



## KAWARTHAS, NATURALLY CONNECTED

*Working together to sustain our landscape*

# Natural Heritage System Planning in Peterborough and the Kawarthas

## Kawarthas Naturally Connected

Friday, January 13, 2017

Natural Heritage Systems Planning Workshop  
Peterborough, ON

Image: Kawartha Conservation

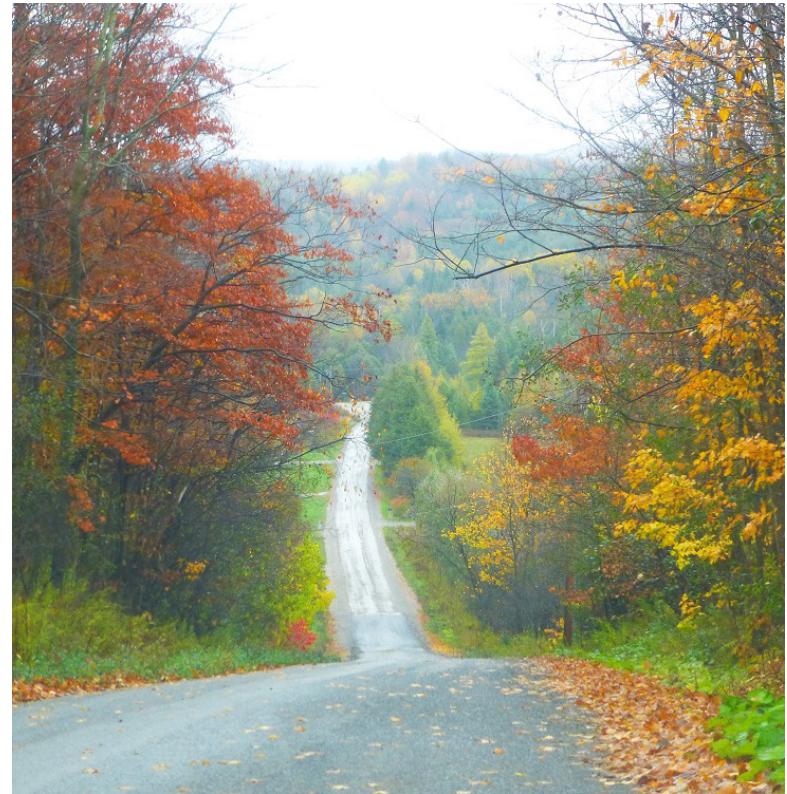


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# Outline

- Vision and Goals
- Natural Heritage Systems (NHS)
- Why Identify a NHS
- Creating a NHS (Design Process)
- Mapping Products & Tools
- Implementing the NHS
- Case Studies



Ian Walker



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### Our Vision and Goals

**Vision:** A landscape that supports the needs of people and nature in a way that preserves and enhances the unique character of the Kawarthas.

**Goal:** Engage the community to implement a connected system of natural areas that support or prioritize:

- Sustainable land use planning
- Resource management decision-making
- Strategic stewardship and restoration projects
- Conservation land purchases and/or acquisitions
- Inventory programs and research projects





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# What is a Natural Heritage System?

**“...a system made up of natural heritage features and areas, and linkages intended to provide connectivity...to maintain biological and geological diversity...can include lands that have been restored or have the potential to be restored...”**

(Provincial Policy Statement (PPS) 2014)

- Maintains the health of the landscape and communities
- Ensures ecological integrity (ecological health)
- Supports the creation of natural areas



Amanda Warren



Kawartha Conservation



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# What are Natural Heritage Features?

- Significant wetlands
- Fish habitat
- Significant woodlands
- Significant valleylands
- Endangered/threatened species habitat
- Areas of Natural and Scientific Interest (ANSI)





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# Why Identify a Natural Heritage System?

**Some of the many benefits provided by healthy natural areas include:**

- Maintaining good air and water quality
- Supporting the health of humans and our communities
- Providing habitat for Ontario's native species
- Preventing soil erosion
- Reducing flooding
- Providing pollination of crops
- Reducing the effects of climate change
- Production of medicines, biofuels and forest products
- Providing recreational opportunities

**Individual natural areas are healthiest when they are connected to other natural areas – when they are part of a “system”.**





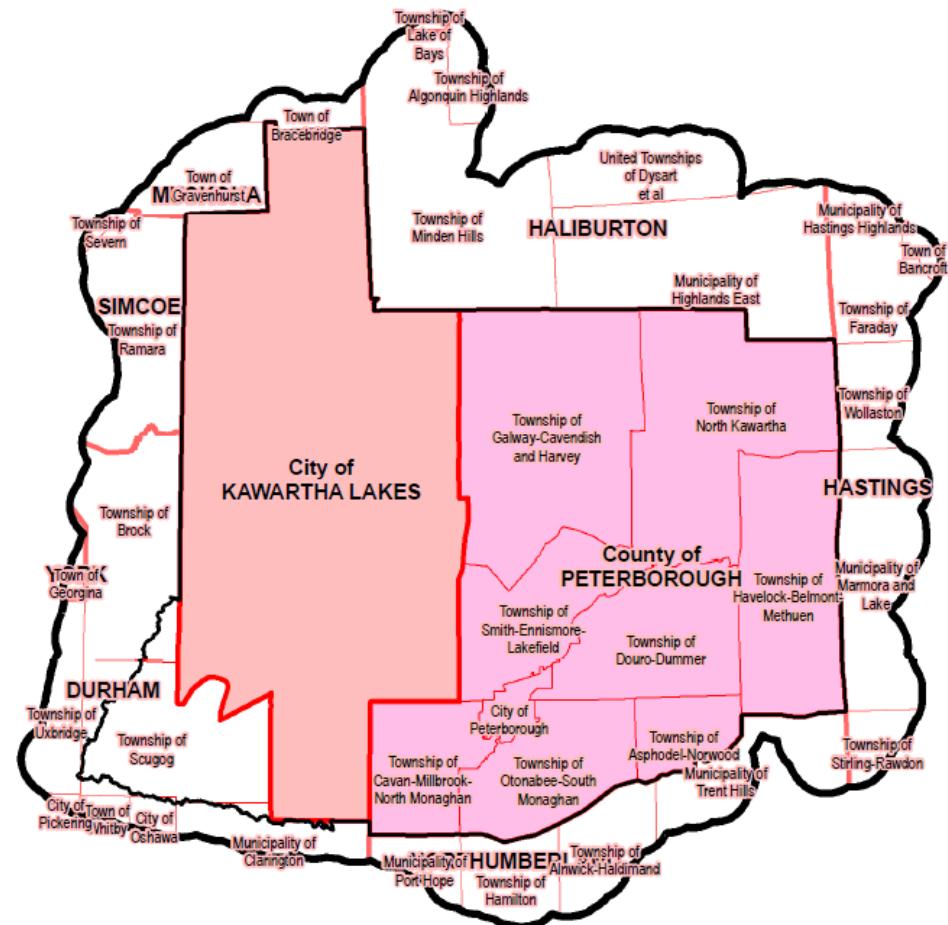
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# The Project Area

**The core area of interest includes:**

- City of Kawartha Lakes
- City of Peterborough
- Eight (8) lower tier municipalities in Peterborough County
- Conservation Authorities:
  - Otonabee Conservation
  - Kawartha Conservation
- 33 quaternary watersheds
- A 5 kilometre buffer zone





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### The Partners Involved



KAWARTHA LAND TRUST



KAWARTHA  
CONSERVATION



Ontario



Ducks Unlimited Canada  
Conserving Canada's Wetlands



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### Stakeholders Include:



Federation of Ontario Cottagers' Associations

Havelock-Belmont-Methuen Lake Association  
Victoria Land & Water Stewardship Council  
Kawartha Lakes Stewards Association  
Jack's Lake Cottagers Association



PETERBOROUGH FIELD NATURALISTS



PETERBOROUGH FIELD NATURALISTS



An agency of the Government of Ontario





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# Creation of the Natural Heritage System

**Objective:** To design a natural heritage system made up of connected areas that will help to maintain our ecological, social, and economic values.

