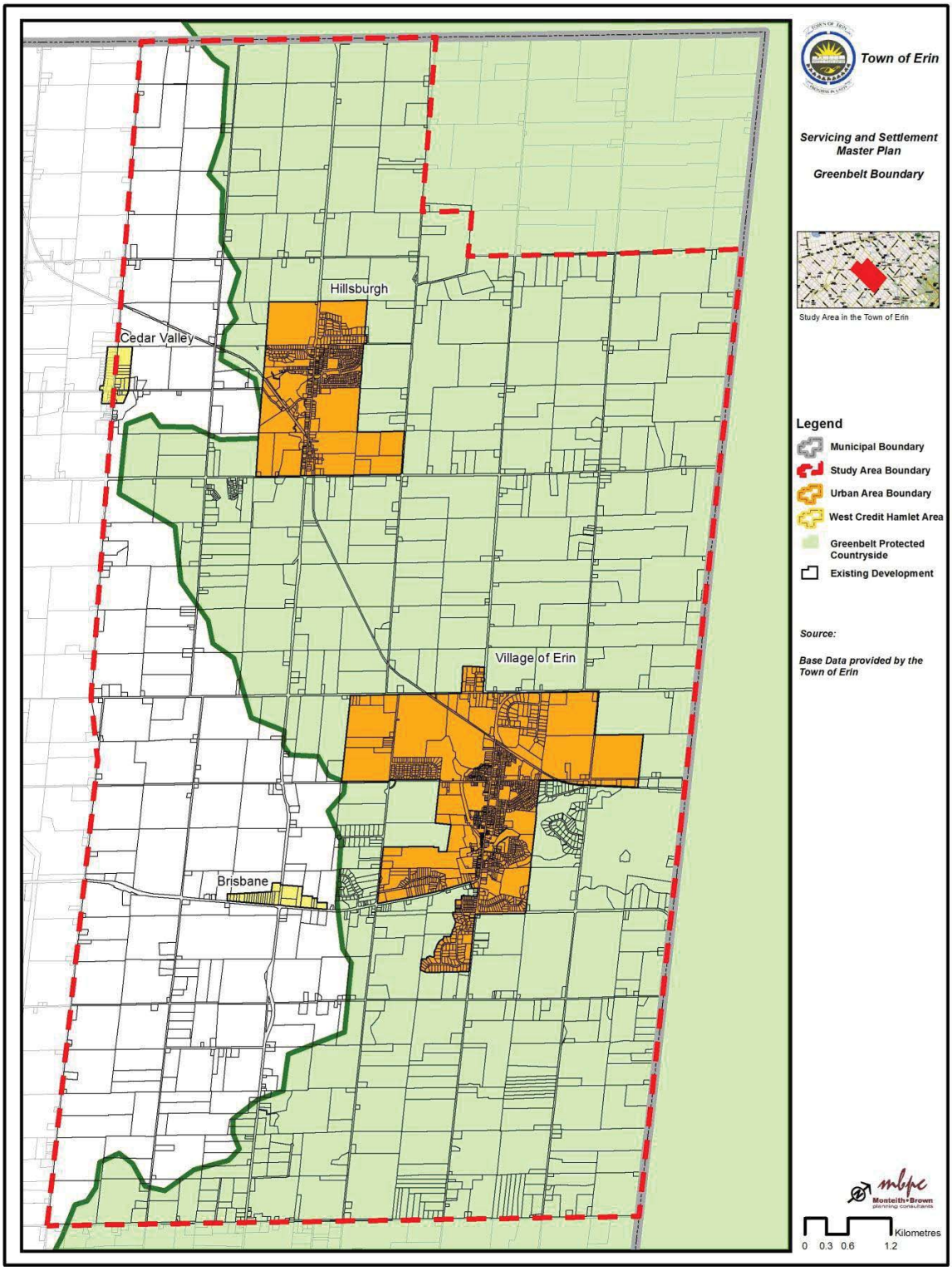
*Section 3.2 – Natural System* – builds off of the policies in the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan. It protects areas of natural heritage, hydrologic and/or landform features.

*Section 3.4 – Settlement Areas* – are urban areas within the Greenbelt and contain the largest concentration of population, employment and development. The areas of Erin and Hillsburgh are designated as Town/Villages in the Greenbelt Plan; and are contained within their individual settlement areas. During the Greenbelt Plan's 10-year review period, it may be possible for the Town of Erin's the settlement areas to be expanded (Section 3.4.2.5).

*Section 4.5 – Existing Uses* – permit all lawful existing uses on the day before the Greenbelt Plan came into force on December 13, 2004. Outside of settlement areas, expansions to existing buildings and structures, accessory structures and uses, and/or conversions of legally existing uses are permitted if proper evidence is provided.

*Section 4.6 – Lot Creation* – is permitted for agricultural uses where the severed and retained lots are intended for agricultural uses and provided the minimum lot size is 40 acres within specialty crop area and 100 acres within prime agricultural areas. The goal is to eliminate lot fragmentation and the creation of new non-agricultural lots in the protected countryside.

**FIGURE 3-1: GREENBELT BOUNDARY**



### 3.1.4. COUNTY OF WELLINGTON OFFICIAL PLAN

The *County of Wellington Official Plan* guides land-use and planning decisions within Wellington County. The Official Plans of municipalities, such as the Town of Erin, are required to conform to the planning policies set out by County Official Plan. Approved in 1999, with the latest revision in 2009, the Official Plan outlines policy regarding, but not limited to: servicing requirements, greenlands, and agricultural and aggregates resources. County growth policy and projections are further discussed in Section 3.5.1.3.

In the County of Wellington, as directed by the Official Plan, growth is directed to urban centers offering municipal water and sanitary sewer services. Limited growth is expected to occur in urban areas, villages and hamlets that are partially serviced, or serviced by private communal or individual on-site services. Sewage treatment by individual private systems is permitted by the County's Official Plan under Section 3.4, which states "*where full municipal services are not available or cannot be provided municipalities may choose to use private communal sewage systems. The use of individual on-site systems will be limited to the low intensity uses in the rural system and unserviced settlement areas.".* Servicing policies related to Erin and other urban areas are also outlined in Section 11.2 of the Plan. The Plan outlines policy to ensure existing municipal water and sewage disposal infrastructure are used in an efficient manner and that services are provided for future development. Municipal services are the preferred method of providing water, and sewage disposal, in all urban areas in the County of Wellington. The Official Plan also promotes the construction of new or expansion of existing municipal or private communal services in a manner that ensures intensification and density targets are met; as such, the Plan also allows for the connection of municipal services between communities.

The County Official Plan recognizes landscapes, resources and ecological systems essential to environmental and public health through the Greenlands System. The Greenland System consists of two land use designations: Core Greenlands and Greenlands. Core Greenlands include provincially significant wetlands, the habitat of endangered and threatened species, floodways and hazardous lands. Generally, development and site alterations of lands designated Core Greenland are prohibited. The Greenlands designation includes Areas of Natural and Scientific Interest (ANSI), streams, valleyways, woodlands, Environmentally Sensitive Areas (ESAs), ponds, lakes, reservoirs and natural linkages. Similar to Core Greenland lands, these areas are protected from most development and site alteration.

Agricultural lands, as directed by the County Official Plan and Greenbelt policies, are to be protected for farming uses. In the County of Wellington, agricultural lands are designated as either Prime or Secondary Agricultural. Prime agricultural land uses include: agriculture, home businesses, farm businesses, agriculture-related uses, existing uses, single detached uses, forestry uses, licensed aggregate operations and community service facilities. Secondary agricultural lands are the lands that are not classified as prime farmlands but still support certain agricultural activities. In addition to agricultural lands, the Official Plan also protects lands with high potential for aggregate

extraction from development; in or adjacent to Mineral Aggregate Areas, development is limited to land uses related to aggregate operations. Policies related to aggregate areas serve to protect aggregate resources, a key natural and economic resource of the County, and lessen impacts on public health, the environment and transportation.

### 3.1.5. CREDIT VALLEY CONSERVATION WATERSHED PLANNING POLICIES

Credit Valley Conservation (CVC) has jurisdiction under the *Conservation Authorities Act* to regulate development and interference with wetlands, shorelines and watercourses within the boundary of the Credit River Watershed. It is in the authority of CVC to review official plans, zoning bylaws and planning applications under the guide of the Credit Valley Conservation Watershed Planning and Regulation Policies document. The policies in this document reflect the CVC's natural heritage systems approach, which considers connected ecological systems and features, and their dynamic linkages, in watershed planning and natural hazard management. Polices of CVC are directed by following five goals related to following topics:

- **Water Quantity** – manage the hydrological streams of the watersheds in a manner that emulates natural processes while recognizing human needs;

- **Water Quality** – to protect and enhance the quality of surface and subsurface water for environmental and human uses;

- **Terrestrial and Aquatic Species, Communities and Ecosystems** – to protect, restore and enhance the ecological integrity of the natural areas, features and systems within the CVC jurisdiction;

- **Natural Hazards** – to protect public safety and minimize property damage from natural hazards such as flood hazards, erosion hazards, dynamic beaches and other hazardous lands; and

- **Social Economic** – to promote the social and economic health of the community through effective watershed management.

Closely associated with these goals are the policy objectives and guiding policies of the CVC. The policy objectives outline the importance of protecting, restoring and enhancing the natural heritage system, which includes ecological and hydrological functions, and linkages between natural features and areas. Additionally, CVC policy ensures an integrated comprehensive approach to planning strategies at the appropriate management skills to avoid potential and cumulative impacts of planning and development related activities and decisions on the natural heritage system.

With respect to servicing and development within the Credit River Watershed, it is the policy of the CVC to encourage efficient land use and development patterns, which includes intensification and redevelopment. This also includes the efficient use of land, infrastructure and public services.

Sustainable community development is supported by CVC policy, and the CVC encourages all planning and development related decisions be guided by comprehensive environmental studies, using logical natural boundaries and considering impacts on a watershed scale. The CVC also promotes infrastructure and water management planning such that water resources are protected, restored or enhanced, or eliminate risks related to flooding, erosion and pollution. Policies also offers protection for the natural heritage system with relation to the design and installation of public and private water, waste water, stormwater and transportation infrastructure.

### 3.1.6. TOWN OF ERIN OFFICIAL PLAN

*The Town of Erin Official Plan* contains goals, objectives and policies pertaining to lands and development within the Town of Erin. The current Official Plan was approved by Wellington County Council in 2004 and the latest update occurred in 2012. Currently, the Official Plan recognizes the existing rural and small-town nature of the Town and promotes the development of new commercial, industrial, rural tourism opportunities, home businesses and cottage industries while promoting intensification as required by the Growth Plan for the Greater Golden Horseshoe.

Policies related to future residential growth and economic development are described in Section 2 of the *Town of Erin Official Plan*. Section 2.2 of the Plan provides further vision for residential development within the Town:

- That low density residential development, consisting of primarily single-detached dwellings, will continue to be the predominant form of housing given the lack of municipal sewers, but a variety of housing types will be encouraged;

- That new development will be provided for primarily by the expansion of the existing settlement areas of Erin and Hillsburgh. Limited expansion of other hamlet areas will also be considered where appropriate; and

- That urban design standards which retain the traditional small town character of the Town's urban centres be applied while envisioning their development as the focal point for commercial, cultural and economic development activities.

Additionally, the Official Plan promotes a wide range of housing types to meet future housing needs, including opportunities for affordable housing. With regard to affordable housing, the Official Plan states that affordable housing should not be located in only one area of the Town or in one type of unit, and that a minimum target of 25% of new housing in the County will be affordable to low and moderate income households. A minimum 10-year supply of land to accommodate residential growth through intensification and redevelopment is required by the Plan, as well as sufficient land with servicing capacity to provide at least a 3-year supply of residential units suitably zoned lands to facilitate intensification and redevelopment.

In compliance with Growth Plan for the Greater Golden Horseshoe, the Town's Official Plan has been amended through Official Plan Amendment Number 6 (OPA6), and now encourages intensification, primarily in urban centres and to a lesser extent in rural areas and hamlets. Intensification in Erin is to be encouraged while promoting the retention of the existing small town characters and downtown revitalization.

In keeping with the County's Official Plan, and through OPA6, by the year 2015 and for all following years, a minimum of 20% of all residential development is targeted to be within the Town's defined built-up area, as delineated on the land use schedules. Further, all new developments in greenfield areas are to promote the Town's overall target of 40 persons and jobs per hectare, and to strive to reach 16 units per hectare in new subdivisions.

The Official Plan identifies agriculture, aggregate operation, industry, commerce, home based businesses, tourism and recreation as major components of the Town's economy. Current policy supports these existing economic sectors while providing a vision for future economic development. The Official Plan states that for future economic development:

- That the Town will be "open for business" by encouraging additional commercial and industrial opportunities to provide greater employment opportunities to complement the Town's residential development. In particular, clean technologically smart industry and business is encouraged;

- That the Town will encourage rural tourism as an economic development opportunity;

- That the Town will continue to support home based businesses and cottage industries, enabled through technology, as an alternative form of economic development.

To further encourage economic development, the Official Plan outlines a series of objectives for the future. These objectives include: streamlining the approval process for industrial and commercial development proposals, providing an adequate supply of land serviced and designated for industrial and commercial uses; ensuring proper telecommunication infrastructure; and considering financial mechanisms, such as development charges, to encourage economic development.

Policy relating to municipal services is also included in the Town's Official Plan. The objectives for providing municipal services, as found in Section 3.6.2 of the Official Plan, are as follows:

- "*To ensure that all development in the Town has access to a full range of available municipal services;*

- *To ensure that the necessary expansions to municipal services are anticipated and planned for in a fiscally efficient manner;*

- *To, where possible, provide available municipal services to areas where servicing problems have been identified;*

- *To develop a safe and efficient transportation system to serve residents and businesses in a manner which minimizes environmental impacts associated with new development; and*

- *To ensure that any expansion or reconstruction of municipal services is undertaken in a manner which reduces the environmental impacts associated with the provision of those services to improve and enhance environmental conditions*."

It is a goal of the Town to provide a full range of services for development and redevelopment; however, the Plan recognizes that currently all sewage treatment in the Town is provided by individual, private systems. The Official Plan requires detailed hydrogeological and geotechnical assessments prior to the approval of any private wastewater system.

Greenlands and Core Greenlands are protected by the Official Plan. The policies relating to Greenlands are reflective of the policies in the County of Wellington Official Plan. Similarly, policies pertaining to agricultural and aggregate lands in the Town of Erin Official Plan, are also guided by the policies of the County of Wellington Official Plan.

Section 3.6.6 of the Official Plan provides an outline of the requirements for the Servicing and Settlement Master Plan. The purpose of the SSMP, as directed by the Official Plan, is to assess the capacity to accommodate growth from an environmental and servicing perspective, including a review and assessment of urban areas. The SSMP must be completed prior to any major developments; however, modest development in existing built-up areas may be allowed, provided they do not significantly increase water and wastewater demands.

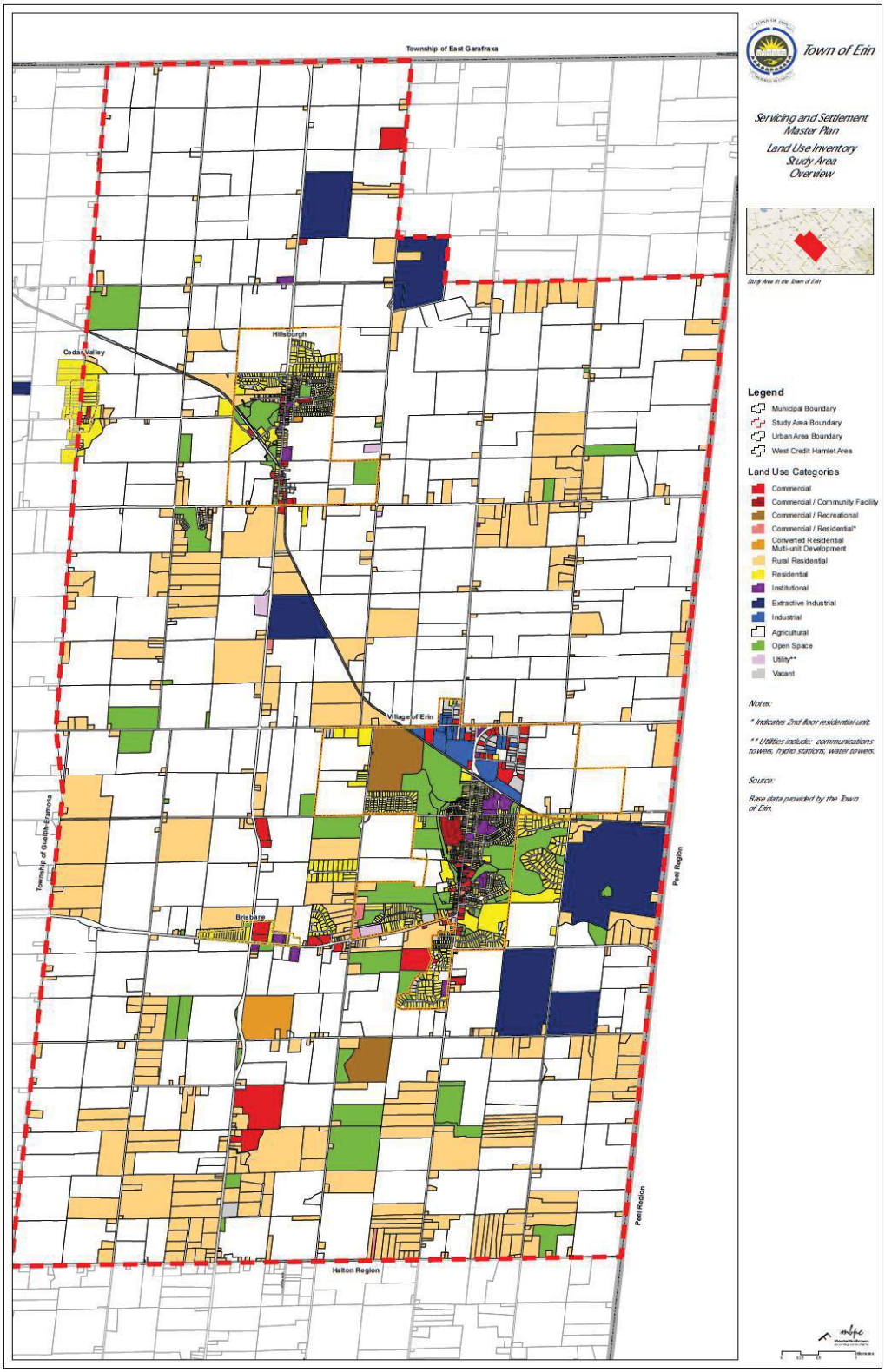
## 3.2. EXISTING LAND USES

### 3.2.1. RESIDENTIAL

In the Town of Erin, existing residential development is primarily concentrated within the Villages of Erin and Hillsburgh. Residential lands in the Town can be seen in **Figure 3-2**, as well as the other land uses described below. As of 2007, there are 1,273 residential dwelling units in the Village of Erin, the larger of the two communities (Statistics Canada, 2007). The majority of residences in the village are single-detached units (87.8%). Converted multi-unit dwellings and apartment buildings make up the remainder of residential units. Currently, there are two 3-story apartment buildings within the Village and no townhouses. Much of the existing residential development is found off Main Street, with new development occurring south of Wellington Road 24. Larger estate-type residential development has occurred outside the village urban area, to the east and west of the Tenth and Eighth Lines.

The second largest residential area in the Town of Erin is the Village of Hillsburgh, with 513 residential units. Approximately 95% of the residential dwellings within the village are single-detached units; there is one two-storey apartment building and no townhouses in Hillsburgh. Most residential development in the village is found west of Main Street, however, recent development has occurred on the east side of Main Street.

**FIGURE 3-2: LAND USES IN THE TOWN OF ERIN SSMP STUDY AREA**



Outside of the two villages, there are a number of small hamlets, two of which are in the SSMP study area: Brisbane and Cedar Valley. Both hamlets consist solely of single-detached type residential units and are limited in terms of available lands for future residential development within the existing Hamlet Areas.

### 3.2.2. COMMERCIAL

Similar to residential development patterns, the majority of commercial activities and land uses are found within the Villages of Erin and Hillsburgh. A high concentration of commercial development exists in Erin Village along Main Street. Commercial development in Erin Village includes, but is not limited to: banks, grocery store, specialty shops, restaurants, professional offices, auto repair services and building supply stores. Additionally, many of the businesses on Main Street contain second-floor residential units. Generally, the commercial buildings in Erin Village are well maintained and create a vibrant and attractive streetscape.

In Hillsburgh, the Main Street is also the centre of commercial development. Commercial uses on the Main Street include, but are not limited to: a furniture store, bakery, grocery store, hair salon, bank and professional offices. Residential development is also present on the Main Street, with some residential units above and between businesses. The presence of three vacant commercial spaces between Mill and Church Street and the appearance of many of the buildings suggests the downtown may be struggling.


**Main Street in Erin Village (Source: Monteith Brown Planning Consultants)**

### 3.2.3. INDUSTRIAL

In the study area of the SSMP, industrial land uses are primarily found north of the Cataract Trail in the Village of Erin. Industrial activities in the study area include manufacturing, distribution and storage facilities. Guardian Industrial, manufacturer of customized industrial supplies, and Central Wire, manufacturer of wire, fasteners, springs and belts, are the two largest manufactures located in Erin Village. Within the industrial area there are vacant lots of adequate size for new industrial developments or expansions.

Extraction of mineral aggregate resources is an important industry in the Town of Erin and is the dominant industrial land use outside of the urban centres. There are five aggregate (sand and gravel) pits within the SSMP study area. The aggregate mining operations within the Town are an important supplier of aggregate resources to the Town and the Province.

### 3.2.4. INSTITUTIONAL

Within the Town of Erin there are numerous institutional facilities, including schools, churches, emergency services, community services, libraries and recreational facilities. The majority of institutional land uses are concentrated in Erin Village, the largest urban centre. The largest institutional land use is Erin Community Centre/Erin Centre 2000, the municipality's largest community centre. Centre 2000 is a large, multi-purpose building supporting: Erin District High School, an arena, nursery school, theatre, cinema and library. In addition to the high school, there are two elementary schools in Erin Village. Institutional land uses in Hillsburgh include an elementary school, churches, library, rest home, community centre and arena.

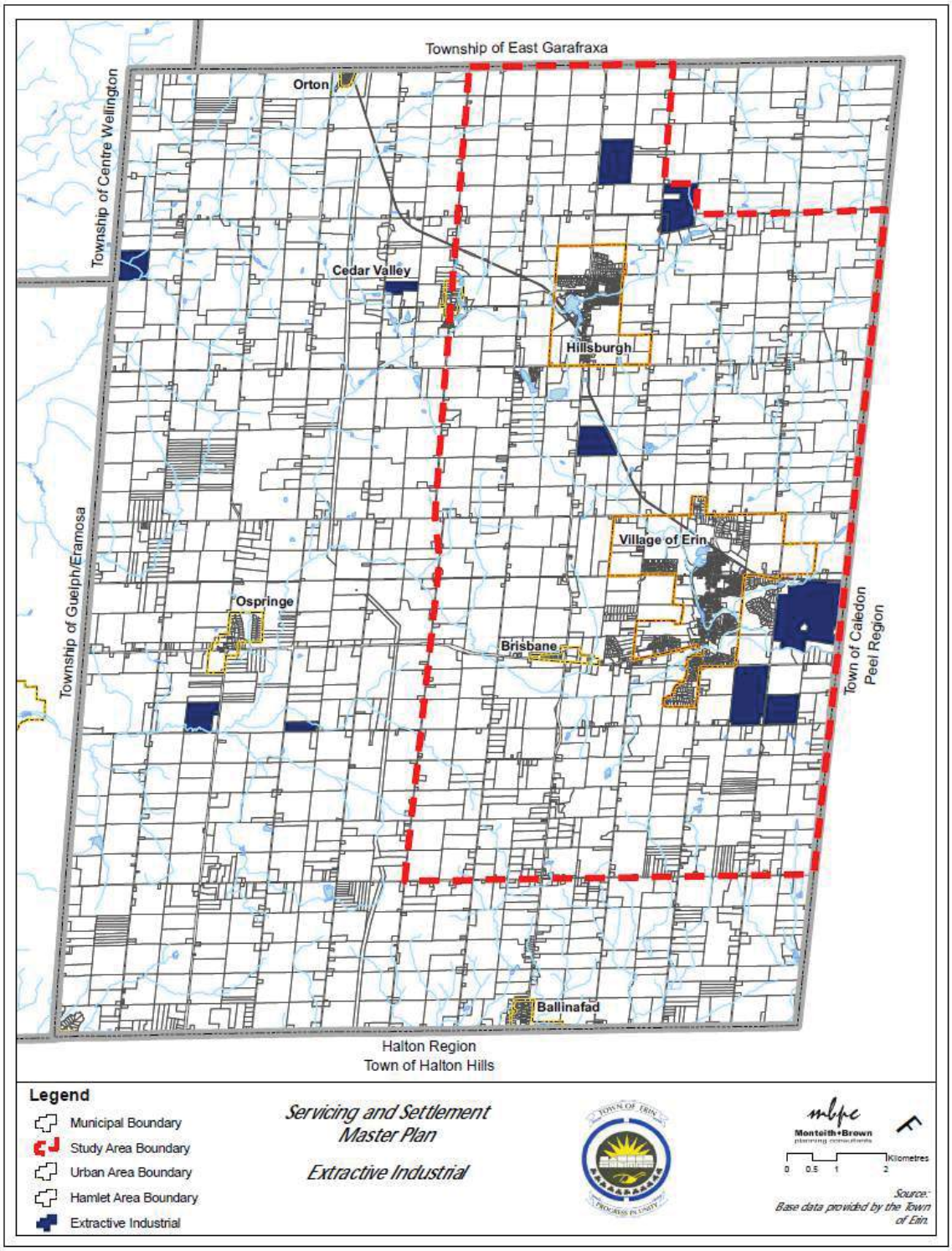
**Ross R. McKay Public School in Hillsburgh (Source: Upper Grand District School Board)**

### 3.2.5. AGRICULTURAL AND AGGREGATES

The dominant land use within the SSMP study area, and the Town of Erin, is agriculture. Agricultural land is categorized as either prime or secondary agriculture land. Generally, the prime agricultural lands, which make up approximately half of the agricultural lands in the Town, are found in the northern and eastern portions of the municipality. The secondary agricultural lands are generally in the western and southern parts of the municipality. Some agricultural land in the Town is also designated as protected countryside under the Greenbelt Plan, promoting its continued agricultural use.

