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**engineer**

# 44<sup>th</sup> Annual Canadian Consulting Engineering Awards 2012

## County of Simcoe Water and Wastewater Visioning Strategy



*For Greater Opportunities*

Software Utilized:



**CANWET™ (v.4)**  
**CAN**adian **W**atershed **E**valuation **T**ool

*Integrated Watershed Management, Water Supply, and Wastewater Treatment Infrastructure Planning Decision Support Software*  
Developed By: Greenland Consulting Engineers (Collingwood, Ontario)

## COUNTY OF SIMCOE

**ITEM FOR:** CORPORATE SERVICES COMMITTEE  
**SECTION:** Planning  
**ITEM NO.** CS 12-031  
**MEETING DATE:** March 14, 2012  
**SUBJECT:** County of Simcoe Water and Wastewater Visioning Strategy

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### **RECOMMENDATION:**

THAT Item CS 12-031, which contains the County of Simcoe Water and Wastewater Visioning Strategy, be supported;

AND THAT County staff work with municipalities and government agencies to promote and facilitate the proposed partnerships, opportunities and recommendations contained within the County of Simcoe Water and Wastewater Visioning Strategy - Final Report

### **BACKGROUND:**

In recent years, the issue of growth has presented the Simcoe Area municipalities with tremendous opportunities as well as considerable related challenges. Growth and development often brings additional tax base and propels community investments. However, proactive infrastructure planning and coordination is crucial to ensure municipalities not only chart the future of their own infrastructure assets, but also plan for and accommodate the full life costs of required infrastructure. Recent provincial planning policies established by the Ontario Government, most notably the Growth Plan for the Greater Golden Horseshoe (January 2012), note that investment in water and wastewater system by all levels of government have also lagged behind growth and many municipalities are now faced with significant renewal and capacity expansion issues. Coordination, together with improved efficiency and sustainable technology, is fundamental to solutions that are required to appropriately service growth in the coming decades.

In response to increasing growth pressures, and as a precursor to the January 2012 amended Growth Plan, the Province released its vision for the Simcoe Area (*Places To Grow – Simcoe Area: A Strategic Vision for Growth*) in June 2009. This document contained the provincial perspective on managing growth in our region. One recommended action item contained with the June 2009 Vision document was that the Province of Ontario will “...undertake a Simcoe area infrastructure plan, including a strategy for water and wastewater in the Simcoe area that includes mechanisms for service delivery.” This recommendation propelled the County towards developing its own strategy based on best-available science and to support the implementation of environmentally-sound and cost-effective water and wastewater services by all municipalities.

At its December 2009 General Meeting, County Council adopted the following resolution – CCW-007-09 – to initiate a County-wide water and wastewater visionary strategy:

*THAT County staff, in consultation with the staff of the member municipalities, the separated cities, neighbouring municipalities, first nation partners and the development community, be required to prepare a report on the existing water and wastewater system requirements, agreement and plans (including septage and leachate), as well as analysis of the current and potential delivery matrix and options with respect to long term solutions regarding co-ordination of this service delivery;*

*AND THAT the Provincial and Federal governments and the assistance of an outside engineering consulting firm be utilized to accomplish this task.*

As a result of County Council's foresight and direction, Greenland International Consulting Ltd. ("Greenland") from the Town of Collingwood was retained by the County to prepare a comprehensive document that achieves each of the outcomes identified in Council's resolution. GIS staff from Simcoe County provided digital data / mapping preparation support and the participation of municipal and agency staffs were also important for the Study's success.

The work conducted by Greenland effectively pursues the primary objective of preparing a Background Information Brief and Servicing Gap Analysis that assesses existing water and wastewater system requirements for member municipalities, the separated cities, and federal lands within the County. To accomplish this objective, the Water and Wastewater Visioning Strategy (W&WWVS) worked towards the following goals:

1. Compile a general review of existing environmental (natural, socio-economic) conditions for the County of Simcoe;
2. Assess the existing water and wastewater system capacities with respect to servicing existing and proposed population growth identified in the County of Simcoe adopted Official Plan and subsequently, the growth identified in the County of Simcoe through the January 2012 Amendment 1 to the Growth Plan for the Greater Golden Horseshoe.
3. Based on Greenland's assessment and review of the above two (2) objectives, prepare individual summaries of water and wastewater servicing opportunities and constraints and which should also consider baseline conditions results from *Greenland's software technology in-kind* (called the "CANadian Watershed Evaluation Tool" or "CANWET - 4") provided during the project.

In addition to the above, the Water and Wastewater Visioning Strategy illustrates and evaluates "Level 2" Opportunities for each municipality to meet their 2031 growth requirements using alternative approaches and service delivery frameworks. The Strategy also identifies (for future consideration) a few regional "Level 3" Opportunities using the CANWET – 4 technology and where the servicing requirements had regard for a watershed-based approach and multiple municipalities. These assessments should be incorporated into future Class EA or P3 related undertakings. Additional "Level 3" Opportunities not considered during the study should also be examined using CANWET – 4 and the results of this Study for other infrastructure design and planning initiatives in the County of Simcoe.

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The report prepared by Greenland is a comprehensive technical document that is the product of a significant amount of background work and consistent consultation with the stakeholders involved. However, it is also a vision document and a strategy document dealing with a complex issue. As a vision, it looks forward and offers suggestions for solutions. These solutions innovatively capitalize on existing and potential opportunities in a sustainable manner. As a strategy, it is a guiding document that will achieve solutions with multiple partners working cooperatively to ensure the Simcoe Area is well planned and sustainably serviced for the future.

Committee members will be provided a hard copy of the County of Simcoe Water and Wastewater Visioning Strategy for review.

**FINANCIAL ANALYSIS:**

Implementation of the County of Simcoe Water & Wastewater Visioning Strategy is dependent on cooperation and coordination. Further discussions, agreements and plans may require additional funds in future County operating and capital budgets.

**SCHEDULES:**      There are no schedules attached to this report.

**PREPARED BY:**      Nathan Westendorp, MCIP RPP, Planner III

**APPROVALS:**

	Date
David Parks, Director of Planning, Development & Tourism	February 17, 2012
Rick Newlove, GM of Corporate Services	
Lealand Sibbick, Deputy Treasurer	February 29, 2012
Mark Aitken, Chief Administrative Officer	



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May 1, 2012

**Canadian Consulting Engineer Magazine**

80 Valleybrook Drive  
Toronto, Ontario M3B 2S9

**RE: Submission for the 2012 Canadian Consulting Engineering Awards**  
**Owner's Letter for the County of Simcoe Water and Wastewater Visioning Strategy**

Dear Sir / Madam:

This letter provides permission by the County of Simcoe to enter the above referenced project. The project was initiated in January 2010 and completed in November 2011.

Greenland International Consulting Ltd. (*Greenland*®) was retained by Simcoe County to complete an infrastructure and watershed impact assessment visioning strategy. The project included the preparation of draft, draft final and final reports, and GIS-based modeling of all watersheds using CANWET™ (v.4). *Greenland*® also assisted County staff with multiple consultations and presentations to municipal and regulatory agency staffs.

*Greenland*® provided exemplary consulting services to complete this landmark project. The firm's attention to detail and proactive ideas was very important to assist the County in addressing issues of concern about the study's findings and also providing defensible, yet provocative, solutions based on best available science and proven technologies for the benefit of all local municipalities.

This letter confirms that the study objectives were met within the approved time frame. *Greenland*® also provided a sizeable in-kind contribution to complete value-added deliverables and established new partnerships in terms of future watershed modeling and technology development initiatives involving the County of Simcoe.

On behalf of the County of Simcoe, thank-you for the opportunity to assist Greenland Consulting Engineers with its 2012 Canadian Consulting Engineering Awards application and consideration by the judging panel for the award.

Please do not hesitate to contact me if you have any questions.

Yours truly,

**Rick Newlove, P. Eng.**  
**General Manager of Engineering, Planning and Environment**

cc: *Jim Hartman and R. Mark Palmer - Greenland Consulting Engineers*

## **PROJECT HIGHLIGHTS:**

### **County of Simcoe - Water and Wastewater Visioning Strategy**

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**COMPLEXITY:** GREENLAND® Consulting Engineers was retained by the County of Simcoe to prepare a “Water and Wastewater Visioning Strategy” for 18 member municipalities (including, the City of Barrie and City of Orillia), C.F.B. Borden and First Nations. This landmark initiative had complete regard for environmental features and functions of the Nottawasaga River, Lake Simcoe, and Severn-Sound Basins. The total study area was over 5,000 km<sup>2</sup>. As pressure to grow increases in the County of Simcoe, sustainable servicing solutions are required to address residential and employment needs. To achieve this goal, a new, innovative and Canadian-based information technology tool called “CANWET™ - 4” was also concurrently developed by GREENLAND® and *used for the first time as the study’s only modeling and evaluation tool*. County of Simcoe management and GIS department staff also played active project roles.

The study began in January 2010 and completed in November 2011. The project confirmed that existing and future municipal systems should be connected via a regional strategy (wherever practical). This conclusion was unsettling to just a couple of municipalities that want to maintain capacities for their own growth needs but may not be willing to take on sole debenture responsibilities to expand that infrastructure. The project’s findings also supported continuing growth within the region, while protecting the environment and taking advantage of opportunities for more efficient and cost-effective infrastructure on a timely and phased basis. Wastewater effluent reclamation and clean energy generation benefits were also identified. CANWET™ - 4 was then used by the County, Town of Innisfil and Infrastructure Ontario for a concurrent P3 Business Case development, *and if approved in June 2012, would be the largest Public-Private-Partnership (P3) funded water supply and wastewater treatment infrastructure project to-date by P3 Canada*. With the development of recent provincial planning policies by the Ontario Government, the County of Simcoe is facing intense growth pressures. In response, Simcoe County Council adopted Resolution - CCW-007-09 at its December 2009 General Meeting to complete a County-wide Water and Wastewater (including septage and leachate) Visionary Strategy. The proposed residential and employment growth populations were based on data provided through Simcoe County’s Adopted Official Plan and compared with the Province of Ontario’s June 2009 document titled: *“Simcoe Area: A Vision for Growth”*.