- Process involved different viewpoints of various stakeholders
- Stakeholders identified important natural heritage features & set targets
- Computer modelling software (Marxan) identified most effective arrangements of natural areas
- Various options explored based on different targets
- Process can be repeated or adjusted as stakeholder input changes





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# NHS Design Process

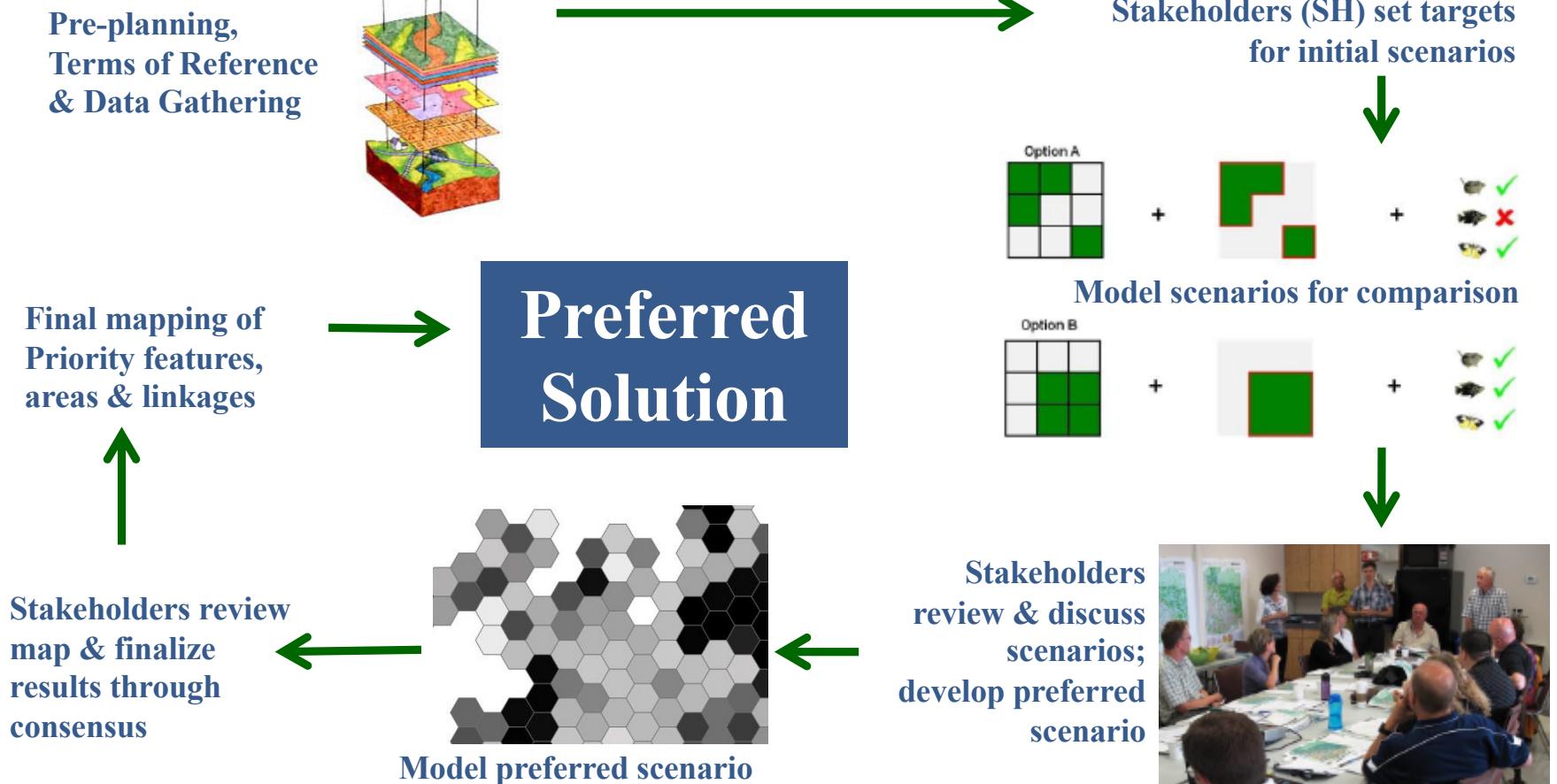


Image Credits: Doug van Hemessen; Bureau of Land Management; KNC: A Natural Heritage System for the Kawartha Lakes Region Phase 1 Report; Theresa Fingler



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# The Science of Marxan

- Decision-support tool to support conservation planning
- Stakeholder consensus & informed scientific/expert knowledge
- Mapped Features with assoc. conservation targets (e.g., wetlands, forests, habitat, cultural features) are inputs
- Landscape divided into 5-hectare hexagonal 'land units' (LUs)
- Multiple scenarios generated and considered by stakeholders
- Scenario outcomes based on millions of possible LU combinations
- Preferred Solution chosen by stakeholder consensus to best achieve environmental, social & economic conservation plan objectives



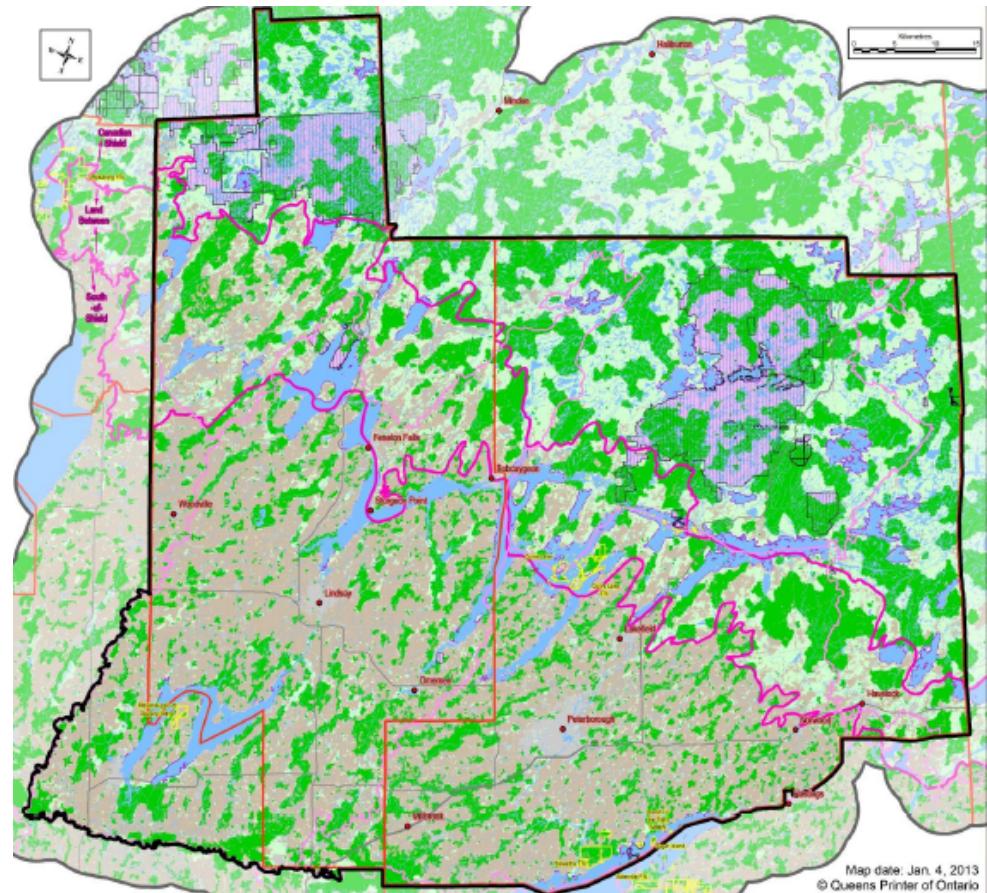


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# The Preferred Solution

- Comprised of 3 zones:
  - Canadian Shield
  - The Land Between
  - South-of-Shield
- Targets % existing features:
  - Landscape features
  - Biodiversity representation
  - Unique character features
  - Wild rice stands
  - Known rare habitat features
  - Riparian zone on lakes > 200 ha