The Town of Erin is an important and significant area for aggregate extraction in Wellington County. The aggregate extraction industry in the Town is a significant component of the local economy, with a number of quarries operating within the Town. Areas of sand and gravel extraction are shown in **Figure 3-3**. Currently, there are eight areas identified as Extractive Industrial within the Town, with five of those located in the SSMP study area. The Town of Erin Official Plan states that aggregate resources will continue to be mined and made available to meet the needs of consumers, however, mined in such a way to minimize disturbances to the community and the natural environment.

**FIGURE 3-3: EXTRACTIVE INDUSTRIAL LAND USE IN THE TOWN OF ERIN**



### 3.2.6. PARKS AND OPEN SPACE

There are five major parks in the Town of Erin as well as approximately 15 km of trail, which includes a section of the Elora Cataract Trailway. In Hillsburgh, the Historical Park and Victoria Park include features such as gardens, a barn-beam structure, outdoor stage, a fenced and lit ball diamond, children's play areas, benches, washrooms and a snack bar. The two major parks in Erin Village, Erin Community Centre Sports Fields and McMillan Park, features a lit and fenced ball diamond, soccer pitch, five tennis courts, pavilion and seating areas. Additionally, there are two parks in Ballinfad: Barbour Field and Jim Bailey Park. Barbour Field includes two fenced and lit ball diamonds, children's play area, seven soccer pitches, snack bar, washrooms and a concession stand. Jim Bailey Park features a children's playground, picnic shelter, fenced ball diamond and a soccer pitch.

**Historical Park, Hillsburgh**
**(Source: Monteith Brown Planning Consultants)**

### 3.2.7. RECREATIONAL

There are three community centres within the study area of the SSMP: the Erin Community Centre/Centre 2000, Hillsburgh Community Centre and the Ballinfad Community Centre. Erin Community Centre/Centre 2000 is the largest community centre and serves as the Town's primary recreation facility. The facilities at Centre 2000 include: Erin District High School, turf and ice arena, dental office, nursery school, public library, senior's room, cinema/theatre and meeting rooms. A number of programs and activities are offered at the centre, including: public skating, skating lessons and rentals for weddings, parties and meetings. The Ballinfad Community Centre includes a hall, playground, picnic shelter, ball diamond and soccer field. The Hillsburgh Community Centre features an arena, banquet hall and conference room, and offers skating and hockey programs.

The geographic distribution of parks, open space, and recreation facilities is important to ensure that all residents have a reasonable level of access. All new development should adhere to parkland acquisition requirement within the Town of Erin's Official Plan (2007), which states that:

- For residential development, the conveyance of up to 5% of the land area proposed for development;
- For commercial and industrial development, the conveyance of up to 2% of the land area proposed for development;
- For residential development, the Town may also pass by-laws pursuant to Section 42 of the Planning Act to "*require that land be conveyed to the municipality for park or other public recreational purposes at a rate of one hectare for each 300 dwelling units proposed.*"

## 3.3. COMMUNITY CHARACTER

The urban areas of Erin Village and Hillsburgh consist of numerous neighbourhoods characterized by certain styles and designs which were popular at the time of construction. Distinguishing features in these neighbourhoods may include: type and style of homes, lot size and pattern, building mass and orientation, streetscapes and housing density. The follow subsections provide a summary of the neighbourhood forms found within the villages of Erin (**Figure 3-4**) and Hillsburgh (**Figure 3-5**).

### 3.3.1. VILLAGE OF ERIN

**Main Street Erin – Commercial Core**

Erin Village's Main Street commercial core, located between Church Street and Charles Street, consists of mixed-use buildings with commercial uses on the first floor and residential apartments on the second floor. The buildings are primarily two storeys with street facing access to the 2nd floor. Many of the buildings were built around the turn of the century and help preserve the Town's historic past. The majority of the buildings have little or no space between them with tenant parking and storage located at the rear. The buildings provide an attractive uninterrupted streetscape.

**Main Street Erin – Residential**

The neighbourhood along Main Street, north of Church Street is mostly comprised of century homes. Within the Village of Erin, there are approximately 81 residences that date prior to 1900. The road layout is gridiron and the average lot frontage is 20 metres (65 feet). The houses are primarily 2-storey red brick homes built in the Victorian style. The neighbourhood features extensive landscaping and mature trees.

**Carberry Street**

A portion of the residential dwellings on Carberry Street are duplexes, which are not common in the Town of Erin. The duplex dwellings are single storey and are located among standard single detached dwellings, which are the norm in Erin. The duplex lots have an approximate 32 metre (104 foot) frontage, with approximately 16 metres (52 feet) per dwelling unit.

**Stanley Park**

Stanley Park is a private community that features single and double wide trailers on sites with 12-metre (40 feet) frontages. The park is surrounded by trees, natural areas, and two large ponds. The road has six cul-de-sacs stemming from a single access off Main Street.

### Erin Heights

In the northeast of Erin Village, the Erin Heights neighbourhood consists of three crescents that stem off of Erin Heights Drive. The dwellings in the neighbourhood consist primarily of bungalow and split-level dwellings with some two-storey dwellings. The lots range from 25-metre (82 feet) to 35-metre (115 feet) frontages with large front and rear yards. In addition, the vegetation in the neighbourhood is mature and dominates the streetscape.

### Scotch Street

The neighbourhood identified by Scotch Street primarily describes all residential areas in the northeast section of Erin. These residential neighbourhoods consist of split-level, bungalow and two-storey single detached dwellings. The lot frontages are all similar and range from 16 metres (52 feet) to 20 metres (65 feet). The vegetation in the neighbourhood has grown well and is maturing. The east portion of the neighbourhood differs from the rest. These two areas are comprised of newer dwellings, typically two stories, on large residential lots. Lot frontages range from 17 metres (55 feet) on corners to 30 metres (98 feet) and lot depths can be as deep as 103 metres (337 feet).

### Water Street

The neighbourhood around Water Street has many bungalow, 1.5-storey, and two-storey dwellings. The dwellings are typically smaller and many resemble old cottages. A number of the dwellings are newer and more typical of what is found in Erin. The lot frontages are smaller and range from 13 metres (43 feet) to 24 metres (79 feet). The neighbourhood vegetation is mature with abundant trees and landscaping. The east portion of the neighbourhood differs from the rest. This area has newer dwellings, typically two stories, on large residential lots.

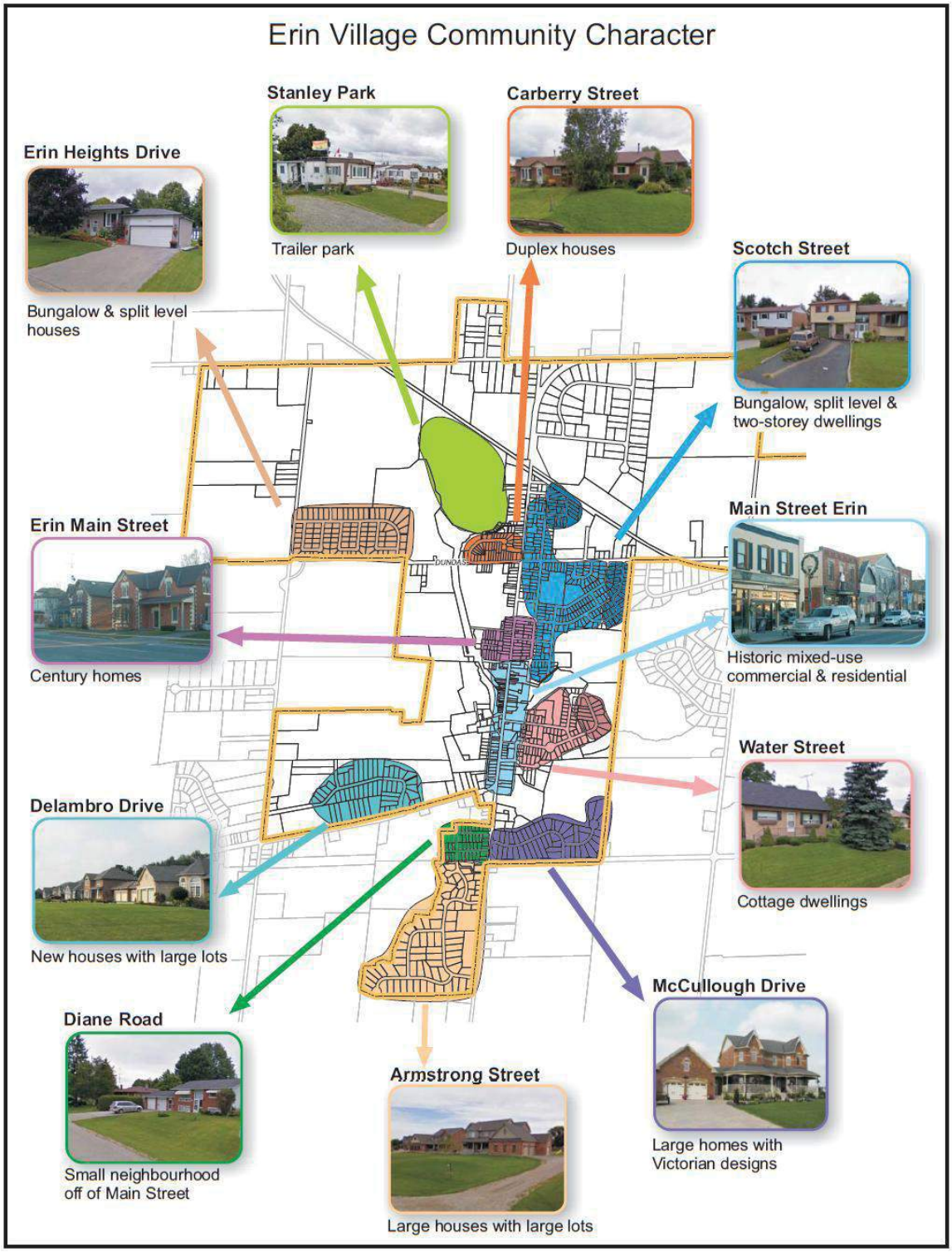
### Delambro Drive

The neighbourhood along Delambro Drive is a newer development consisting of lots with 30-metre (100 feet) frontages. The houses are a mix of one- and two-storey dwellings and have a wide range of design and architectural details. The overall building design features large homes with high peaked roofs, each using a variety of materials. The area is well landscaped and well maintained.

### Diane Road

The residential development along Diane Road appears to be approximately 40 to 50 years old. Lots have frontages of approximately 20-metre (65 feet) and contain modest homes. The road pattern is gridiron with houses fronting on Main Street. The neighbourhood is mature with trees and landscaping.

FIGURE 3-4: NEIGHBOURHOOD FORMS IN ERIN VILLAGE



**Armstrong Street**

A new residential development has been built extending south on Mountainview Crescent and along Armstrong Street. This neighbourhood features 40-metre (131 feet) lots along a curvilinear road pattern. The houses are very large with high peaked roofs and have been provided large front, side and rear yard setbacks. Although landscaping exists, it has not yet matured, thus highlighting the size and expansiveness of each lot. The overall scale of this development is considerably larger than that found to the north (along Diane Road).

**McCullough Drive**

The neighbourhood along McCullogh Drive is also a newer development and consists of lots with 30m (100ft) frontages. The road network is curvilinear and the houses have been built with a Victorian flavour. Each house is unique and has been built with a number of design details. The landscaping is extensive and is beginning to reach maturity.

### 3.3.2. VILLAGE OF HILLSBURGH

See **Figure 3-5**

**Main Street**

Main Street between Wellington Road and Church Street is comprised of a mix of commercial and residential development. The residential lots range from 20-metre (65 feet) to 30-metre (100 feet) frontages and are interspersed between a various commercial buildings. Houses consist of all sizes and styles ranging from large two-storey century homes to 20 year old bungalows to smaller wartime houses. The houses are all street-facing and are accented by mature landscape treatments.

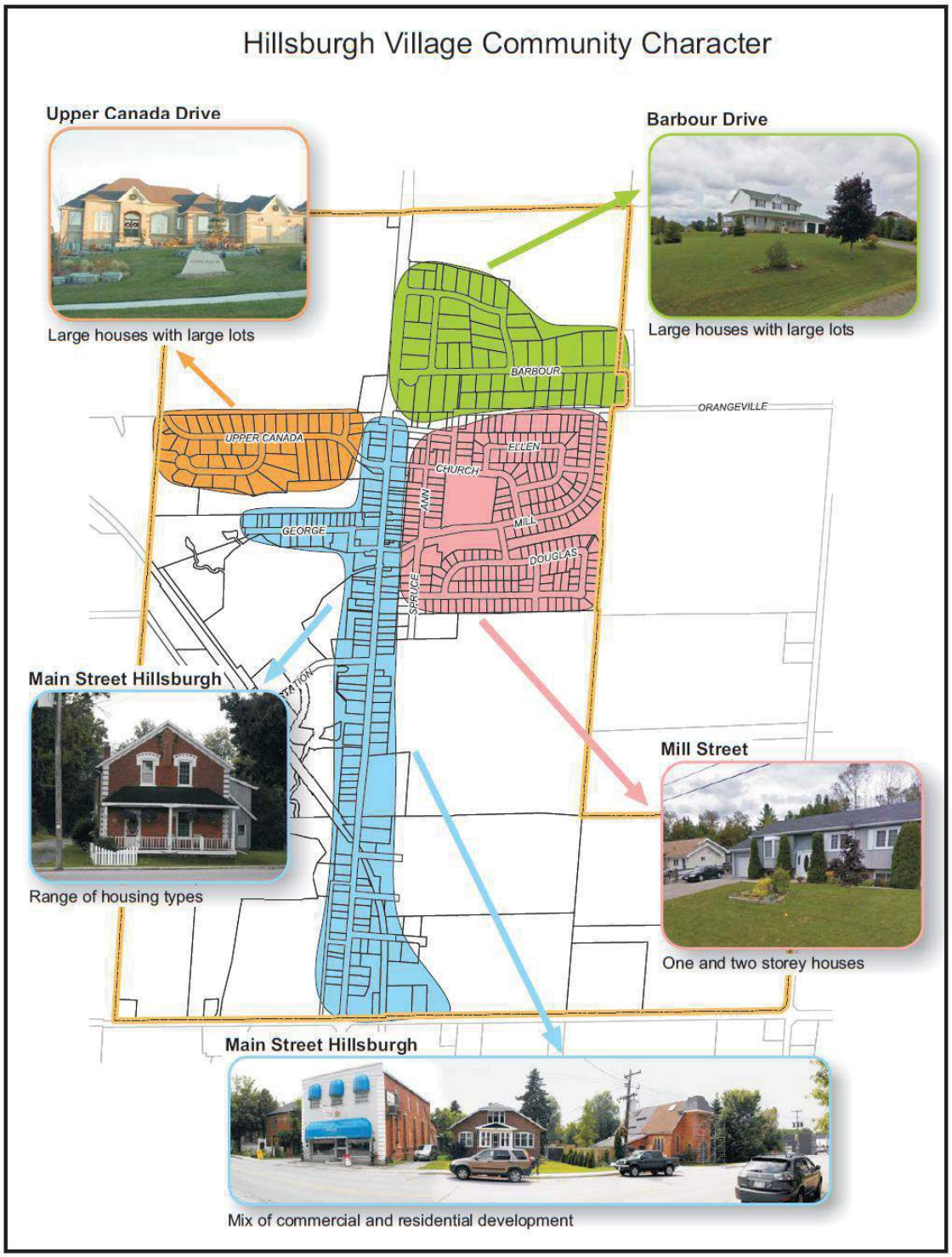
**Upper Canada Drive**

The new development along Upper Canada Drive features lots with large 30-metre (100 feet) frontages along a curvilinear road pattern. The houses are all built in a similar style with high peaked roofs and are quite large. The neighbourhood is built on a southern slope so the houses to the north are considerably higher than those to the south. The landscaping treatments do exist but have yet to mature.

**Mill Street**

The neighbourhood along Mill Street appears to be developed within the last 30 years and consists of lots with 20-metre (65 feet) frontages. There is a mix of one- and two-storey houses were constructed in a similar architectural style. The area has mature landscaping and is based on a curvilinear road pattern.

**FIGURE 3-5: NEIGHBOURHOOD FORMS IN HILLSBURGH**



**Barbour Drive**

The recently constructed residential development along Barbour Drive consists of a mix of lot frontages ranging from 35-metre (115 feet) to 50-metre (165 feet). The design of the houses is mixed and in many cases the orientation to the street is slightly angled. Although landscaping treatments do exist, they have yet to reach full maturity.

## 3.4. CULTURAL HERITAGE RESOURCES AND FIRST NATION INTERESTS

Cultural heritage resources, as outlined in Section 3.3 of the Official Plan for the Town of Erin, include archaeological resources; buildings and structural remains of historical, architectural, and contextual value; rural, village and urban districts, and cultural landscapes of historic interest. These features are recognized as contributing to the identity and character of the Town. The Official Plan encourages the maintenance, restoration and enhancement of these features, and encourages new development, redevelopment and public works to be sensitive to and built in harmony with existing heritage resources. The SSMP recognizes that local heritage resources provide a source of civic pride and benefit the local economy through tourism opportunities. The cultural heritage resources in the Village of Erin and Hillsburgh are identified in Sections 3.4.1 and 3.4.2.

Additionally, consultation with First Nations is recognized as an important component of the SSMP process. Background information regarding First Nations consultation is included in Section 3.4.3.

### 3.4.1. VILLAGE OF ERIN

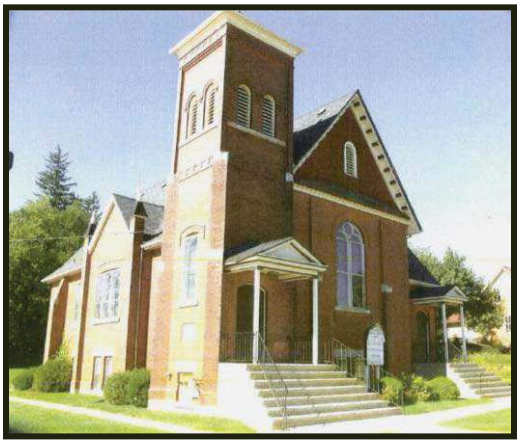
Rob Roy Inn c. 1886 (Source: Town of Erin)

Heritage resources in Erin Village include residential, commercial and institutional buildings. The designation process in the Town of Erin focuses on the date of construction, with those built prior to 1930 being listed as heritage. Currently, there are 143 listed buildings in the village, with the majority of these buildings built around 1900. Many of the heritage buildings are found on Main Street and the older side streets including Centre Street, Church Street, Daniel Street and Spring Street. The historical commercial core of the village is found on Main Street between Church Street and Water Street. The historical buildings in the commercial core are characterized by red brick exteriors and decorative brickwork, and were constructed between 1890 and 1910. Many of these heritage buildings now contain small shops or businesses. Additionally, several historical and architecturally unique churches are found in this area of the village, including: All Saints Anglican Church, Erin Full Gospel Fellowship and Erin United Church.

Similar to the heritage commercial and institutional buildings, the majority of historical residences in Erin Village are found on or around Main Street. Many of these homes were constructed around 1900, but dates of construction range from the 1890s to the late 1920s. Construction materials include brick, limestone, wood or a combination of the three. Some of the heritage residences are significant to the village's history, including past doctor's homes, schoolhouses, hospitals and a birthing house. Other cultural features of the village include a coal shed on Daniel Street; the Stanley Park archway – constructed in the 1920s; and the Mill on Main Street. The Mill, constructed by Erin's Daniel McMillian, is a three storey limestone structure currently used as a warehouse.

### 3.4.2. VILLAGE OF HILLSBURGH

There are 119 heritage buildings found in the village of Hillsburgh. Similar to the heritage buildings in Erin Village, many of the buildings have been designated based on age. Heritage buildings in Hillsburgh date from the mid-1800's to the 1930's, though a majority were constructed around 1900. Many of the heritage buildings in the village are found on Main Street or older, nearby streets such as Church Street, Ann Street and George Street. On the Main Street, many of the heritage commercial buildings are found between Station Street and Church Street. Currently, the commercial heritage buildings contain a variety of stores and businesses. Institutional buildings designated in Hillsburgh include the Hillsburgh Presbyterian Church, the Hillsburgh Baptist Church and the Christian Disciples Church.



**Christian Disciples Church/Erin Arts Foundation c.1906 (Source: Town of Erin)**

The majority of heritage buildings found in Hillsburgh are residential dwellings, built in the 1890s, 1920s and 1930s. Many of these homes are wood structures, although there are a number of brick, limestone and concrete structures as well. Additionally, there are a number of heritage buildings which have been converted into residences including a barn on Church Street, a mill on Main Street and two churches, also located on Main Street.

### 3.4.3. FIRST NATION INTERESTS

Consultation with First Nations is an important component of the SSMP process. To ensure that First Nations are included in the SSMP process, First Nations were contacted and asked to be members on the Core Management Team. As part of the Core Management Team, First Nations will have the opportunity to provide comment and input on the draft Phase 1 Report, as well as review the SSMP Report prior to adoption by the Town. Additionally, First Nations will be contacted in Phase 2 of the SSMP, with respect to the evaluation of alternative solutions.

## 3.5. POPULATION, HOUSING AND STAGING OF GROWTH TO 2035

### 3.5.1. POPULATION AND SOCIO-ECONOMIC CHARACTERISTICS

The Town of Erin's population in 2011 was 10,770 persons, according to Statistics Canada (Statistics Canada, 2012). **Table 3-2** shows the change in population from 1991 through to 2006 for the Town of Erin, Wellington County and Ontario. The data shows a 3.4% decrease in population between 2006 and 2011 compared to growth rate of 0.9% between 2001 and 2006, and 6.0% between 1991 and 1996. The average growth in the Town of Erin is also significantly lower than that of Wellington County and Ontario. The slow pace of growth in the Town of Erin is likely due to a lack of municipal services in the villages of Erin and Hillsburgh.

**TABLE 3-2: POPULATION CHANGE IN THE TOWN OF ERIN**

| | 1991 | % Change (1991-1996) | % Change (1996-2001) | % Change (2001-2006) | % Change (2006-2011) |
|---|---|---|---|---|---|
| Town of Erin | 11,145 | 6.0% | 3.7% | 0.9% | -3.4% |
| Wellington County | 159,609 | 7.4% | 9.2% | 7.0% | 4.0% |
| Ontario | 10,084,885 | 6.6% | 6.1% | 6.5% | 5.7% |

(Source: Statistics Canada, 1996, 2001, 2006; MBPC, 2010)

The patterns in the population distribution and changes in **the proportions of different age groups are also unique** to the Town of Erin. The age groups that make up the majority of the population of the Town are persons 40-49, 10-19 and 50-59. These groups, older professionals and their children, are also the age groups that are growing in terms of their proportion of the total population. Conversely, there is **negative growth in the age groups 0-10 and 25-29**. The small population of people in those age groups, typically young professionals and their children, and the negative population growth trend, **suggests that the Town of Erin may be too expensive for young families**. The senior population in the Town is experiencing some growth, but at a much lower rate than what is common in Ontario. Slow growth in the senior population suggests that **seniors may be relocating from the Town of Erin upon retirement**.

