

# County of Peterborough



Our History. Your Future.

## Geographic Information Systems (GIS)

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April 14, 2015

The Honourable Kathleen Wynne, Premier  
Legislative Bldg, Rm. 281  
Queen's Park  
Toronto, ON M7A 1A1

The Honourable Bill Mauro  
Minister of Natural Resources and Forestry  
Ministry of Natural Resources and Forestry  
99 Wellesley Street West  
Room 6630, Sixth Floor, Whitney Block  
Toronto, Ontario M7A 1W3

Paula Reid  
Assistant Deputy Minister – Corporate Management & Information  
Division  
Whitney Block, 6<sup>th</sup> Flr, Rm 6540  
99 Wellesley St. W.  
Toronto, ON M7A 1W3

Dear Premier Wynne:

Re: Ontario Imagery Strategy

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At the **April 1, 2015** meeting of the Council of the County of Peterborough approved the attached staff report and passed the following resolution:

**Be it resolved that** County Council has realized the value of aerial imagery projects collected under the leadership of Land Information Ontario (LIO), a program of the Ministry of Natural Resources and Forestry (MNRF), in 2002, 2008, and 2013;

**Now therefore be it resolved that** a letter be sent to the Premier of Ontario, the Minister of Natural Resources and Forestry (MNRF), and the Assistant Deputy Minister of Natural Resources and Forestry – Corporate Management and Information Division expressing the County's support for the Province to maintain and continue the current imagery update cycle and renew the Imagery Strategy beyond 2017; and,

**Further be it resolved** that this report be sent to the member municipalities of the Eastern Ontario Wardens' Caucus (EOWC) and the Western Ontario Wardens' Caucus (WOWC), and other rural Councils that have been involved in these projects requesting their endorsement of the same.



Thank you for considering this request. Should you wish to discuss this matter further, please do not hesitate to contact me.

Respectfully,

Tammy Sikma  
Manager of GIS

Encl. (1)

Cc: Andy Brown, CAO, United Counties of Leeds and Grenville  
Gary King, CAO, County of Peterborough  
James Hepburn, Acting CAO, Prince Edward County  
Jennifer Moore, Acting CAO, Northumberland County  
Jim Hutton, CAO, County of Renfrew  
Jim Pine, CAO, County of Hastings  
Jim Wilson, CAO, County of Haliburton  
Kelly Pender, CAO, Frontenac County  
Kurt Greaves, CAO, Lanark County  
Larry Keech, CAO, County of Lennox & Addington  
Mark Fisher, CAO, City of Kawartha Lakes  
Stephane Parisien, CAO, United Counties of Prescott and Russell  
Tim Simpson, CAO, United Counties of Stormont, Dundas, and  
Glengarry  
Don Shropshire, CAO, Municipality of Chatham-Kent  
Paul Emerson, CAO, County of Brant  
Kelley Coulter, CAO, Bruce County  
Sonya Pritchard, CAO, Dufferin County  
Mark McDonald, CAO, Elgin County  
Brian Gregg, CAO, County of Essex  
Derik Brandt, CAO, Grey County  
Brenda Orchard, CAO, Huron County  
Ron Van Horne, CAO, County of Lambton  
Bill Rayburn, CAO, Middlesex County  
Keith Robicheau, CAO, Norfolk County  
Peter Crockett, CAO, Oxford County  
Bill Arthur, CAO, Perth County  
Mark Aitken, CAO, Simcoe County  
Scott Wilson, CAO, Wellington County  
Michael Duben, CAO, District Municipality of Muskoka  
Stephen Kaegi, CAO, Township of the Archipelago  
Suzanne Klatt, CAO, Township of South Algonquin  
Donald Boyle, CAO, Haldimand County

# The County of Peterborough

## County Council

To: Warden and Members of Council

From: Tammy Sikma, Manager of GIS

Date: April 1, 2015

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**Subject:** Ontario Imagery Strategy

