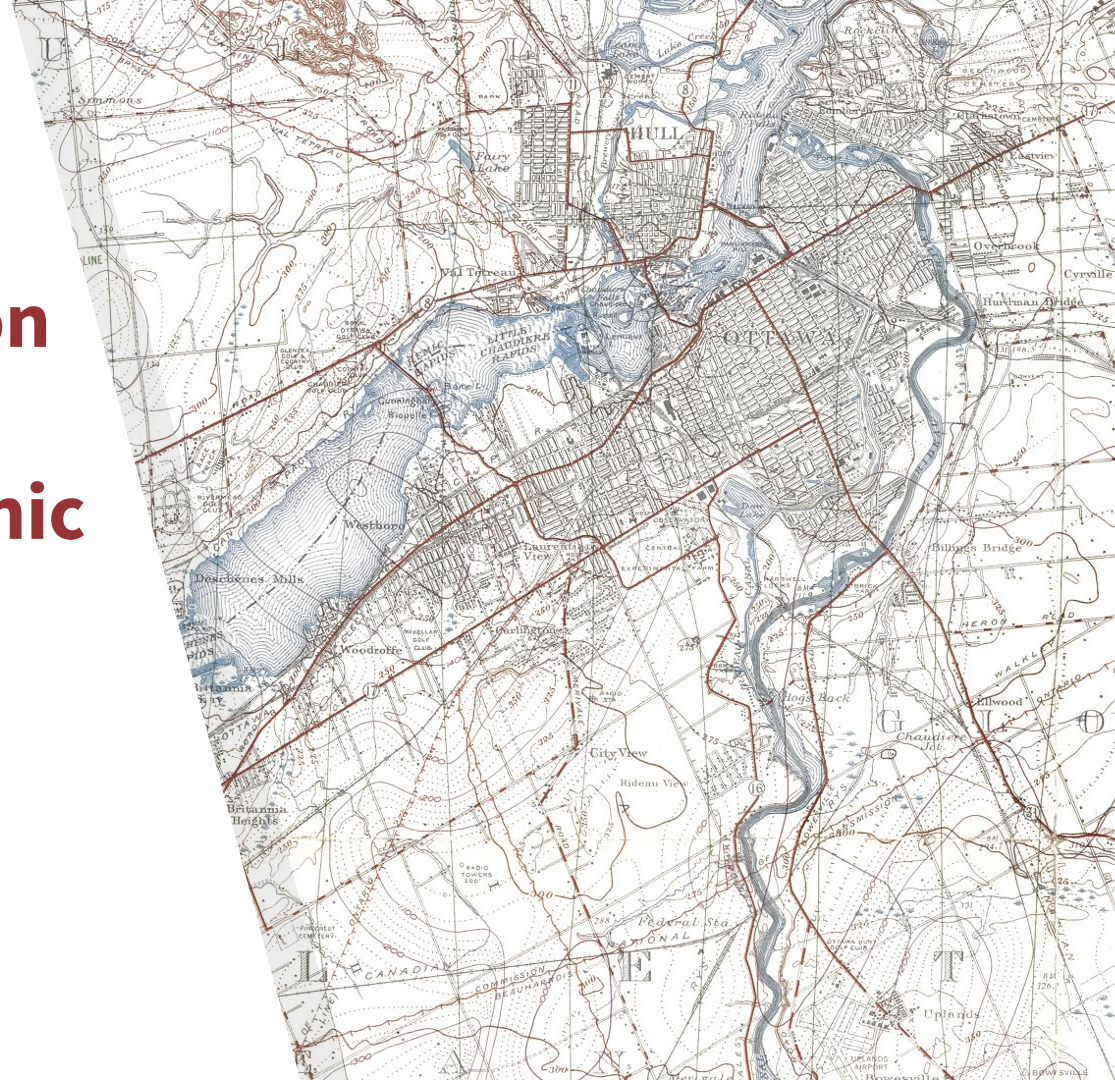


OCUL Digital Curation Summit 2016: Historical Topographic Maps of Ontario

Cheryl Woods
Sarah Simpkin



Project origins and overview

Cheryl Woods
Map Librarian, Western University



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).