In the Town of Erin, 12.4% of the population identify themselves as an immigrant; however, 97.7% of Town's residents are Canadian citizens (Statistics Canada, 2007). English is the most common language spoken, with only 2% of the population reporting to speak a non-official language most often at home. For education, 30.3% of residents in the Town have achieved a high school certificate, 20.7% a college certificate or diploma and 15.3% have a university degree (Statistics Canada, 2007).

The **employment rate for the Town of Erin is 72.7%**, almost 10% higher than the provincial rate (Statistics Canada, 2007). Sectors of employment commonly reported include: sales and service, trades, transport and equipment operators, business, finance and administration and management. Of the total employed labour force**, only 15.4% worked within the Town of Erin**, 5.5% worked outside of the Town of Erin but within Wellington County, and **55% work in a different county** (Statistics Canada, 2007). **The large number of people working outside the municipality indicates a lack of employment within the Town and the community's position as a dormitory community for surrounding counties.**

#### 3.5.1.1. HOUSING ASSESSMENT

The majority of residences in the Town of Erin are single-detached homes. From 2001 to 2006 the percentage of homes classified as **single-detached grew from 86.9% to 91.1%** (Statistics Canada, 2007). Over the same time period, the percentage of semi-detached homes declined to 0.5% of all occupied private dwellings. Also, the number of apartments (in buildings less than five storeys) declined from 4.5% to 3.7% of occupied private dwellings. The number of residents who own dwellings increased from 86.9% to 90.9% in 2006, while the number of rentals decreased slightly to 9.3%.

The **average value of a dwelling** in the Town of Erin has increased significantly between recent census years. In 2006, the average value of a dwelling was **$409,976**, an increase from the 2001 value of $276,060 (Statistics Canada, 2007). While the increase in value of dwellings has followed a general overall trend, it may also be influenced by the construction of a few, highly valued horse farms. The average dwelling value in the Town of Erin rose by a much higher percentage than the County, Province and other communities between 1996 and 2001. However, other communities with similar upscale reputations, such as Oakville and Caledon, saw greater increases in average dwelling value between 2001 and 2006, as compared with the Town of Erin.

#### 3.5.1.2. POPULATION PROJECTIONS

#### 3.5.1.3. COUNTY OF WELLINGTON PROJECTIONS

Population and employment forecasts were developed for Wellington County by the province as part of the Places to Grow Plan. Using these forecasts, the County allocated growth to local municipalities, including the Town of Erin, using targets of 20% intensification by 2015 and Greenfield (those areas within the urban centre boundary but outside of the built-up area boundary) densities of 40 persons and jobs per hectare. The County believes these targets will allow for growth while maintaining small town character and efficiently using municipal infrastructure. These targets are expected to be accomplished through higher density greenfield developments, intensification along major roads in urban centres and supporting intensification in all areas within built boundaries, including brownfields.

On May 15, 2009, the County of Wellington amended their Official Plan to include growth forecasts for lower-tier municipalities, such as the Town of Erin, and bring the Plan into conformity with the Growth Plan. Official Plan Amendment No. 65 (OPA 65) established built-up areas in the County, which included the villages of Erin and Hillsburgh. The County Official Plan promotes growth in built-up areas, through intensification and redevelopment, while maintaining historic streetscapes and small town scales. The built-up boundaries for the villages of Erin and Hillsburgh can be seen in **Figure 3-6** and **Figure 3-7**. Additionally, the plan promotes growth in urban centres offering municipal water and sewage services, while limiting growth in urban centres that offer partial, private communal or individual on-site services. Currently, Erin Village and Hillsburgh are considered an urban centres, but as they does not have municipal sanitary sewage system, limited growth is expected.

It is expected that the County of Wellington will grow from approximately 89,500 people in 2006 to approximately 122,000 people by 2031 (Wellington County, 2011). The growth forecast for the Town of Erin is shown in **Table 3-3**, while the forecasts for the villages are found in **Table 3-4**. These forecasts were developed to provide a detailed assessment for growth potential in the Town of Erin, taking into account a number of factors including: market forces, available land, servicing and planning policies. For the two communities combined, a **total growth of 2,200 persons is expected over the next 25 years. The total number of new dwellings over the same time period is forecasted at 780 units.**

**TABLE 3-3: TOWN OF ERIN GROWTH FORECAST**

| | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| Total Population † | 11,380 | 11,930 | 12,490 | 13,510 | 14,530 | 15,530 |
| Households | 3,810 | 3,960 | 4,160 | 4,510 | 4,850 | 5,180 |
| Total Employment ‡ | 5,550 | 3,590 | 3,780 | 4,600 | 5,020 | 5,460 |

**TABLE 3-4: VILLAGES OF ERIN AND HILLSBURGH GROWTH FORECASTS**

| | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 |
|---|---|---|---|---|---|---|
| **ERIN VILLAGE** | | | | | | |
| Total Population † | 3,020 | 3,000 | 3,100 | 3,540 | 3,980 | 4,400 |
| Households | 1,030 | 1,050 | 1,090 | 1,240 | 1,390 | 1,530 |
| **HILLSBURGH** | | | | | | |
| Total Population † | 1,240 | 1,280 | 1,380 | 1,610 | 1,850 | 2,080 |
| Households | 410 | 430 | 460 | 540 | 610 | 690 |

(Source: County of Wellington Official Plan Amendment 65, OP-2009-01)
† includes the provincial population undercount estimate of approximately 4.75% for Wellington which is the difference between the 2001 Places to Grow population and the 2001 published Census population.
‡ includes 'no fixed place of work employment'

Since the release of the County's population projection in 2009, Statistics Canada has released population and households counts from the 2011 Census. The recent Census counts show a different population that that projected by the County in 2009, however, the County's projection is still the most recent population projection for the Town of Erin and remains applicable until it is updated.

**FIGURE 3-6: BUILT BOUNDARIES OF ERIN VILLAGE**

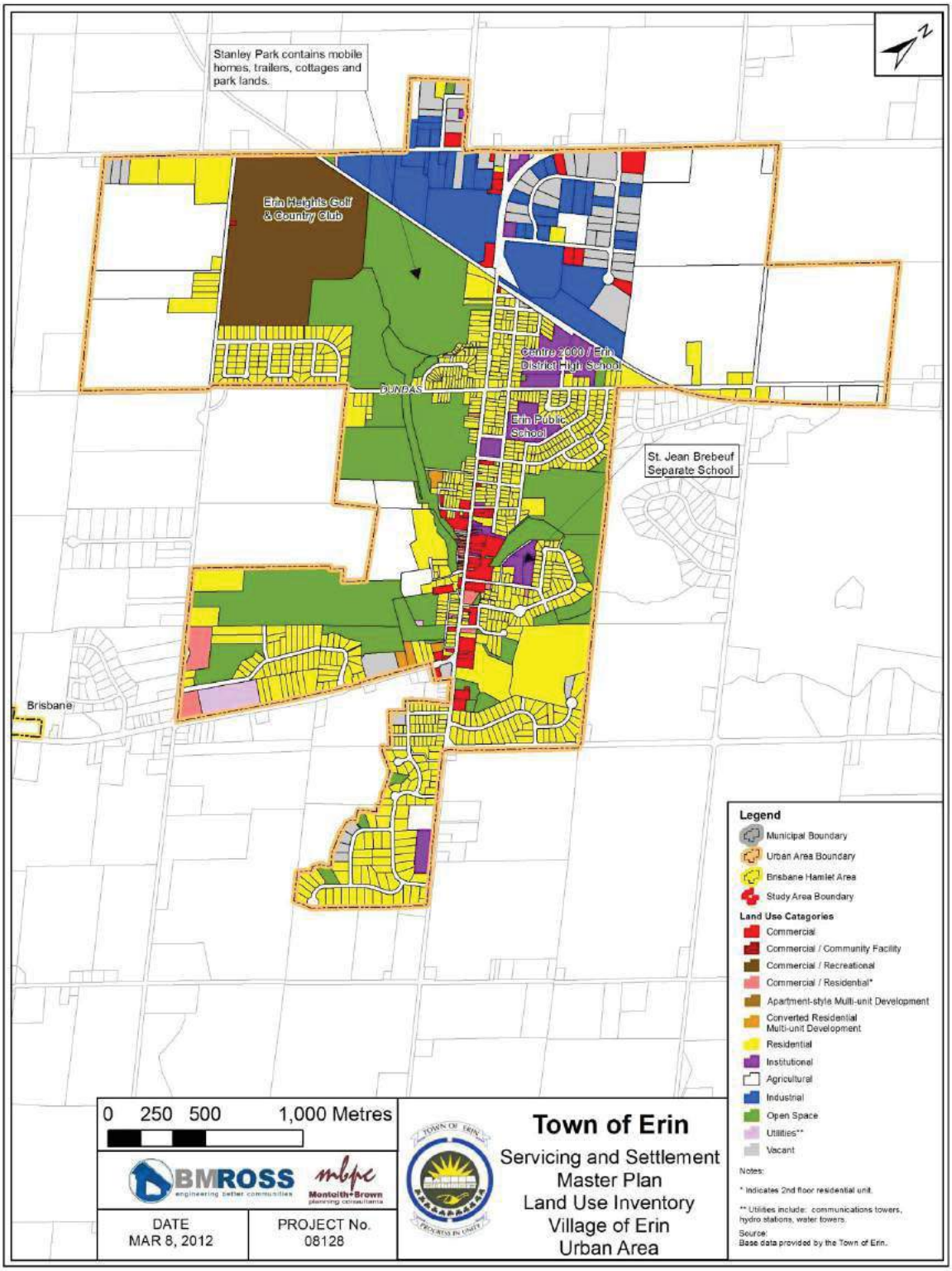
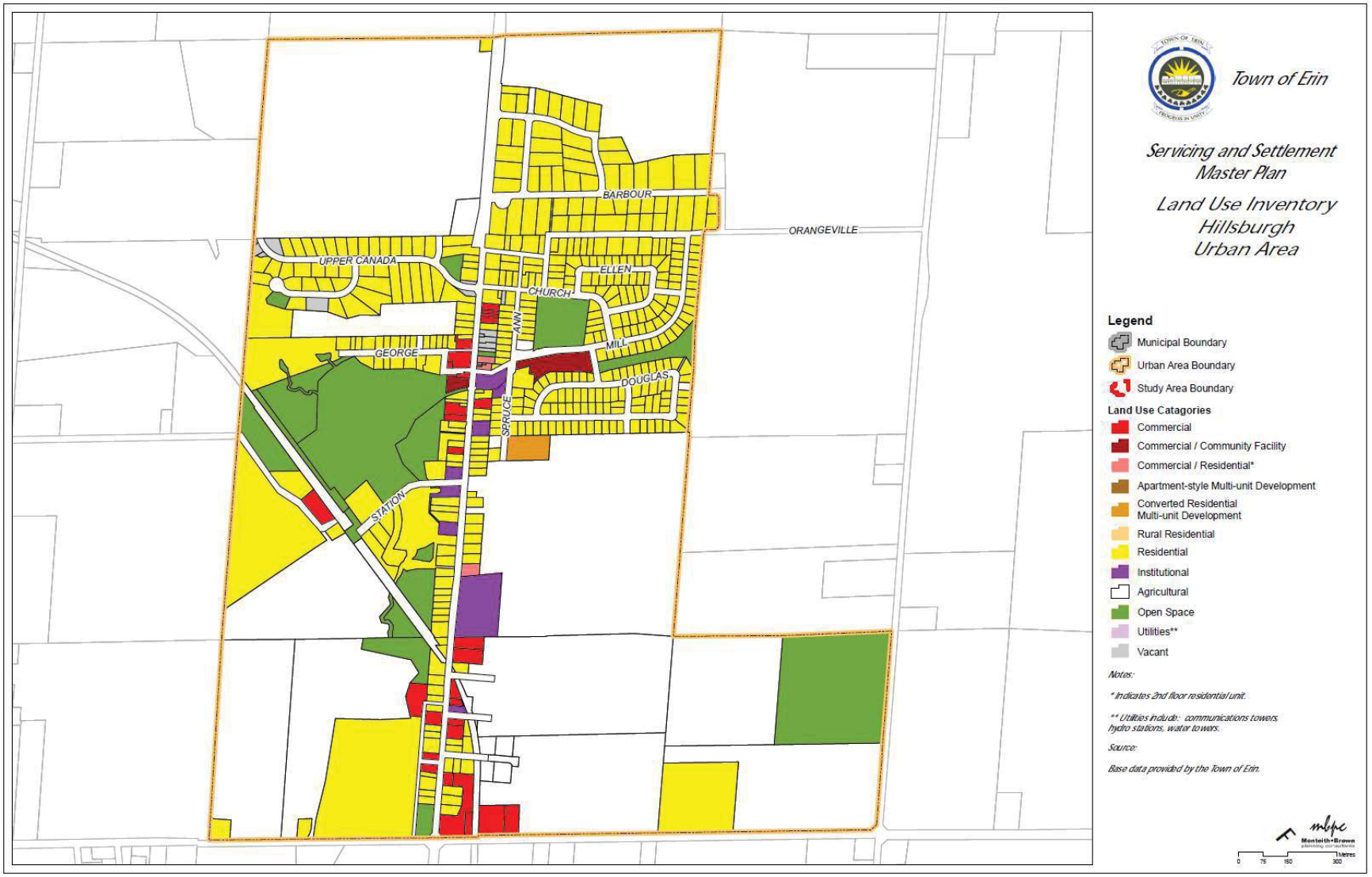


**FIGURE 3-7: BUILT BOUNDARIES OF HILLSBURGH**



## 3.6. ECONOMIC VIABILITY OF THE COMMERCIAL CORES

The commercial cores of Erin Village and Hillsburgh support a large number of commercial businesses within the Town of Erin. The commercial core of Erin Village is along Main Street, with the majority of businesses found between East Church Street and Charles Street. The types of businesses found within the commercial core of Erin Village include, but are not limited to: financial institutions, a grocery store, professional offices, restaurants and cafes, hair salons, art gallery, butcher shop, furniture and décor stores, bakery, antiques, a pharmacy, building supply, as well as gas and convenience stores. The wide variety of businesses located in the core, as well as the attractive and well-maintained streetscape, draw residents and tourists to the core area. In meetings with the Erin Village BIA, business owners described the majority of business in Erin as 'boutiques' and 'vibrant'.

The commercial core of Erin Village was until recently, also home to a dairy processing operation. Processing operations for Steen's Dairy were moved to Guelph, as a result of a lack of space on Main Street for growth, as well as the lack of a wastewater system and insufficient water system. The absence of a wastewater system, and concerns over environmental impacts and the long term economic viability of holding tanks in the commercial core of Erin Village were raised during consultation with the Erin Village BIA.

The commercial core of Hillsburgh is found on Main Street, with the highest concentration of commercial uses between Church and Mill Streets. Commercial businesses operating in the core of Hillsburgh, include and are not limited to: a bank, grocery store, furniture store, professional offices, hair salon and a convenience store. The commercial core of Hillsburgh is interspersed with resident development, creating a fragmented commercial core. Additionally, a number of the commercial buildings are vacant, tired looking or in need of improvements. This suggests the commercial core of Hillsburgh may be struggling.

## 3.7. COMMUNITY CONCERNS

Although the Town of Erin is nearby many major cities in Ontario, it has managed to sustain its rural and small-town character. Residents are proud of the main streets of Hillsburgh and Erin Villages, both are situated on the historic main street of the Village and offer a number of unique stores and shops and assist in maintaining the Town's small-town atmosphere. The Town exhibits a unique sense of community that the members of the community seek to continue.

There are, however, a number of concerns. The cost of living within Erin is high and there are little to no opportunities for employment or affordable housing. The lack of affordable housing has made it extremely difficult for low income households, such as those with younger adults and seniors, to stay within the community. In addition, the employment base in Erin can be improved. There is a lack of job opportunities within the Town, which does not have a strong industrial and commercial employment base. The Town serves as a bedroom community for the nearby cities, which means that many of its residents leave the Municipality to work and as a result, the local economy has not grown. There are a number of changes that residents wish never to come to the Town, including commercial and industrial industries that are heavy polluters. The residents also wish to maintain the Town's small-town atmosphere and do not wish to have a significant increase in density and

development that does not respect the Town's assets. Members of the community had a number of suggestions to improve the Town. They wish to see an improved trail network, a pedestrian friendly and greener downtown, a more diverse housing mix, increased healthcare services, decreased taxes, and clean industry. Residents in the Town of Erin are proud of their community, its amenities and character. They wish to maintain and continue this atmosphere into the future.

## 3.8. GOALS AND OBJECTIVES FOR GROWTH

### 3.8.1. FUTURE DEVELOPMENT

The lands currently vacant and available for future development in Erin Village are shown in **Figure 3-8**. Currently, 34% of the land in the Village of Erin Urban Area is vacant and available for development. The amounts of land available for future residential, commercial and industrial uses are shown in **Figure 3-9** Vacant residential land available for development amounts to approximately 164 hectares. There is approximately 23 hectares of vacant commercial land, primarily in the core of the village and along the north urban boundary. Also in the northern portion of the village is 42 hectares of vacant land for industrial developments. A total of 44 hectares, spread throughout the village, are zoned for future development.

The lands available for development in the village of Hillsburgh are shown in **Figure 3-10**. As can be seen, the majority of land available for potential development are found towards the exterior edges of the urban boundary, and in the southeastern portion of the village. The amounts of land available for future residential, commercial and industrial land uses are shown in **Figure 3-11**. Approximately 190 hectares within the urban boundary is available for development. The majority of this land (117 hectares) is zoned for future residential, with 2 hectares and 11 hectares for future commercial and industrial development respectively.