To ensure the suitability of all utilized servicing systems within Simcoe County for current and future servicing demands, a detailed servicing gap analysis was completed. This phase determined if current water supply and wastewater treatment systems (including septage and leachate) could accommodate proposed future (2031) population growth within the region and designated by the the Province from the Places to Grow legislation. As a result of nutrient problems within the Nottawasaga River, Lake Simcoe and Severn-Sound Basins from agricultural activities and urbanization, phosphorus loading impact assessments were completed for all subwatersheds using CANWET™ - 4. Municipal interviews and surveys were undertaken to ensure all data was accurate. These meetings presented the report drafts that included technical analyses about existing and future water supply and wastewater treatment requirements.

Subsequently, GREENLAND® provided detailed descriptions of infrastructure servicing opportunities and constraints for the 18 municipalities, C.F.B. Borden and First Nations. Wetlands systems, well head protection zones, natural hazards and watercourse assimilative capacities were identified. Transit corridors, right of ways, hydro corridors and current water and wastewater systems were identified to highlight long-term servicing opportunities. Defendable, and in some cases, provocative, solutions for multiple municipal partnerships were then developed in accordance with available science, proven technologies and County of Simcoe partnership spirit of “for the Greater Good”.

#### **INNOVATION – “Integrated Infrastructure Planning and Ecosystem Approach Using a New Technology”:**

Watershed management decisions for river systems and lake basins are often made on a site-by-site or project-by-project basis. Limited consideration is given to other critical activities that can contribute to cumulative

## PROJECT HIGHLIGHTS:

### County of Simcoe - Water and Wastewater Visioning Strategy

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impacts on water budgets and water quality impairments. Also, watershed management can no longer ignore integrated water supply and wastewater treatment infrastructure planning at the same or regional scale.

In June 2011 and before the completion of the Simcoe County project, GREENLAND® completed the next generation of Canadian modeling tools incorporating best available science with climate station records, remote sensing data and an open source GIS to accurately model and verify “existing conditions” and then test “what if” scenarios. This new technology is called **CANWET™ - 4** (**CAN**adian **W**atershed **E**valuation **T**ool) and is the *only watershed management and infrastructure analytical tool tailored for Canadian conditions and developed by an ACEC member for commercial use*. The final testing/evaluation phase of CANWET™ - 4 was undertaken using GIS and monitoring databases for the County of Simcoe study area and Lake Winnipeg Basin. This new/innovative modeling and evaluation tool was used on the County of Simcoe project to identify sustainable growth strategies with cost-effective infrastructure. Use of the tool helped to develop solutions of net-public benefit and integration with current and future public-private partnerships from both ecosystem planning and engineering design perspectives.

**PROJECT COMPLETION BENEFITS:** The County’s Corporate Services Committee and Council as a Whole adopted the Final Report in March 2012. The report’s recommendations support a “living document” implementation approach and which includes this year a stakeholder-facilitated Charrette; utilizing CANWET™ - 4 by the County of Simcoe and municipalities for future development reviews and related Class EA undertakings; and, further consideration of the project findings and CANWET™ - 4 with future P3 infrastructure projects.

**DELIVERABLE THAT EXCEEDED CLIENT’S NEEDS:** As key examples, the following wastewater infrastructure cost savings were determined and compared with costs from already completed EAs by individual municipalities:

1. **Wastewater Treatment for Clearview Township (Community of Stayner) – County of Simcoe**  
Conventional Approach: From Clearview’s EA, \$22 M for expanded Stayner WWTP to Lamont Creek.  
Proposed Approach: \$16 M total capital to convey sewage to and treat at Wasaga Beach WWTP.  
**Savings = \$6 M (minimum) + additional revenue from a pending nutrient trading program (TBC).**
2. **Wastewater Treatment for Clearview Township (Community of Nottawa) – County of Simcoe**  
Conventional Approach: New Nottawa WWTP to discharge to Pretty River (from EA) at \$19 M.  
Proposed Approach: \$12.5 M total capital to convey sewage to and treat at Collingwood WWTP.  
**Savings = \$6.5 M (minimum) + additional revenue from pending nutrient trading program (TBC).**

The initial testing of CANWET™ - 4 on the study area was also linked to an ongoing U.S. – Mexico – Canada software collaboration involving GREENLAND® and about Chesapeake Bay initiative by the USDA and USEPA.

Finally, in 2011, GREENLAND® was invited by the Town of Innisfil, County of Simcoe and Infrastructure Ontario to expand the use of the CANWET™ - 4 models for a major water and wastewater infrastructure Public-Private-Partnership (P3). The P3 Business Case development (by another consultant) included a quantitative assessment of all potential revenue sources. This included a wastewater effluent reclamation system that would be operated in conjunction with a regional phosphorus trading program for the Lake Simcoe Basin. Climate change factors were also considered. GREENLAND® was retained by the Town of Innisfil and County to provide support. GREENLAND® identified that the proposed reclaimed effluent system with the proposed phosphorus trading program could generate an annual revenue of \$35M - in Net Present Value, Year 2013 dollars. *This was the first time an ACEC member used its commercially available software technology (i.e. CANWET™ - 4) in Canada for a water supply and wastewater treatment P3 Business Case.*

**Contact Information:**

*Greenland Consulting Engineers*

- *R. Mark Palmer, P. Eng.*
- *Jim Hartman, P. Eng.*
- *Trevor Boston, M.Sc., P. Eng.*
- *Neil Marsden, B. Sc.*



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*County of Simcoe*

- *Mark Aitken, CAO - County of Simcoe*
- *Rick Newlove, P. Eng. - County of Simcoe*
- *Grant Hudolin - County of Simcoe*
- *Matt Murray - County of Simcoe*

**Acknowledgments:**

- *Staffs from the County of Simcoe, Study Municipalities, First Nations and C.F.B. Borden*
- *Elected Officials from the County of Simcoe and Study Municipalities*
- *District Municipality of Muskoka*
- *Regional Municipality of York*
- *Regional Municipality of Durham*
- *Nottawasaga Valley Conservation Authority*
- *Severn Sound Environmental Association*
- *Lake Simcoe Region Conservation Authority*



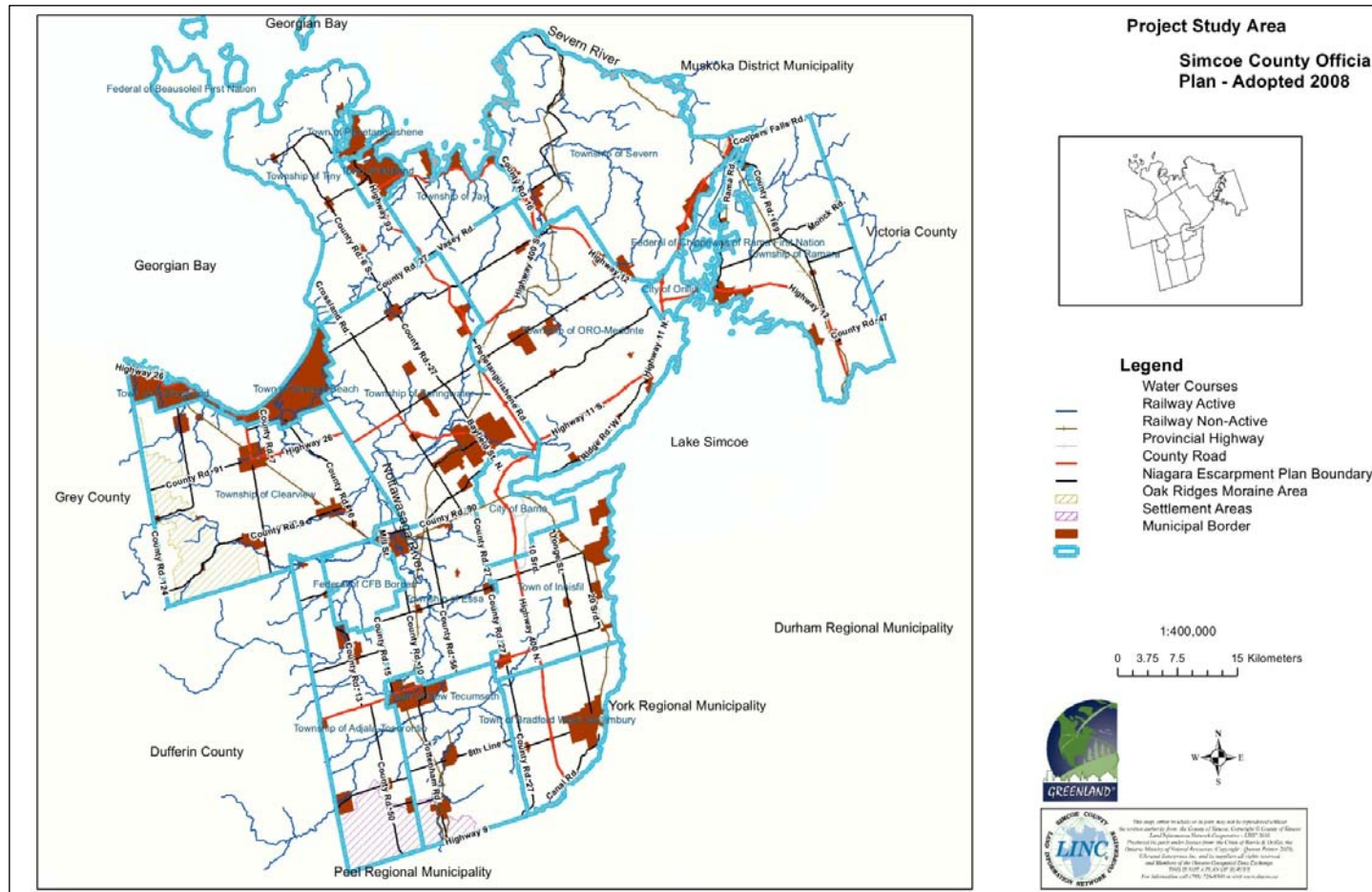
To address Simcoe County Resolution CCW-007-09, and to provide current information that would assist potential/future infrastructure strategies to be initiated by the Province of Ontario, the County of Simcoe retained Greenland® Consulting Engineers to complete the primary project goal, namely:

- To prepare a Servicing Gap Analysis that assesses existing water and wastewater system requirements for all County member municipalities, the separated cities, and federal lands within Simcoe County.