**Recommendation:**

Whereas County Council has realized the value of aerial imagery projects collected under the leadership of Land Information Ontario (LIO), a program of the Ministry of Natural Resources and Forestry (MNRF), in 2002, 2008, and 2013;

Now therefore be it resolved that a letter be sent to the Premier of Ontario, the Minister of Natural Resources and Forestry (MNRF), and the Assistant Deputy Minister of Natural Resources and Forestry – Corporate Management and Information Division expressing the County's support for the Province to maintain and continue the current imagery update cycle and renew the Imagery Strategy beyond 2017; and,

Further be it resolved that this report be sent to the member municipalities of the Eastern Ontario Wardens' Caucus (EOWC) and the Western Ontario Wardens' Caucus (WOWC), and other rural Councils that have been involved in these projects requesting their endorsement of the same.

**Financial Impact:** None

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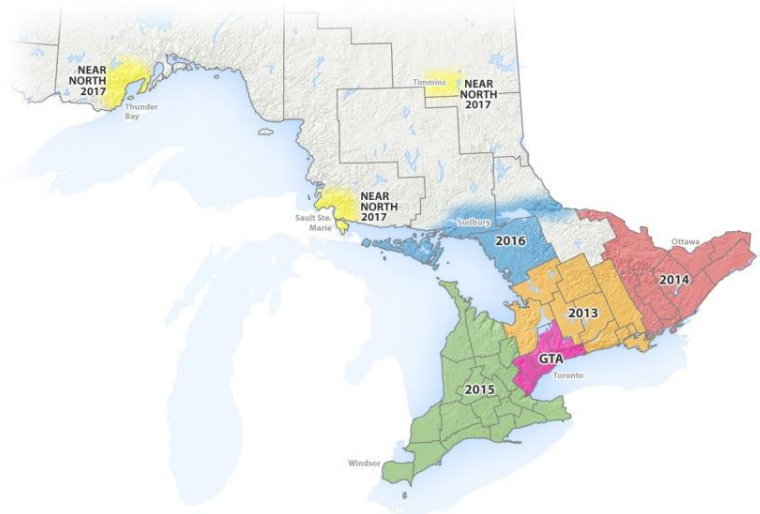
**Overview:**

Since 2002, the County has participated in three Province-led, multi-agency, public-private sector partnerships that have provided the County and Townships with complete recurring aerial photo coverage (2002, 2008, 2013). These images are available to all County and Township staff as well as the public as a backdrop to all of the mapping data available on the County's web-GIS sites.

Aerial photos can include any photographs taken from the air. Images used by municipalities are typically taken vertically (directly down from the plane) from a fixed-wing aircraft using a high-precision digital camera system flying low-level parallel grid patterns to ensure complete coverage across the landscape. Images are taken with a significant overlap between flight

lines to create stereo imagery that can be viewed in 3D, used to generate elevation data, and required to create ortho photos or orthoimagery. Ortho photos are the raw aerial photos that have been processed to precise coordinates in order to remove distortion and “register” the final image (ortho-photo) directly on the ground, to an accuracy of 50 cm.