FIGURE 3-8: DEVELOPMENT POTENTIAL FOR THE VILLAGE OF ERIN

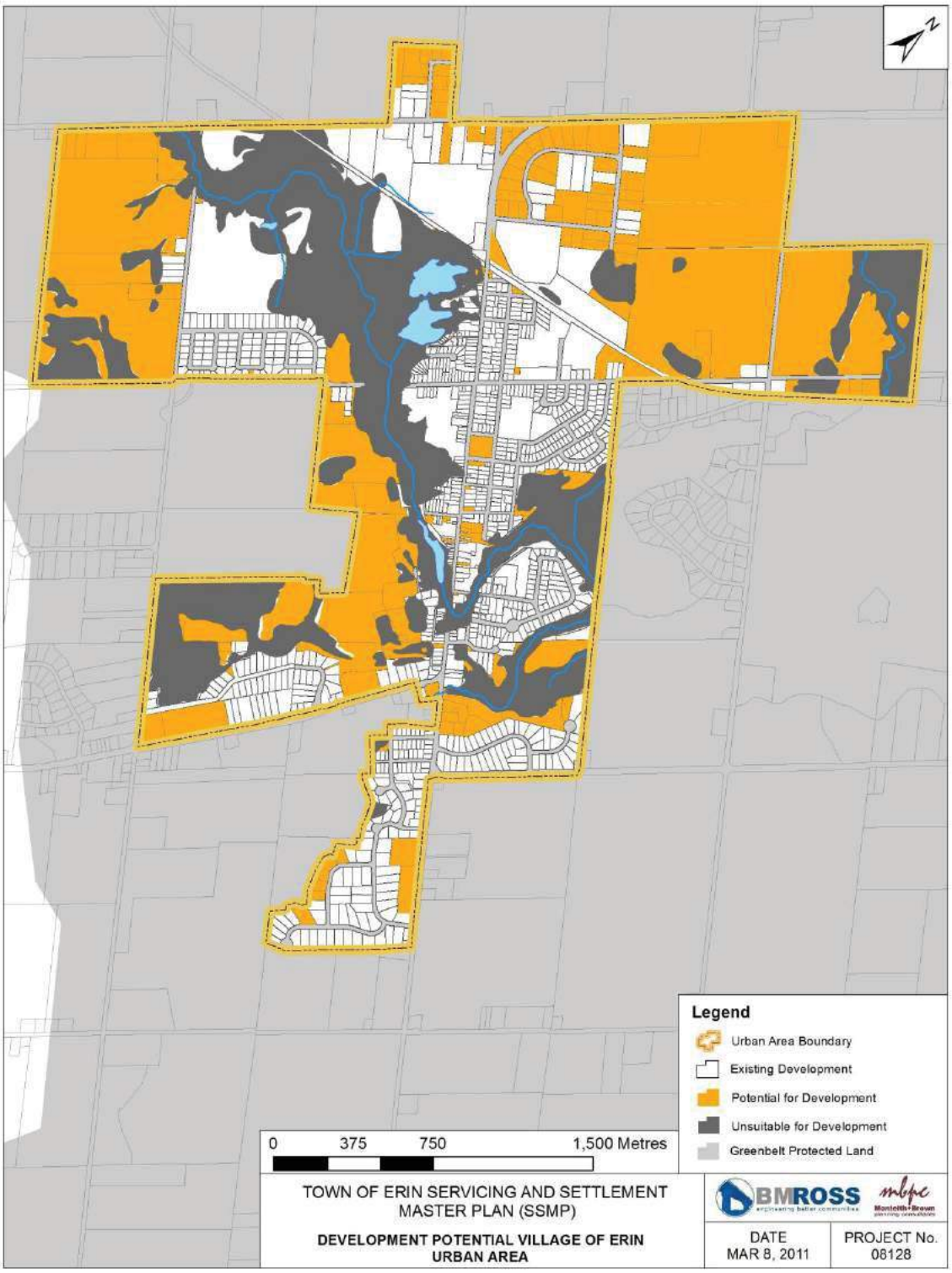


**FIGURE 3-9: POTENTIAL RESIDENTIAL, COMMERCIAL AND INDUSTRIAL LANDS IN ERIN VILLAGE**

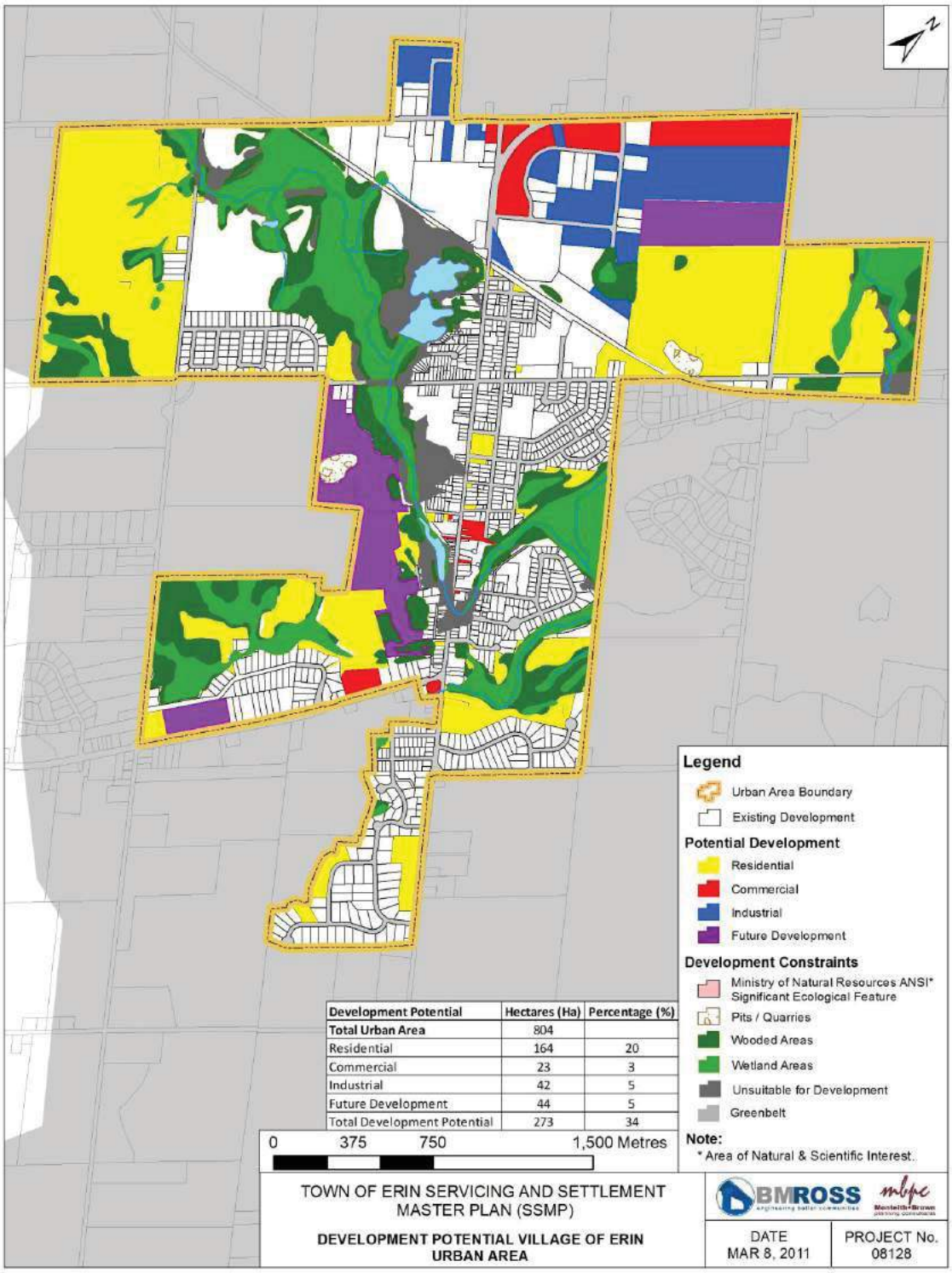


FIGURE 3-10: DEVELOPMENT POTENTIAL FOR THE VILLAGE OF HILLSBURGH

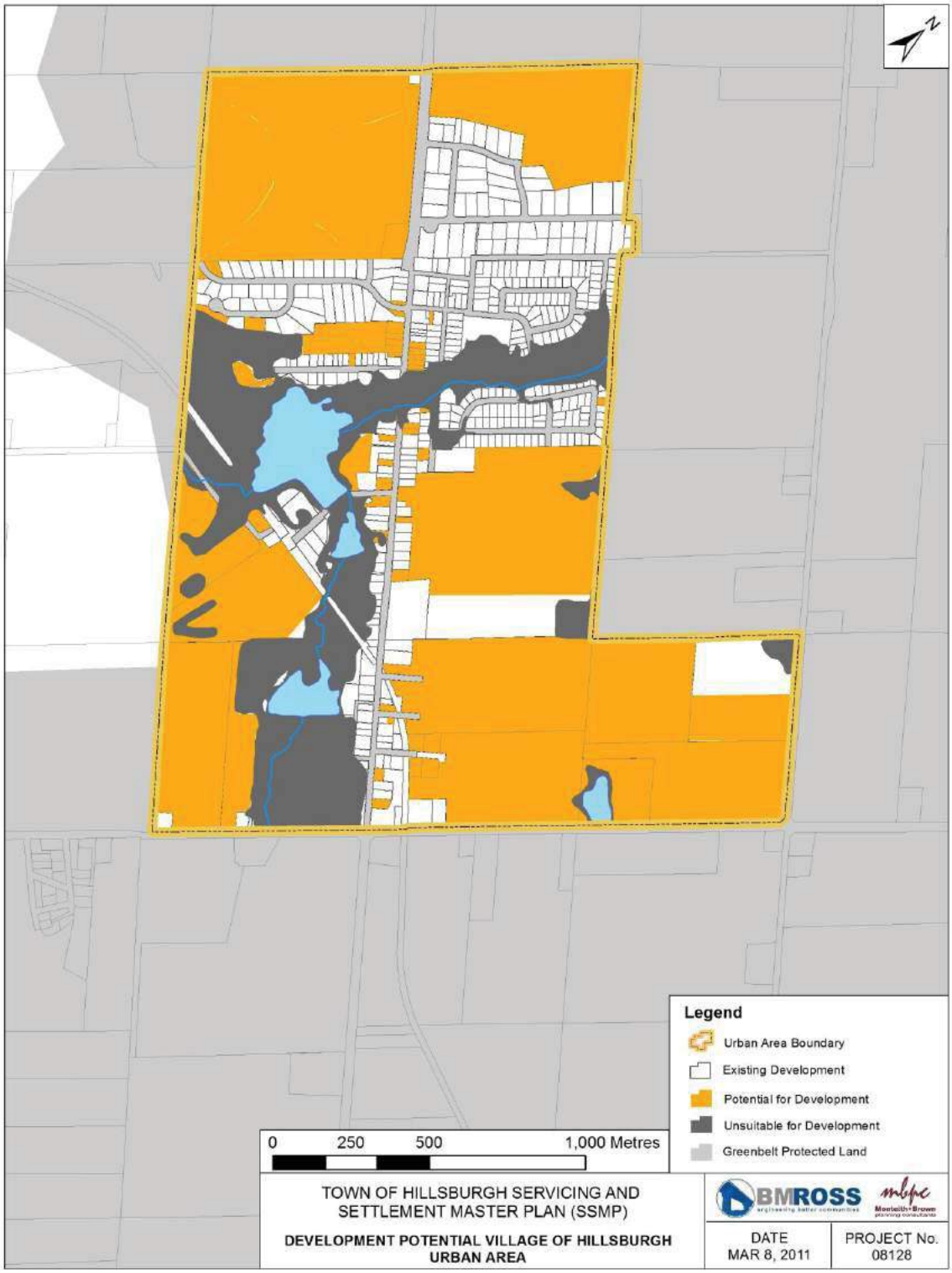
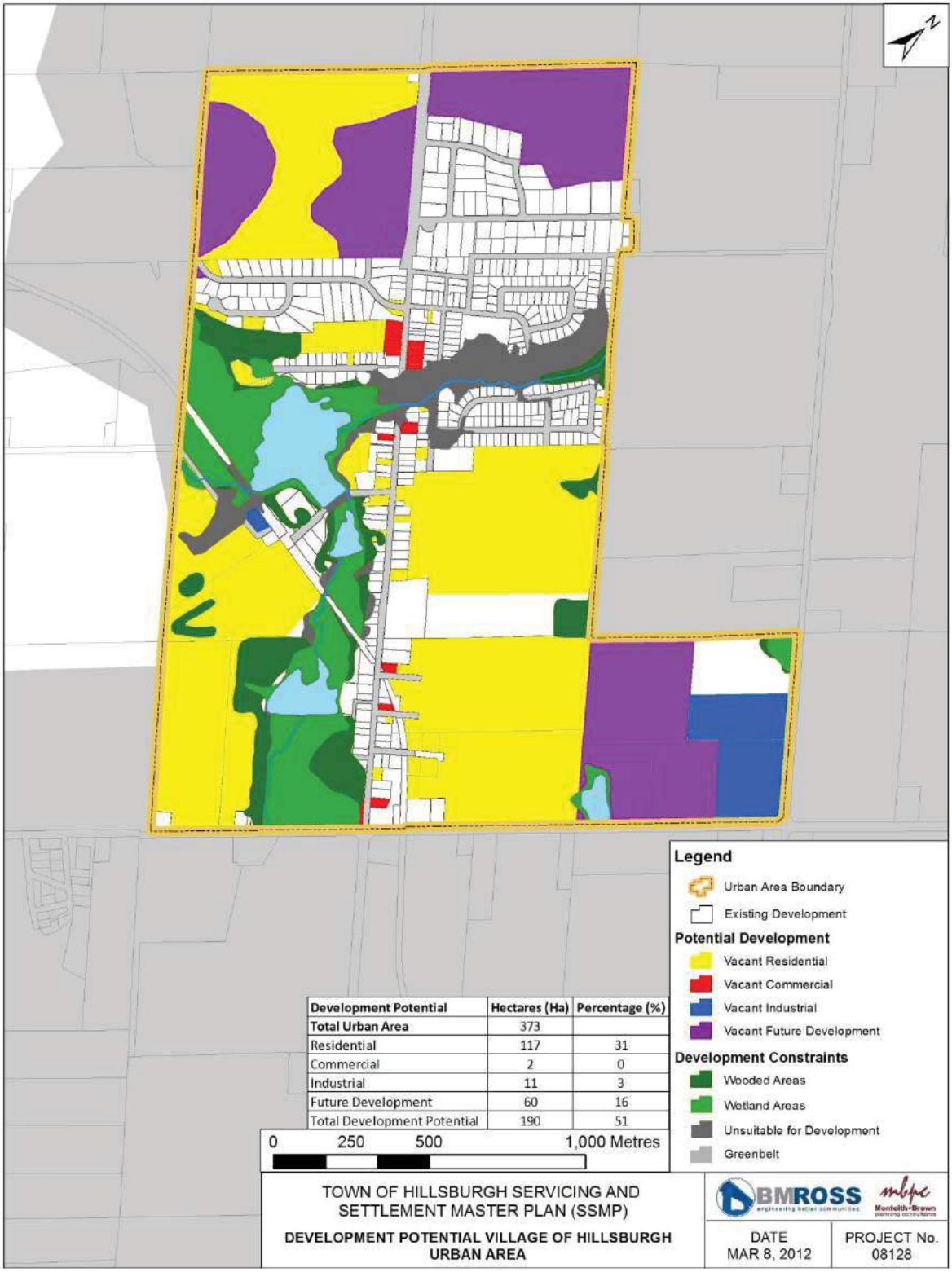


**FIGURE 3-11: POTENTIAL RESIDENTIAL, COMMERCIAL AND INDUSTRIAL LANDS IN THE VILLAGE OF HILLSBRUGH**




| Development Potential | Hectares (Ha) | Percentage (%) |
|---|---|---|
| **Total Urban Area** | 373 | |
| Residential | 117 | 31 |
| Commercial | 2 | 0 |
| Industrial | 11 | 3 |
| Future Development | 60 | 16 |
| Total Development Potential | 190 | 51 |

## 4.0 ENVIRONMENT

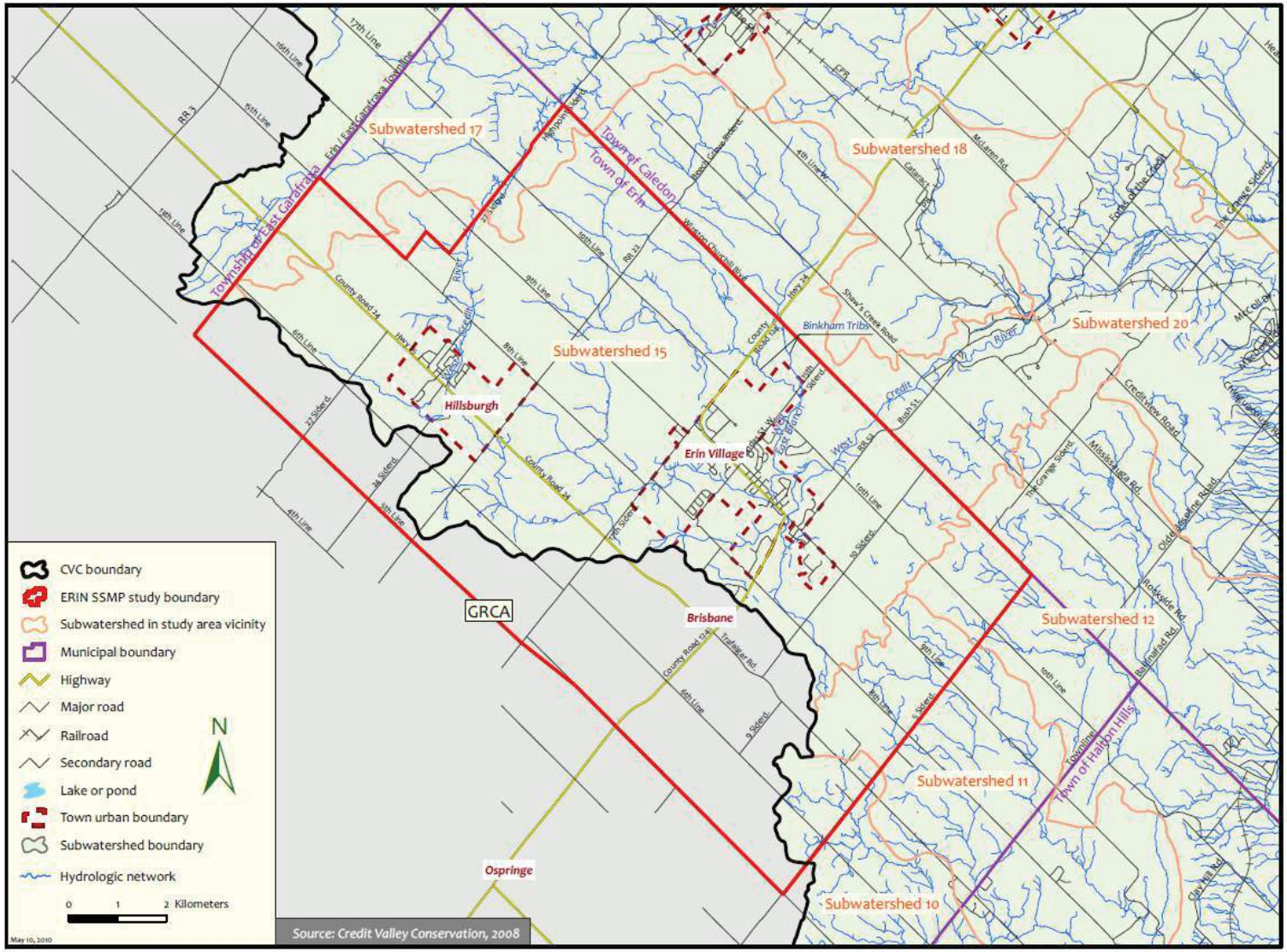
Credit Valley Conservation (CVC) completed a detailed study and report for the environmental component of the SSMP: *Erin Servicing and Settlement Master Plan Phase 1 – Environmental Component – Existing Conditions Report*, *May 2011*. Building on previous research and the studies undertaken by the CVC, the Report provides key background information on the overall condition of key environmental features, such as the West Credit River, as well as ecological functions and linkages in the study area. In addition to reviewing past studies and research, the CVC identified data gaps and initiated additional monitoring programs to address the information gaps. The research by the CVC provides a detailed picture of the current environmental conditions within the SSMP study area. The Report forms Appendix C of the Background Report.

The existing environmental conditions and findings of the CVC study are summarized in the following subsections, organized into six categories: hydrogeology, hydrology and hydraulics, natural heritage, stream geomorphology, benthic macroinvertebrates and fisheries, and water quality. The hydrogeology section summarizes the research related to groundwater resources and interactions with surface water, while the hydrology and hydraulics section addresses streamflow conditions. Terrestrial environmental features are discussed in the natural heritage subsection, that includes an analysis of landforms, ecosystems, wildlife species and habitat. The section on stream geomorphology includes an examination of the physical processes occuring within the water courses, while studies of macroinvertebrates and fisheries were used as indicators of ecosystem health. The water quality section provides an overview of water quality throughout the study area. Finally, there is a detailed review of the septic system impact assessment completed for the SSMP.

## 4.1. HYDROGEOLOGY

The Erin SSMP study area encompasses much of the West Credit River subwatershed (**Figure 4-1**). The south, west and northwestern boundaries of the subwatershed form areas of locally high elevation, approximately 500 meters above mean sea level. In the lower, eastern portion of the subwatershed, northeast of the Village of Erin, elevation drops to 365 meters above mean sea level. Northwest of Hillsburgh, are the Hillsburgh Sandhills, part of the larger Orangeville Moraine physiographic region. The southern-most part of the study area is characterized as part of the Paris Moraine landform. The hummocky landscape of these areas and associated surficial geology result in these areas serving as significant recharge zones for the groundwater system. The Wentworth Till, present over the Paris Moraine, and ice-contact sand and gravel in the Hillsburgh Sandhills provide greater rates of recharge compared to the less permeable tills and outwash sands found in the central portions of the subwatershed.

FIGURE 4-1: THE WEST CREDIT RIVER SUBWATERSHED



The subsurface geology of the Erin area is characterized by glacially deposited materials. These materials were deposited 7,000 to 10,000 years ago over the dolostone bedrock of the area. The overburden varies in thickness across the study area: from 45 meters thick in the Orangeville Moraine north of Hillsburgh, to 5 to 15 meters around the area of County Rd. 124 and Winston Churchill Blvd.

Groundwater flow in the study area generally follows the topography of the region, flowing from the northwest to the southeast. Much of the groundwater flows in the area originate in the higher elevation areas north of Hillsburgh in the Orangeville Moraine. In the southern portion of the study, south of Erin Village, are additional areas of locally high water tables, which correspond with higher bedrock topography. These areas of the Paris Moraine are also areas of groundwater recharge. In general, the rate of recharge in the West Credit Subwatershed is high, averaging between 160 to 200 mm annually. Within the subwatershed, the sands and gravel areas north of Hillsburgh (Orangeville Moraine) and southeast of Erin Village (Paris Moraine) experience recharge rates exceeding 300 mm.

Groundwater, from bedrock aquifers within the study area, contributes significantly to baseflow of the West Credit River and its tributaries. The discharge of groundwater to the West Credit River is critical for maintaining baseflow, as well as moderating water temperature and maintaining the general health of the river. Baseflow and its seasonal variations are also important considerations with respect to the assimilative capacity of the West Credit River. Areas downstream of Erin Village and upstream of Belfountain experience significant increases in baseflow from groundwater inputs. There is much less groundwater discharge to the West Credit within the Hillsburgh reach.

Within the study area, there are numerous groundwater uses including: municipal drinking water, private water wells, commercial water taking, aquaculture, agriculture, industrial and commercial. It is estimated that there are 2300 private water wells in the Town of Erin, with a third of those found within the SSMP study area. Private water taking activities, most of which require a Permit To Take Water (PTTW), within the area include: municipal water servicing, agriculture (aquaculture), washing activities in the aggregate industry, commercial water bottling and golf course irrigation. Based on PTTW daily maximums, industrial aggregate washing represents the greatest use of groundwater; however, much of the water used for aggregate washing is eventually returned to the groundwater system. Of all the groundwater usages within the study area, commercial water bottling is the only use that results in the loss of water to the groundwater system. Municipal water usage is further discussed in Section 5.1.2.

A review of existing groundwater quality data indicates areas of existing and potential impacts on water quality from urban development. In the south and southeast areas of the Village of Erin, the shallow groundwater aquifers show elevated levels of chloride and/or nitrate. Also, elevated levels of chloride and nitrate were found in an agricultural area near a major roadway, up gradient of Erin Village. Throughout the study area, the locations with the highest chloride concentrations in the shallow groundwater were adjacent or down gradient of large roads, indicating impacts from winter road salting. Despite the southern and eastern areas of Erin Village having high aquifer vulnerability, the deep groundwater aquifers show little in the way of impacts from nitrates; however, several locations within the village exhibited elevated chloride concentrations in the overburden and bedrock groundwater. It should also be noted that there are several abandoned

municipal wells within the study area, identified as having high aquifer vulnerability. South of the core of Hillsburgh, along the Highway 24 corridor, elevated chloride concentrations were found in the shallow groundwater zone. In this area, as well as the throughout the eastern part of Hillsburgh, nitrate levels were elevated. The deep aquifer in this area of Hillsburgh also exhibited elevated chloride and nitrate concentrations. These elevated nitrate levels likely originate from both septic systems and agricultural sources. This area of the village has been identified as an area of high aquifer vulnerability. Aside from the areas of high aquifer vulnerability within the two villages, the majority of the study area is considered to have a low to medium susceptibility to groundwater contamination.

## 4.2. HYDROLOGY AND HYDRAULICS

The West Credit River subwatershed drains a significant portion of the land within the Town of Erin, and flows through the villages of Hillsburgh and Erin. This surface water feature is a key headwater system of Credit River and is critically important in maintaining the river's water levels downstream. A clear understanding of the features and characteristics of the West Credit River subwatershed will aid in determining and evaluating potential impacts throughout the SSMP process.

The mean annual precipitation in the West Credit River subwatershed is approximately 892 mm. Much of this precipitation reaches the West Credit River, either directly through surface runoff or indirectly through infiltration into shallow groundwater aquifers. Approximately 18% of the total precipitation received in the area falls as snow. June, August, September and November tend to be the wettest months while January and February are the driest. The annual maximum streamflow tends to occur between March and April as a result of snowmelt or precipitation on frozen ground. The lowest flows are often during the summer months, due to high evapotranspiration and lower precipitation. Analysis of streamflow also reveals the importance of storage within wetlands and depressions in the surrounding hummocky terrain in moderating flows.

West Credit River at the 8th Line

Changes to the existing land use pattern within the watershed are expected to impact topography, ground cover, contaminant loadings and surface drainage. These impacts in turn can lead to reduced water quality, increased erosion, habitat loss and reduced recreational resources. The greatest impacts from changes to land-uses, specifically increased urbanization, are expected to include: flooding, impacts to surface water quality, drinking water supply, and aquatic habitat.

Currently, there are three flood damage centers along the main branch of the West Credit River: Hillsburgh, Erin Village and Belfountain. Flood modeling reveals that approximately 28, 28 and 3

buildings would be inundated in Hillsburgh, Erin Village and Belfountain respectively, during a storm of Hurricane Hazel's magnitude. Increased urbanization is expected to increase the actual and potential damage during a flood in these communities. With regards to drinking water supply, increased urbanization typically results in reductions of the amount available drinking water through the reduction of infiltration to groundwater aquifers. Also, increased urbanization can result in an increase in contaminates in groundwater and surface water. Reductions in infiltration and increased contaminants from urbanization can also impact aquatic habitat. Land use changes associated with urbanization also impact riparian areas, decreasing water quality and quantity, and increasing erosion and sedimentation.

Currently, the urban development area to subwatershed area ration is low, which results in minimal stormwater runoff. Storm runoff, generated within the villages of Erin, Hillsburgh and Belfountain, is not resulting in increased erosion. However, historic development has resulted in the hard lining of banks adjacent to road crossings and private properties as well as some bank instability in a reach within Erin Village. Future urban development will be required to incorporate current stormwater management design criteria.

A number of dams and online ponds within the West Credit River subwatershed are directly impacting water quality and quantity. Within the subwatershed there are a total of 11 dams, all of which are privately owned, with the exception of the Belfountain Dam which is owned and maintained by CVC. The condition of the dams varies site to site, with most of the dams being earthen structures. The storage area behind the dams is also variable, ranging from 0 hectares to 8.9 hectares. There is little information on the number and operation of existing ponds within the subwatershed. These ponds impact peak flows and study of the operation of these ponds should be completed to address issues surrounding increased flows and the assimilation capacity of the West Credit River.

## 4.3. NATURAL HERITAGE

The review of natural heritage features within the study area included the examination of geological features and landforms, terrestrial and aquatic ecosystems, plant and wildlife species and communities, habitats and the interactions among these features. The health of these features was evaluated on the basis of size, shape, spatial arrangement, field investigations, the presence or absence of unique species, successional stages and the presence of native species. A healthy natural heritage system provides many benefits including flood attenuation, reducing sedimentation, maintaining water quality, protecting groundwater recharge and discharge areas, maintaining biological diversity and providing recreational and education opportunities.

The study area is located within the Mixed Plains Ecozone, which covers approximately 10% of the province of Ontario. The Mixed Plains Ecozone is characterized by limestone and dolostone bedrock, with diverse vegetation and mixed forest. Forest species found within the study area include: White Pine, Red Pine, Eastern Hemlock, Yellow Birch, Sugar Maple, Red Maple, Red Oak, Basswood and White Elm. With the clayey glyesolic and grey brown luvisolic soils, deciduous forests were widespread across the study area prior to the nineteenth century, during which much of the land was cleared for agricultural purposes.

Within the SSMP study area land use is dominated by human usage. Within the study area, 59.8% of the land use are categorized as agriculture and urban/rural settlement. The remaining land uses consist of forests (16.1%), wetlands (13.4%), lakes and ponds (0.7%), and cultural/successional communities (10.1%). Agricultural land uses include pasturelands, row cropping, livestock rearing, abandoned fields and wet meadows.

Urban development includes the two villages of Erin and Hillsburgh. Features such as roadways and trails, such as the Elora-Cataract Trailway, are included in urban land uses. Recent urban development within the study area has occurred primarily in rural estate subdivisions that are scattered around the urban centres. These subdivisions, such as the areas around Erinwood Dr., Patrick Dr., Pine Ridge Rd., George St., Upper Canada Dr., and Erin Heights Dr., occur in or adjacent to natural areas, resulting in the fragmentation of natural areas. In the natural areas surrounding the urban centres, there is evidence of human impact such as unauthorized trail building, dumping, tree cutting and underbrush clearing.

Forests within the study area are composed of natural forests (10.1%) and plantations (6%). With the inclusion of forest wetland areas, the amount of forest cover increases to 27.3%, a value which is below the 30% forest cover guideline set by Environment Canada for the maintenance of forest interior and sensitive species. The natural forests are composed primarily of deciduous forests (59%), followed by coniferous (28%) and mixed (13%) forests. Plantations within the study area are composed primarily of coniferous species. Extensive forest cover is found south of Erin Village, along the Paris Moraine. Maintaining forest cover in this area is critical, as the forest protects an important area for groundwater recharge. Generally, the West Credit River, from its confluence with the eastern main branch and the Credit River, and the eastern tributary are well forested. This contrasts with the western tributary, which is sparsely forested and highly fragmented. The forested area adjacent to the 8th line and south of Dundas St. outside of the village of Erin contains a sizeable concentration of the endangered butternut tree. It should be noted that some of the forests within the study area have been identified as regionally important. Many of the forested areas are found within or adjacent to Environmentally Significant Areas (ESAs) and are protected by CVC policy. Many of the forests are also protected under the Greenbelt Plan Policies.