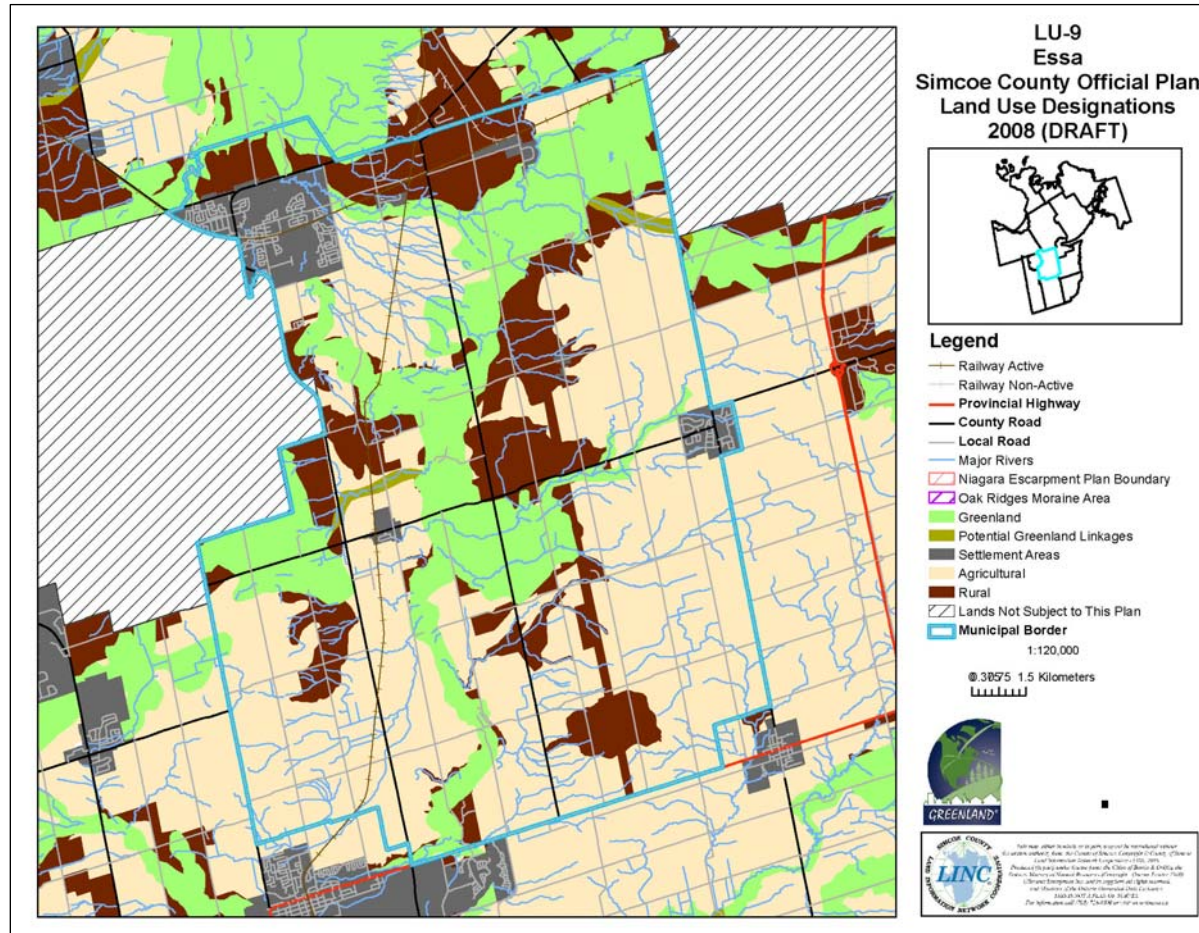
Greenland interpreted that the **primary goal** could be achieved through the completion of the following project **objectives**:

- 1) **Assess the existing water supply and wastewater treatment system capacities with respect to servicing existing and proposed population growth identified in the County of Simcoe (adopted) 2008 Official Plan;**
- 2) **Compile a general review of existing environmental (natural, socio-economic) conditions for the County of Simcoe and utilizing available / local available science;**
- 3) **Based on Greenland's assessment and review of the above 2 objectives, prepare individual Level '1' summaries of water and wastewater servicing opportunities and constraints and which also considers baseline condition results from Greenland's in-kind / value-added technology contribution (called CANWET™ - 4) during the study; and,**
- 4) **Identify Level '2' and Level '3' opportunities (also using CANWET™ - 4) for identified "regional areas" within the County that were found to have servicing gaps and which would require consolidating current water supply and wastewater treatment infrastructure and maybe a restructuring of local delivery and O & M service models.**

**Study Area (County of Simcoe and Watershed Areas)**



**Example of Mapping Data by County GIS Staff (Who Participated on the Project Team)**



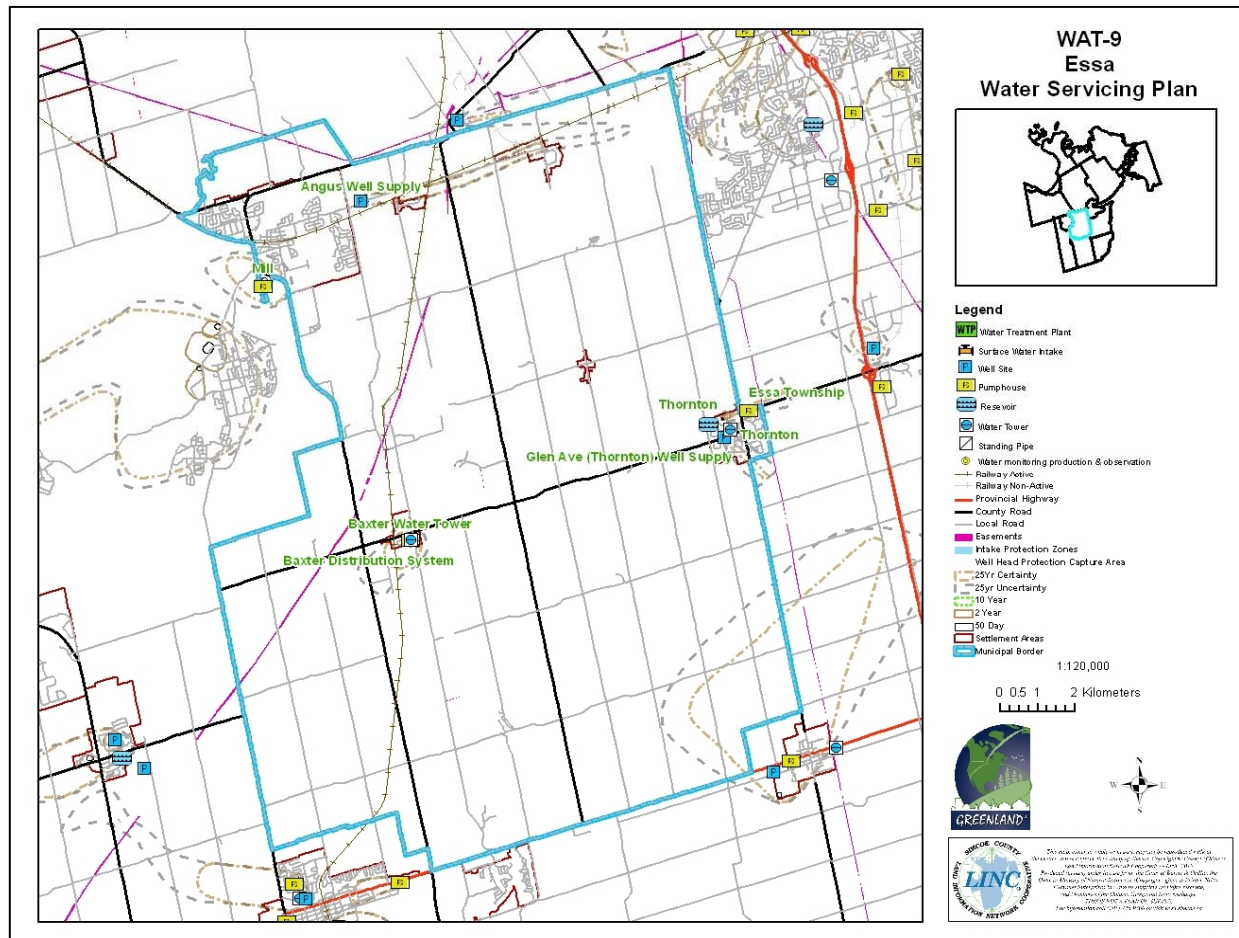
	Town/Township	Estimated Septic Systems: Simcoe Area		
		2009 Population (Persons)	2009 Municipal Wastewater Servicing Population (Persons)	2009 Septic Service Population (Persons)
<b>Simcoe County</b>	Township of Adjala-Tosorontio	11,085	300	10,785
	Town of Bradford West Gwillimbury	26,871	18,575	8,296
	Township of Clearview	15,111	5,971	9,140
	Town of Collingwood	18,462	18,048	414
	Township of Essa	18,886	7,247	11,639
	Town of Innisfil	34,932	24,148	10,784
	Town of Midland	17,329	14,429	2,900
	Town of New Tecumseth	31,398	23,050	8,348
	Township of Oro-Medonte	20,455	0	20,455
	Town of Penetanguishene	10,055	6,701	3,354
	Township of Ramara	9,974	3,179	6,795
	Township of Severn	12,997	4,000	8,997
	Township of Springwater	19,446	3,282	16,164
	Township of Tay	10,383	5,819	4,564
	Township of Tiny	11,454	0	11,454
	Town of Wasaga Beach	17,306	22,449	0
<b>Total</b>	<b>286,142</b>	<b>157,198</b>	<b>134,088</b>	
<b>Other</b>	City of Barrie	138,448	139,000	1,560
	City of Orillia	31,221	31,420	715
	First Nations	NA	NA	NA