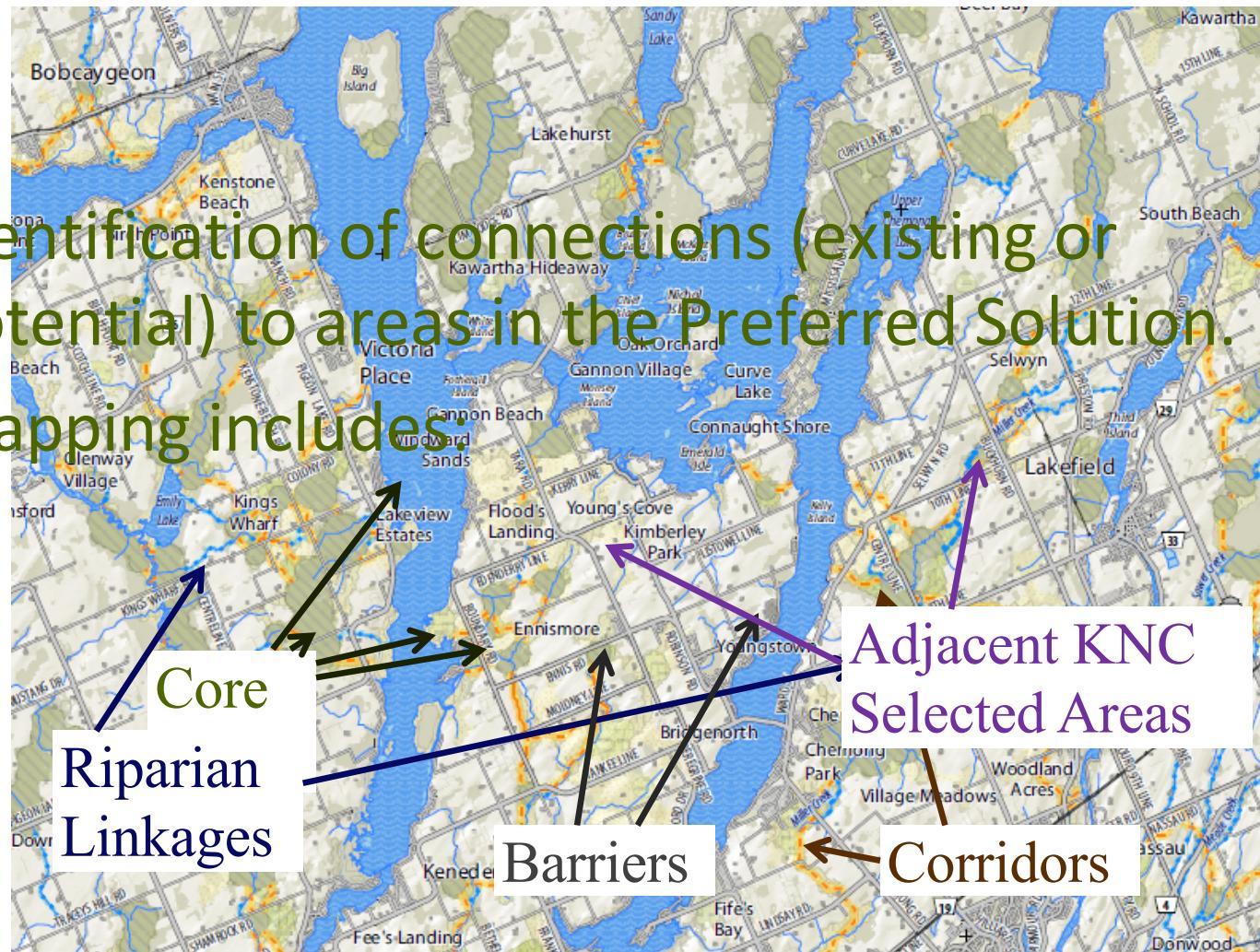




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- Identification of connections (existing or potential) to areas in the Preferred Solution.
- Mapping includes:





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# Where to Find NHS Products

The screenshot shows a web browser window with the URL [www.kawarthasnaturally.ca/resources/](http://www.kawarthasnaturally.ca/resources/). The page title is "Where to Find NHS Products". The top navigation bar includes links for HOME, ABOUT THE PROJECT, PROJECT AREA, RESOURCES (which is the active page), and CONTACT. Below the navigation is a horizontal banner featuring four images: a forest, a lake with a dock, children on a boardwalk, and a rural landscape. The main content area contains the project logo and tagline, followed by a "Resources" section and a "Steps to Creating Natural Heritage System" section.

### Resources

**Kawarthas, Naturally Connected Reports and Maps**

Phase 1 Project Report  
Download PDF, 6.2 MB

The following three maps represent the central mapping outcomes of Phase 1 of the KNC project.

The Preferred Solution is the final map product. The other two maps – The Preferred Sum Solution and the Combined Feature Sum Solution – represent the mapping data

### STEPS TO CREATING NATURAL HERITAGE SYSTEM

[Click here to view the steps](#)

The flowchart illustrates the 9 steps to creating a natural heritage system:

1. Data collection (Photo)
2. Data analysis (Map)
3. Data synthesis (Photo)
4. Map creation (Map)
5. Community involvement (Photo)
6. Data collection (Photo)
7. Data analysis (Map)
8. Data synthesis (Photo)
9. Map creation (Map)

Information that can be used to support the Natural Heritage System:

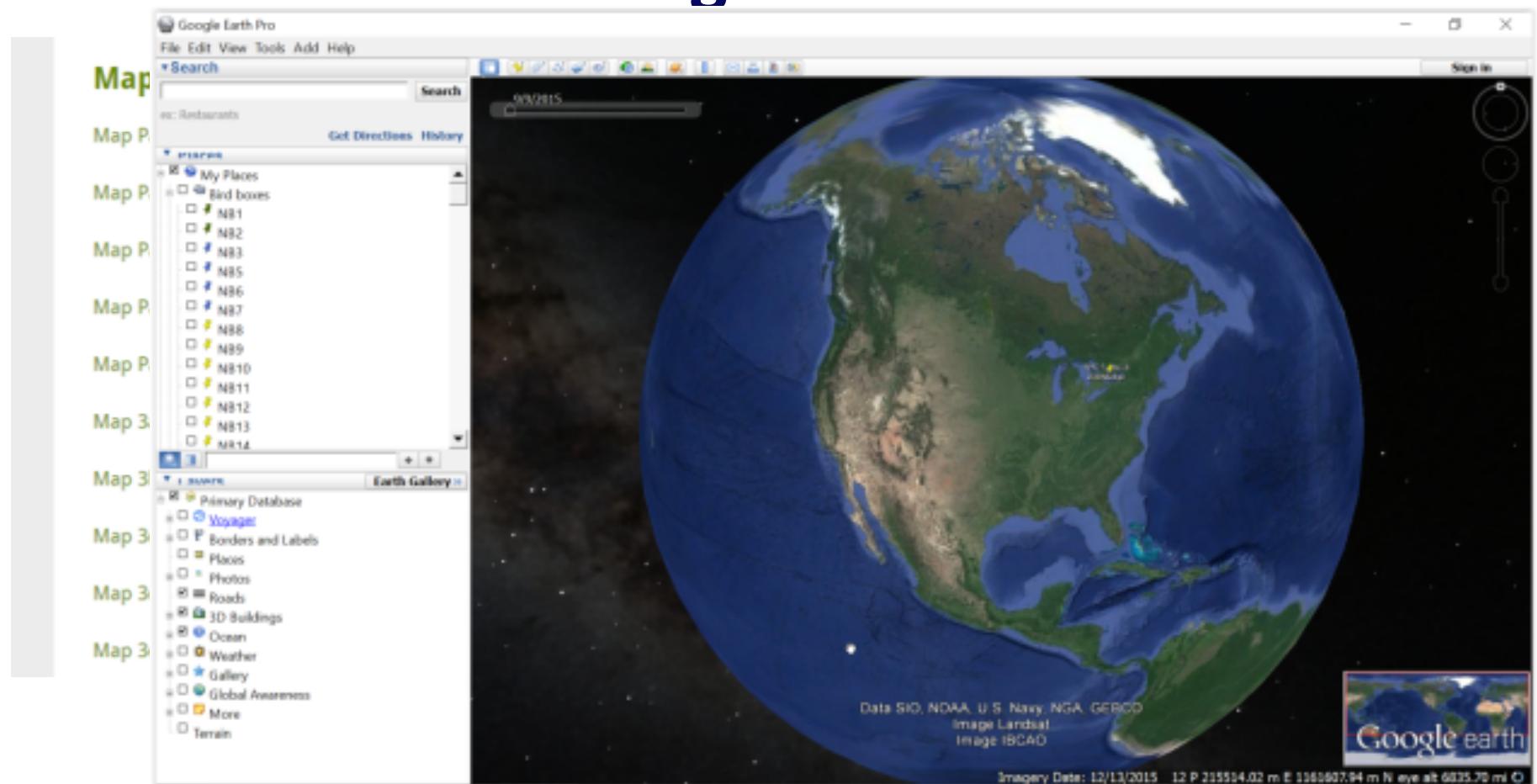
- Location of natural areas
- Location of natural features
- Location of natural resources
- Location of natural processes
- Location of natural systems
- Location of natural areas
- Location of natural features
- Location of natural resources
- Location of natural processes
- Location of natural systems