Cultural and/or successional communities represent 10.1% of the land use within the study area. These communities are characterized as areas no longer used for agricultural purposes (or other uses) and are in various stages of reverting to natural vegetation. Stages of succession within these communities range from cultural meadows in abandoned fields to sparse forests. The majority of cultural communities within the study are cultural meadows from recent farm abandonment. Whatever the stage of succession, these areas serve to provide food, habitat and movement corridors for numerous wildlife species including meadow voles, red foxes, savannah sparrows and swallows.

Wetland areas, including swamps, marshes, fens and bogs, and represent 13.4% of the study area. Within the study area, wetland areas serve important hydrological, biological and recreational functions. From a hydrological standpoint, wetlands are critical for moderating peak flows, removing contaminants and nutrients, preventing erosion and recharging groundwater. Also, wetlands provide important habitat for a wealth of plant, fish, invertebrate, amphibian, reptile, bird and mammal species in terms of productivity and biodiversity. Fishing, hunting, hiking, canoeing

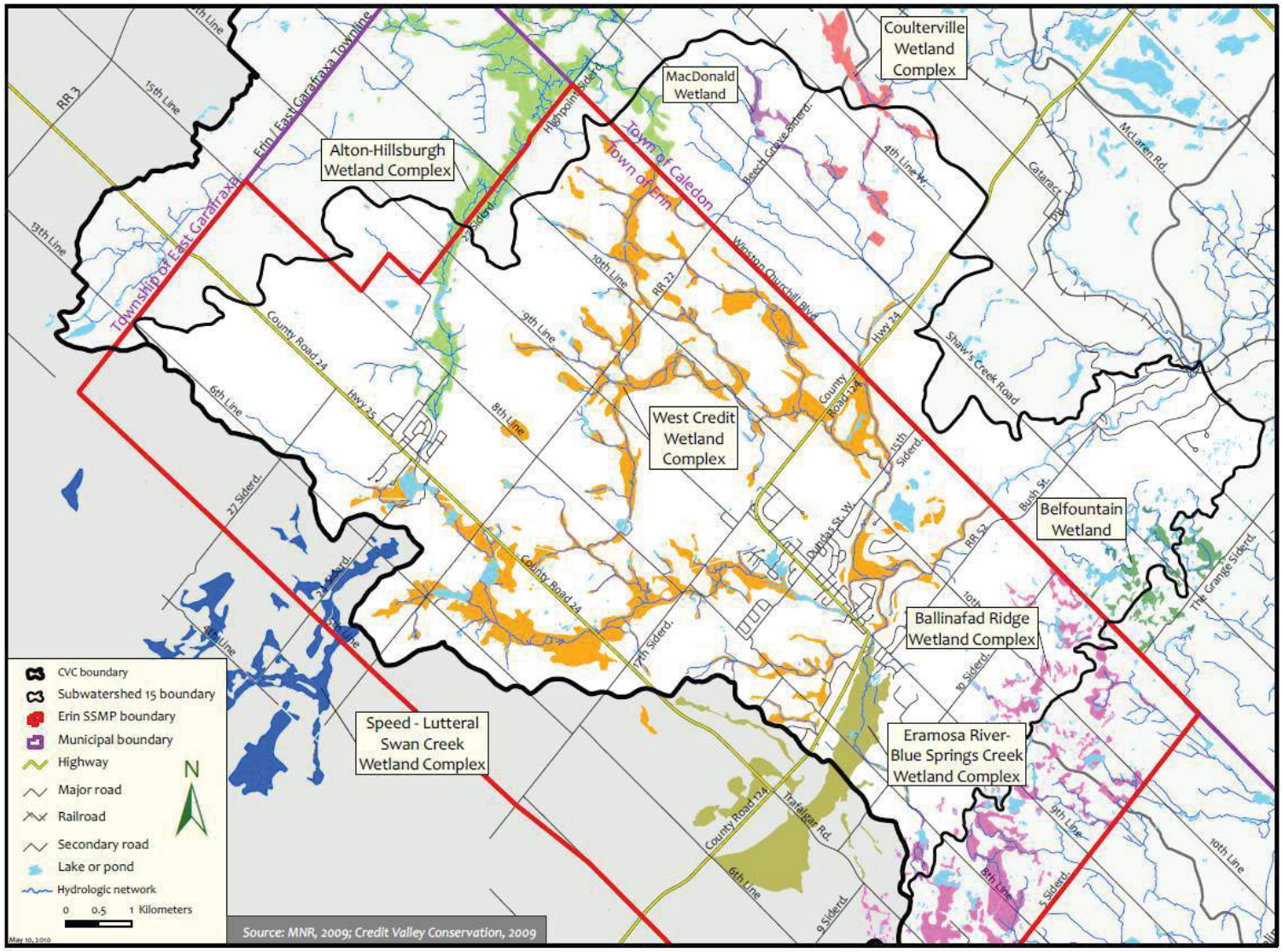
and bird watching opportunities are common recreational uses of wetlands. Currently, the amount of wetland in the West Credit Subwatershed meets the recommended wetland coverage guideline set out by Environment Canada. At the watershed scale, wetland coverage is 6.0% for the Credit River watershed, which falls below the recommendations. Based on these percentages, the CVC strongly recommends retaining wetlands and that restoration activities take place within the watershed.

The dominant type of wetland within the study area is swamp (forested wetland), making up 92.5% of wetlands. Less common, but found within the study area are marshes (6.8%), fens (0.5%) and bogs (0.1%). Fens and bogs, which are rare wetland types within the Credit River watershed, were found in two distinct areas: northwest of Erin Village and on the Paris Moraine between the 8th and 9th lines. Forested wetlands tend to be coniferous or mixed swamps, with a small percentage of deciduous swamps in the study area. Common species found in these swamps include white cedar, balsam fir, black ash, poplars and white birch. Field studies within the study area also found black spruce, an uncommon species in the Credit River watershed. Within the different types of wetlands, the soils are predominately organic with some accumulations of peat in the fen and bog communities.

There are 5 wetland complexes classified by the Ministry of Natural Resources (MNR) as Provincially Significant within the Erin SSMP study area (**Figure 4-2**). This designation affords protection to wetlands based on their biological, hydrological and socio-economical values. Wetlands designated as Provincially Significant are protected from development and alterations, as well as adjacent lands unless it is demonstrated that no negative impacts to the features and functions of the wetland will occur. The 5 Provincially Significant wetland complexes in the study area are the: Alton-Hillsburgh Wetland Complex, Ballinafad Ridge Wetland Complex, Eramosa River-Blue Springs Creek Wetland Complex, Speed-Lutteral-Swan Creek Wetland Complex and West Credit Wetland Complex. During field investigations, several other wetland communities were mapped in close proximity to the existing Provincially Significant wetlands. It is anticipated that these additional wetland areas will also be designated as Provincially Significant.

There are an estimated 270 ponds and impoundments within the West Credit River subwatershed. Many of the ponds were constructed for purposes of maintaining water supplies and aesthetics, but have broader ecological impacts. Shoreline and littoral areas surrounding the ponds are often heavily manicured, resulting in excess algal growth and habitat destruction for amphibians and other wildlife. Also, the blocking and redirection of water and exposing high water tables have had considerable impact on the natural features of the area. While artificial ponds tend to have lower biodiversity compared to natural ponds, these features do provide some habitat, particularly to waterfowl, amphibians and odonates. Artificial ponds within the study area include the Hillsburgh Pond (9 ha), Unknown (Olesovsky) Pond (7 ha), Roman Lake (5.8 ha) and two Stanley Park Ponds (6 ha). South of the village of Erin there are two natural ponds, formed in morainal depressions, one of which has been confirmed as a fen.

FIGURE 4-2: PROVINCIALLY SIGNIFICANT WETLANDS



The riparian system, which includes the areas along rivers that flood at least once every 20 years, has high water tables connected to the stream channel and has plants adapted to tolerate saturated soil-conditions, and has a significant impact on the determination of the health of a river system. The condition of the riparian system influences factors related to channel form and shape, habitat quality, water quality and temperature. Intact riparian systems also reduce erosion. Within the study area there is a total of 141 km of stream length, of which 118 km or 84% is naturally vegetated. This is greater than the Environment Canada guideline for the percentage of stream length naturally vegetated. The amount of riparian vegetation within the study area contributes to the general good health of the West Credit River system.

In addition to the Provincially Significant wetlands found within the study area, there are also Areas of Natural and Scientific Interest (ANSI) found within the study area (**Figure 4-3**). These areas represent significant geological and biological features that have been identified by the MNR. Earth Science ANSI sites are representative examples of bedrock, fossil or landform features of Ontario. Life Science ANSI sites include areas that are representative of the biodiversity and natural landscape of Ontario. Within the Town of Erin SSMP study area, there are three Life Science ANSI and one Earth Science ANSI sites. The sites are described in **Table 4-1**. The ANSI identified as Provincially Significant are protected by the Provincial Policy Statement (2005).

**TABLE 4-1: LIFE SCIENCE AND EARTH SCIENCE AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)**

| ANSI Type | Name | Significance | Location | Feature Description |
|---|---|---|---|---|
| Life Science | Eramosa River Valley | Provincial | Southern edge of Erin Village | One of the two best examples of river valley system in Site District 6-1.<br><br>Contains high quality braided stream, rapids and limestone potholes.<br><br>Site offers a high diversity of wetland vegetation, upland forest, valley slopes and rims (Klinkenburgh 1984) |
| | Brisbane Woods | Regional | Paris Moraine, south of Erin Village | Swamp-forest complex on the Paris Moraine. The headwaters of two stream and a groundwater recharge area.<br><br>Rolling uplands of beech-maple forest surround the swamps and beaver ponds.<br><br>Supports significant species and significant vegetation communities (e.g., bogs and fens) |

| | | | | |
|---|---|---|---|---|
| | Alton Branch Swamp | Regional | Northeast of Hillsburgh | A very small portion reaches into Erin SSMP study area. Part of a swampy spillway valley stretching from Orangeville to Hillsburgh.<br><br>Major source area of the Credit River (Alton Branch). Supports boreal and regionally rare species. Supports regionally rare vegetation communities (bog). |
| Earth Science | Hillsburgh Meltwater Channel | Provincial | North of Hillsburgh | Situated in the Orangeville Moraine. This site is significant to the geologic interpretation of the retreat of the Ontario ice lobe and has been proposed as a candidate nature reserve (MNR 1983). |

Other areas within the study area have been identified for protection, based on ecosystem functions or features, by CVC policy. Environmentally Significant Areas (ESAs) are identified and protected on the basis of representation of a unique or unusual landform, performing a significant hydrological function, providing critical wildlife habitat, containing provincially or regionally rare species, having high biodiversity or having high aesthetic value within the landscape. Within the study area, as shown in **Figure 4-4**, the CVC has identified six ESAs:

- **Brisbane Swamp:** is located in the south-western portion of the West Credit subwatershed. The swamp serves as the headwater area for tributaries of the West Credit River and Eramosa River. It is a large, relatively undisturbed boreal swamp/bog complex with unusually high biodiversity.

- **Brisbane Woods I:** this ESA is located on the Paris Moraine and is the headwater area for an unnamed tributary of Black Creek and tributaries of the Eramosa River. The area is characterized by its hummocky topography, scattered depressional swamps and high diversity of forest types and habitats.

- **Brisbane Woods II:** is the source area for several small streams that drain into the west branch of Silver Creek, which has a large influence on the quality of groundwater and surface water within the region. This area is connected to Brisbane Woods I and provides a large continuous forested area, with important habitat and high species diversity.

- **Alton Swamp Complex:** is the source area for Shaw's Creek. This swamp complex serves as an important area of water storage. It is an area of continuous, undisturbed coniferous swamp. It contains several species associations as well as a sphagnum bog (rare habitat within the watershed). It is also habitat for a number of species, including those that are locally rare.

FIGURE 4-3: LIFE SCIENCE AND EARTH SCIENCE AREAS OF NATURAL AND SCIENTIFIC INTEREST (ANSI)

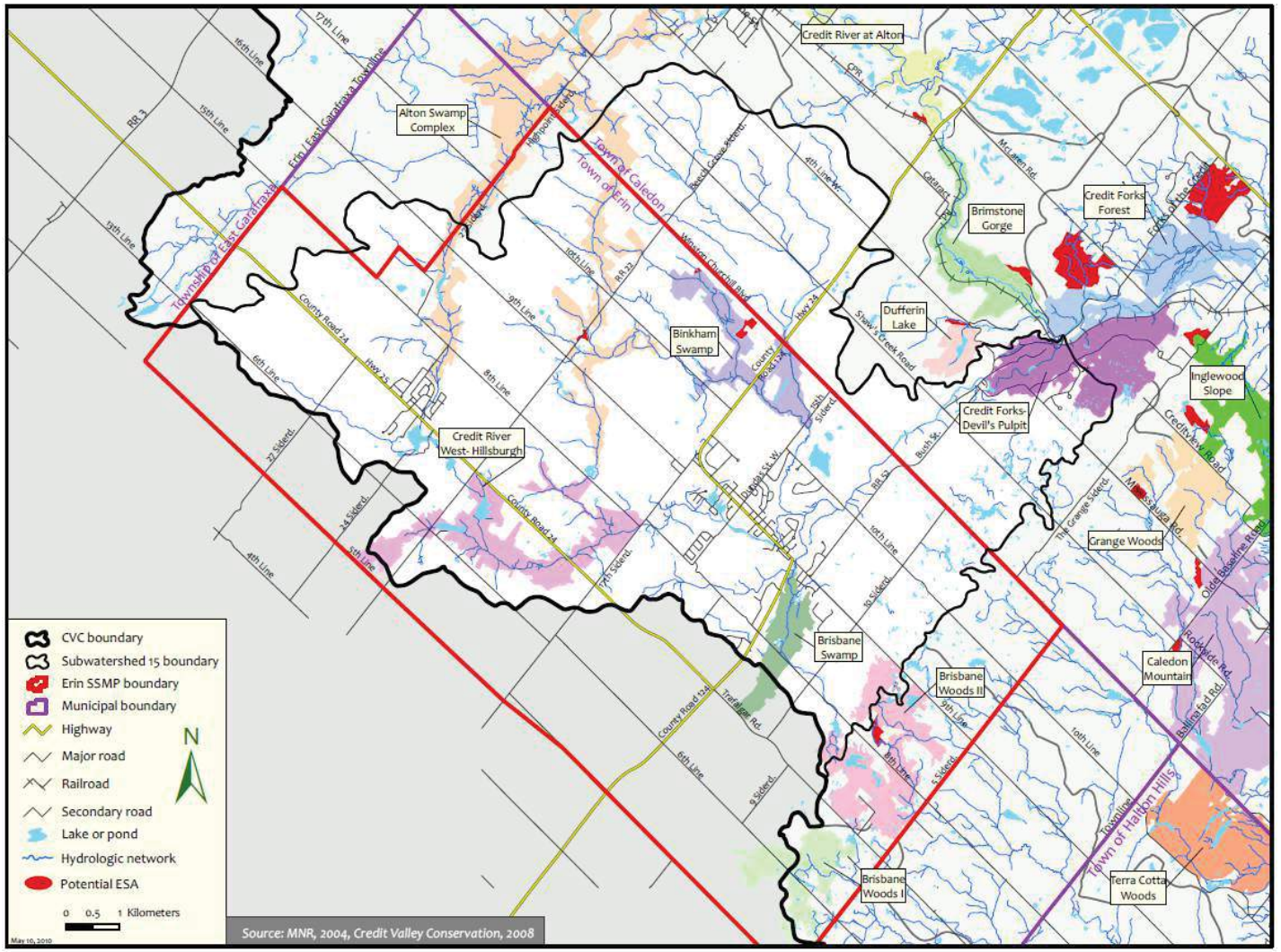
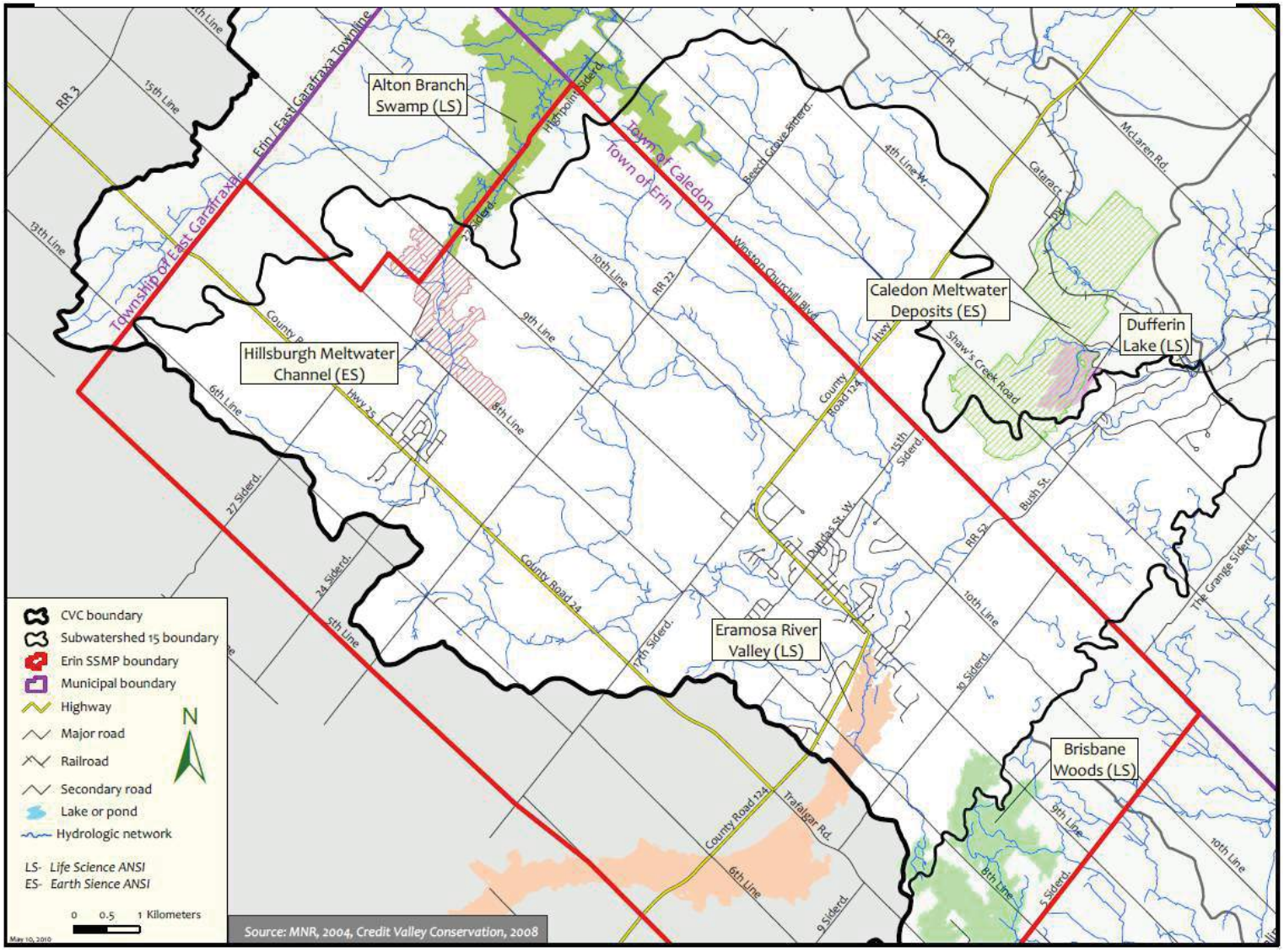


**FIGURE 4-4: ENVIRONMENTALLY SENSITIVE AREAS**



- **Credit River West at Hillsburgh:** is an undisturbed forested valley with coniferous swamp associations. This area, which is part of the West Credit River Wetland Complex, provides important groundwater discharge for the West Credit River and important habitat for rare species.

- **Binkham Swamp:** is an irregular shaped forest/wetland complex that contains two tributaries of the West Credit River. As part of the Alton-Hillsburgh Wetland Complex, it provides significant hydrological function and supports a variety of habitats and species.

Field studies and investigations of ecological land classification mapping were used to identify vegetation communities considered provincially rare and rare at a subwatershed level. During field studies, a Leatherleaf Shrub Kettle Peatland community was discovered. While this finding has to be confirmed, this type of community is considered provincially vulnerable due to its restricted range, rareness and recent, widespread declines. At the subwatershed level, locally rare communities includes: aquatic habitat, fens, marsh, thicket swamp and treed bogs. The CVC considers these communities a high priority for protection and classifies them as "Special Features". Other areas classified as "Special Features" include 23 vegetation communities with four or more rare species.

Older growth forest communities were also identified as part of the Terrestrial Analysis. These communities are defined by minimal human disturbance, the presence of slow colonizing species, a large number of snags of large diameter, highly decomposed downed logs, multi-layer canopy, soils with pit and mound microrelief, an abundance of fungi, lichens, mosses and ferns, and very large, old trees. Within the study area, 25 communities were found to have trees greater than 100 years old. These areas are important habitat for a number of rare species, in addition to preserving genetic variation.

The size of forest communities was assessed to determine the amount of forest-interior habitat. The presence of forest-interior habitat, away from the effects felt at the edges of forests, is critical for many species. At a watershed scale, Environment Canada recommends that each watershed have at least one 200 ha patch with a minimum width of 500 m. As well, over 10% of the forest cover should be 100 m or further from the edge and 5% of the cover should be greater than 200 m from the forest edge. No forest patches in the study area meet the criteria, but there are several large patches of forest identified by the CVC. The largest forest patch in the study area is the 197 ha community found south of the Village of Erin on the Paris Moraine between the 8th and 9th Lines. Another large patch (167 ha) exists to the west of the previous forest. In the area surrounding Roman Lake, there is another large forest patch (166 ha). In these areas, the CVC recommends no further loss of forest area.

Species considered at risk at a federal or provincial level are identified and protected by the *Species At Risk Act* (SARA) and *Species At Risk in Ontario* (SARO). In the SSMP study area, six species at risk were recorded. An additional three species, considered provincially rare, were recorded. Species identified as at risk are legally protected while provincially rare species are generally not protected by species at risk legislation. The species at risk and provincially rare species found within the study area are listed in **Table 4-2**.