CANADA 1 INCH TO 1 MILE

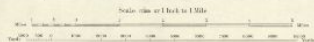
TOPOGRAPHIC MAP ONTARIO NIAGARA SHEET



Published by the International Geographical Institute
Department of National Defense 1905
August 1905

Map of the Niagara River, 1:50,000
Scale 1:50,000
Published in 1905 by the Geographical Institute, U.S.

Symbol	Description
—	Boundary
—	Water
—	Forest
—	Grass
—	Barren
—	Swamp
—	Marsh
—	Shrub
—	Field
—	Wood
—	Grass
—	Barren
—	Swamp
—	Marsh
—	Shrub
—	Field
—	Wood
—	Grass
—	Barren
—	Swamp
—	Marsh
—	Shrub
—	Field
—	Wood



Contour interval 25 Feet

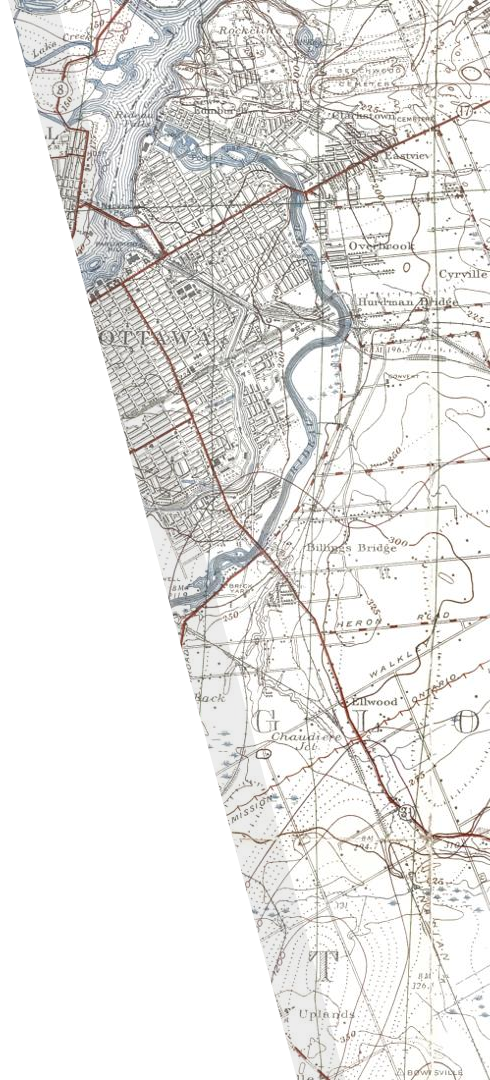


Symbol	Description
—	Boundary
—	Water
—	Forest
—	Grass
—	Barren
—	Swamp
—	Marsh
—	Shrub
—	Field
—	Wood
—	Grass
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—	Marsh
—	Shrub
—	Field
—	Wood
—	Grass
—	Barren
—	Swamp
—	Marsh
—	Shrub
—	Field
—	Wood

ONTARIO 78-43
NIAGARA SHEET
843

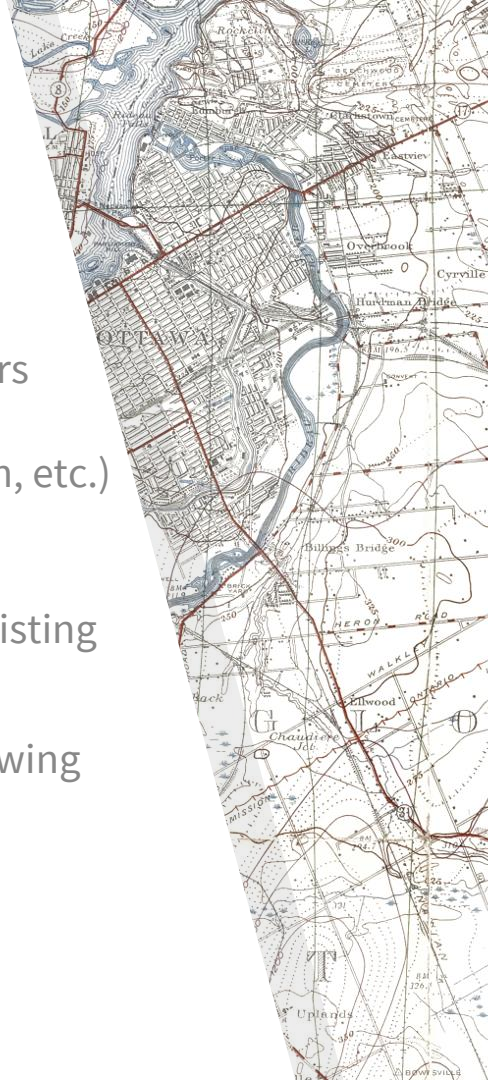
Highway Route 800

SP. 3



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.