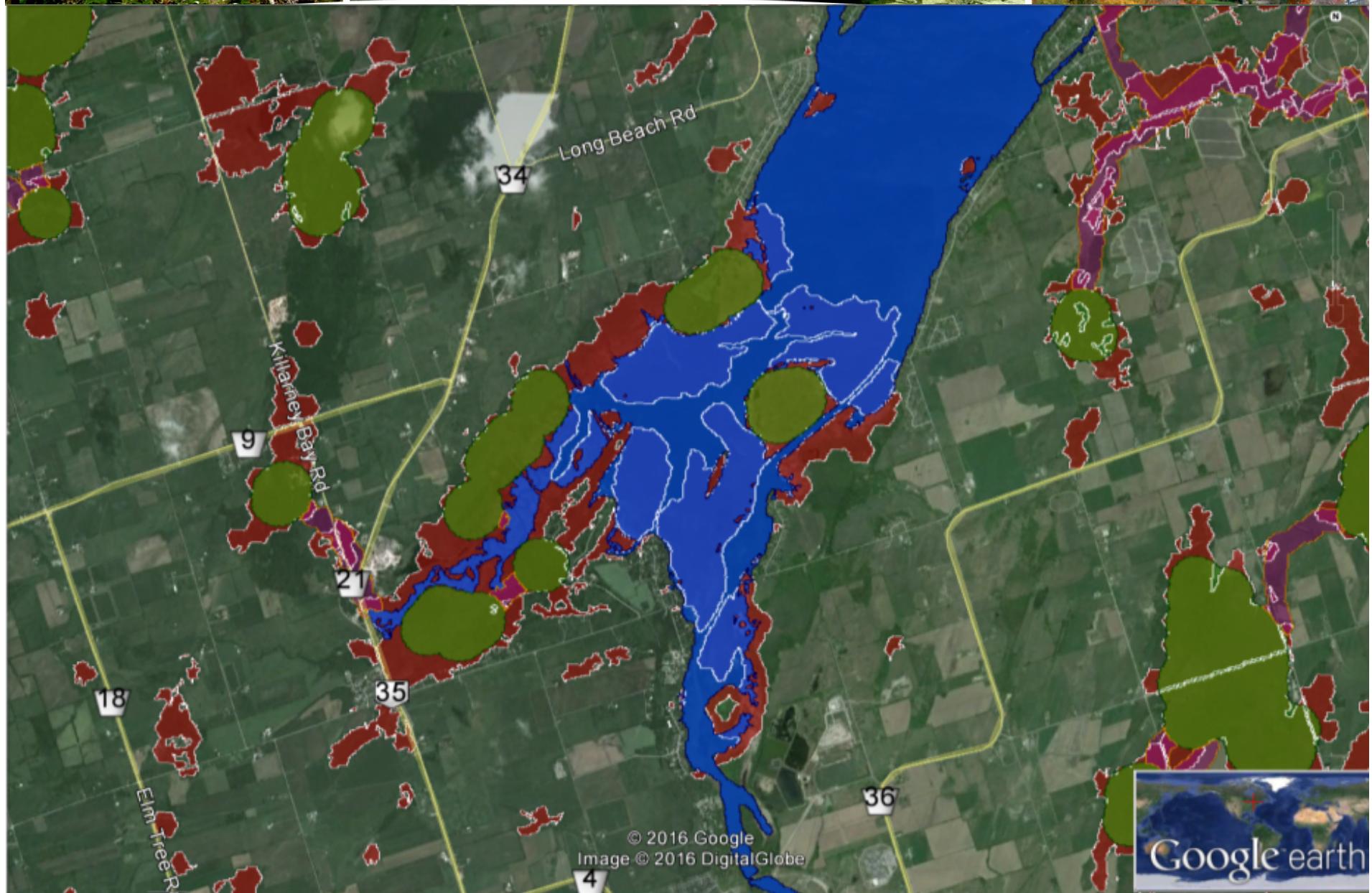


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# Google Earth







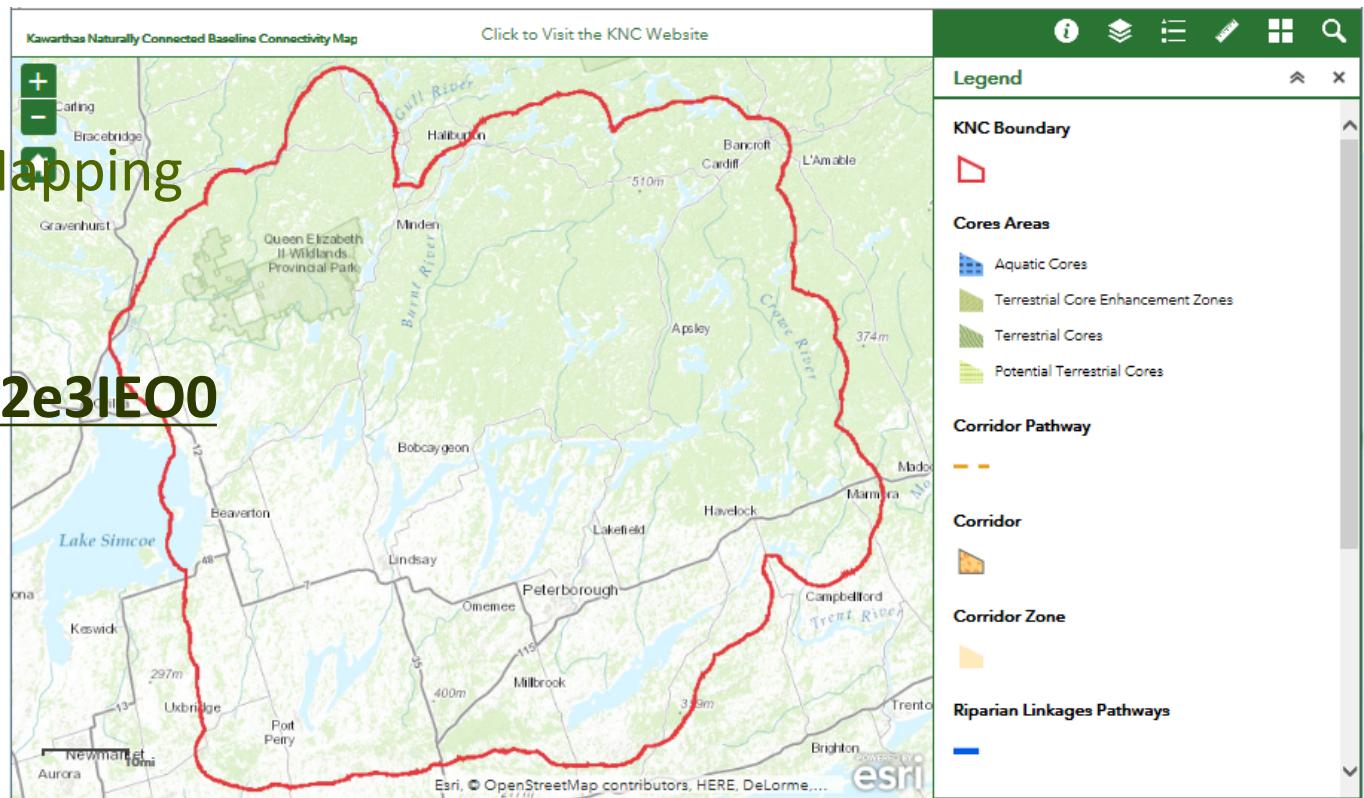
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### ArcGIS Online