**TABLE 4-2: SPECIES AT RISK AND PROVINCIALLY RARE SPECIES WITHIN THE SSMP STUDY AREA**

| Species | Species At Risk Status | | Notes |
|---|---|---|---|
| | National Status | Provincial Status | |
| Butternut (*Juglans cinerea)* | Endangered | Endangered | Located in two distinct areas north and south of Erin Village. The main threat to Butternut is a serious fungal disease called Butternut Canker. The fungus can kill a tree within a few years of infection. High rates of infection and mortality have been observed throughout Ontario. |
| Canada warbler (*Wilsonia canadensis)* | Threatened (status pending) | Special Concern | Several individuals have been encountered in two distinct habitat patches. This species has experienced a significant long-term decline. The reasons for the decline are unclear but loss of primary forest on the wintering grounds in South America is a potential cause, as well as a reduction in forests with a well developed shrub-layer within the breeding range in Canada. |
| Hooded warbler (*Wilsonia citrina)* | Threatened | Threatened | One singing male was encountered in the largest forest patch in the study area. The Hooded warbler has been designated as threatened in Canada because of its small population size, specific habitat requirements and the fact that there are few remaining large areas of mature deciduous or mixed forest in south-western Ontario. |
| Western chorus frog (*Pseudacris triseriata)* | Threatened (status pending) | | Recorded at 4 sites in 200 during amphibian roadkill surveys. Despite there being some areas where chorus frogs remain evident, surveys of populations in Ontario indicate a significant decline in abundance of 30% over the past decade. Ongoing losses of habitat and breeding sites for this small frog due to suburban |

| | | | |
|---|---|---|---|
| | | | expansion and alteration in farming practices have resulted in losses of populations and isolation of remaining habitat patches. |
| Eastern snapping turtle (*Chelydra serpentina)* | Special Concern | Special Concern | Recorded at two sites. Recently listed species. Suitable habitat is abundant within the study area. While still widespread and somewhat abundant, life history traits (late maturity, low recruitment), egg predation by urban predators (raccoons and skunks), and road mortality are all contributing factors to the decline of this species. |
| Monarch butterfly (*Danaus plexippus)* | Special Concern | Special Concern | Recorded at two sites. Declines in Ontario populations are due to logging and disturbance of the Mexican wintering grounds and from widespread use of pesticides and herbicides in Ontario. |
| The following species are considered provincially rare | | | |
| Carey's sedge (*Carex careyana)* | | Provincially Rare | One record exists from 1977. Accuracy of the record's location is very poor. Sedge of dry or moist rich hardwood forests, often with a limestone or calcareous substrate. This species is rare throughout its entire range and has been given threatened or endangered status in several US states. |
| Great St. John's Wort (*Hypericum ascyron*) | | Provincially Rare | Recorded at one site in 2008. Designated threatened and endangered in seven US states |
| Woodland muhly (*Muhlenbergia sylvatica*) | | Provincially Rare | Found at one location in 2008. Requires verification by botanist. Rare throughout its range. |

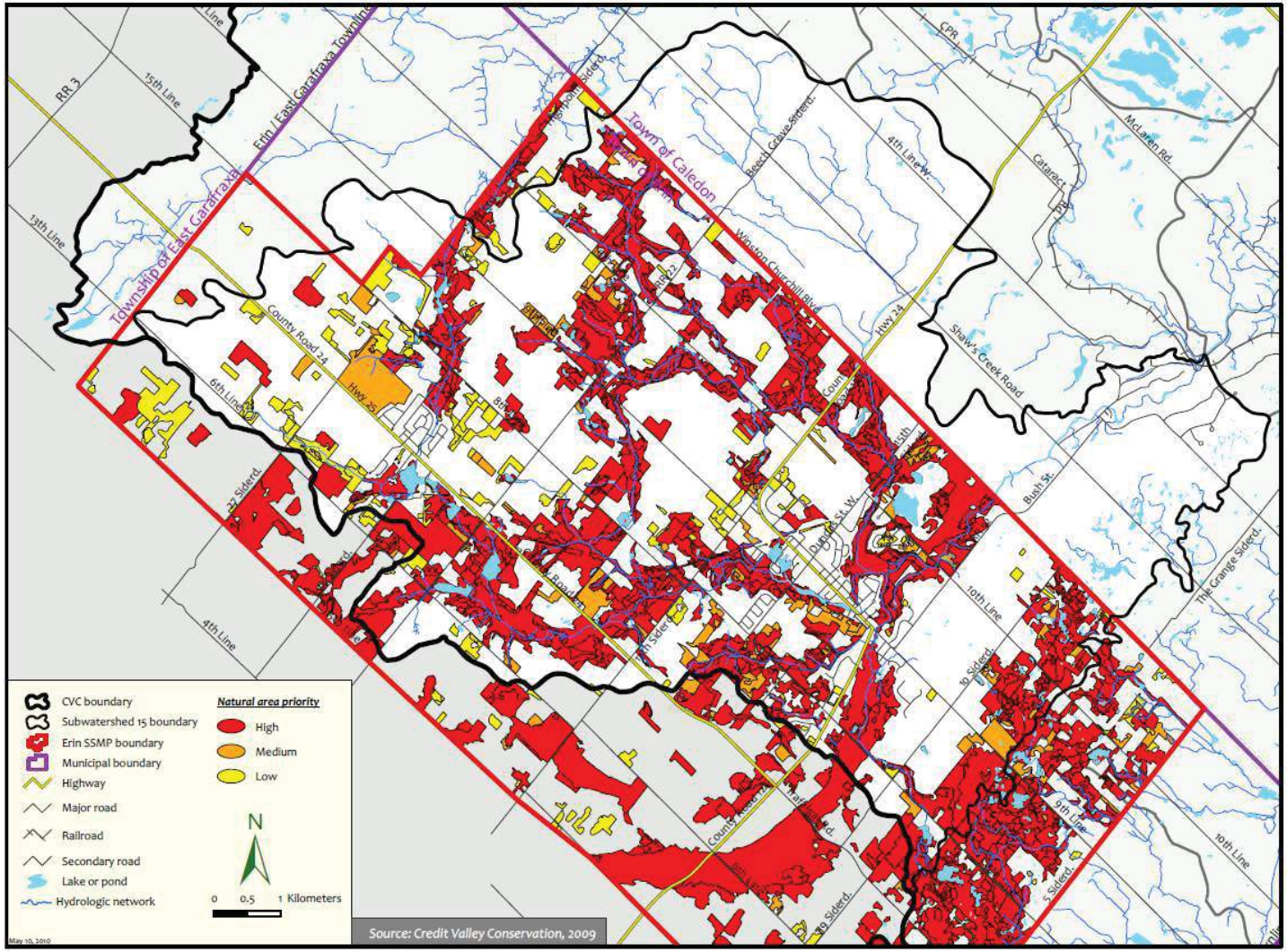
In addition to identifying species at risk and provincially rare species within the study area, the CVC reviewed flora and fauna field data collected between 1997 and 2009. Over 450 species of flora were identified in the study area, of which 185 are considered significant or rare. Field studies revealed species such as hooded lady's tresses (*Spiranthes romanzoffiana)*, handsome sedge (*Carex formosa*), and small bur-reed (*Sparganium natans*), which previously were not known to occur within the Credit River watershed. A list of the significant species observed within the study area can be found in the Appendix C.

**Canada Warbler (Source: Ontario Nature)**

Field studies and surveys, as well as examination of records of incidental observations, were used to identify the fauna found within the study area. A total of 13 mammal species were observed in the study area, including American mink (*Mustela vison*), woodchucks (*Marmota monax*), Northern raccoon (*Procyon lotor*), and white-tailed deer (*Odocoileus virginianus*). Within the Credit River watershed, there are 41 known species of mammals and given the difficulty in conducting mammal surveys, it is expected that a number of these species are also found within the study area. Bird surveys identified 115 species within the study area. Species of note include three classified as at risk: Canada warbler (*Wilsonia canadensis*), hooded warbler (*Wilsonia citrina*) and red-shouldered hawk (*Buteo lineatus*), and a family of provincially rare trumpeter swans *(Cygnus buccinator)*. Reptile, amphibian and insect species were also surveyed and a complete list of all the species identified within the study area can be found in Appendix C.

Using the data gathered during the Terrestrial Analysis, the CVC identified natural areas of high, medium and low priority within the study area. The majority of medium to large-sized natural areas have been designated as high priority. Medium priority lands include cultural meadows, smaller woodlands and plantations located adjacent to high priority areas. These areas serve as buffers and enhance the quality of high priority areas. Lands classified as low priority tend to include small and/or isolated fragments forests and plantations, or natural areas with limited connections to larger natural areas. **Figure 4-5** shows the locations of low, medium and high priority natural areas within the study area.

FIGURE 4-5: HIGH, MEDIUM AND LOW PRIORITY NATURAL AREAS IN THE SSMP STUDY AREA



## 4.4. FLUVIAL GEOMORPHOLOGY

The study area for the Town of Erin SSMP includes the West Credit River subwatershed, Black Creek subwatershed, Silver Creek subwatershed and a subwatershed of the Credit River main branch between Cheltenham and Glen Williams. Characterizing and understanding the form and function of the channels within these subwatersheds is an important component of the SSMP process and for identifying goals and objectives for protecting, restoring and/or enhancing these watercourses.

The density of channels within a watershed is driven by the amount of water received in the area, usually through precipitation, and factors that control the movement of water such as geology, soils, vegetation and topography. Drainage density is calculated as the ratio of total channel length to total area drained. The total area of the study area is 144.42 $km^2$ and the total channel length is 152.03, resulting in a drainage density of 1.05 $km/km^2$. The drainage density calculated for the study area is lower than that of other Southern Ontario watersheds, but is typical of permeable watersheds. The low drainage density ratio indicates that there is greater infiltration than overland flow in the study area. Areas that have been heavily tiled for agriculture also tend to have low drainage densities. Swales also influence the drainage density and in the study area, these features appear to moderate flow to larger channels. Analysis of stream gradients revealed that these features, in addition to swales, also moderate channel flow by temporally storing water during high flow events. The presence of online ponds and wetlands also results in reductions in the potential amount of sediment transported and sediment accumulations. Given the influence of swales, online ponds and wetlands on moderating flow and sediment, it is important that the form or at least function of these features is maintained.

Generally, the main branch of the West Credit River is considered stable, showing only a few areas of local erosion. Aggradation in the watershed is attributed to a combination of low gradients through wetlands, beaver and man-made dams, and woody debris. The dominate land use in the watershed is agriculture and some agricultural impacts, such as livestock accessing to headwater streams were observed. However, the majority of waterways in the study area are surrounded by natural vegetation, including grasses, shrubs and woodlands dominated by coniferous trees. The main branch of the West Credit River has five large dams and a number of private dams exist along Winston Churchill tributaries. A number of online and offline ponds were observed in the surrounding agricultural areas. These ponds may impact streams through effects on stream morphology, water quality and also impact fisheries. Also within the study area, some streams were realigned along roadsides in vegetated ditches and some locations, mostly near road crossings, banks were hard lined. Examination of channel form revealed that generally the watercourses in the study area are well connected to floodplains, have a substrate of fine sediment underlying cobbles, and where riparian areas are vegetated woody debris tends to be prevalent. Where the banks were vegetated, in channel vegetation was also observed and vegetation appeared influence and control channel form.

Erosion and sedimentation processes in the study area are dominated by the deposition and aggradation of fine sediment. The accumulation of fine particles is due impart to low stream energy through wetland areas and backwater conditions created by dams. In the headwater streams in agricultural areas, there were some accumulations of fine sediment, which may be derived from upstream and adjacent agricultural lands. Downstream of Hall's Dam in Erin Village was an area of significant erosion identified during field investigations. Often downstream of dams fine particles were absent and the bed material tended to be larger, coarser material. Given the impacts of dams on sediment transport, it is important to consider these features when assessing water treatment outfall locations.

## 4.5. MACROINVERTEBRATES AND FISHERIES

Benthic macroinvertebrates, which includes species of aquatic insects, worms and crayfish, serve as indicators of the health and condition of aquatic environments. The presence and abundance, or conversely, the absence of certain species provides a measure of the physical and chemical conditions of local, aquatic conditions. To gain an understanding of the existing environmental conditions within the West Credit River and tributaries, as well as identify areas potentially sensitive to land uses changes and impacts of servicing, 11 sites were sampled for macroinvertebrates.

The majority of the sites sampled for macroinvertebrates possess healthy macroinvertebrate communities with a high number and richness of species, and were absent of species that indicate degraded conditions. However, sampling at some sites revealed indications of possible water quality impairments. A south tributary site, downstream of the main street of Erin Village had species tolerant of high levels of organic enrichment as well as other tolerant species. These findings suggest that the site may be impaired. Another site which may be impaired, based on macrovinvertebrates found, is a site on the West Credit, upstream of the 8th line and Orangeville St in Hillsburgh. The dominance of lunged snails indicates that the site may have low concentrations of dissolved oxygen. Another site downstream of Hillsburgh may also be experiencing some impacts, based on the macroinvertebrate survey, which have been attributed to higher temperatures as a result of the upstream dam.

In addition to benthic macroinvertebrates, fish communities also act as indicators of environmental health. The sensitivity and habitat requirements of fish communities within the study area were assessed and studied to provide an indication of the health of the communities and prevent habitat degradation. Degradation of fish habitat is prohibited by a number of policies including those of the Federal Department of Fisheries (DFO), Ontario Ministry of Natural Resources (OMNR) and CVC. With regards to the SSMP specifically, impacts related to land use changes, infrastructure and servicing and other stresses on fish were documented to provide the opportunity to predict potential impacts of future development and servicing alternatives.

Both recreational and commercial fishing occurs in the study area. Licensed sport fishing occurs throughout the West Credit subwatershed, albeit with varying pressure. Areas of low recreational angling pressure include areas upstream of Hillsburgh, the Stanley Park ponds, and downstream of Erin Village near the 10th Line. Recreational fishing tends to increase towards the Forks of the Credit. Currently, the Town of Erin limits a catch to 5 trout; however this policy may result in

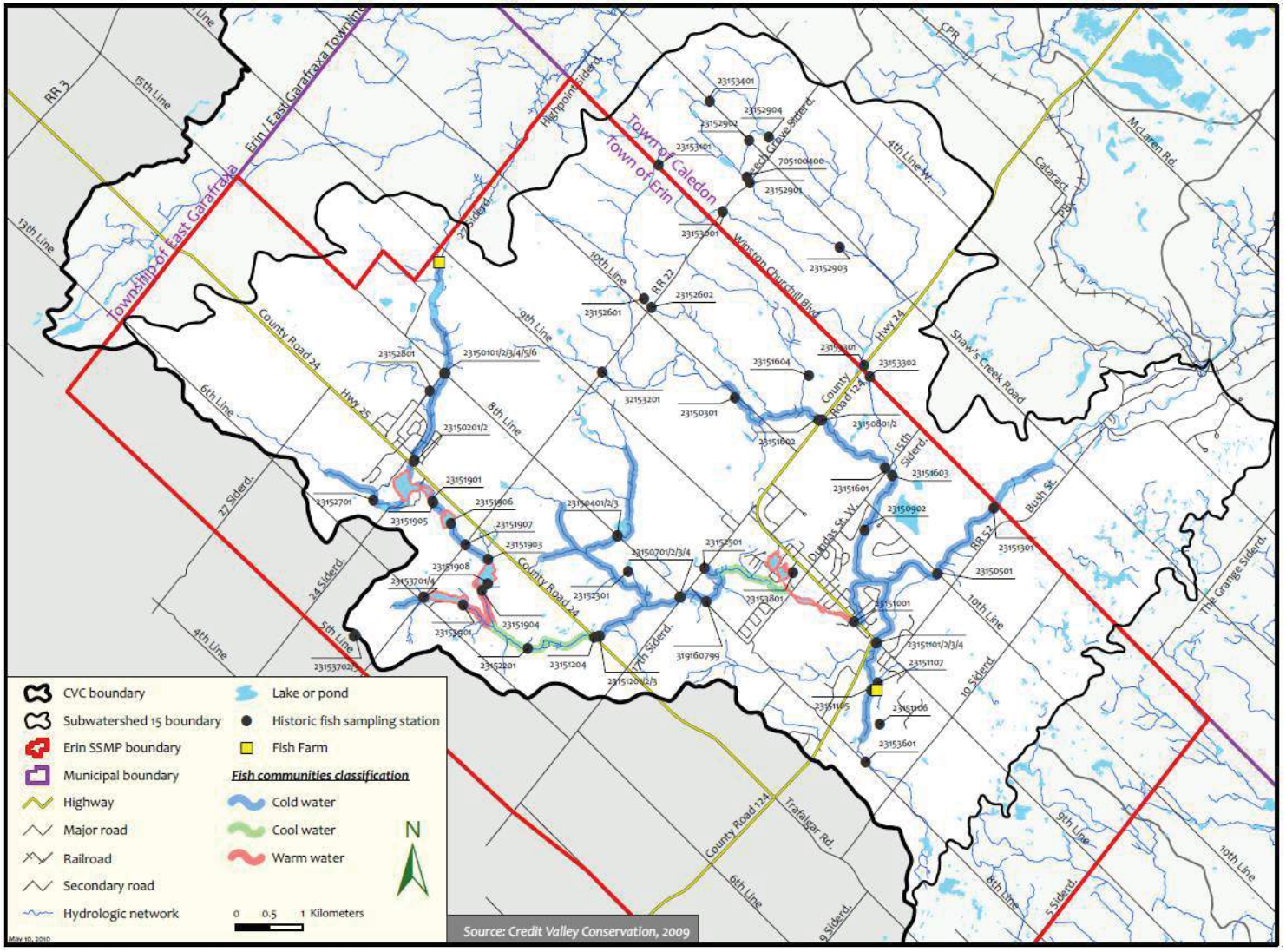
increased pressures on fish communities within the Town. This limit is under review by the OMNR. Commercial baitfish collection in the West Credit River is also permitted within the Town. As well, two commercial fish farms operate within the Town's boundaries, raising trout for stocking and food sales. These commercial operations are dependent on groundwater feeding to ponds and/or artificial races and tanks.

A review of fish collection records, dating back to the 1980's, provided information on the habitats and distribution of the 25 fish species reported in the West Credit Subwatershed. Habitat within the study area is generally classified by thermal regime and habitat requirements for fish species can vary based on life stage or behavioural traits. While the thermal regime of a stream reach is an important factor in habitat distribution, other factors such as nutrients availability, turbidity, dissolved oxygen, riparian conditions, stream size and channel structure can influence the quality of habitat. The presence of dams and urbanization also may have significant impacts on habitats and consequentially, fish communities. The four broad categories of fish habitat and communities within the study are: Resident Coldwater, Cool Water, Small Warmwater and Large Warmwater. The distribution of these communities in the study area is shown in **Figure 4-6**. In general, the West Credit River subwatershed is considered a coldwater watershed.

The Resident Coldwater communities are defined by the presence of brook trout as well as cold water temperatures that are maintained throughout the year. The self-reproducing populations of brook trout found in this type of community are dependent on groundwater contributions. Groundwater inputs maintain temperatures which do not exceed 20°C for long periods and incubate eggs throughout the winter. In addition to brook trout, mottled sculpin have been documented and are considered a coldwater indicator species. Cool water species include the northern redbelly dace and central mudminnow. While these species are also commonly found in coldwater areas, they are more tolerant of the warmer waters associated with riverine wetlands or groundwater discharge wetlands. Small warmwater reaches, such as small tributaries, ponds, intermittent tributaries and seasonal wetlands, are characterized by species tolerant of a variety of environmental conditions. Larger riverine, lacustrine and wetland habitats, with warm water and predator species are classified as large warmwater communities. Predator species found in these communities include bass and pike. Other species, such as sunfish, rock bass, perch, bullhead catfish and white sucker are also associated with this community. Large warmwater communities in the study area are associated with small online ponds and dams.

**Brook Trout (Source: Credit Valley Conservation)**

FIGURE 4-6: DISTRIBUTION OF FISH COMMUNITIES IN THE WEST CREDIT RIVER SUBWATERSHED



To assess the abundance of fish within the study area and the relative health of stream reaches, data from 11 fish biomass stations was analyzed. Of the 11 sampling stations, 7 were given a fair to excellent health rating. These sites are characterized by the presence of brook trout, community diversity, and groundwater upwellings which moderate water temperature. The sites considered to have poor health are generally found near impoundments and ponds, or are impacted by local land uses. Spawning surveys also revealed the impacts of impoundments on brook trout spawning. The best spawning location for brook trout was found to be the reach downstream of Erin Village, which is the longest, uninterrupted reach of the West Credit River. Upstream of Erin Village, impoundments are a significant barrier to spawning areas; the greatest barriers to spawning are the Stanley Park dams. Removal, mitigation or by-passes of such barriers would likely result in improved brook trout populations as well as increase the assimilative capacity of the river.

The health of fish communities was also examined in context of other abiotic and biotic habitat features. In the West Credit River subwatershed, groundwater inputs provide the cold temperatures required by brook trout and help to maintain flow throughout the summer. Groundwater withdrawals may impact fish habitat, particularly during low flow conditions. During high flow conditions, runoff from urban areas without any stormwater management may impact water quality. The stream gradient throughout the study area is generally low, but riparian wetlands provide diverse and productive habitat. As well, there are a number of locations with gravel riffles that support brook trout populations and spawning. In the lower reaches of the study area, an absence of gravel riffles was documented and may limit trout populations in these locations. Greater brook trout populations are also associated with woody cover within streams. Woody cover increases flood roughness and provides fish cover, as well as reduces erosion. Woody cover within the West Credit River was estimated to be less than 3% and some areas lack woody cover as a result of landscaping and agricultural practices. Agricultural practices and urban land uses have also impacted riparian vegetation in the study area; however, riparian areas in the West Credit River subwatershed are generally considered well connected.

Instream barriers, primarily dams, have some of the greatest impacts on fish communities and habitat health within the study area. Impoundments alter upstream and downstream habitat, shifting communities away from stream species to wetland and lake adapted species. As well, impoundments trap sediments and nutrients, impacting water quality and habitat. Increases in water temperature, a result of impoundments, impact coldwater species such as brook trout. Often, erosion increases downstream of dams due to the trapping of coarse sediment. The greatest impact of dams however, may be the barrier to spawning and refuge areas they present to fish populations. Between Hillsburgh and Erin Village there are seven major dams or impoundments on the main branch of the West Credit River. The most significant barriers include the Stanley Park ponds and upstream dams in Hillsburgh. Mitigating and restoring reaches impacted by impoundments, through restoration techniques such as fish ladders, by-pass channels or dam removal is a priority of the CVC.

Changes to land use adjacent to the West Credit River and its tributaries should take into consideration impacts on fisheries and aquatic communities. More detailed impact analysis should be considered when evaluating proposed discharge sites with regards to spawning areas and reaches isolated by online dams.

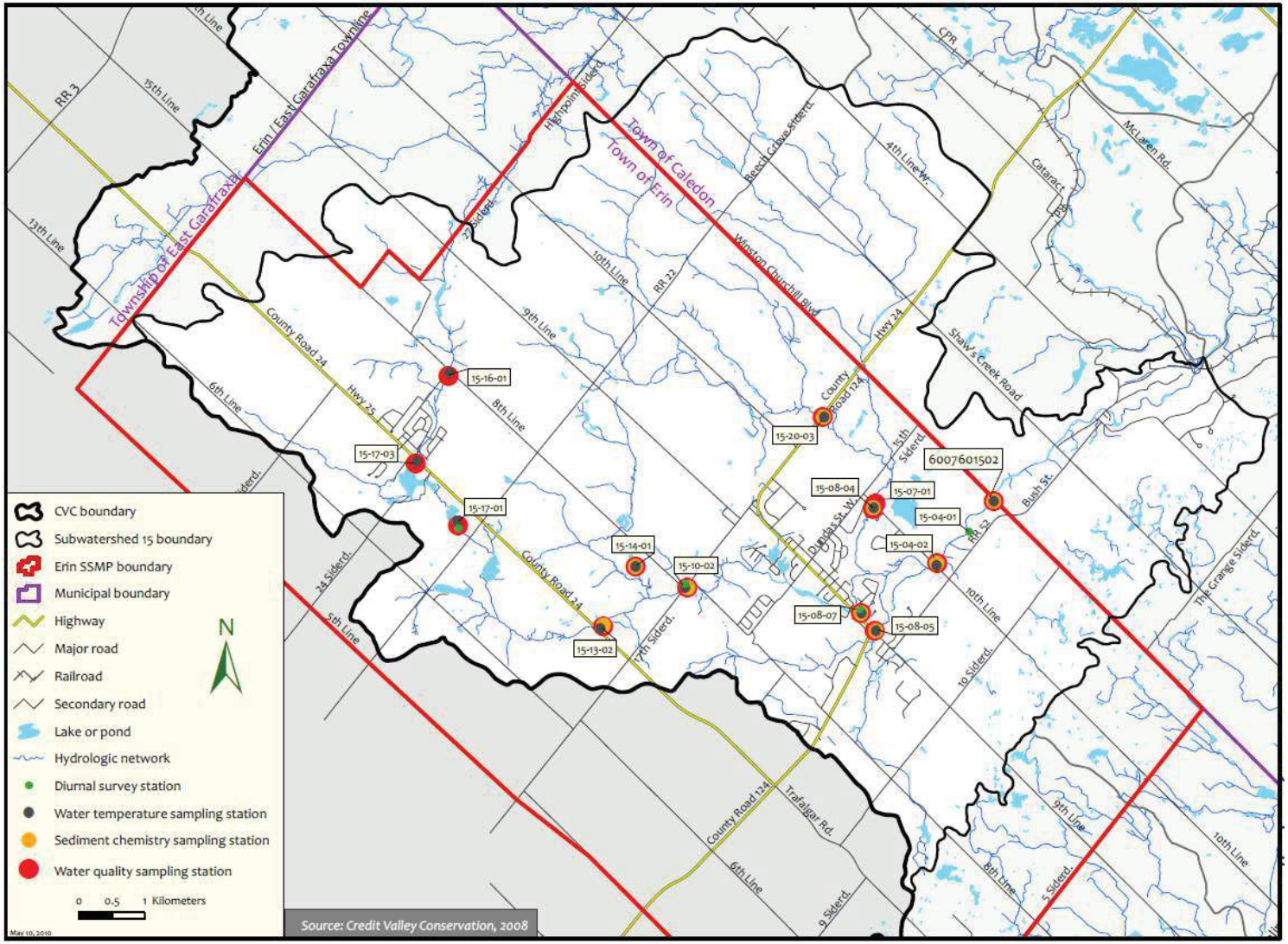
## 4.6. WATER QUALITY

Surface water quality was evaluated using chemical, microbiological and physical water and sediment quality indicators. Long term conditions were assessed using data from a Provincial Water Quality Monitoring Network (PWQMN) site located within the West Credit River subwatershed. A number of short-term water monitoring stations, installed specifically for the SSMP, were also used to evaluate water quality (**Figure 4-7**). A number of previous studies were used to provide a historical background of water quality in and around the study area. A number of Parameters of Concern (POCs), previously identified for the Credit River with respect to cumulative and long-term impacts, were used to assess water quality. **Table 4-3** outlines the chosen parameters based on 6 broad categories: nutrients, oxygen-related, metals, physical, microbiological and other. Objectives used to evaluate these parameters were based on Provincial Water Quality Objectives, Canadian Environmental Quality Guidelines and CVC criteria for temperature for the protection of aquatic biota.

