

# Surveyor General Annual Report 2020

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Ministry of Natural Resources and Forestry



UPPER CANADA

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## Naturally Resourceful

The Ministry of Natural Resources and Forestry (MNR) sustainably manages and promotes the responsible use of our natural resources so that Ontarians benefit from the health and wealth of the province's natural resources, today and in the future.

Through leadership in surveying, geomatics, and information management, the Mapping and Information Resources Branch (MIRB) is an essential partner in the management of natural resources, ensuring decisions are supported by the best possible advice, data and information.

2020 has been a very challenging year for all of us. Despite this, the Mapping and Information Resources Branch has been able to successfully transition to working from home. We continued uninterrupted to provide support to the public and the business community while making best efforts to maintain high quality and timely responses to inquiries and requests.

## Office of the Surveyor General

OSG provides professional surveying, mapping, and georeferencing advice and services to government ministries, municipalities, and the surveying and mapping industry.

In addition to our regular work this year we were able to accomplish a few special projects:

- Updated [Crown Land Survey Instructions](#) (August 2020)
- Worked across ministries to attract land surveyors to government
- Streamlined access to land tenure data within government
- Supported statutory and regulatory changes to the *Surveys Act*, *Surveyors Act* and *Provincial Parks and Conservation Reserves Act*

### Surveying and mapping work:

- Responded to more than 200 information requests from surveyors for survey plans, field notes and instructions
- Continued scanning historical survey records to preserve original files and make records available digitally
- Reviewed and approved 245 Crown Location Plans of Survey
- Worked with the Ministry of Energy, Northern Development and Mines to provide survey instructions and oversee mining dispositions



- Provided professional survey advice to support MNR in court and tribunals
- Prepared Regulation Plans for planning areas, local services boards, provincial parks, and conservation reserves
- Maintained Crown parcel and other cadastral and administrative data including the geographic township and lot fabric data sets
- Worked with the Ministry of Indigenous Affairs and Natural Resources Canada to support First Nations land claims and other land related negotiations by providing advice and mapping services on the following Reserves:
  - Attawapiskat
  - Chapleau Cree
  - Couchiching
  - Grassy Narrows
  - Gull River
  - Kasabonika Lake
  - Manitoulin 1990
  - Pic Mobert
  - Mitaanjigamiing TLE
  - Mississauga

- Moose Cree
- Sagamok
- Treaty 3 flooding claims potentially impacting over 50 Reserves
- Washagamis Bay First Nation Garden Islands
- Wikwemikong

## Geodetic Activities

The COntrol Survey INformation Exchange (COSINE) database is the official source of provincial, federal, and municipal control survey information for Ontario.

Improvements to the COSINE Application include:

- A new option allows users of the Standard COSINE Report to obtain coordinate and height information for all available horizontal and vertical datums or for only those datums selected for on-screen viewing
- An improved Standard COSINE output page display for station reporting and reference sketches

Update your bookmarks with [new COSINE URL](#)

### Additional Control Available

The geodetic control team continued to work with municipalities and the Ministry of Transportation, Ontario (MTO) to:

- Add over 600 new horizontal control stations into COSINE on the NAD83-ORIG and/or the NAD83-CSRS V6 (2010.0) datums for the cities of



Burlington, Markham, Newmarket, Oshawa, and Ottawa, the community of Hamlet, as well as several projects along provincial highways submitted by MTO

- Add over 60 new vertical control benchmarks into COSINE on the Canadian Geodetic Vertical Datum 1928 (CGVD28) for the City of Peterborough, the Town of Stouffville, and several projects along provincial highways added by MTO

### The 2020 Canadian Geodetic Reference System Committee

Discussions took place this year to review the potential Canadian implementation of the new horizontal and vertical reference systems promoted by the United States National Geodetic Survey (US NGS), specifically:

- New horizontal datum known as the North American Terrestrial Reference Frame 2022 (NATRF2022),
- New vertical datum North American-Pacific Geopotential Datum 2022 (NAPGD2022).

At this point, it is expected that the NAPGD2022 will be equivalent to the Canadian Geodetic Vertical Datum 2013 (CGVD2013) being implemented and used across Canada.

To access COSINE or for more information about geodetic activities in Ontario, visit [Geodesy Ontario web page](#) or email: [geodesy@ontario.ca](mailto:geodesy@ontario.ca)

## Geographic Names

The Ontario Geographic Names Board considered 96 cases at three meetings with 11 recommendations in the process of being finalized. 15 deferrals and 70 pending consultation input. Three names were submitted by Indigenous communities and eight submissions were in memory of servicemen from Ontario who lost their lives in World War II.