- Interactive, ArcGIS Online Connectivity Mapping tool

<http://arcg.is/2e3IEQ0>



https://ptbcounty.maps.arcgis.com/apps/webappviewer/index.html?id=f780   

File Edit View Favorites Tools Help

Google Search More > Sign In

Kawarthas Naturally Connected Baseline Connectivity Map Click to Visit the KNC Website

**About**

 **KAWARTHAS, NATURALLY CONNECTED**  
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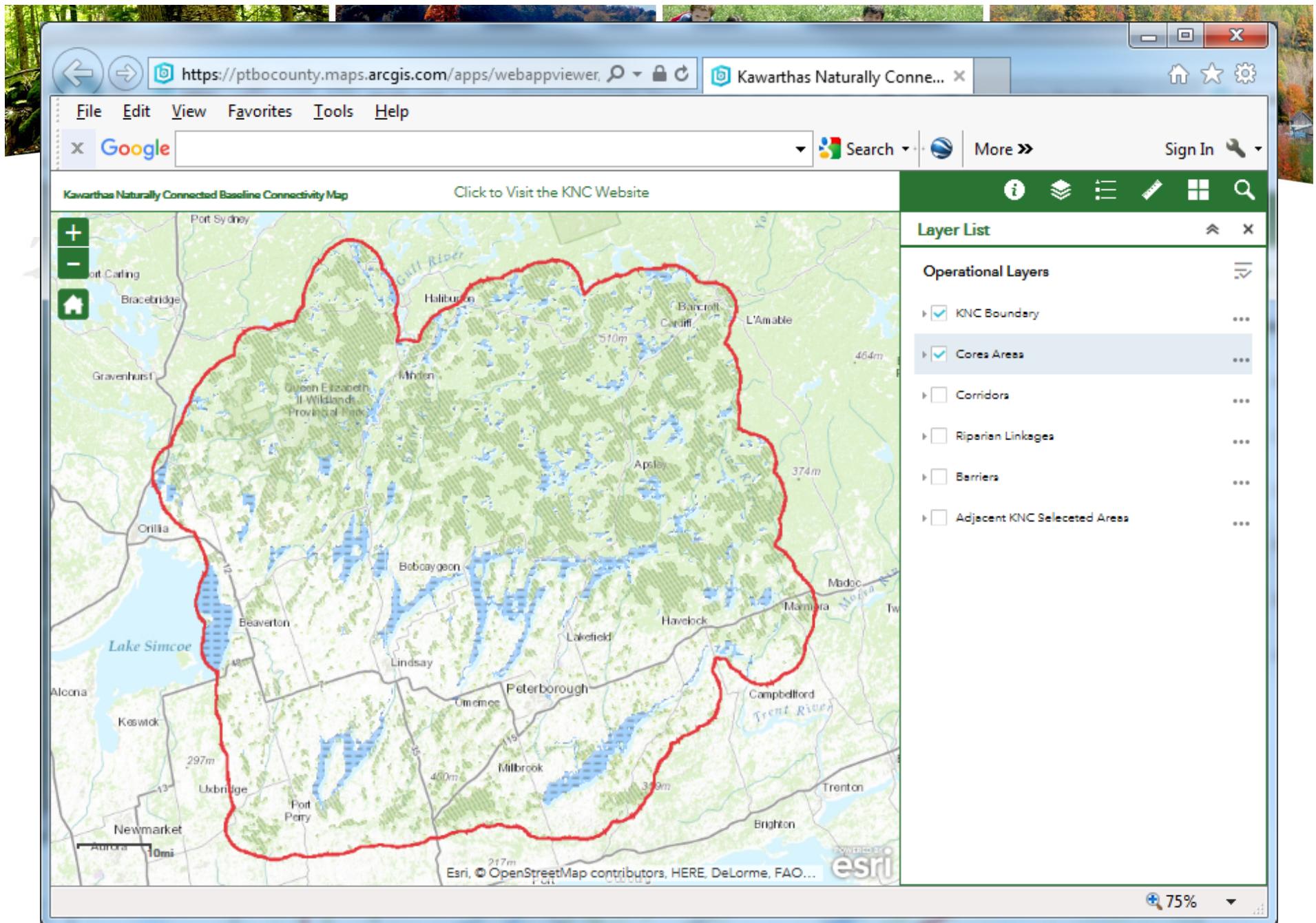
**Application Description:**

The objective of this mapping is to delineate areas that connect or, through restoration, have the potential to connect, the areas identified under the KNC Preferred Scenario. For more information about the KNC Preferred Scenario, please see *The Kawarthas, Naturally Connected - A Natural Heritage System for the Kawartha Lakes Region, Phase 1 Project Report, 2013*.

Consistent with the *Natural Heritage Reference Manual, Second Edition, OMNR, 2010*, the *Significant Wildlife Habitat Technical Guide, OMNR, 2000* and input from wildlife and landscape ecology specialists, criteria were developed that allocated the areas identified under the KNC Preferred Scenario, into a connected system of:

- 1. KNC Boundary** – to design a regional natural heritage system (NHS), the Project Study Area was defined using an ecological, not administrative, boundary. It includes a 5km buffer around the extent of all 33 tertiary watersheds within the City of Kawartha Lakes, County of Peterborough, and City of Peterborough.
- 2. Core Areas** – considered the building blocks of an NHS, Core Areas should be capable of providing and sustaining ecological functions. They consist of the following four core area types
  - (a) Aquatic Core Areas** – these include large lakes,  $\geq 20$  ha in size and river segments  $\geq 60$ m wide.

10mi 10km 100% 



https://ptbcounty.maps.arcgis.com/apps/webappviewer/ Kawarthas Naturally Conne... Sign In

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Kawarthas Naturally Connected Baseline Connectivity Map Click to Visit the KNC Website

Layer List

Operational Layers

- KNC Boundary
- Cores Areas
- Corridors
- Riparian Linkages
- Barriers
- Adjacent KNC Selected Areas

0.4mi

City of Kawartha Lakes, City of Peterborough, County of Pet... esri

75%

https://ptbcounty.maps.arcgis.com/apps/webappviewer/

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Legend

KNC Boundary

Cores Areas

- Aquatic Cores
- Terrestrial Core Enhancement Zones
- Terrestrial Cores
- Potential Terrestrial Cores