**TABLE 4-3: PARAMETERS OF CONCERN FOR SURFACE WATER QUALITY TESTING**

| Category | Parameter of Concern | Objective |
|---|---|---|
| Nutrients | Total Phosphorus | 0.03 mg/L |
| | Nitrate Nitrogen | 2.93 mg/L |
| | Ammonia-Nitrogen (un-ionized) | 20 µg/L |
| | Total Kjeldahl Nitrogen | N/A |
| Oxygen Related | Biochemical Oxygen Demand (BDO)<br>Dissolved Oxygen (DO) | DO> 5 mg/L |
| Metals | Aluminum | 75 µg/L |
| | Copper | 5 µg/L |
| | Iron | 300 µg/L |
| | Zinc | 20 µg/L |
| Physical | Water Temperature | Absolute Maximum 26°C (coldwater)<br>Summer Water 28°C (mixed water)<br>Temperature 30°C (warm water)<br>Daily Maximum 20°C (cold water)<br>Summer Average 23°C (mixed water)<br>Water Temperature 26°C (warm water) |
| | Total Suspended Solids | 25 mg/L |
| Microbiological | *Escherichia coli* | 100 CFU/100 mL |
| Other | Chlorides | 250 mg/L |

FIGURE 4-7: WATER QUALITY SAMPLING LOCATIONS FOR THE TOWN OF ERIN SSMP



Within a water course, total phosphorus is an important nutrient for plant growth. Excess phosphorus, however, can cause algal blooms and excess plant growth which limits the amount of dissolved oxygen within the water. Sources of phosphorus in the study area include: stormwater discharge, agriculture (fertilizer and livestock waste), urban runoff, failing septic systems and natural sources. Analysis of the long term data from the PWQMN site shows a slight decrease in phosphorus from 1996-2008. Samples taken from the 11 sites as part of the SSMP field study were generally below the objective. However, greater concentrations of phosphorus were found near Erin Village and Hillsburgh – this suggests phosphorus is reaching the West Credit River by urban storm water runoff.

Nitrate-nitrogen was also examined as part of the assessment of surface water quality. There are numerous sources of nitrates, which are not limited to: fertilizers, septic systems, urban and rural runoff, discharges and precipitation. When present in excess amounts, nitrates are toxic to aquatic biota and may lead to excessive plant growth resulting in decreases in dissolved oxygen. Approximately 4% of the samples taken at the PWQMN exceeded the nitrate-nitrogen objective of 2.93 mg/L from 1996 to 2008. Further analysis revealed a significant increasing trend in nitrate levels over the study period. A seasonal analysis of the long term nitrate data also showed a trend of higher nitrate levels in the winter months (January and February) compared to the rest of the year. Higher nitrate concentrations in the winter are attributed to the absence of aquatic plants and bacteria which consume nitrates. The short term data showed elevated nitrates in Hillsburgh and in a rural catchment downstream from the village of Hillsburgh. In contrast, total ammonia concentrations showed a significant decrease in the long term data and concentrations were consistently below the objective at the SSMP study sites. Analysis of Total Kjeldahl Nitrogen concentrations revealed no distinct trends in the PWQMN data or in the data collected from the 11 SSMP sites.

Dissolved oxygen (DO) and the biochemical oxygen demand (BOD) were monitored as part of the assessment of water quality. Oxygen is critical for fisheries and aquatic biota, but oxygen levels fluctuate and vary in response to a number of influencing factors, including water temperature, re-aeration, plant photosynthesis and respiration. Given the influence of temperature and plant respiration on dissolved oxygen, diurnal monitoring of oxygen levels are important as lowest dissolved oxygen levels are often observed just before dawn. Diurnal sampling of dissolved oxygen showed concentrations of dissolved oxygen well above the levels considered harmful to aquatic life. BOD, a measure of the oxidizable organic substances that can lower dissolved oxygen, was also measured through the study area. The data collected between 2007 and 2008 showed no BOD values above detectable limits.

Suspended material in a watercourse impacts the turbidity and transparency of the water. This material may include silt, clay, organic and inorganic matter and microscopic organisms, and may come from a number of sources. Forest harvesting, road building, construction, dredging, gravel pit operations, agricultural runoff, industrial and municipal wastewater discharge and runoff can contribute fine sediments to streams. High concentrations of suspended material impacts dissolved oxygen levels and water clarity. Fine materials can also clog fish spawning areas and impact recreational uses. Long-term data from the PWQMN site indicates that the site occasionally receives relatively large sediments loads from erosion, agricultural runoff and stormwater flows, but generally sediment concentrations fall below the 25 mg/L guideline. Larger sediment

concentrations observed during the late winter and early spring were attributed to the spring melt and runoff. No significant long-term trend was observed in the data. Similar results were observed at the SSMP monitoring stations throughout the study area.

Chloride was assessed as part of the water quality survey as it is a highly soluble and conservative parameter. Common sources of loadings of chlorides into ground and surface water include septic systems, road salting, use as a dust suppressant and water softeners. An examination of the long term data revealed chloride levels well below the CVC objective of 250 mg/L, and no significant trend in chloride levels. At a seasonal scale, chloride concentrations did show some responses to road salting. At the SSMP stations, chloride loadings were also well between the recommended guidelines.

Four metals, aluminum, copper, iron and zinc were identified by the CVC as metal parameters of concern. These metals, like many others, occur naturally within the soil and in watercourses. Elevated concentrations, however, may be the result of human activities related to urban, agricultural and aggregate land uses or naturally high levels in geologic formations. Often these metals adhere to suspended solids, such as clay particles. Copper was identified as a parameter of concern due to its acute toxicity to aquatic life at relatively low concentrations. Zinc was also assessed due to its acute and chronic toxicity. The samples taken from the PWQMN site were generally below the stated objective. Between 1996 and 2008, the percentage of samples exceeding the objective varied from 0% to 4%, which suggests low contributions from urban, agricultural and aggregate sources. The data was also assessed for trends. Iron and zinc concentrations showed no trends, while aluminum concentrations decreased and copper concentrations increased through time.

In a watercourse, bacterial levels can also be used as a parameter to discern water quality impairment. In the study area, the main sources of bacteria include livestock, wildlife, pets and septic systems. *Escherichia coli* (E.coli), a pathogenic species, was used as an indicator of water quality. In general, data from the PWQMN site showed E.coli levels below the objective of 100 counts/100 mL. Between 1996 and 2008, 27% of the samples exceeded the objective; however, these samples were associated with precipitation events and urban runoff. The exceedances also tended to occur in the summer months (June, July August) which corresponded with a strong seasonal trend in the data. Greater bacteria levels were also associated with the higher water temperatures of the summer. From the SSMP fieldwork, elevated E.coli concentrations were found in Hillsburgh and Erin Village as well as a rural site downstream from Wellington Rd 124. The higher bacteria levels observed at the urban sites may be due to urban runoff, pet and wildlife feces, and septic system effluent. Possible sources of E.coli at the rural site include waterfowl, septic effluent and agricultural fertilizer practices.

Continuous water temperature monitoring took place throughout 2008 at 12 sites in the West Credit River subwatershed. At present, the West Credit River is managed as a coldwater fishery with targets of a maximum average daily summer temperature (20°C) and a maximum overall summer temperature (26°C). The sites that exceeded both targets for average daily and overall summer temperature were downstream of the head pond, downstream of 9th Line in Erin village and downstream of County Road 24. The site downstream of 9th Line in Erin Village also had the greatest number of exceedances over 26°C. The remaining sites exhibited temperature regimes

consistent with coldwater fisheries; however, 2008 was particularly cool and wet and it is possible that marginal sites may have been more affected by the weather. The sites that did not exceed the target temperatures are suspected to have substantial groundwater inputs that moderate water temperature throughout the year. During the study of water temperatures, several anthropogenic factors were identified as impacting water temperature in the study area. Online ponds in the Villages of Hillsburgh and Erin are likely contributing to the higher downstream temperatures. Other factors impacting water temperature include: presence of dams, wetlands, increased impervious surfaces and reduced riparian cover in urban areas.

Sediment chemistry was monitored at 11 sites throughout 2008. Metals, polychlorinated biphenyls (PCBs), phenanthrene (PAHs) and organo-chlorides (OCs) concentrations in sediment were assessed. These parameters are of concern due to their ability to bioaccumulate within the ecosystem. Concentrations were compared to four standards: federal probable effect level (PEL) – level above which adverse effects are expected to occur frequently; federal threshold effect level (TEL) – concentration below which advserse biological effects are expected to occur rarely; Provincial Severe Effect Level (SEL) – levels that could potentially eliminate most benthic organisms; and the Provincial Lowest Effect Level (LEL) – level at which acute eco-toxic effects become apparent.

The use of PCBs in North America has been severely restricted over the last twenty years; however, in the past they were commonly used in electrical equipment and industrial work. Persistent in the environment, PCB contamination is often linked to leaks, spills, municipal and industrial effluent, runoff from contaminated soils, leachate from unsecured landfills and atmospheric deposition. The toxicity and ability of these compounds to bioaccumulate have resulted in PCBs being identified as a priority pollutant by many authorities.

Samples of sediment from the West Credit River subwatershed were analyzed for PCBs, and were not present in any sample above laboratory detection limits. Polycyclic aromatic hydrocarbons (PAHs), a product of the combustion of fossil fuels, were also tested for. Several stations, including within and downstream of Erin Village, had repeated samples showing exceedances for PAHs. However, the source of the PAHs is difficult to ascertain given the persistence of the compounds through time. Organo-chlorides, which include DDT and other common pesticides, were found in concentrations below the reportable detection limits at all tested sites. Metals found in sediments may come from domestic and/or industrial wastewater, landfill leachate, erosion, and urban and rural runoff. In the study area, elevated levels of cadmium, copper, manganese and zinc were detected, and exceeded either the LEL or PEL standards. Analysis of inorganic species, Total Organic Carbon, Total Ammonia-N and Total Kjeldahl Nitrogen(TKN), found TKN concentrations exceeding the Severe Effect Limit at 9 sites. The high levels of organic nitrogen were noted for further examination in the septic impact study.

## 4.7. SEPTIC SYSTEM IMPACT ASSESSMENT

The Town of Erin, including the urban areas of Hillsburgh and Erin Village, relies almost exclusively on private septic systems. The majority of these systems are designed to treat waste from single homes or buildings, resulting in a high density of private septic systems in the urban areas. A

typical Class IV septic system in Ontario consists of a septic tank and series of perforated pipes called a leaching bed. Solid and liquid wastes are separated in the septic tank and bacteria within the tank partially clarify the liquid. The liquid eventually flows, usually by gravity, into the leaching bed where the effluent is dispersed through the perforated pipes to the soil. The final stage of treatment occurs in the soil, where the remaining waste is bound to soil particles or consumed by organisms within the soil. Treated wastewater eventually moves through the soil to the water table. The size of any given septic system (tank and leaching field) is dependent on a number of criteria including local environmental conditions and water usage, which takes into consideration the number of bedrooms and bathrooms, as well as the employees for businesses.

Malfunctioning or systems in need of repair have the potential to impact surface and groundwater resources. Contaminants from septic systems include nitrate, phosphorus, pathogens, metals and organic compounds. Potential contamination of the West Credit River from septic system effluent is a concern of the CVC; however it is difficult to determine direct impacts from septic systems, given the difficulty in isolating contaminates from septic systems and other sources. As part of the SSMP process, the CVC completed an assessment of the potential impacts of septic systems within the study area.

Potential impacts from septic systems to surface and groundwater resources within the Town of Erin have been a historic issue. Numerous studies, assessing surface water quality and ground water quality, include septic systems as a potential source of contamination. The majority of these studies link excess nutrients, such as phosphorus and nitrate, to malfunctioning septic systems in the villages of Erin and Hillsburgh. In addition to a review of the findings of previous studies, the CVC reviewed and assessed existing data, primarily examining mass loadings of nitrate, chloride, sodium, phosphorus and TKN, to assess the impacts of septic systems within the study area. Long term data from the PWQMN station, downstream of Erin Village was used in the assessment of water quality trends, as was data from another station upstream of Erin Village.

Long term chloride trends show a three-fold increase in chloride concentrations over the last 30 years. Recently, the increase in chloride concentrations has leveled off, which may be the result of slower population growth since 1996. An assessment of the mass loadings in the summer and winter months revealed 20% and 120% increases respectively. These findings suggest that the majority of chloride loading comes from winter road salting. The increase in summer loadings indicates that chloride loadings to groundwater have increased in the last 30 years, as a result of urbanization and loadings from septic systems. A comparison of data from upstream and downstream of Erin Village revealed similar increasing trends in chloride concentration; however, the increase in chloride concentrations downstream appears to be at a greater rate than downstream.

Using the long term data from the PWQMN site, nitrate trends and historical mass loadings were assessed. From 1976 to 2008, nitrate concentrations increased by approximately 35%. Summer and winter trends showed increased of 35% and 30% respectively. The increase in nitrates was much lower than increases in population over the same time period, suggesting that nitrate from septic effluent may be attenuated prior to reaching the West Credit River or has not yet reached the groundwater system. Given the numerous sources and factors affecting nitrate concentration it is difficult to determine potential nitrate impacts from septic systems. To further investigate nitrate

concentrations, a detailed comparison of nitrate levels upstream and downstream of Erin Village was completed. Data from upstream and downstream stations of Erin Village show a slight increase in nitrates over the study period. A greater rate of increase was observed upstream compared to downstream. From this data alone, however, the impacts of septic systems with respect to nitrates cannot be determined.

Mass balance and mass loading assessments examined historic flow and water quality data in an attempt to assess potential impacts from the villages of Erin and Hillsburgh. The mass balance and loading assessments took into consideration high and low flow variations. In Hillsburgh, the mass balance assessment revealed that the West Credit River is a losing stream through the core of the village. The assessment also revealed slight contributions of sodium, chloride, nitrate and phosphorus to mass loading. It is likely these loadings are the result of stormwater runoff. The main branch of the West Credit River in Erin Village showed variable loadings depending on flows. These results suggest that surface water is lost to groundwater under certain conditions, such as low flow. Nitrate loadings decreased along the main branch of the West Credit River compared to upstream. The decline in nitrate is likely the result of uptake of nitrate in the riparian areas. The loadings of phosphorus and TKN were highly variable and thus are likely the result of surface runoff and suspended solids in stormwater runoff. The northern tributary, which flows into the main branch of the West Credit River downstream of Erin Village, was found to contribute approximately 20% of the flow to West Credit River. Flows increase in the northern tributary through Erin Village and much of this increase is attributed to local groundwater discharge or stormwater from the urban area of Erin. This reach however, also appears to be contributing greater loads of chloride, sodium and nitrate, as a result of urban activities, including septic systems. Similar to the northern tributary, the southern tributary shows evidence of greater mass loadings of chloride, sodium and nitrate relative to flow. These loadings are also attributed to septic systems in the summer months.

# 5.0 SERVICING INFRASTRUCTURE

## 5.1. DRINKING WATER SUPPLY

There are two separate municipal water supply systems in the Town of Erin. These systems service Hillsburgh and Erin Village. Two wells are currently in operation for each system. Outside of these urban areas water is obtained from private residential water supplies. There are approximately 2300 private domestic wells in the Town (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011).

The Municipal well supplies obtain water from the bedrock aquifer as do the majority of private wells. All known residential drinking water supplies in the Town of Erin are from water wells (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011).

### 5.1.1. GROUNDWATER RESOURCES

The majority of water in the Town is obtained from the uppermost bedrock unit in the Town (Blackport Hydrogeology Inc., 2003). This layer consists predominantly of the Guelph-Amabel Formation, the upper portion of which is typically fractured and is reported to produce a considerable quantity of water.

Vulnerability to contamination of the bedrock aquifer that supplies the municipal wells in Erin Village and Hillsburgh is generally medium to low (Golder and Associates, 2006). The overburden thickness ranges from approximately 10 m in the vicinity of the wells to over 40 m in other areas of the well capture zones. There are, however, local areas of high vulnerability in the vicinity of Erin Well 8 and Hillsburgh Well 3. The area of high vulnerability around Well H3 is found in the two-year capture zone around the well; however, water quality data for the well does not indicate any surface source of contamination.

There is a high level of recharge throughout much of the Town (Blackport Hydrogeology Inc., 2003). This results in a significant contribution of groundwater to the baseflow in the West Credit River and the tributaries of the Eramosa River and Blue Springs Creek in the Grand River watershed.

### 5.1.2. MUNICIPAL SYSTEMS

As of 2009, the Town of Erin well supply serves a population of approximately 2500 in Erin Village and a portion of the 810 people in Hillsburgh (Ontario Ministry of the Environment, 2009). Currently, each community is serviced by two wells, as several previous water supply wells have been taken out of commission or abandoned due to water quality issues such as elevated nitrates where bedrock was near the surface (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011). The Erin Village system consists of Well No. E7 and E8 and the Hillsburgh system includes Well No. H3 and H2. **Table 5-1** describes each of the wells and summarizes the maximum permitted daily production allowed by the Permit to Take Water (PTTW).

Raw water from each of these wells is directed to pumphouses which contain treatment and monitoring equipment. Gaseous chlorine is used for disinfection at Well No. E7 and E8 while a sodium hypochlorite solution is used at Well No. H2 and H3 (Ontario Ministry of the Environment, 2009). In addition, ferric chloride solution is added to the raw water at Well No. H2 to treat the naturally-occurring lead present in the water.

The distribution system in Erin Village consists of a 1,700 $m^3$ elevated water storage tower and a booster pumping station. There is approximately 24.9 km of watermain ranging in size from 50 mm to 250 mm (Town of Erin, 2009) (**Figure 5-1**). The Hillsburgh water distribution system consists of 6.7 km of watermain ranging in size from 150 mm to 250 mm. In 2009, there were 849 service connections in Erin Village and 224 in Hillsburgh (**Figure 5-2**).

**FIGURE 5-1: WATERMAIN IN ERIN VILLAGE**

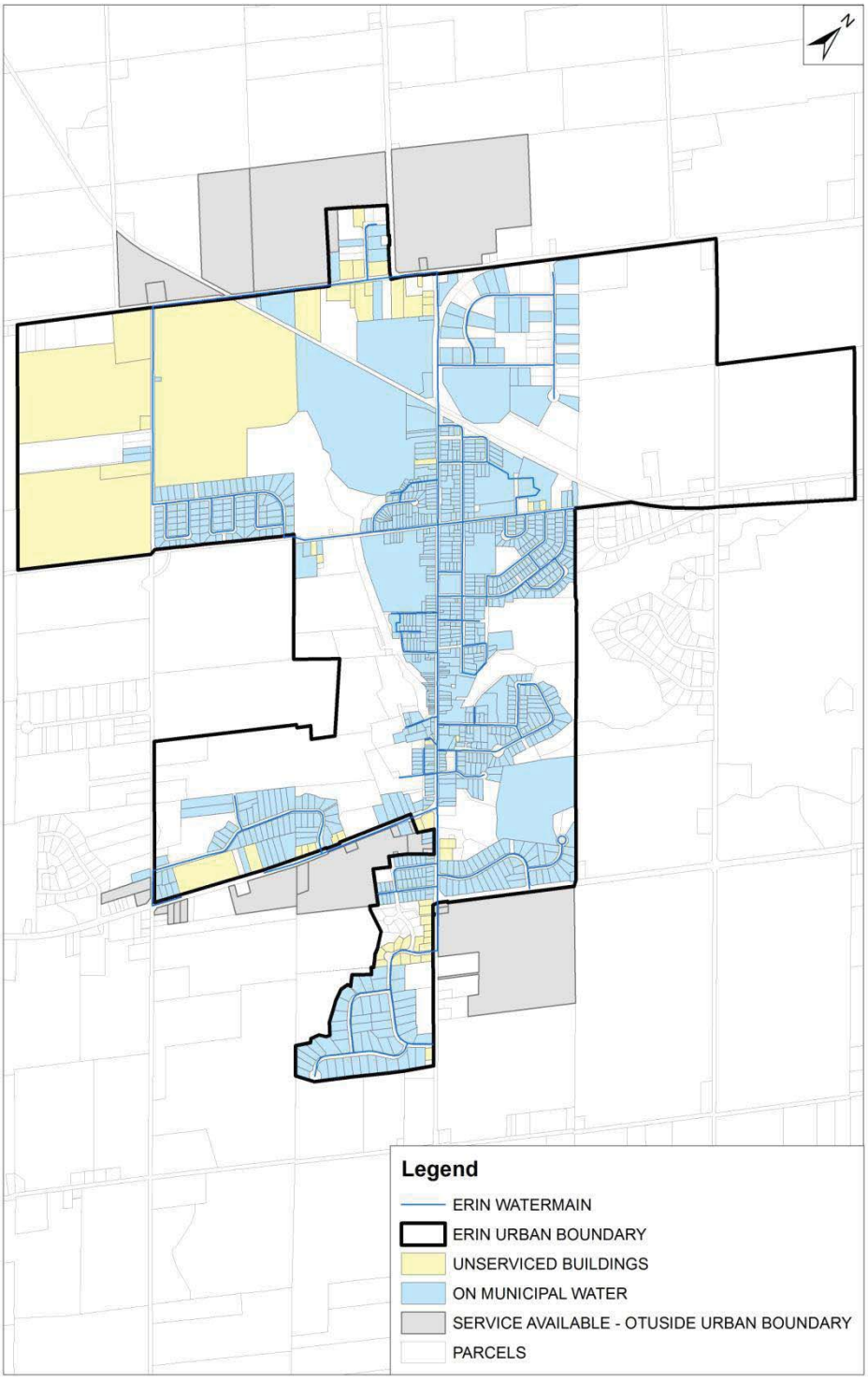


FIGURE 5-2: WATERMAIN IN HILLSBURGH

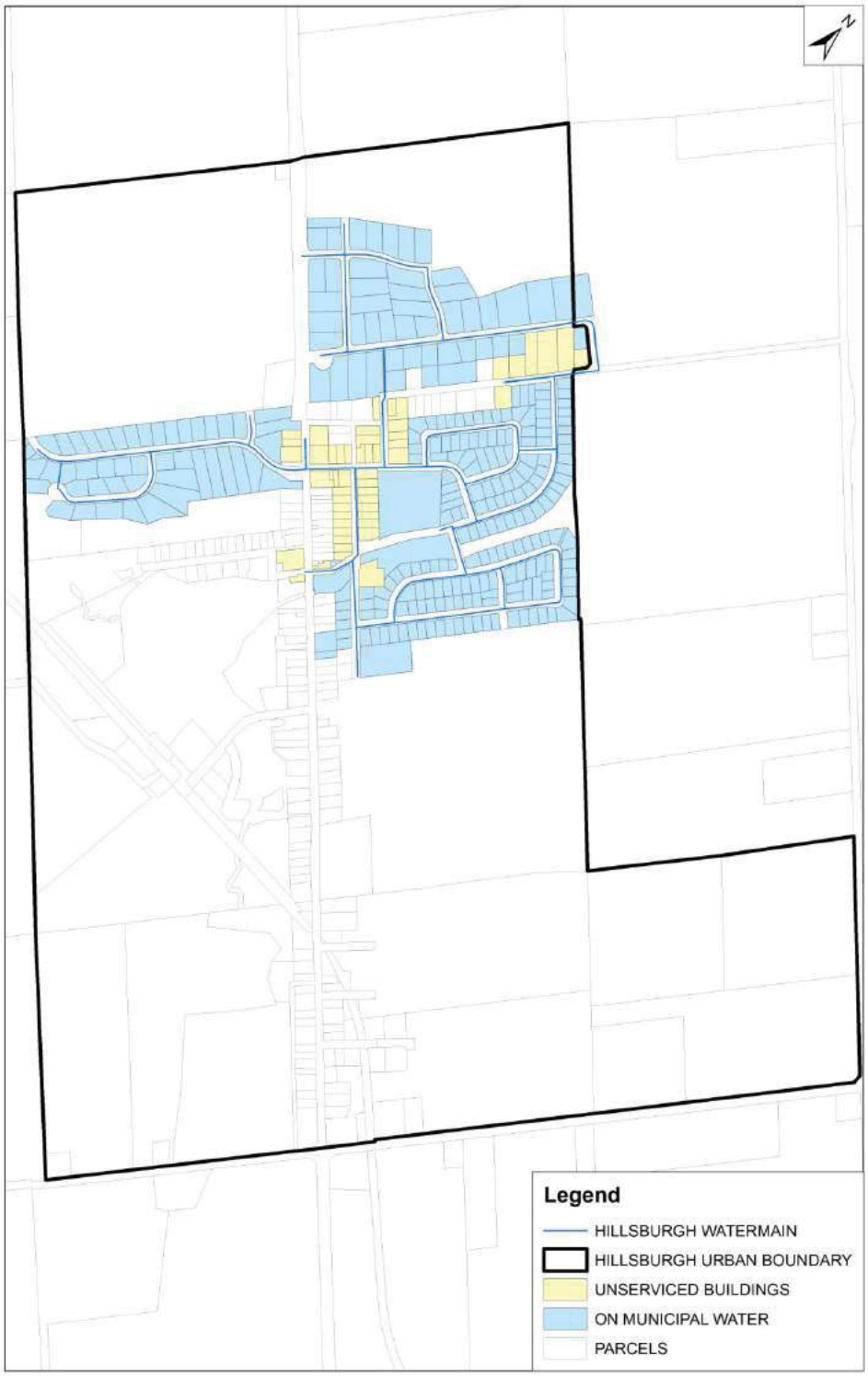


**Table 5-1: Summary of Municipal Water Supply Wells**

| Well # | PTTW | Description† | Production Limit ($m^3$/day) |
|---|---|---|---|
| E7 | 4364-7LWPT7 | Located at 46 Shamrock Road and is equipped with a submersible pump rated at 1800 L/min at TDH of 78 m | 2160 |
| E8 | 2201-7LQN73 | Located on Lot 17, Concession Road 8-9 and equipped with a submersible pump rated at 1,636 L/min at TDH of 32 m | 1964 |
| H3 | 8548-6SBGWC | Located on the grounds of Victoria Park and equipped with a submersible pump rated at 456 L/min at TDH of 50 m | 654 |
| H2 | 92-P-2021 | Located in the Hillsburgh Heights subdivision and is equipped with a submersible pump rated at 702 L/min at TDH of 52.7 m | 982 |

†from the 2009 MOE Inspection Report

### 5.1.3. PRIVATE SYSTEMS

There are approximately 2300 private domestic water wells in the Town of Erin. As well, there are a number of private water takers which require Permits to Take Water, since their water taking is greater than 50 $m^3$/day. There are approximately 28 permit holders including those for municipal wells, agricultural (aquaculture), aggregates washing, water bottling and golf course irrigation (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011).