We continue to communicate and collaborate with First Nations, municipalities, landowners, and businesses about naming in Ontario. We have noticed an increased interest from the public for naming this year.

In 2020, the geographic names team:

- Provided 50 names for the Ontario portion of a national map Celebrating Women with Canadian Place Names
- Participated virtually in the Geographical Names Board of Canada Annual General Meeting
- Developed interactive maps and on-line questionnaires for public consultation on name proposals and promoted through social media channels
- Developed new naming policies and procedures in collaboration with stakeholders and other jurisdictions
- Maintained the database of 60,000 official geographic names for official mapping

## Foundation Geospatial Data

The Mapping and Information Resources Branch acquires, maintains, and delivers geomatics and information services to MNRF, other ministries, and Ontarians.

Foundation geospatial data includes:

- Roads
- Water
- Utilities
- Wetlands
- Elevation data
- Imagery

This foundation data is referenced by the survey community when developing survey plans or planning survey activities. Much of this data is available for direct download from Land Information Ontario: [ontario.ca/lio](http://ontario.ca/lio)

High-quality, authoritative foundation geospatial data ensures accurate mapping and supports sound decision-making for government, businesses, and the public.

## Ontario GeoHub

Ontario GeoHub allows users to easily find, download, or stream authoritative geospatial data. Surveyors can now evaluate data on the fly before deciding to access it. [GeoHub](#) has more than 350 open data sets available for download.

## Ontario Hydro Network

This year we updated water data for over 33,000 km<sup>2</sup> in northern Ontario and over 16,000 km<sup>2</sup> in southern Ontario. Since 2013, over 400,000 km<sup>2</sup> have been updated to support forest management planning. We also collaborated with Natural Resources Canada's National Hydro Network team on surface water feature extraction using high-resolution elevation data and imagery as well as sharing maintenance processes and open tool development.

## Advancing the Topographic Map

Users of survey and geomatics software and web mapping applications reference the topographic map cache regularly for authoritative mapping. In 2020, cartographers made improvements to a new vector-based map cache that will allow for faster update times, require less storage space, support better display quality and printing, and allow for dynamic labeling with clearer text.

A beta version of the Vector Topographic Map Cache will be released in 2021 and will be announced through the LIO distribution list



## Ontario Road Network

The Ontario Road Network (ORN) holds information for more than 260,000 kms of roads across the province. The ORN is maintained by sourcing data from municipal, provincial, and federal levels of government.

In 2020, more than 100,000 kms of roads were added or updated. The ORN is fundamental to Ontario's emergency response systems. The data is also used by the federal government to update Canada's National Road Network, the Statistics Canada Road Network, and to improve Canada's census geography.

## Elevation Data

In 2020, the Provincial Mapping Unit provided in-kind quality control support for an NRCan/City of Ottawa funded airborne topographic LiDAR (Light Detection and Ranging) acquisition for the Greater Ottawa Region. In return, MNRF will receive over 4,000 km<sup>2</sup> of high-quality LiDAR data for Ontario's open data holdings

available through [Ontario GeoHub](#).

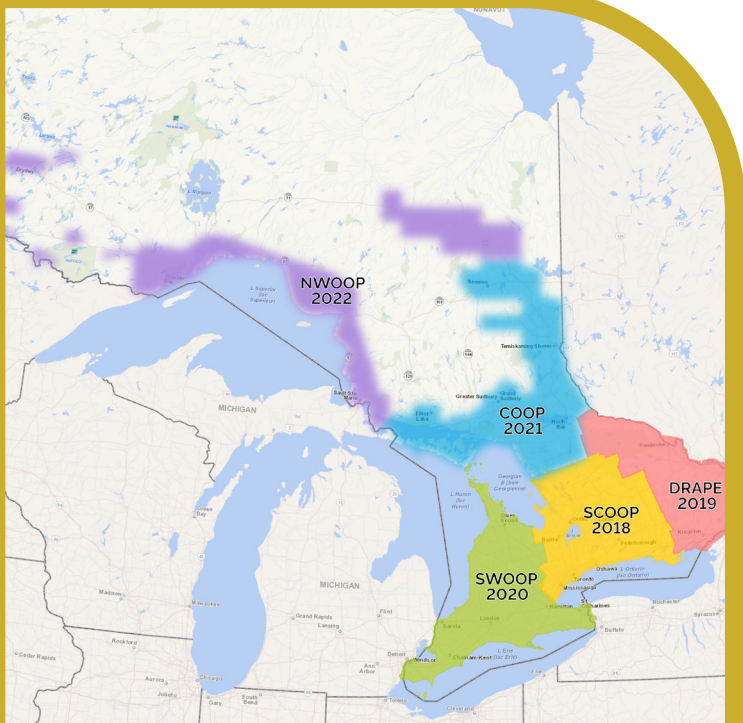
The Provincial Mapping Unit supported the MNRF's Forest Resource Inventory program and Natural Resources Canada by coauthoring a [peer-reviewed science article](#) on the vertical accuracy of new single-photon LiDAR data collected in 2018-19 over the Petawawa Research Forest. The surveying component for this article was supported by geodetic and cadastral staff of OSG and an external survey firm to complete the vertical control survey for the project area.