Timeline

May 2014

Discussion at OCUL Geo Community meeting about seeking funding to digitize collections at our institutions.

Sept 2014

Submitted funding proposal to OCUL directors.

Nov 2014

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

March 2015

Scanning began.

Sept 2015

Georeferencing began.

Oct 2016

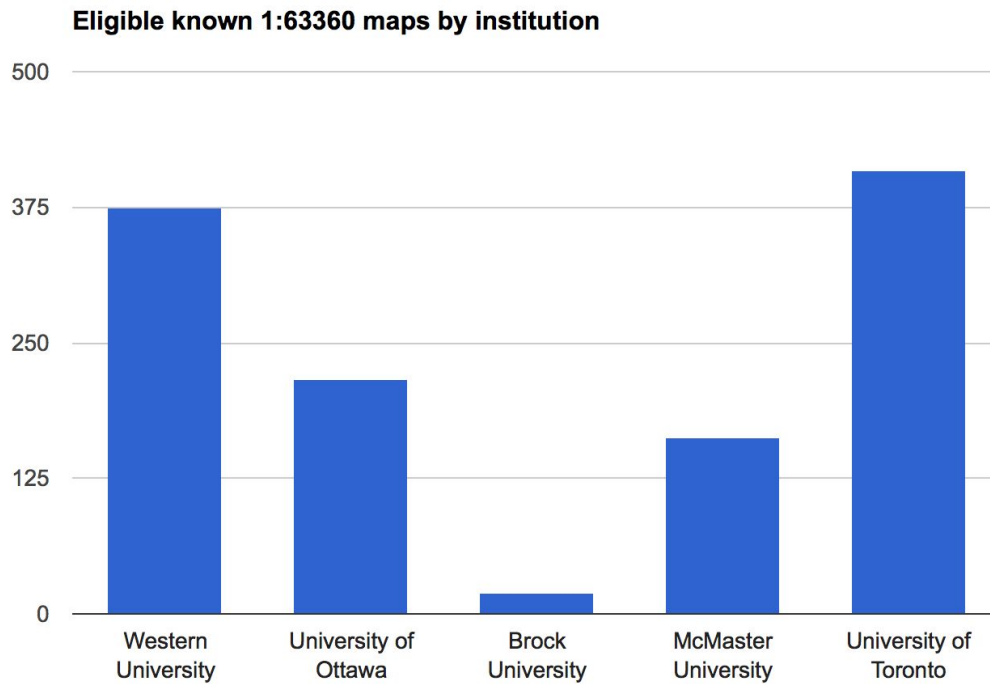
Work with OCUL GeoPortal on a search interface. ←

Jan 2017

Load raster images into GeoPortal and connect metadata.