Corridor Pathway

Corridor

Corridor Zone

Riparian Linkages Pathways

Barriers

- Rural Homesteads
- 400 Series Highway
- Urban Areas & Subdivisions

0.4mi

City of Kawartha Lakes, City of Peterborough, County of Peterborough, O... esri

65%

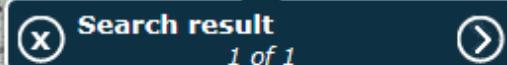
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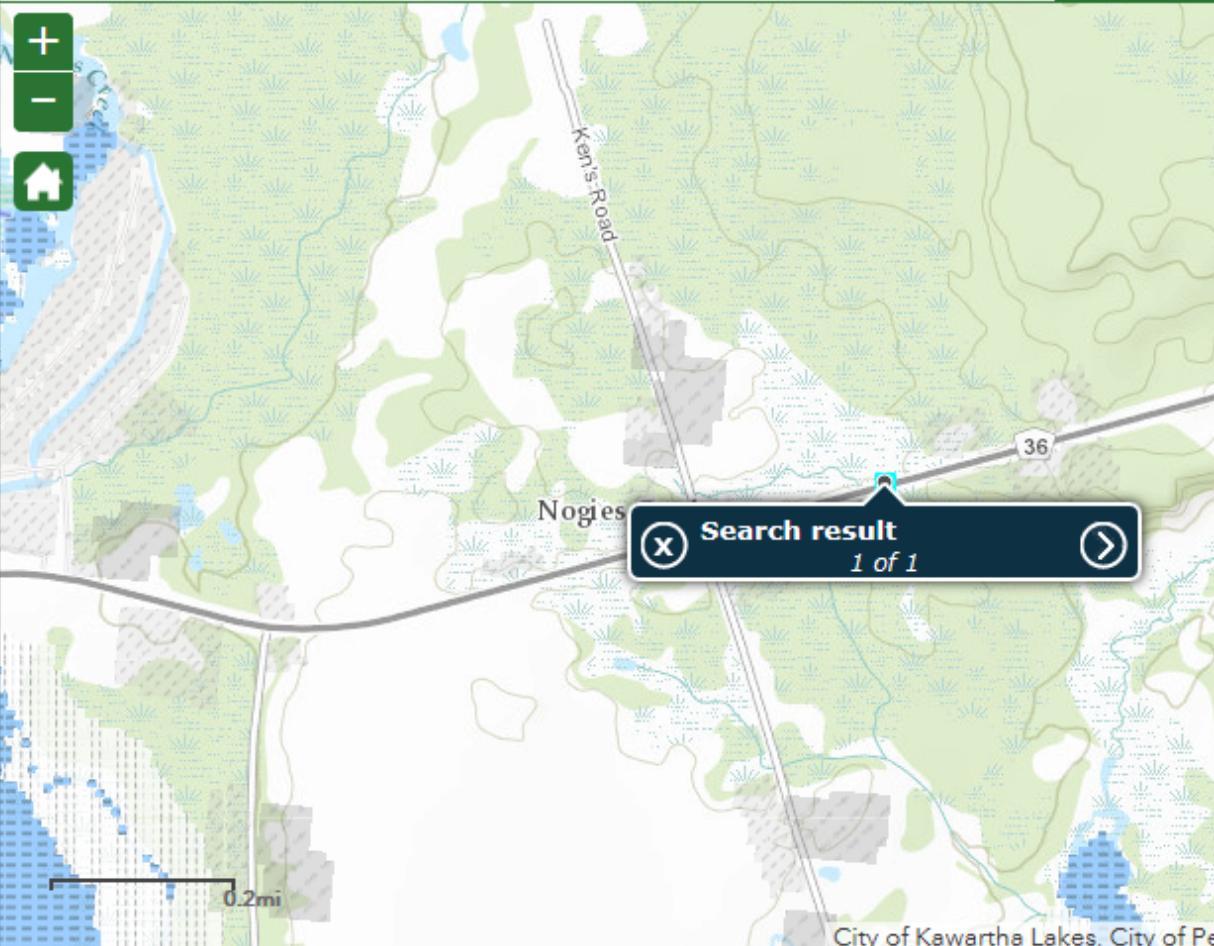
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x Google  Search More > Sign In

Kawarthas Naturally Connected Baseline Connectivity Map







60 County Road 36, Trent Lakes 

760 County Road 36, Holiday Lakes, Texas, USA

760 CR-36, Trent Lakes, Ontario, CAN

760 Fire Route 36, Trent Lakes, Ontario, CAN

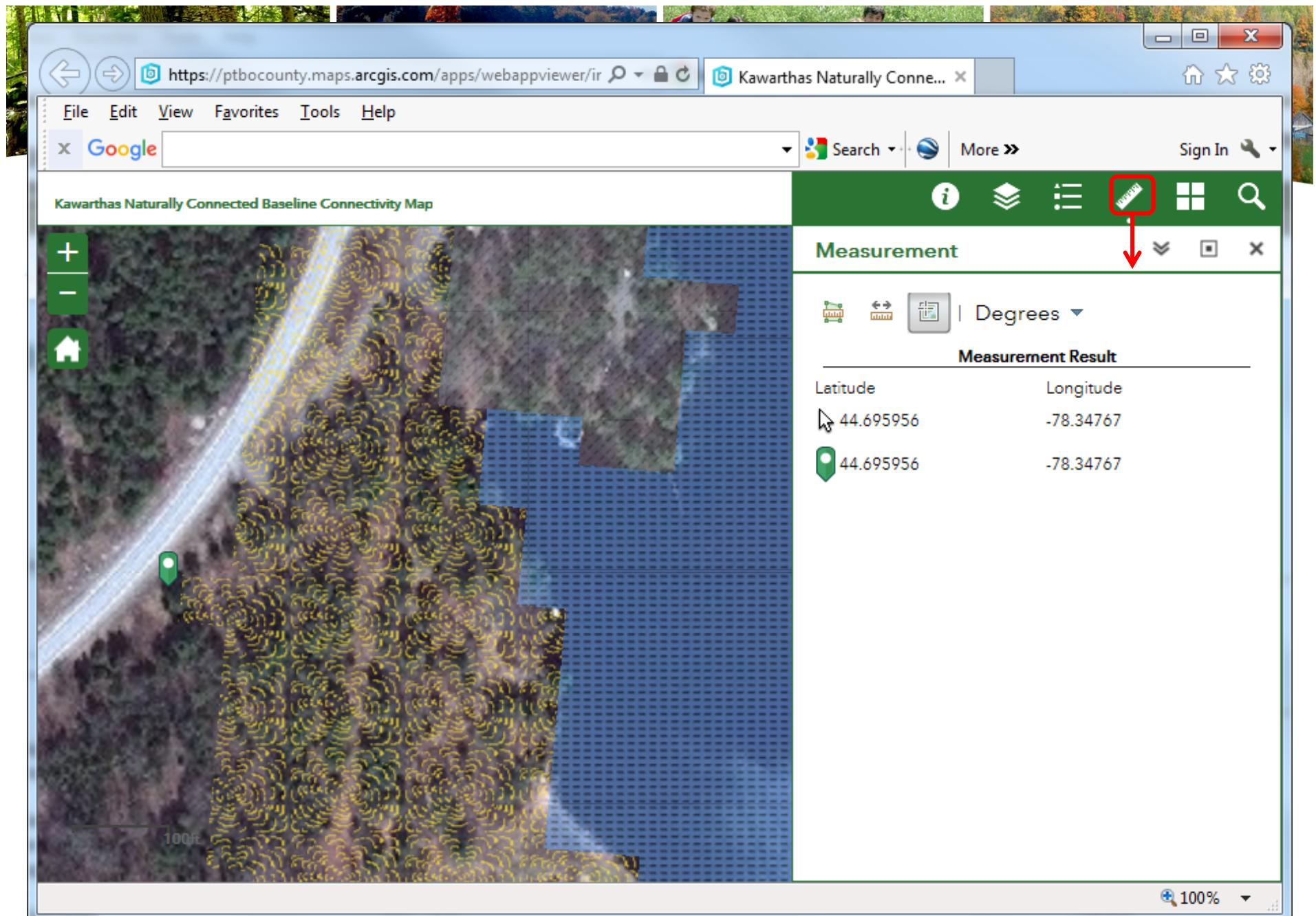
760 County Road 36, Uhrichsville, Ohio, USA

760 County Road 36, Tull, Arkansas, USA

760 County Road 36, Rexford, Kansas, USA

City of Kawartha Lakes, City of Peterborough, County of Peterbo... 