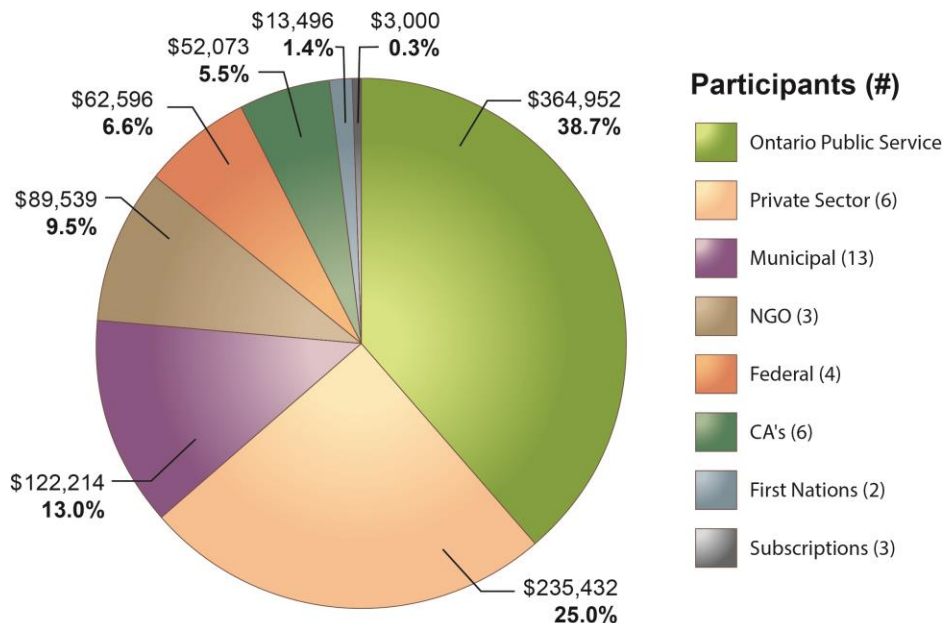
In 2012, the Ontario Government committed to a 5-year Imagery Strategy to complete aerial photo projects across Southern and portions of Northern Ontario each year between 2013 - 2017, inclusive. Project areas are large (35,000 – 45,000 sq km) to take advantage of savings due to longer flight lines, processing contracts, multi-year contracts, etc. With this commitment half-completed, it is important to ensure that the Province is aware of the importance of continuing this valuable, cost-sharing program.



**Figure 1:** Ontario Imagery Strategy 2013-2017.  
Image Credit: Queens Printer

In 2013, the County acquired 6,000 sq km of imagery through SCOOP (South Central Ontario Orthophotography Project, see Fig. 1), at a cost of \$19,962. A blended funding model (Fig 2) calculated the sq km cost of imagery based on total orders to provide equally affordable pricing along the urban Hwy 401-corridor and remote rural portions of the Canadian Shield.

**SCOOP 2013 Acquisition Cost: \$943K**



**Figure 2:** Partner share of SCOOP 2013 imagery acquisition.

The SCOOP costs for the County-acquired coverage without partner support were \$157,592 (Table 1), providing the County with 87.3% in savings. It is also important to note that the cost to fly this area independent of any partnerships would be higher due to greater gas consumption from shorter flight lines / more frequent turning and full-cost administration, setup, and processing costs. The current market value for a County of Peterborough project is estimated at \$250,000 – 300,000, or 12.5 – 15 times what was spent through SCOOP.

While each of the three public-private partnership projects led by the MNR's Land Information Ontario (LIO) that the County has participated in since 2002 (Table 1) have used different funding models and have delivered different products and/or copyright entitlements, the savings in each has been substantial. The total spent to date for all three orthophoto projects combined is less than the cost of the least expensive project without partnership savings. Without these cost-saving programs, the County's ability to pay for imagery would be much more strained, possibly limiting the frequency of the update cycle.