**Estimated Quantities of  
Septic Systems within  
Simcoe County, City of  
Barrie and City of Orillia**

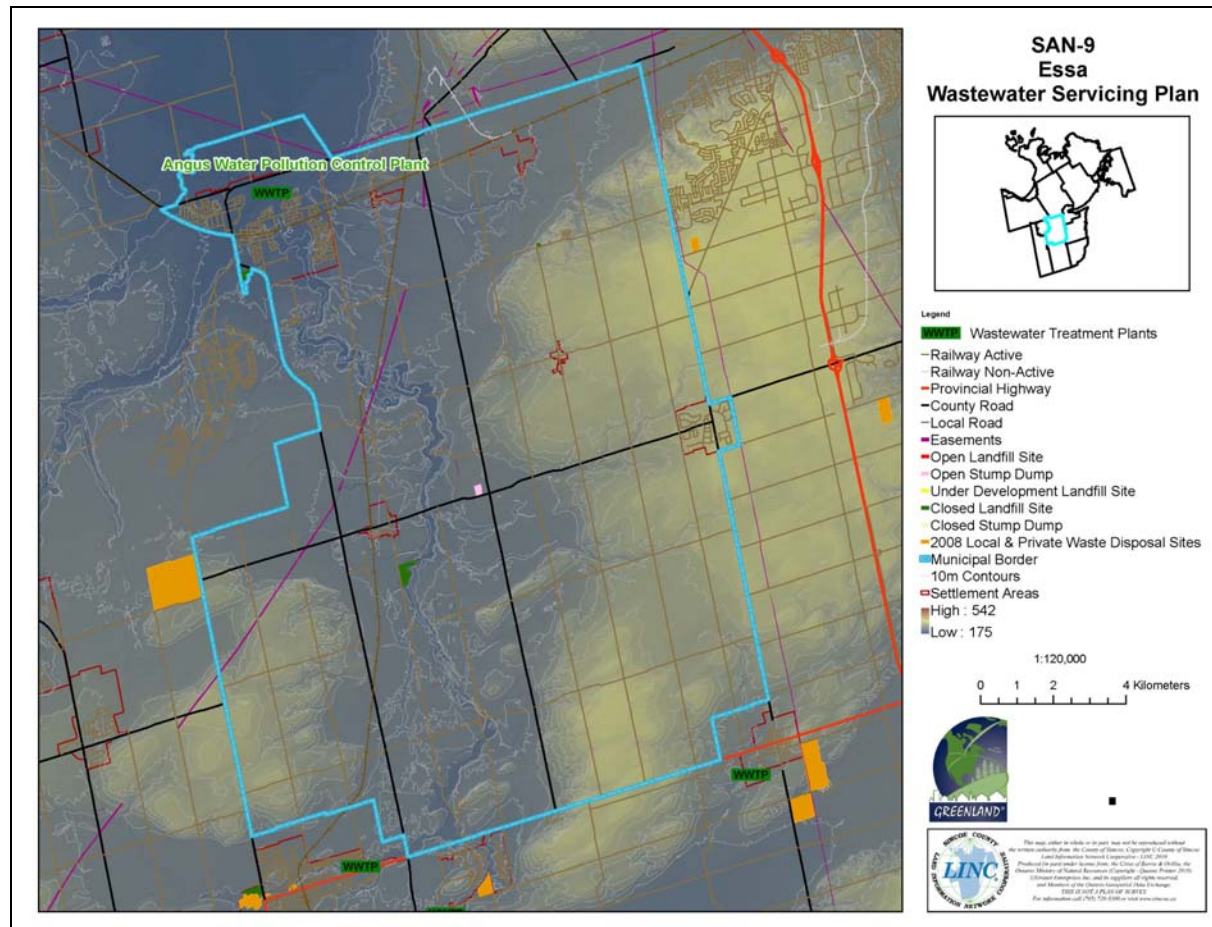
**2009 Leachate Production (m<sup>3</sup>) within the County of Simcoe**

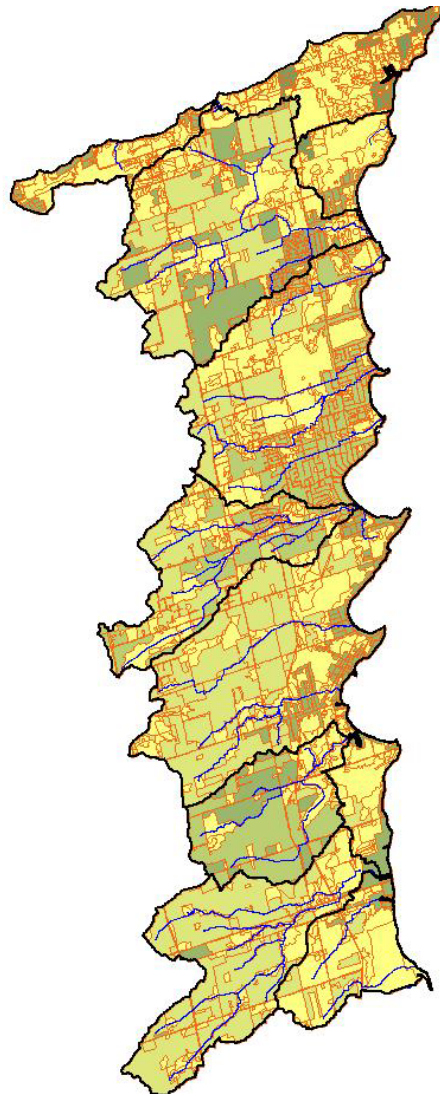
2009 LEACHATE GENERATION														
Landfill	Location	Leachate Volume Production (m <sup>3</sup> )												Total
		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	
Site 4 (Essa)	Part Lot 13, Concession 5, Essa	363	642	535	466	258	387	86	129	129	43	165		3,203
Site 10 (Nottawasaga)	5715 30-31 Sideroad, Stayner		760	1,129	1,205	1,444	602	237	93	72	183	131	88	5,943
Site 11 (Oro)	610 Old Barrie Road West, Edgar	2,018	2,013	2,929	3,534	147	1,548	1,973	989	1,118	1,763	1,376	1,070	20,478
Site 13 (Adjala Tosorontio)	6815 Concession Road 4, Everett		936	703	1,161	1,039	704	676	581	406	636	287	705	7,834
Site 15 (Wasaga Beach)	Part Lot 21, Concession 9, Wasaga Beach	324	2,715	1,191	1,548	602	1,032	344	301	129	215	258	238	8,897
Site 16 (Bradford West Gwillimbury)	2960 Line 12, Bradford	211	334	344	172	215	346	430	172	215	215	172	167	2,993
<b>Total</b>		<b>2,916</b>	<b>7,401</b>	<b>6,830</b>	<b>8,085</b>	<b>3,704</b>	<b>4,618</b>	<b>3,746</b>	<b>2,265</b>	<b>2,069</b>	<b>3,055</b>	<b>2,389</b>	<b>2,268</b>	<b>49,347</b>

**Example: Water Servicing Gap Analysis for the Township of Essa**



**Example: Wastewater Servicing Gap Analysis for the Township of Essa**

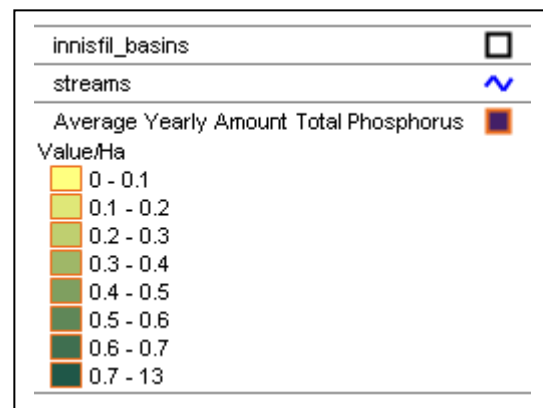




**Example: CANWET™- 4 Model (P) Output from the Innisfil Creeks Subwatershed (within the Lake Simcoe Basin)**

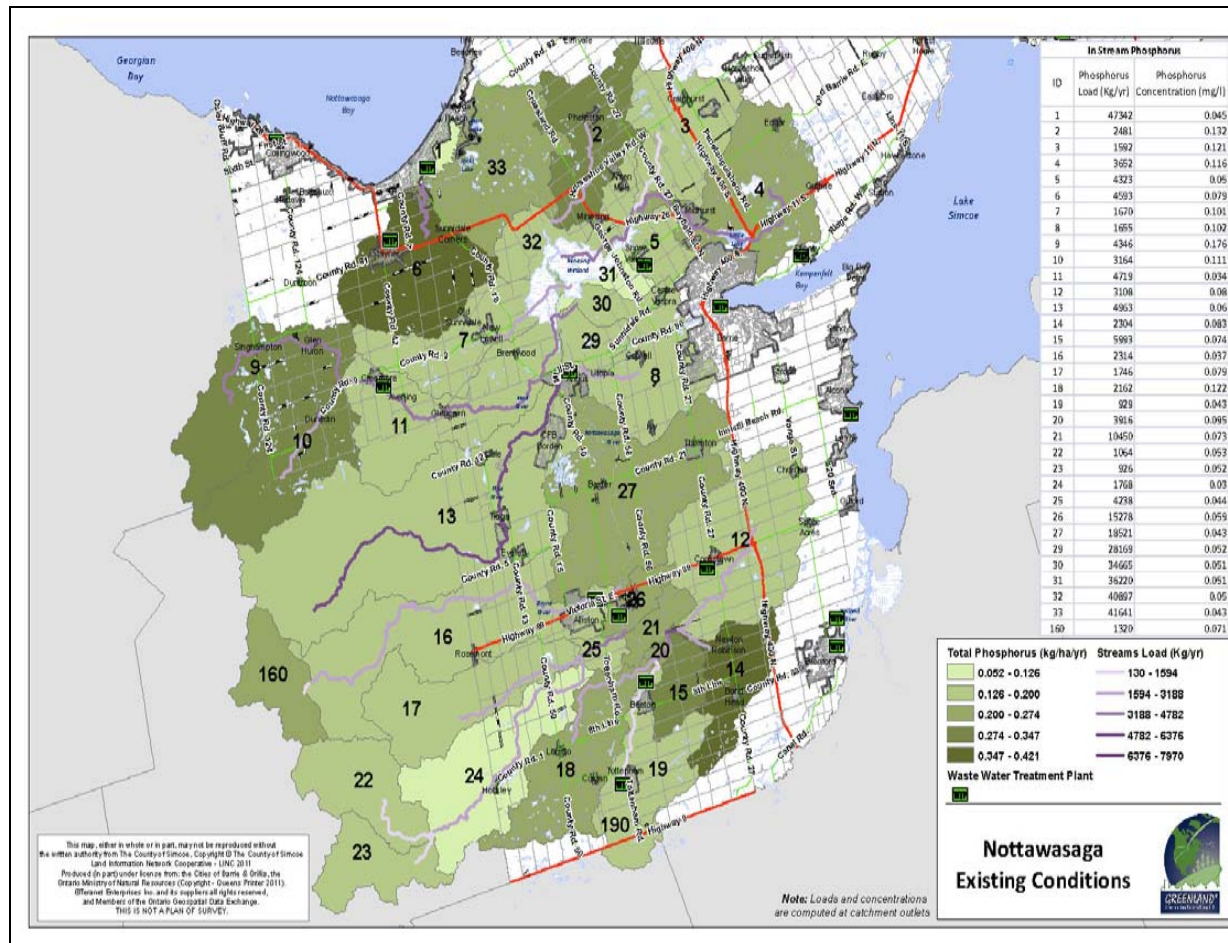
- Mapping shows mean annual non-point source loading of total phosphorus based on land use and catchment combinations.
- Subwatershed results almost identical with the latest CANWET™ model calibration work by the Lake Simcoe Region Conservation Authority and completed for the Lake Simcoe Protection Act.
- The Visioning Strategy results and specifically for this Subwatershed were then used concurrently with a P3 (Public-Private-Partnership) Canada funded project, involving the Town of Innisfil, County of Simcoe, and Infrastructure Ontario. Greenland® Consulting Engineers was retained to provide technical support; complete additional CANWET™- 4 modeling to address potential climate change factors and local water reclamation opportunities; and, to ensure the final P3 Business Case file had complete

regard for all relevant conclusions and recommendations from the County of Simcoe Water Supply and Wastewater Treatment Visioning Strategy.