Typically, private residential wells are located in the uppermost bedrock unit in the Town of Erin. This unit consists predominantly of the Guelph Formation. Information is not collected about how many users treat well water or how. However, if water is treated, the Heath Unit has suggested that residents tend to use Ultraviolet (UV) Light systems due to aesthetic issues with chemical home treatment methods (Wellington-Dufferin-Guelph Public Health Unit, 2010). Water testing is available from the Heath Unit and in 2009 approximately 400 sample bottles were distributed in the Town of Erin.

### 5.1.4. ISSUES AND CONSTRAINTS

#### 5.1.4.1. PROPOSED WATER SERVICING BYLAW

In February of 2011, Watson and Associates completed a Water Rate Study for the Town of Erin. The study examined long range projections of the Town's capital and operating budgets of the municipal water systems in addition to forecasting future water rates. Following the submission of the study, a water servicing bylaw was proposed to regulate municipal water distribution within the urban areas of the Town. Section 3 of the proposed bylaw established that all properties within the urban boundaries of Hillsburgh and Erin, adjacent to a municipal water main, would be required to connect to the municipal service and have private wells on the property decommissioned.

Section 3 of the proposed water servicing bylaw would affect 51 properties in Hillsburgh and 58 properties in Erin Village, as outlined in a May 27, 2011 report by the Town's Water Superintendent. The report to Council stated that the bylaw would increase the revenue of the water system; eliminate current well setback issues; reduce the number of contaminate pathways to the local aquifer; adhere to Provincial, County and Town policies; and restrict residents from disconnecting from the municipal system and drill a private well. The report also recognized that the proposed bylaw would result in an estimated cost of approximately $12,000 per property and may result in property owner's not obtaining building permits. Following the Superintendent's report and public response to the proposed bylaw, a public meeting was held on May 31, 2011 at Centre 2000. A majority of the residents attending the meeting were unsupportive of mandatory water connections.

A second special meeting was called by Council to discuss the proposed water servicing bylaw on October 25, 2011. At the meeting, Council reviewed the report from the Water Superintendent, as well as comments from the public received at and following the previous meeting. At a subsequent council meeting, the Council endorsed a resolution not to implement mandatory hook ups. In place of mandatory hook-ups, Council will consider implementing an incentive program to encourage property owners to connect to the water systems.

### 5.1.4.2. SYSTEM CAPACITY

#### Firm Capacity

The firm capacity of a system is the capacity of a community if the highest capacity well is out of service. **Table 5-2** summarizes the capacity of the Town of Erin municipal well supply based on the Permit to Take Water (PTTW), C of A and existing pumping equipment.

**TABLE 5-2: TOWN OF ERIN WATER SUPPLY**

| Well | PTTW Capacity ($m^3/d$) | C of A Capacity ($m^3/d$) | Existing Pumping Equipment ($m^3/d$) |
|---|---|---|---|
| E7 | 2160 | 2592 | 2592 |
| E8 | 1986 | 2361 | 2356 |
| H3 | 655 | 654 | 656 |
| H2 | 982 | 982 | 1011 |

The limiting condition for Erin is the PTTW and in Hillsburgh it is the C of A. In Erin Village with the largest well out of service the firm capacity of smaller well, Well No. E8, is 1986 $m^3/d$. Similarly, in Hillsburgh the firm capacity of the system with the largest well out of service is the permitted capacity of Well No. H3, 654 $m^3/day$.

#### System Reserve Capacity

From a report prepared by Triton Engineering in 2009 (Triton Engineering Services Limited, 2009) the total hydraulic reserve capacity in Hillsburgh and Erin Village is 1123 $m^3/day$ and 1660 $m^3/day$ respectively. However, it was noted in the report that there are concerns with water quality at the

Hillsburgh Heights Well (H2) which make the long term viability of this well questionable. The concerns relate to elevated lead concentrations in the raw water. At present, the raw water from this well is treated to remove excess lead. If that well is not included in the reserve capacity calculation the capacity is reduced to 114 $m^3$/day. The uncommitted reserve capacity in Erin and Hillsburgh are -225 $m^3$/day and 575 $m^3$/day, respectively.

From 2006 to 2008 the maximum daily water use in Hillsburgh was 690 $m^3$/day in 2007. This exceeds the firm capacity of the Hillsburgh system (see section above). In Erin Village the maximum daily water use was 2529 $m^3$/day in 2006. This also exceeds the firm capacity of the system. This suggests that additional system redundancy is required in both the Erin Village and Hillsburgh water systems.

## 5.2. WASTEWATER TREATMENT AND DISPOSAL

There are no communal sewage systems servicing communities in the Town of Erin. The villages of Erin and Hillsburgh are serviced by Class 4 and Class 6 individual private septic systems of various ages (Town of Erin, 2010). The core commercial area of Erin Village is serviced by a number of holding tanks. The only shared system is located at Centre 2000 which services Erin High School and Erin Community Centre. There is also a large system serving Stanley Park, a mobile home park in Erin Village, and St. John Brebeuf Catholic School, both of which operate under a MOE Certificate of Approval (Town of Erin, 2010).

The total number of septic tanks in the Town of Erin is approximately equal to the number of properties. Since the Town of Erin began issuing septic permits in 1999 there have been 484 permits issued for new septic systems and 209 for replacement or alteration (Town of Erin, 2010).

### 5.2.1. PREVIOUS CLASS ENVIRONMENTAL ASSESSMENTS

In 1995, Triton Engineering conducted a Class Environmental Assessment (EA) and Environmental Study Report (ESA) for Sewage Works in the former Village of Erin. As described in the problem statement of the Class EA the study was conducted because:

> *"The continued use of private sewage systems is a major factor that is limiting both the potential for residential growth and infilling within the village. Recent studies by the Wellington-Dufferin-Guelph Health Unit have identified problem areas within the village that have malfunctioning systems and individual lots with insufficient area to meet minimum design requirements. These systems may be impacting the West Credit River and may pose a risk to human health and groundwater resources."* (Triton Engineering Services Limited, 1995)

The study and report concluded that the preferred solution was a water pollution control plant (WPCP) with gravity sewer systems. The WPCP was proposed to be built on lands north east of May Street owned by the municipality. The 6.73 ha site was previously used as a wayside gravel pit by the Canadian Pacific Railroad (CPR) (Triton Engineering Services Limited, 1995). The preferred

discharge location was situated at the bridge over the West Credit River on the 10th Line of Erin Township.

A request for an "approval in principal" from the MOEE for a WPCP discharge to the West Credit River was made by the former Village of Erin and Triton Engineering Services Limited in order for that option to be carried forward in the Class EA process. In October 1995, The MOEE was not prepared to grant an approval in principal, they were however prepared to re-evaluate their position if several technical issues were addressed. These issues were addressed in the West Credit River Assimilative Capacity Supplementary Report. No further reports or MOEE correspondence have been made available to B.M. Ross and Associates Limited related to the request for "approval in principal" so the current status is uncertain.

### 5.2.2. PRIVATE SYSTEMS

#### 5.2.2.1. APPROVAL PROCESS

As of April 6, 1998, the rules for septic systems less than 10,000 litres per day (most residential septic systems) are covered by the Ontario Building Code (OBC). While these rules are put in place by the Province of Ontario, local agencies such as municipal building departments are responsible for issuing permits and doing inspections (Town of Erin Building Department, 2001). As of April 1999, a permit must be obtained from the Town of Erin Building Department before any work is commenced to install or repair a septic system.

#### 5.2.2.2. SEPTAGE MANAGEMENT

The Town of Erin recommends that septic tanks are inspected at least every two years by a qualified person and that septic tanks are pumped out at least every 3 – 5 years (depending on tank/household size) (Town of Erin Building Department, 2001).

### 5.2.3. RECEIVING STREAMS

#### 5.2.3.1. DESCRIPTION

As concluded in the Triton Class EA (1995) the most probable receiving stream for WPCP is the West Credit River. The West Credit River is located in the West Credit Subwatershed which covers an area of approximately 126.1 $km^2$ and drains significant portions of the Township of Erin and the Town of Caledon (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011). The West Credit River flows from the northwest to the southeast though the villages of Hillsburgh, Erin and Belfountain.

The main branch of the West Credit River flows all year, however many of the smaller streams, which feed into the main branch, only convey water for a few weeks of the year (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011). The West Credit Watershed has a nearly contiguous riparian zone comprised predominantly of forests or wetlands, which helps to moderate the severity of floods and retain nutrients that come from adjacent lands.

The West Credit River maintains a high volume of baseflow relative to most of the of the Credit River watershed. This baseflow, which is a result of groundwater discharge to the stream, maintains a minimum depth of water in various stream channels and moderates temperatures (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011). As a result, the West Credit River and its tributaries provide habitat for brook trout and support cold water fisheries.

Under the MOE's Policy 1 statement, the MOE states that for those water quality parameters that are below their PWQO, some minimal degree of degradation may be accepted; however, degradation beyond the PWQO is not accepted (Ontario Ministry of Environment and Energy, 2004). The long-term monitoring data summarized by the CVC in the Existing Conditions Report, included in Appendix C of this report, indicate that the West Credit River is a Policy 1 stream.

### 5.2.3.2. STUDIES TO DATE

Many studies have been undertaken in the West Credit River investigating the heath of the stream and watershed. Several reports investigated and described the hydrology and hydraulics of the watershed along with geomorphologic and benthic characterizations. Water chemistry and temperature were also evaluated, as well as the impact of existing septic tanks and proposed discharge of treated sewage on water quality.

**Village of Erin Private Sewage System Survey, 1995**

In 1995, the Wellington–Dufferin–Guelph Heath Unit conducted a survey of private sewage disposal systems in Erin. This report helped define the problem for the Class EA conducted in the same year. The Heath Unit determined that numerous sewage disposal systems in the downtown core and on the south end of Main Street are in close proximity to the West Credit River which increases the potential of pollution to the river. As well, many lots in the village were determined to have inadequate septic tank replacement areas (Wellington-Dufferin-Guelph Health Unit, 1995).

**Triton Engineering Services Limited, 1995**

One of the earliest studies available is from Triton Engineering Services Limited in 1995 looking at the stream assimilation capacity. This report concluded that the addition of a WPCP direct discharge to serve a projected population of 4100 persons in the village of Erin would not have a detrimental impact on the existing water quality in the West Credit River (Triton Engineering Services Limited, 1995).

**West Credit Watershed Study: Characterization Report (Phase I), 1998**

The purpose of Phase I of the West Credit Subwatershed Study was to develop an environmental resources management plan that will preserve the high quality systems and features that exist, as the natural systems in the watershed were reportedly in a relatively healthy state and no large

major land use changes were expected (Credit Valley Conservation, 1998). One recommendation set forth in the study was that any future development in the subwatershed, including the potential installation of a wastewater treatment plant at the Village of Erin, should address the criteria of no net increase in total phosphorous loading to the Lower Great Lakes. As well, it was concluded by the Credit Valley Conservation (CVC) that the unit yield approach [used by Triton in 1995] provides a reasonable method for modelling flow at different locations in the subwatershed (Credit Valley Conservation, 1998).

**West Credit Watershed Study: DRAFT Impact Assessment (Phase II), 2001**

A draft report was prepared in which the impacts from future land use changes were to be determined, assessed and addressed in the West Credit River Subwatershed (Credit Valley Conservation, 2001). Although the draft was never finalized, as a result of findings presented in the report, the CVC concluded that, with the extent of the potential development in Erin, and the subsequent risk of groundwater contamination of servicing this development with individual septic systems, a WPCP may be more appropriate than septic systems for future servicing the village of Erin (Credit Valley Conservation, 2001).

**Town of Erin Septic Investigation, 2005**

The West Central Region Technical Support Section Surface Water Unit conducted a study at the request of the CVC to determine if impacts from septic systems within the Town of Erin could be isolated from those entering upstream in the agricultural and rural areas of the watershed (West Central Region Technical Support Section - Surface Water Unit, 2005). The study concluded that, although the results indicate that septic systems are a contributor of nutrients to the west branch of the Credit River, the relative impact to the receiver was low in 2005 (West Central Region Technical Support Section - Surface Water Unit, 2005). The study recommended that an investigation be conducted in the older portion of the Town of Erin and where septic systems are found to be contributors of nutrients to the river, remedies such as new technologies or replacing the system should be implemented.

**Erin SSMP Environmental Component – Existing Conditions Report, 2010**

The purpose of the existing conditions report was to analyse each disciplines data collected over 2007 and 2008 as well as integrate the disciplines' findings to give an overall understanding of the key environmental features and functions of the study area. Conclusions presented in the hydrology and septic system impact assessment sections are discussed below.

*Hydrology*

It was noted in the Hydrology section of this report that the baseflow contribution to the West Credit River could be important depending on potential wastewater treatment options related to the SSMP. However, the author concludes that the gaining and losing portions of the West Credit River though the Erin Village area is variable, and recharge/discharge conditions are more complex that previously interpreted (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011).

*Septic System Impact Assessment*

The purpose of the septic investigation was to assess the potential impact of septic system effluent on the West Credit River in the context of the SSMP. The study looked at existing studies and data collected for this purpose in 2009. The study led to the following interpretations (Credit Valley Conservation, Aquafor Beech Inc., Blackport Hydrogeology Inc., 2011):

- The existing municipal wells show no apparent impact from septic systems.
- Historical water quality data show only a slight increase in nitrate concentration over time at the Provincial Water Quality Monitoring Network (PWQMN) station, downstream of Erin Village.
- Chloride concentrations and mass loading to the West Credit River have increased considerably during the last 20-30 years of monitoring, at a much faster rate than nitrate.
- Phosphorous concentrations and mass loadings are high and appear to reflect contributions from surface runoff loadings rather than septic systems.
- Data collected for the study does show that there are relatively higher impacts from urban activity, including septic systems, on reaches of both the tributaries downstream of Erin Village immediately adjacent to the urban area, compared to the main branch of the West Credit River.

### 5.2.4. ISSUES AND CONSTRAINTS

#### 5.2.4.1. CONTAMINATION FROM SEPTIC SYSTEMS

As discussed in Section 5.2.3.2 of this report, a number of studies have concluded that septic systems are contributing to nutrient loading in the groundwater and subsequently in the West Credit River. The most recent *Existing Conditions Report* has concluded that the assessment of septic system impact must be combined with other component studies to determine the overall sensitivity of the environmental features, functions, and linkages within the Town of Erin (Credit Valley Conservation, 2001).

#### 5.2.4.2. AGE OF SEPTIC SYSTEMS

The issue of water contamination from septic systems is generally attributed to older or failing septic systems. The typical lifespan of a septic system is 15-25 years, beyond which systems often function poorly or experience complete failure. A study completed by the Wellington District Health Unit in 1995 found the average age of septic systems in Erin Village was 19 years old (Wellington-Dufferin-Guelph Health Unit, 1995). In the period between 1999 and 2008, there were approximately 300 septic system replacements in the Town of Erin (or an average of 30/year) (Town of Erin, 2010). The relatively low number of replacements in the last 10 years, given that the

Town relies almost exclusively on private systems, suggests that many septic systems in the Town are over 30 years old.

#### 5.2.4.3. LOT SIZE

One of the issues encountered when attempts are made to replace ageing or failing systems is that many lots are below the minimum lot size required by current standards for both an operational tile bed and a reserve area for a replacement bed. An analysis of lot sizes was conducted for the villages of Erin and Hillsburgh, by B.M. Ross and Associates Limited, and presented to the Liaison Committee.

The analysis revealed that in Erin Village 54% of properties within the urban boundary, are presently not large enough for a replacement septic system, even if the property were connected to the municipal water system (**Figure 5-3**). Under current standards, properties must be at least 1,400 $m^2$ to accommodate a septic system and observe the required setbacks. Another 20% of the properties do not have sufficient space for both a septic system and a private well (or are between 1,401 $m^2$ and 2,787 $m^2$ in size). In Hillsburgh, 55% of the properties are not large enough for a replacement septic system if the property is connected to municipal water (**Figure 5-3**). A further 24% are not large enough for a replacement septic system and a private well.

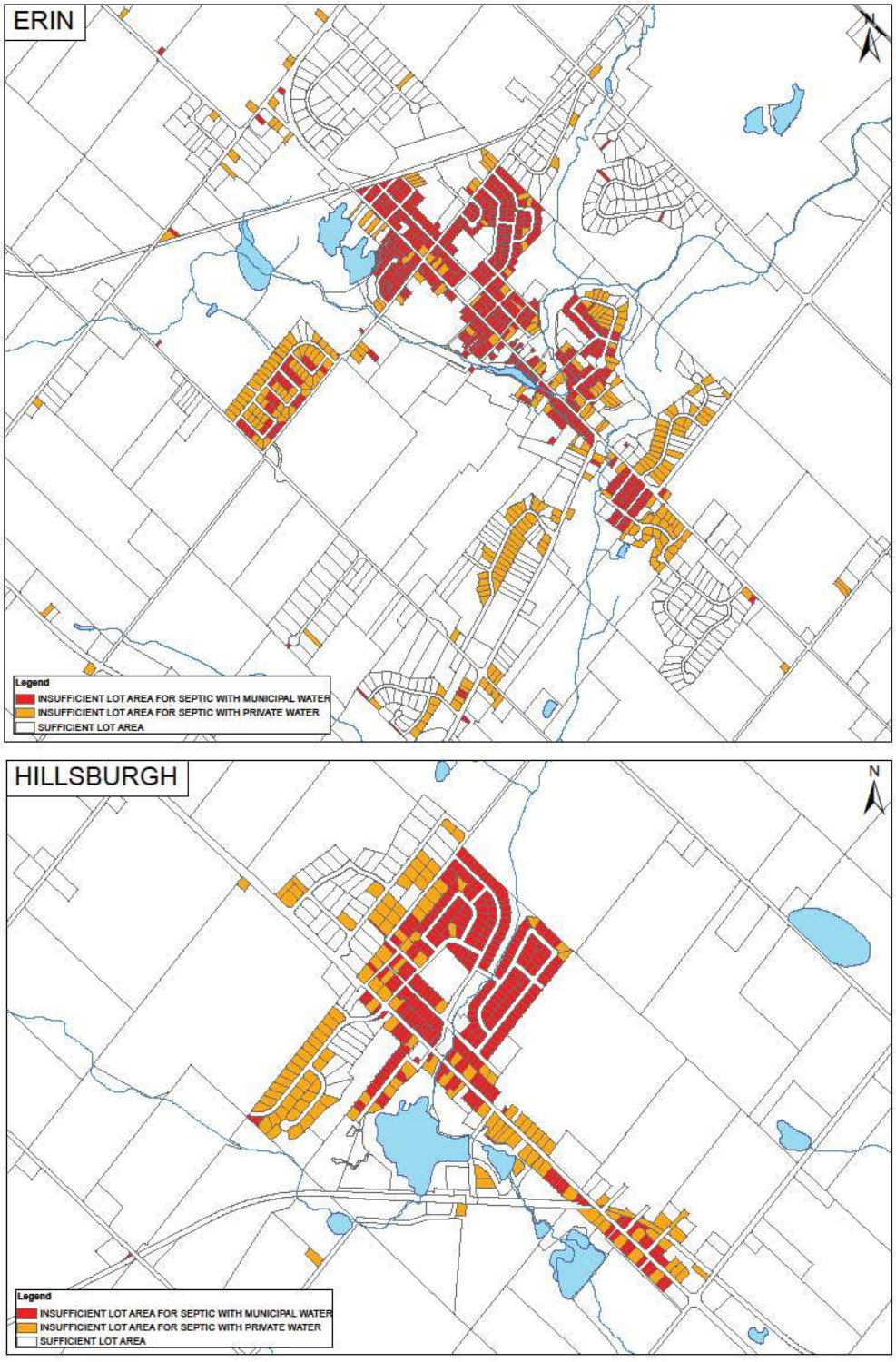
## 5.3. STORM WATER MANAGEMENT

The extent of stormwater management is limited to roads classified as "urban" in the Town of Erin. As of 2008, there were 13.2 km of urban roads, which are served by storm sewers (AECOM, 2008). The Town of Erin and Credit Valley Conservation have set up specific storm sewer design criteria which must be adhered to for new development (Town of Erin, 2007). The value of storm sewer infrastructure is discussed in the following section in conjunction with road systems.

## 5.4. TRANSPORTATION

The Town of Erin transportation system is classified as an Urban and Rural lower tier road system (AECOM, 2008). According to the 2008 Road System Inventory and Classification the Town of Erin has a largely rural road system with about 86% of the road sections having rural roadside environment. The remaining 14% is split between urban and semi-urban roadside environments, the majority being semi urban.

**FIGURE 5-3: ASSESSMENT OF LOT SIZES FOR SEPTIC SYSTEMS IN ERIN VILLAGE AND HILLSBURGH**



### 5.4.1. ROADS

In total there are approximately 280 km of Town owned roads as well as 38.7 km of boundary roads, which are roads the municipality has in common with the abutting municipality (AECOM, 2008). In addition to municipal roads there are 10 County roads in or on the boundary of the Town.

In 2008, the estimated replacement value of the Town of Erin's road system was $64,360,831 (including contingencies and engineering) (AECOM, 2008).

### 5.4.2. STRUCTURES

The Town of Erin has 48 structures with a span of greater than 3 meters; 11 bridge structures and 37 culvert structures (AECOM, 2008). There are also 10 county bridges in the Town (Wellington County, 2007).

The average replacement cost for Town structures is reportedly $396,600 for a bridge and $277,400 for a culvert. At the time of the last Wellington County bridge inspections in 2007 there was $1,160,000 of urgent repair and rehabilitation required and an additional $2,550,000 of repair and rehabilitation required in 1-10 years.

### 5.4.3. TRAFFIC COUNTS

The County has had an ongoing traffic counting program in place in the Town of Erin since the 1960's. The Town of Erin has traffic volumes ranging from approximately 600 to 18,000 in the period from 2003 to 2009 (Wellington County, 2009). The road section with the largest volume, of up to 18,000 vehicles, is Highway No. 124 running east and west through Erin.

## 5.5. AGENCY CONSULTATION

Agency consultation will occur during Phase 2 of the SSMP process.

# 6.0 NEXT STEPS

The information contained and summarized within this Background Report will be used to develop a clear Problem/Opportunity Statement. The Problem/Opportunity Statement will provide guidance and direction during the second phase of the SSMP: the development of alternative community planning and servicing strategies.

The second phase of the SSMP process will apply the information obtained during Phase 1 to a strategic forecasting exercise which will consider community planning, environmental sensitivities and financial analysis to define appropriate planning and servicing alternatives for the community as envisioned.

All of which is respectfully submitted.

B. M. ROSS AND ASSOCIATES LIMITED

Per _____
Matthew J. Pearson, RPP, MCIP
Senior Planner

Per _____
Lisa J. Courtney, M.Sc.
Environmental Planner

:hv

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