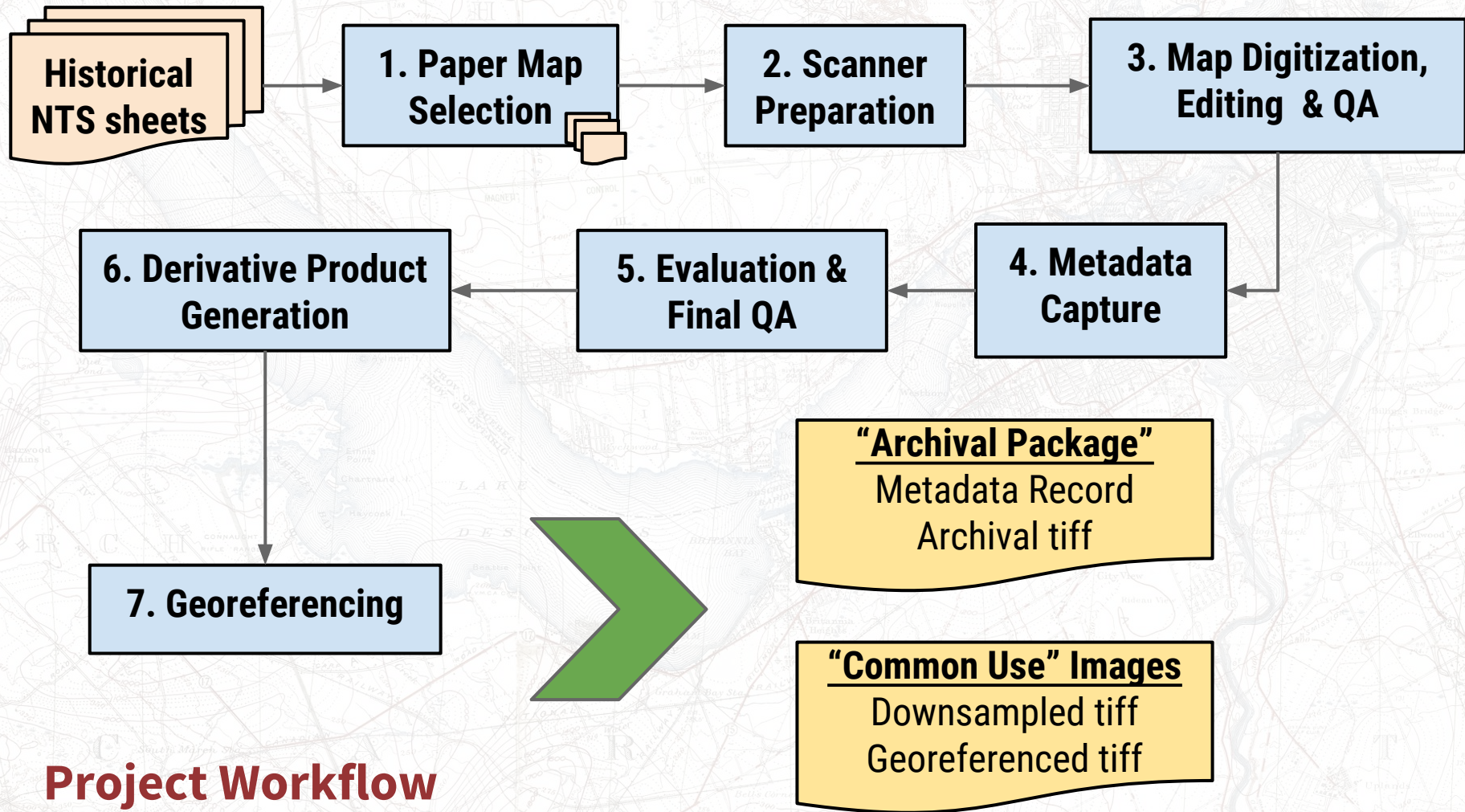


Eligible known 1:63,360 maps



Ontario, pre-1967





Master list

OCUL Geo - Topographic Map Scanning Master Lists ☆

File Edit View Insert Format Data Tools Add-ons Help Last edit was made 5 days ago by anonymous

fx Sheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Sheet	OtherCoverage	Title	Subtitle	Edition	Year	Number	Western	Waterloo	Ottawa	Brock	McMaster	U of T	Filename	Scanned Image	Inspection Notes
2	030 L13		Dunnville			1906	5 N				S/G	S	N			
3	030 L13		Dunnville			1938	N			S	S/G	S	N			
4	030 L13		Dunnville			1938	N				S/G	S				
5	030 L13		Dunnville			1905				S						
6	030 L13		Dunnville			1922	5									
7	030 L13		Dunnville			1928	5 N				S/G		N			
8	030 L13		Dunnville			1938B						S				
9	030 L13		Dunnville			[CA 1950]							N			
10	030 L14		Welland			1923	6 N					S	N			
11	030 L14		Welland			1938	N			S	S/G	S	N			
12	030 L14		Welland			1907	6 N			S			N			
13	030 L14		Welland			1916	6 N						N			
14	030 L14		Welland			1929	6 N						N			
15	030 L14		Welland			1934	N			S	S/G		N			
16	030 L14		Welland			1934B										
17	030 L14		Welland			1938B										
18	030 L14		Welland			[CA 1950]					S/G		N			
19	030 L15		Fort Erie			1907	7 N			S	S/G	S	N			