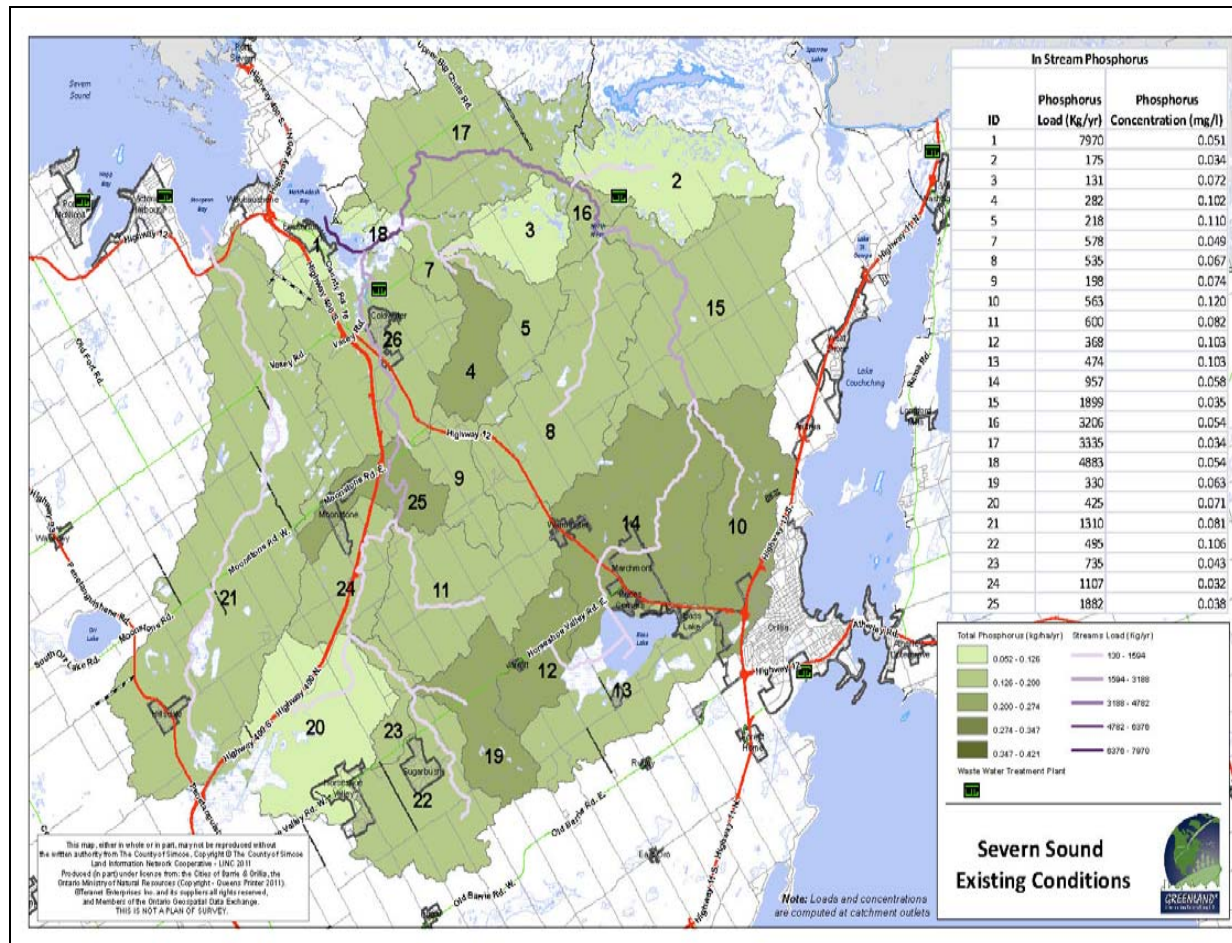




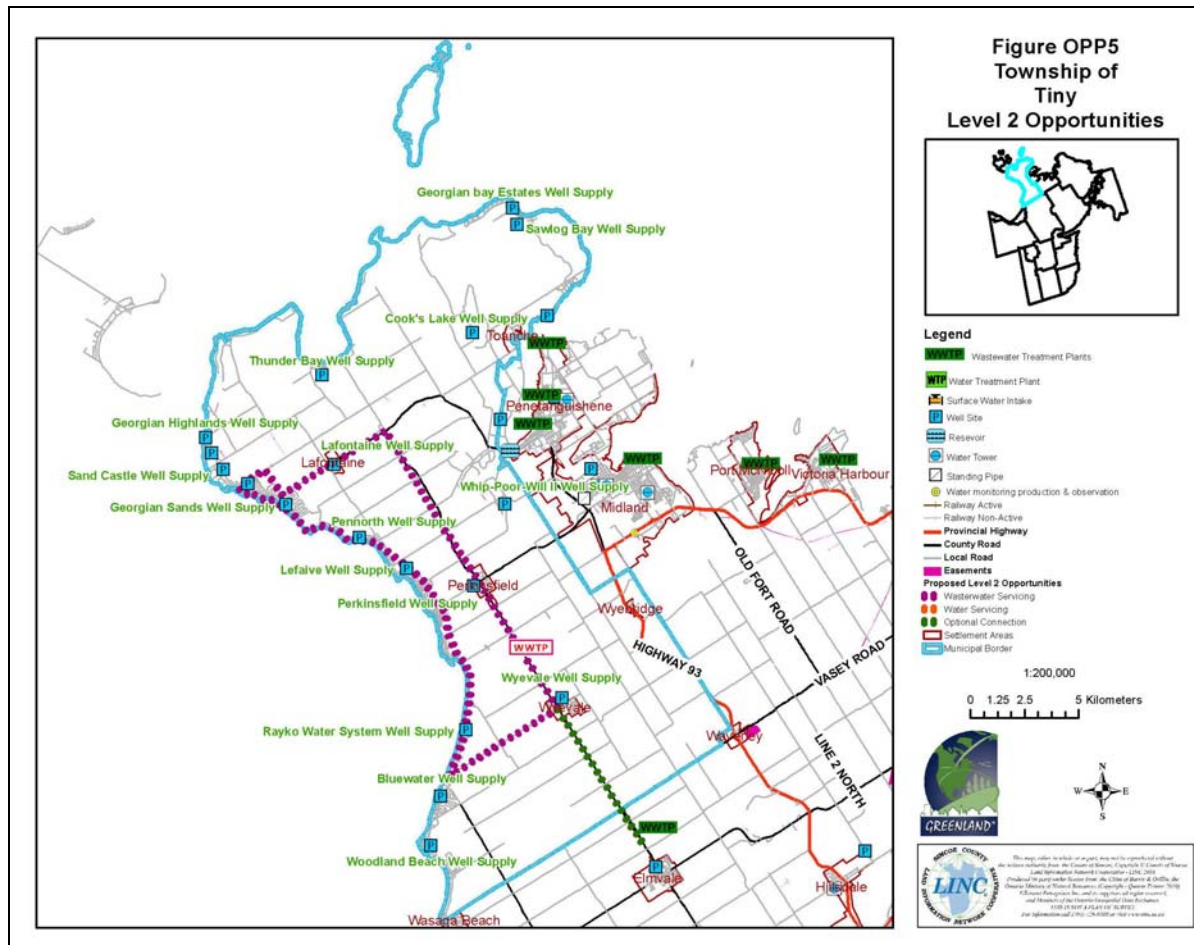
**Example: CANWET™- 4 Model (P) Output from the Nottawasaga River Basin**