**Table 1:** Costs of Province-led, Multi-Sector Imagery Projects Involving the County of Peterborough

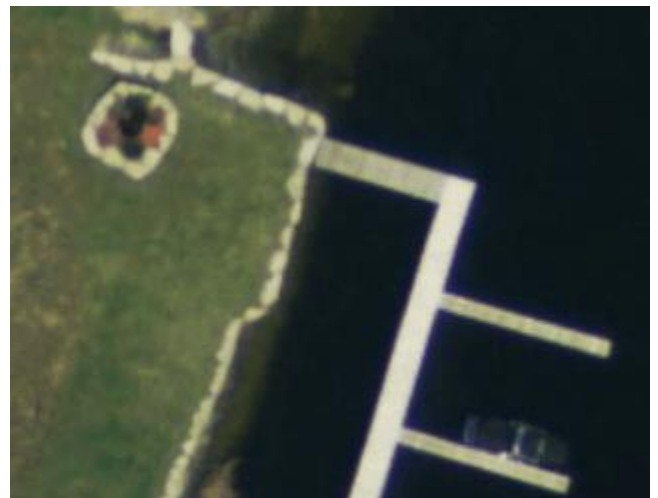
<b>Project</b>	<b>County Shared Cost</b>	<b>Without Partners Cost</b>	<b>Partnership Savings</b>	<b>Percent Saved</b>
GTA 2002	\$49,927	\$1,120,924	\$1,070,997	95.5%
DRAPE 2008	\$20,674	\$145,635	\$124,961	85.8%
SCOOP 2013	\$19,962	\$157,592	\$137,630	87.3%
<b>TOTAL</b>	<b>\$90,563</b>	<b>\$1,424,151</b>	<b>\$1,333,588</b>	<b>93.6%</b>

The benefits of regularly acquiring high-resolution (20cm pixel) aerial imagery (Fig 3 & Fig 4) are varied and cover the interests of the County, local municipalities, and the general public. Examples include:

- Change detection between imagery years
- Review of land-use planning applications
- By-Law enforcement
- Identifying and/or realigning map features such as roads, bridges, storm sewer catchbasins, building footprints
- Base mapping
- Creation of elevation models
- Municipal revenue from the sales of imagery
- Providing a connection between planar mapping and real-world understanding



**Figure 3:** Imagery taken of Oak Orchard sub-division in 2002, 2008, 2013.



**Figure 4:** Detailed view of 2013 imagery.

**Analysis:**

Rural municipalities in Eastern Ontario, such as the County of Peterborough and its local municipalities, have benefitted greatly from the Ontario government’s leadership and partnership in multi-sector aerial imagery collection projects. Those municipalities cover large areas comprised of modest populations and would not be able to afford the costs on their own.

The County of Peterborough shares the orthophotos collected through these projects with staff at the County and local municipalities, as well as the general public, via our web-GIS. Imagery is often the first layer turned on when examining the “lay of the land” and regular updates are needed to show the current, and changing, state of land-use.

Regardless of the project year, participating municipalities have realized significant cost-savings, while retaining licensing permissions to use, sell, and share a full suite of imagery products. In the DRAPE (Digital Raster Acquisition Project – East) projects that took place in 2008 & 2014, EOWC municipalities spent approximately \$330,000 and realized partnership savings in excess of \$2.5 million. Similarly, the 2006 & 2010 SWOOP (South Western Ontario Orthoimagery Project) partnerships cost participating WOWC municipalities approximately \$1 million, while leveraging over \$2.8 million in shared savings. Differences in spending were the result of the contract values, the number of partners, and the size/extent of each project.

As the Province prepares to consider the future of funding this program, it is important that past-partners advocate for the benefits and express their ongoing need for such programs.

**Recommendation:**

Whereas County Council has realized the value of aerial imagery projects collected under the leadership of Land Information Ontario (LIO), a division of the Ministry of Natural Resources and Forestry (MNRF), in 2002, 2008, and 2013,

Now therefore be it resolved that a letter be sent to the Premier of Ontario, the Minister of Natural Resources and Forestry (MNRF), and the Assistant Deputy Minister of Natural Resources and Forestry – Corporate Management and Information Division expressing the County’s support for the Province to maintain and continue the current imagery update cycle and renew the Imagery Strategy beyond 2017; and,

Further be it resolved that this report be sent to the member municipalities of the Eastern Ontario Wardens’ Caucus (EOWC) and the Western Ontario Wardens’ Caucus (WOWC) , and other rural Councils that have been involved in these projects requesting their endorsement of the same.

Respectfully submitted,

Original signed by

Tammy Sikma  
Manager of GIS