0.2mi  100% 





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## Data Layers

NHS products are available in several formats to support your decision-making needs:

- A package of compiled information and spatial data layers (mapping) available under Open Data license from Land Information Ontario (LIO)

<http://bit.ly/2dNpTRm>

Powered by **Land Information Ontario**

WHAT?

WHERE?

DISCOVERING ONTARIO DATA

Identification info

Title: Kawarthas Naturally Connected 2012

Alternate title: Natural Heritage System Kawarthas Project

Date: 2012-11-27

Date type: Publication: Date identifies when the resource was issued

Cited responsible party

Individual: Kazia Milian, Voice: (705) 755-3239, Facsimile: (705) 755-3292

Organisation: Ministry of Natural Resources, Southern Region Planning Unit

Position name: Planning Coordinator

Role: Point of contact: Party who can be contacted for acquiring knowledge about or acquisition of the resource

Abstract

Natural Heritage Systems design is the process of identifying critical areas on our landscape which serve as a landscape backbone a set of natural areas and linkages that are important to maintain the health of the landscape. The mapping of and information about this backbone is useful to support land use planning, stewardship, restoration activities, the conservation of biodiversity.



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# Using NHS Products

**Mapping & reports can be used as decision-making support tools for the following :**

- Sustainable land use planning
- Priorities for strategic stewardship and restoration projects
- Resources management decision-making
- Identifying areas for conservation land acquisitions
- Outlining priorities for inventory programs and research projects



Kawartha Conservation



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# Implementing the NHS

- Respect for private landowners' rights is a key principle
- NHS to be implemented by a diverse range of stakeholders through:
  - Municipal land-use planning (Official Plans, Secondary Plans, etc.)
  - Acquisition of environmentally sensitive properties by land trusts, Conservation Authorities, municipalities, and the Province
  - Stewardship projects on private and public lands to restore natural vegetation and other natural features
  - Education by a wide range of groups, schools, colleges, and universities
  - Integration with various strategic plans



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### Implementation: Provincial

- The 2014 Provincial Policy Statement supports the implementation of the NHS:
  - Section 2.1.2 – “The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.”



Image: Amanda Warren



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# Implementation: Southern Ontario

- The 2014 Provincial Policy Statement supports the implementation of the NHS:
  - Section 2.1.3 –  
“Natural heritage systems shall be identified in Ecoregions 6E & 7E, recognizing that natural heritage systems will vary in size and form in settlement areas, rural areas, & prime agricultural areas.”

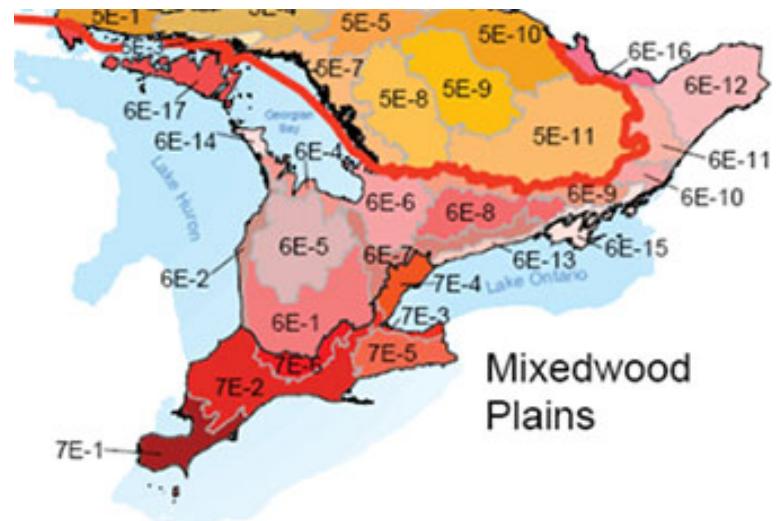


Image Source: Crins, W.J., Gray, P.A., Uhlig, P.W.C., Wester, M.C. 2009. "Ecosystems of Ontario, Part 1: Ecozones and Ecoregions"



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# Implementation: Municipalities

- Planning objectives support healthy, sustainable ecosystems by identifying:
  - Natural heritage feature locations
  - Priority sites for feature restoration or creation
- Diverse interests engaged in NHS development increases the legitimacy and usefulness of the final products.
- Ongoing involvement of diverse stakeholder groups through implementation phase of KNC



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# Implementation: Municipalities

Municipalities help implement the NHS by:

- Aligning Official Plans with the objectives of the NHS
- Encouraging land-use activities that are consistent with the NHS
- Developing stewardship programs that target key NHS areas
- Protecting natural areas on municipal properties
- Naturalizing/enhancing municipal properties within the NHS
- Providing public education and communication about the NHS

Image: Penn State





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### Case Study: City of Kawartha Lakes

- City of Kawartha Lakes commencing 5 year review of Official Plan in 2017
- City consists of large rural land base with 5 urban areas
- Many background studies and Public Meetings will inform this review
- Need to complete updates consistent with 2014 Provincial Policy Statement and incorporate proposed 2016 Growth Plan and Oak Ridges Moraine Conservation Plan updates
- City will undertake an updated review of its rural land base
- Natural Heritage System as prepared through KNC will inform a large component of the City's land use review
- NHS will work together with other reviews currently being conducted by other agencies



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### Case Study: City of Kawartha Lakes

- KRCA is undertaking lake management planning and floodplain mapping for various river systems for the City
- City will update Source Water Protection policies
- A portion of the City is subject to the Lake Simcoe Protection Plan – need further policy update for conformity
- Proposed 2016 Growth Plan policies suggest that the Province will complete a NHS strategy for the Greater Golden Horseshoe
- Natural Heritage System would likely be shown as a series of development constraints mapping for features with policies
- Will be integrated with other features and land use considerations



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# Implementation: Conservation Authorities

Conservation Authorities help implement the NHS by:

- Considering various, identified natural heritage features needed to support a healthy, sustainable ecosystem
- Using it as a tool to prioritize stewardship activities
- Using it as a criteria for evaluating potential land acquisitions

Image: Kawartha Conservation





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# Implementation: Conservation Authorities