**Example: CANWET™- 4 Model (P) Output from the Severn-Sound Basin**

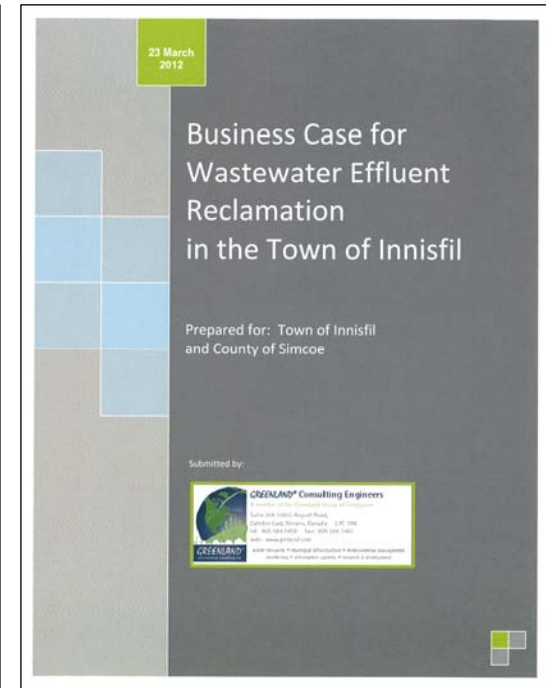
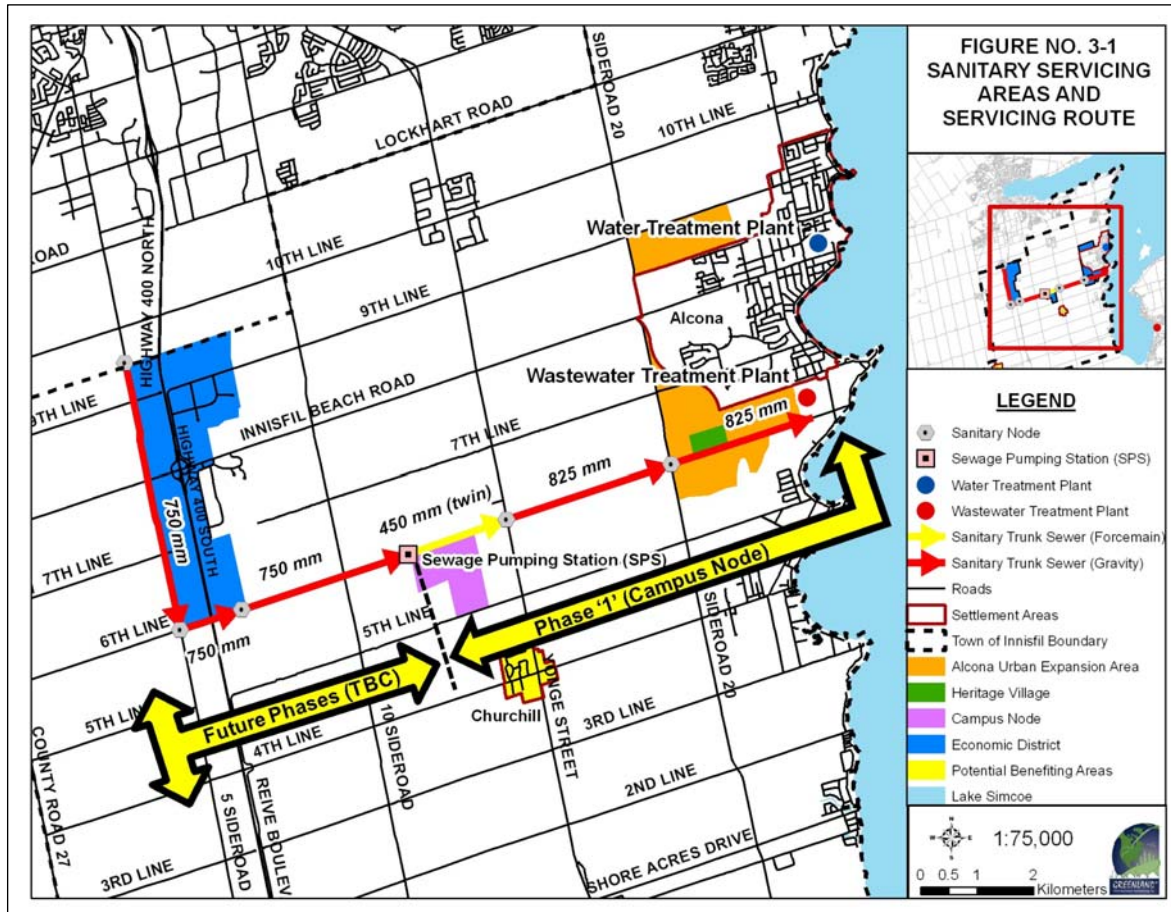


**Example: Level '2' Water and Wastewater Opportunities Analysis for the Township of Tiny**

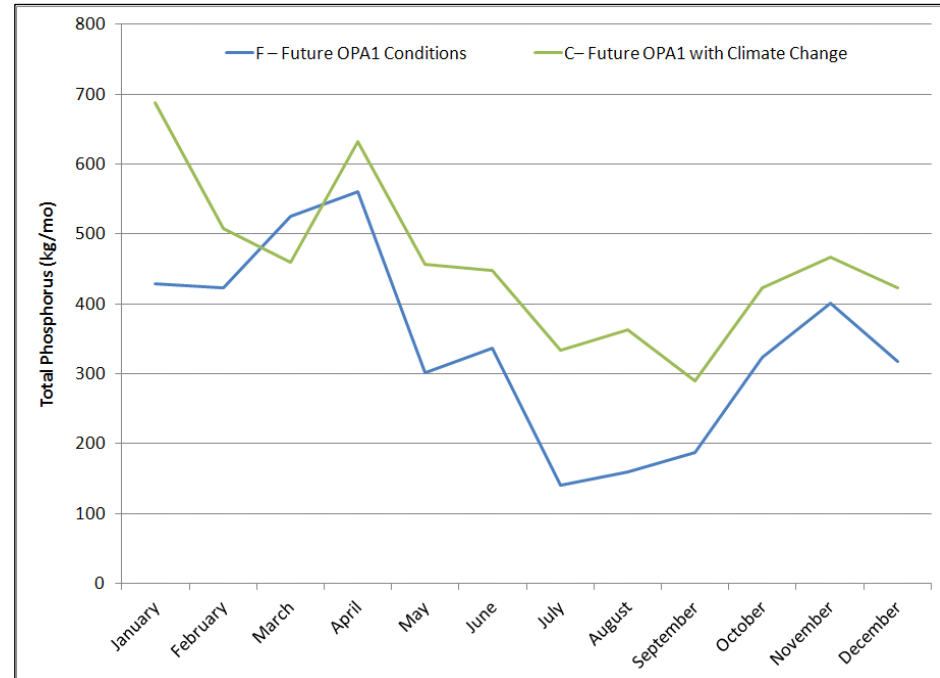
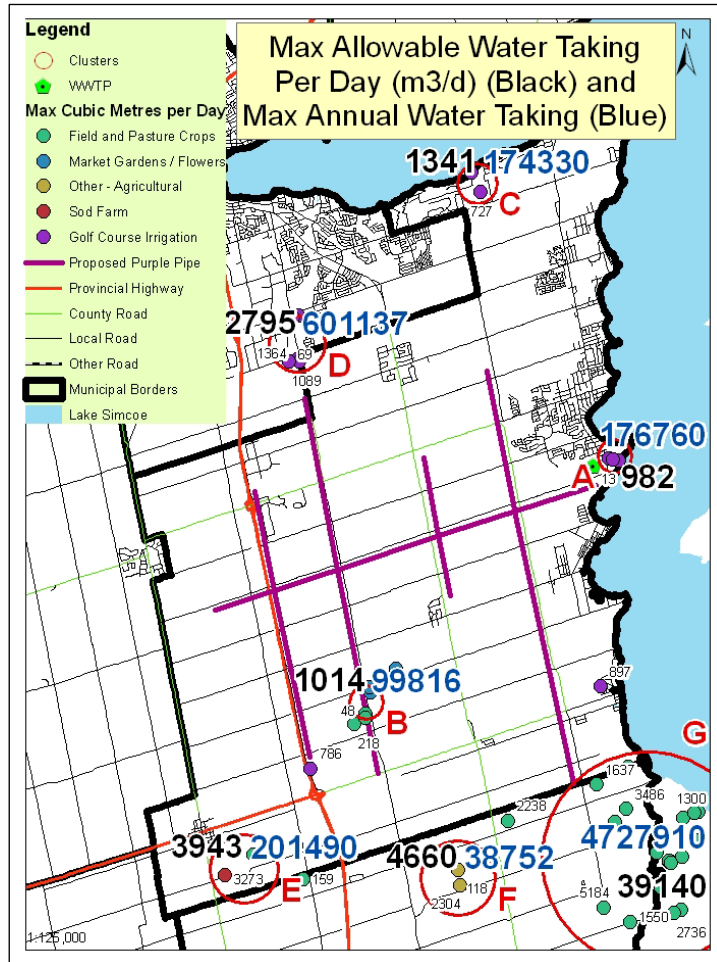




**Town of Innisfil / Simcoe County Water and Wastewater P3 Business Case Development**



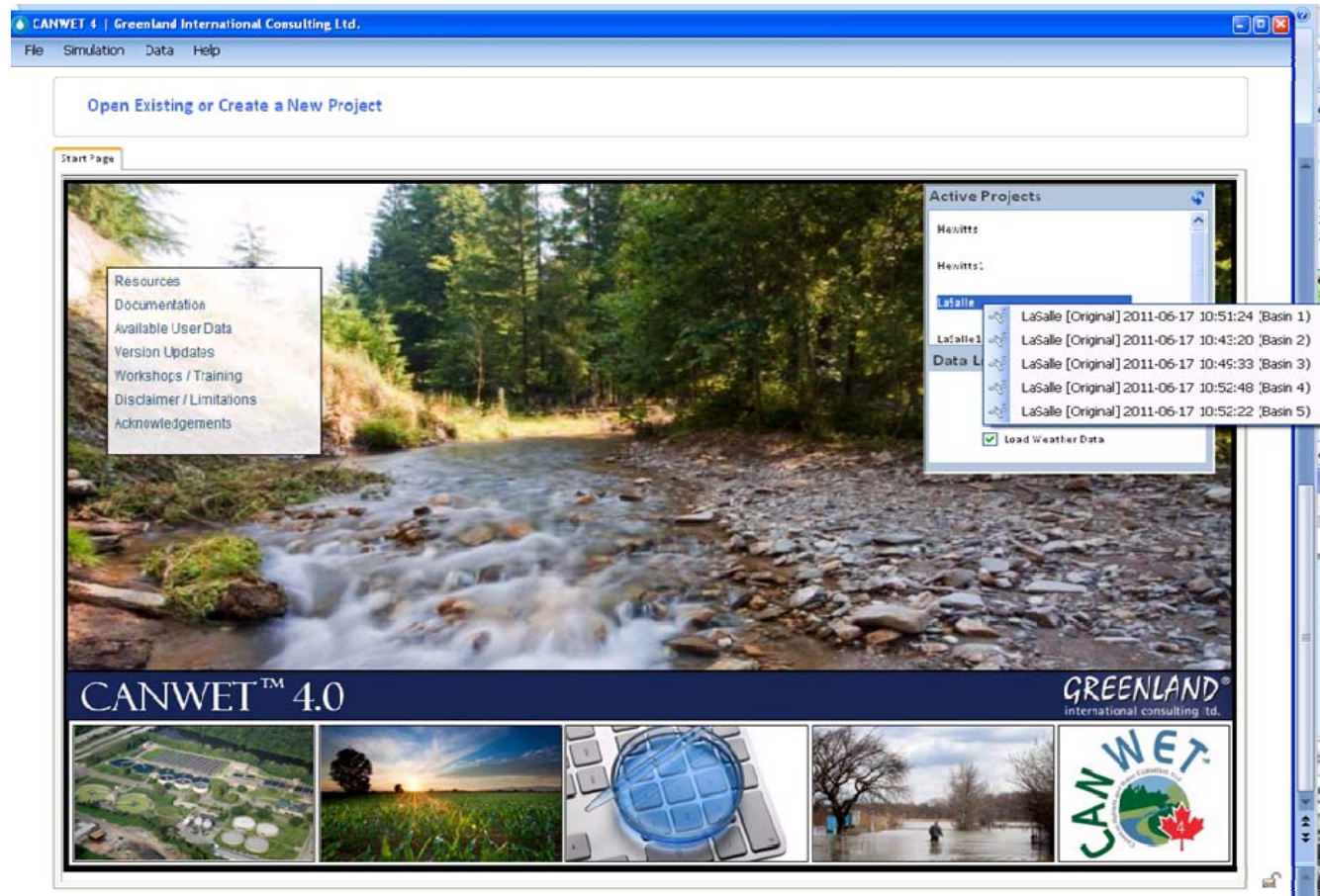
**Town of Innisfil / Simcoe County Water and Wastewater P3 Business Case Development**