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

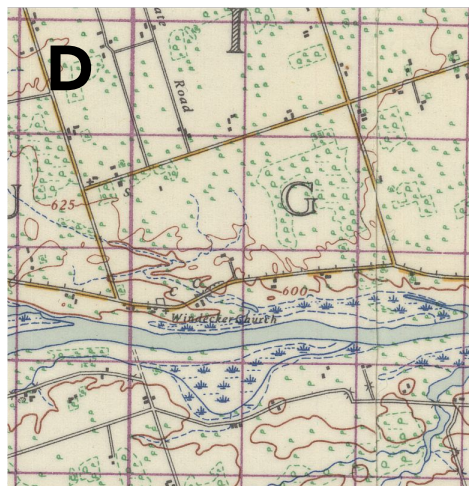
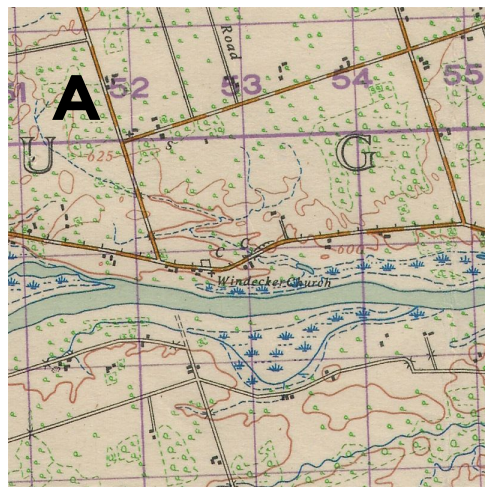
Sarah Simpkin
GIS and Geography Librarian, University of Ottawa



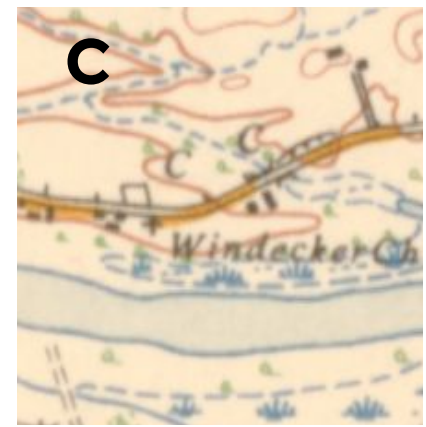
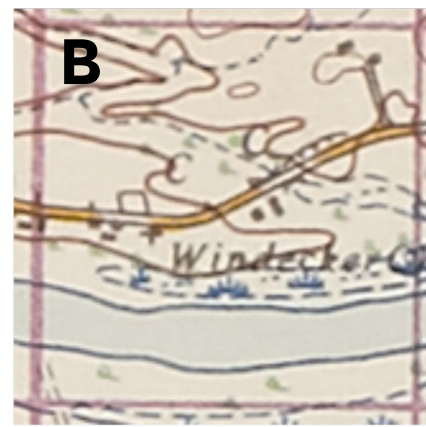
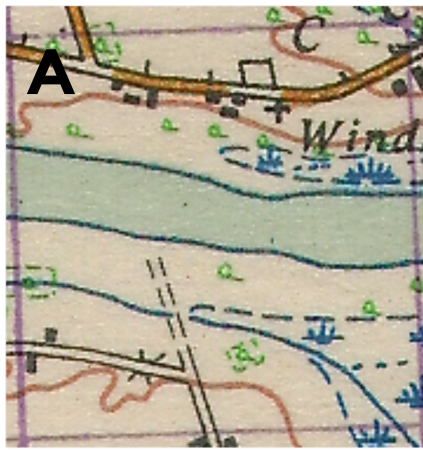
Digitization objectives

1. ***Standardize image appearance*** across digitization methods and contributors
2. Develop procedures to ***identify and minimize digitization errors***





