OCUL Digital Curation Summit 2016: Historical Topographic Maps of Ontario

Cheryl Woods
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Project origins and overview

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Project scope

The project will add approximately 1160 maps to our collective holdings:

- Approximately 536 map sheets from the 1:63,360 national topographic map series, all of which are in the public domain (1906-1953); and,
- Approximately 619 map sheets from the 1:25,000 national topographic map series (1956-1977).
Why?

- Topographic maps at these scales are heavily used by researchers interested in examining changes over time (urban sprawl, transportation patterns, diminishing woodlots, shoreline erosion, etc.)
- Access to older series is uneven across institutions
- Ability to leverage the OCUL Scholars GeoPortal platform and existing equipment at our institutions
- Funding from OCUL ($32,000 - January 2015 to April 2017) is allowing us to cover student staffing costs and the cost associated with commercial scanning.
Discussion at OCUL Geo Community meeting about seeking funding to digitize collections at our institutions.

Submitted funding proposal to OCUL directors.

Proposal was approved, began developing shared inventories and considering workflows.

Scanning began.

Georeferencing began.

Work with OCUL GeoPortal on a search interface.

Load raster images into GeoPortal and connect metadata.
Eligible known 1:63,360 maps

Ontario, pre-1967
Project Workflow

1. Paper Map Selection
2. Scanner Preparation
3. Map Digitization, Editing & QA
4. Metadata Capture
5. Evaluation & Final QA
6. Derivative Product Generation
7. Georeferencing

Historical NTS sheets

"Archival Package"
- Metadata Record
- Archival tiff

"Common Use" Images
- Downsamped tiff
- Georeferenced tiff
Master list

Shared Google Spreadsheet allows us to keep track of holdings and status updates at each institution, and built-in history tracker allows us to see how the document has been edited.
Digitization and georeferencing process

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Digitization objectives

1. **Standardize image appearance** across digitization methods and contributors

2. Develop procedures to **identify and minimize digitization errors**
Scan comparison: Colour
Scan comparison: Resolution

Approximate resolution: ~1 cm
Sheet-fed scanning errors

- Left/Right Stitch Error
- Front/Back Stitch Error
- Discolored Streaking

Scan Direction
Digitization recommendations

1. Minimize the number of scanning institutions

2. Digitize at 600 ppi; 24-bit colour depth

3. Employ standardized scanner calibration and QA procedures
What is georeferencing?

Aligning geographic data to a known coordinate system so it can be viewed, queried, and analyzed with other geographic data. A number of corresponding control points, such as street intersections, are marked on both the image and the map, allowing the software to adjust the image accordingly.
Transformation using a 2\textsuperscript{nd} order polynomial, 8-12 ground control points
Metadata for digital historical topographic maps
Metadata requirements

1. Describe digital maps for searching
2. Provide standard metadata for transfer, sharing, and reuse
3. Document digitization and georeferencing process
4. Granular (sheet level)
5. Open metadata for preservation
Live demo!
Special thanks

OCUL Geo Community members and students
Scholars Portal
Natural Resources Canada
Library and Archives Canada
Archives of Ontario
University of Alberta
Questions?

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