**CANWET – 4 Model Comparison of Average Monthly Phosphorus Loading Under Historical and Future Climate Change Meteorology**

**Spatial Analysis of Permit to Take Water Database**

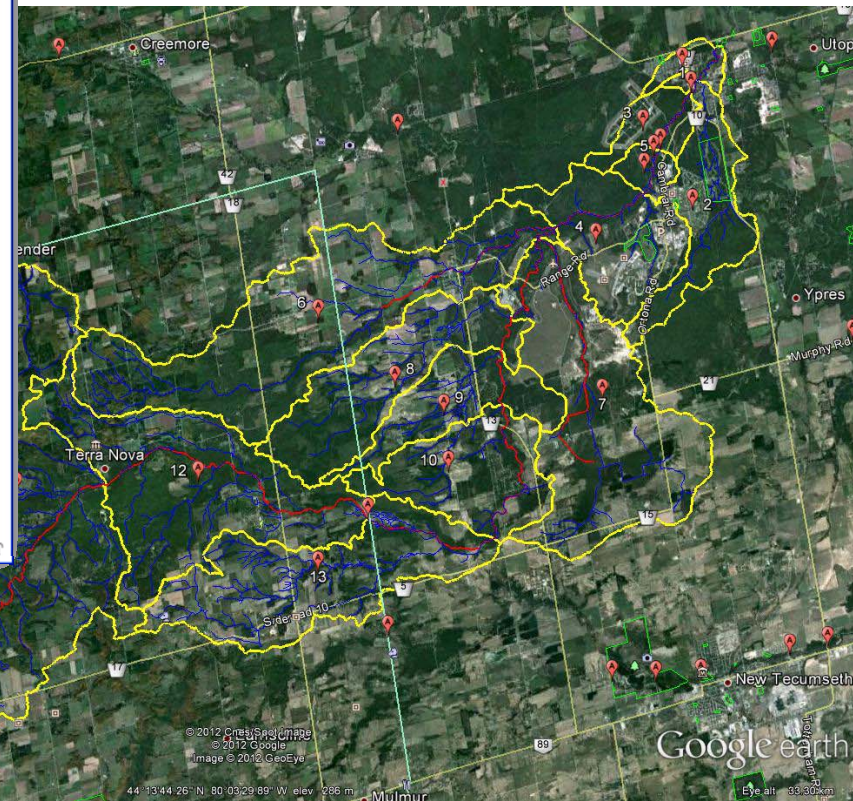
## CANWET™- 4 Front-End (Project Manager) Screen



**Example: CANWET™- 4 – Pine River Subwatershed Assimilative Capacity Analysis with New Canadian Science (incl. BMP Effectiveness Research by the Ontario Government)**

**BMP Application Details in Selected Catchment**

Catchment	BMP Name	Land Use	% Serviced	Unit Cost (CAD)	Season	N Reduction	P Reduction	TSS Reduction	FC Reduction
1	Cover Crops	Cropland	55	52483	Non-Growing	23	48	25	0
1	Detention Basin (Wet Pond)	HL_Devo/PavedRoad	00	3022055	Growing	40	51	70	0
1	Detention Basin (Wet Pond)	HL_Devo/PavedRoad	00	3022055	Non-Growing	40	51	70	0





# Simcoe County Water & Wastewater Visioning Strategy

## The Study

- ✓ Simcoe County is identified as a key area for planned employment and population growth opportunities.
- ✓ Simcoe County Council adopted a resolution to complete a Water and Wastewater Visioning Strategy.
- ✓ Greenland retained to complete an infrastructure planning and watershed impact assessment study including GIS-based modeling of all County watersheds using CANWET™ (v.4).



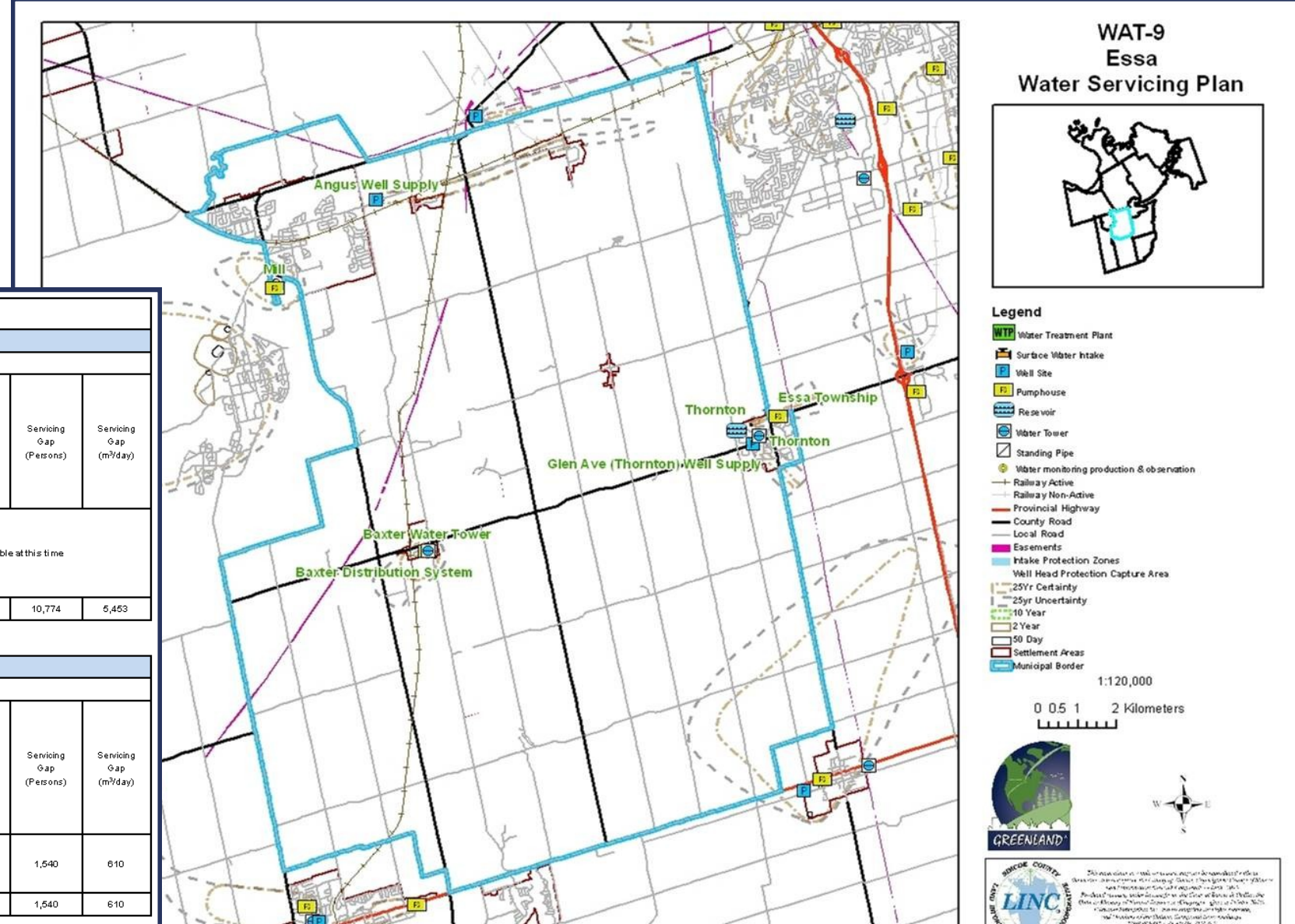
Map of Simcoe County

Assess all system capacities to accommodate population growth.  
 Develop solutions based on available science and technologies.  
 Develop solutions compatible with ongoing P3 Business Cases.  
 Develop solutions that can also provide net public benefits.