Scan comparison:
Colour



~1 cm

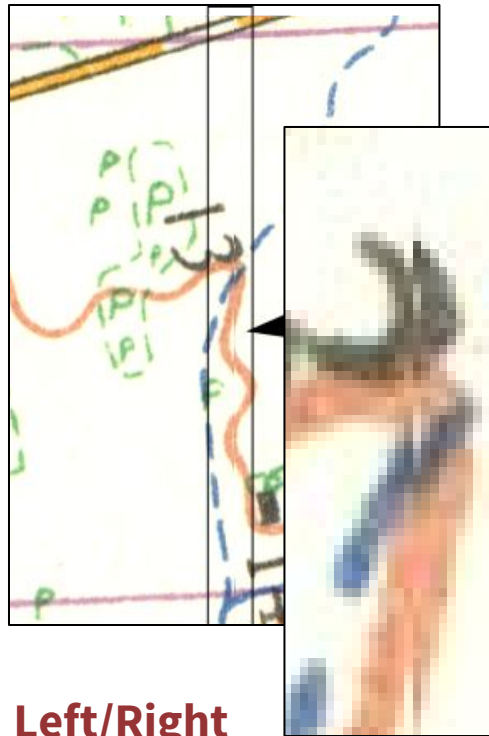


**Scan comparison:
Resolution**

Sheet-fed scanning errors



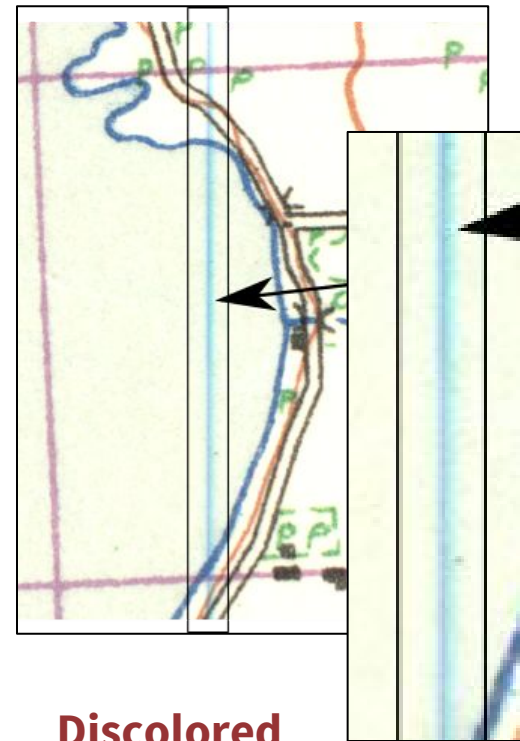
Scan Direction



**Left/Right
Stitch Error**



**Front/Back
Stitch Error**



**Discolored
Streaking**

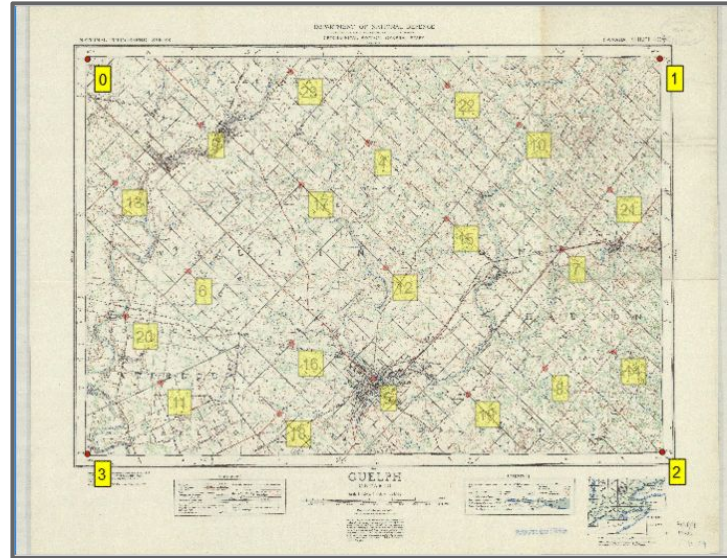
Digitization recommendations

1. Minimize the number of scanning institutions
2. Digitize at 600 ppi; 24-bit colour depth
3. Employ standardized scanner calibration and QA procedures