## Ontario Imagery Acquisition Program

Land Information Ontario coordinates partnerships to collect imagery for the province. The partnership approach provides cost savings to all parties, allowing access to the imagery for a rate typically in the range of \$4-6 per km<sup>2</sup>.

In the spring, one of the largest provincial acquisitions of imagery (over 44,000 km<sup>2</sup>) occurred in southwestern Ontario in partnership with the private sector, municipalities, First Nations, and the provincial and federal governments. This imagery will be available for purchase in 2021.

Survey firms have taken advantage of a subscription option available to private sector organizations. With this option, organizations contribute to an acquisition and can select imagery on an as-needed basis for up to three years after the imagery is available.



The imagery is multi-spectral with a resolution of 16 cm for southern Ontario and 20 cm for north-central Ontario. Ground control is established for each project area resulting in a horizontal accuracy of 45 cm for southern Ontario and 50 cm for north-central Ontario. Stereo data is also available to partners at no additional cost.

Elevation data generated from these imagery projects includes a digital surface model point cloud and a raster digital elevation model.

Surveyors can [purchase imagery products](#) and access elevation products through an open data license at [Ontario Geohub](#)

The 2021 project partners are finalizing plans to collect imagery for central Ontario and partnership opportunities are still available. More information on [GeoHub](#) or email [imagery@ontario.ca](mailto:imagery@ontario.ca)

As new imagery becomes available, it can be viewed on the [Make a Topographic Map web application](#):

For more information,  
e-mail: [imagery@ontario.ca](mailto:imagery@ontario.ca)  
[Open Data licence web page](#)  
[Ontario Geohub](#)





## In Closing

It has been another busy year in the Mapping and Information Resources Branch. All offices provided services throughout the pandemic while working remotely. Occasional visits to the office were necessary to perform research and retrieve paper documents, but for the most part, work continued relatively seamlessly.


We continue to refine our multi-year plan to ensure our mapping and geographic information services support government priorities such as economic development and Simpler, Faster, Better services for businesses and Ontarians.

We were more successful in our efforts to recruit surveyors this year and hope to be able to make some announcements soon. We are seeking an Order-In-Council appointment to replace me as Surveyor General within the next couple of months.

In parting, I'd like to say it has been a pleasure serving as your Surveyor General for the past eleven years and serving the Ontario public for 31 years. One never accomplishes anything alone, and I can say, without hesitation, I have been fortunate to have served alongside some of the best people and minds in the business. I feel honored to have led or participated in many projects over the years, across three ministries, that have achieved tangible results for the people of Ontario.



# Notes of thanks from Sue's team!




*I'm thankful for Sue being the inquisitive person she is. For being the wealth of knowledge. For being the stable and calm person in a storm. For charting direction into calmer seas. Most importantly, for being a kind and empathetic person, who understands life outside of work, and makes going to work everyday a joy. Thanks for being a role model to aspire to.*

*For making sure her message is understood, persevering and getting the job done.*

*From discussing water boundaries to repairing leaking basements, Sue has lots to share and is willing to listen too!*

*[Without Sue's encouragement] I probably would not have spent 7 years upgrading my education component while working and becoming a licensed OLS.*

*Sue is best known for her personality, knowledge and overall management, but professionally speaking, I believe she was the first female Surveyor General (or Director of Surveys in other jurisdictions) in Canada.*



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