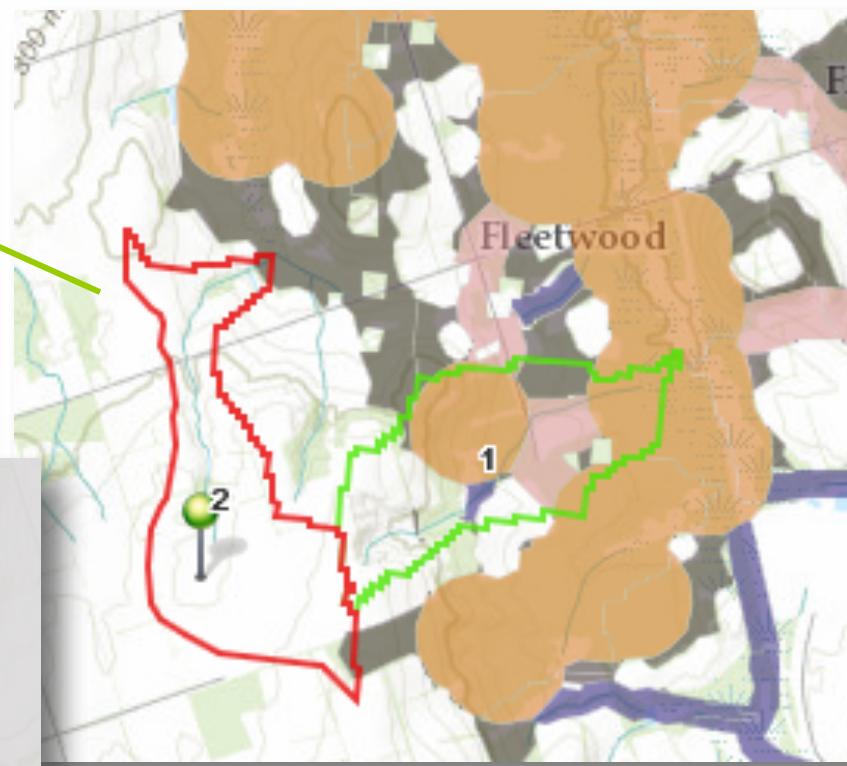
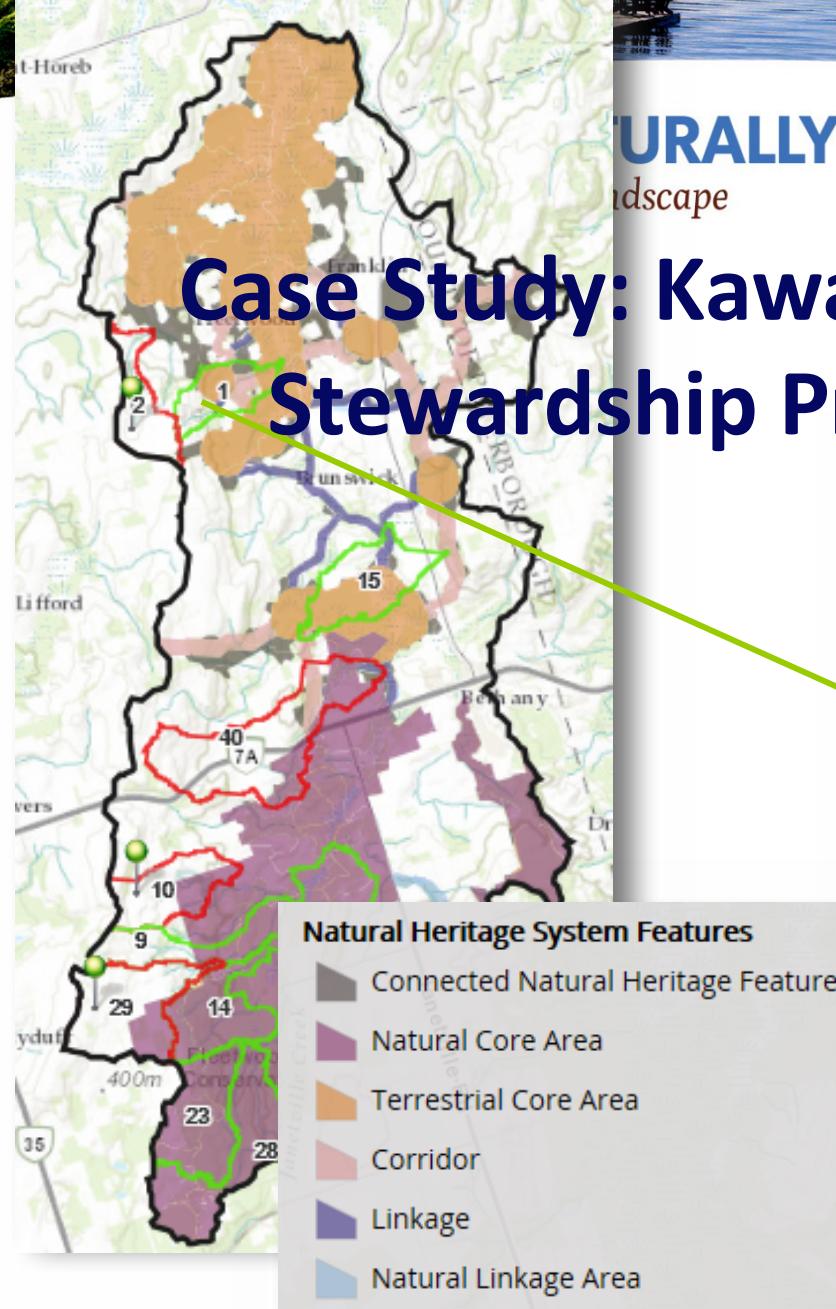
Conservation Authorities help implement the NHS by:

- Planning and regulation policies & other strategic documents
- Targeting stewardship activities within the NHS
- Including lands within the NHS among criteria for land acquisition
- Providing public education and communication about the NHS
- Working with municipal partners to implement naturalization projects on municipal and private lands
- Securing grants for various projects



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## Case Study: Kawartha Conservation Stewardship Prioritization Tool



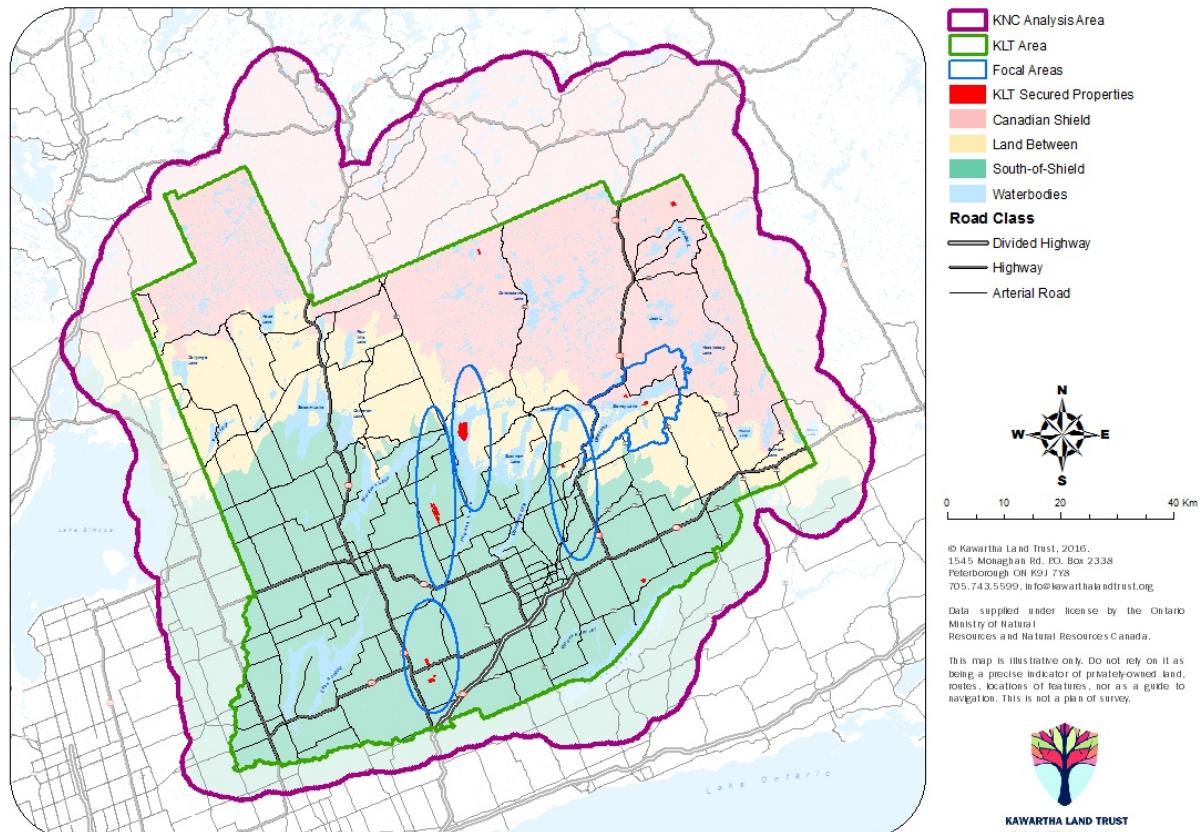


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# Case Study: Kawartha Land Trust

### KLT Funnel Approach - Focal Areas





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### Implementation: Private Landowners

- How existing natural features on your property contribute to the ecological health of the region
- Opportunities to enhance the ecological value of your property
- Protecting or enhancing natural features on your property helps contributes to the health and prosperity of your community!



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### Implementation: Private Landowners

Private landowners can help implement the NHS by:

- Undertaking stewardship projects on their properties (e.g. tree planting, native grass species planting, wetland restoration, habitat enhancement - e.g. duck nest boxes, hibernaculum areas, fish habitat/spawning areas)
- Encouraging neighbours to undertake stewardship projects
- Promote sustainable development/construction practices



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# Questions?