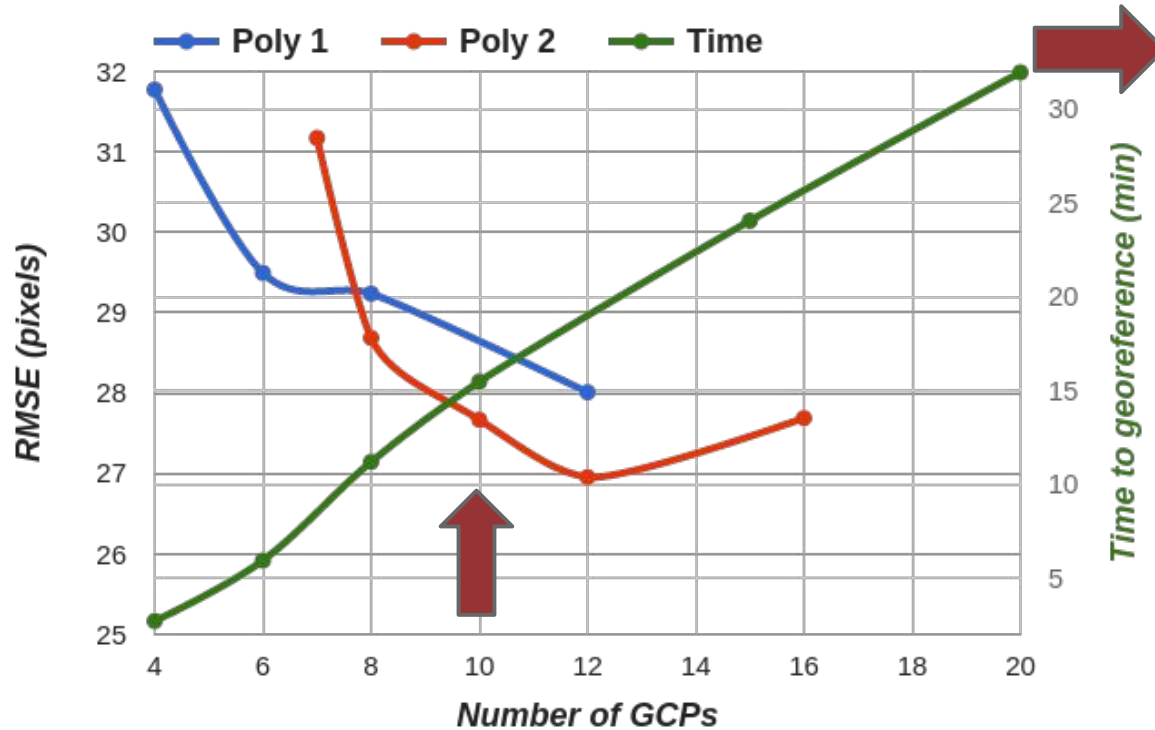


What is georeferencing?

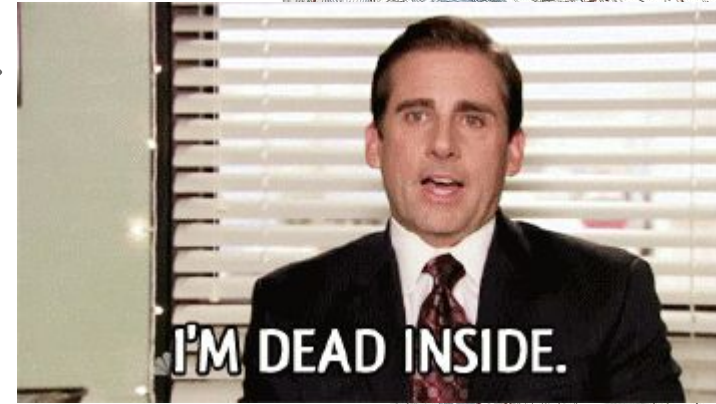
Aligning geographic data to a known coordinate system so it can be viewed, queried, and analyzed with other geographic data. A number of corresponding control points, such as street intersections, are marked on both the image and the map, allowing the software to adjust the image accordingly.



Accuracy vs. time to georeference



Transformation using a 2nd 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?

Cheryl Woods - cawoods@uwo.ca

Sarah Simpkin - ssimpkin@uottawa.ca