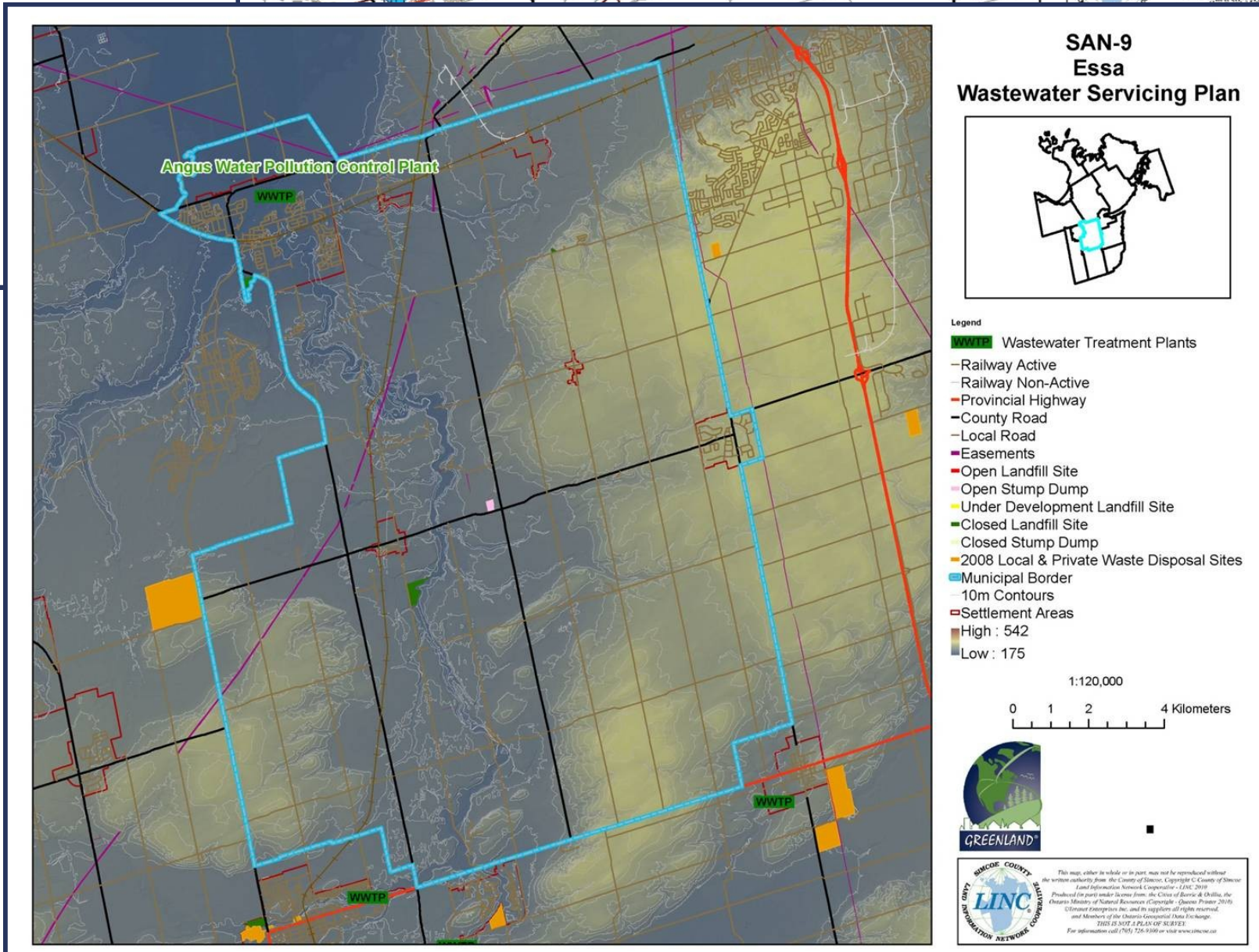
## Sample Problem

Township of Essa (Angus Wastewater Treatment Plant) has residential wastewater capacity. Neighbouring municipalities (Clearview and Adjala-Tosorontio) have a negative deficit wastewater servicing gap.

SERVICING GAP ANALYSIS - TOWNSHIP ESSA											
2008 Data						2031 Data					
Municipality	Area (km <sup>2</sup> )	Population (2008)	Population (2031)	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area	Population (2031) / Area
Angus	6,962	11,600	23,644	3,396	3,396	3,396	3,396	3,396	3,396	3,396	3,396
Clearview	1,462	1,462	1,462	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Adjala-Tosorontio	200	200	200	100	100	100	100	100	100	100	100
<b>Total</b>	<b>8,624</b>	<b>13,262</b>	<b>25,306</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>	<b>2,925</b>



**GENERAL NOTES:**  
 Maximum Daily Demand (MDD) per capita for 2031 based on 2008 data for the Township.  
 Average Daily Flow (ADF) per capita for 2031 based on 2008 data for the Township.  
 Service Population for 2031 based on 2008 data for the Township.  
 2008 Public Capacity based on 2008 data for the Township.  
 100% Public Capacity based on 2008 data for the Township.  
 100% Public Capacity based on 2008 data for the Township.



## Study Objectives



**SAMPLE SOLUTION**

Identify opportunities for all municipalities that are found to have a servicing gap.

Compile general review of existing environmental (natural, socio-economic) conditions for the County of Simcoe, including water and wastewater servicing opportunities and constraints using CANWET™- 4.

**CANADIAN CONSULTING ENGINEER**

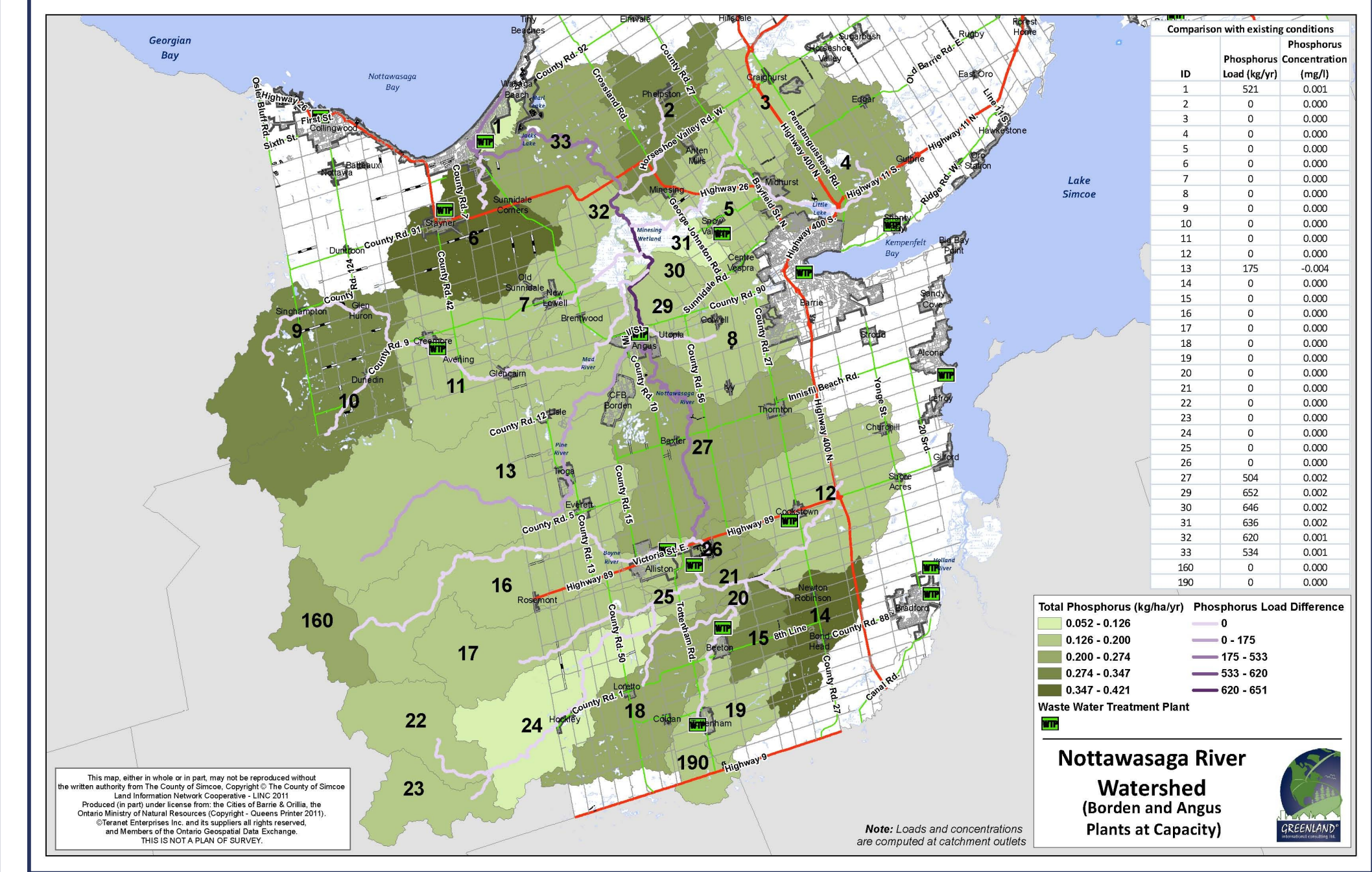
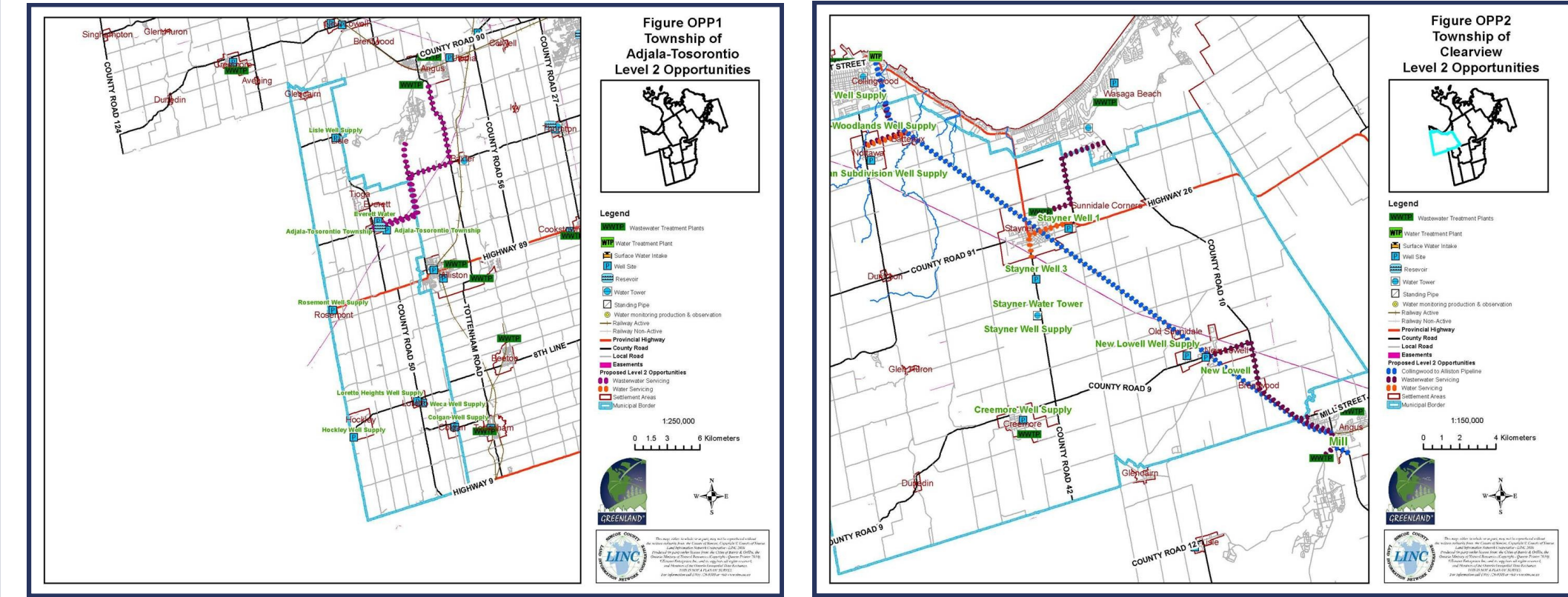
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**COUNTY OF SIMCOE**  
 For Greater Opportunities

**GREENLAND**  
 consulting engineers

## Sample Solution



By connecting and treating 2031 wastewater flows from neighbouring municipalities (Clearview and Adjala-Tosorontio) at the Angus and C.F.B. Borden Wastewater Treatment Plants, there is a negligible increase in downstream phosphorus concentrations in the Nottawasaga River.

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- Regional Municipality of York
- Regional Municipality of Durham
- Nottawasaga Valley Conservation Authority
- Severn Sound Environmental Association
- Lake Simcoe Region Conservation Authority