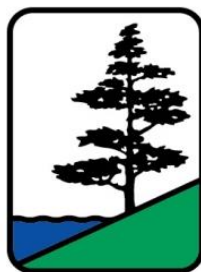




Partnerships to Enhance Ottawa River Flood Forecasting: Response to Historic 2017 Flood

Omar Kana'n and Raymond Co
March 6, 2019



SOUTH NATION
CONSERVATION
DE LA NATION SUD

With support from:

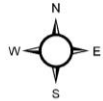


Funded by:

**Ministry of Natural Resources and Forestry's
Surface Water Monitoring Centre**



SOUTH NATION
CONSERVATION
DE LA NATION SUD



QUEBEC



- 2016 SNC jurisdiction was expanded to include Alfred Plantagenet
- Flood Forecasting for the Ottawa River was never done before



Alfred Plantagenet, ON (May 8, 2017)

- CAs and MNRF started Ottawa FF&W program in 2016.
- The program started by learning who does what; identifying available data
- Pre-spring freshet conference calls.



2017 Ottawa River



Wendover, ON, May 8th, 2017

- Unexpected flood event
- Lack of understanding on the magnitude of the Ottawa River watershed
- Unclear roles and responsibilities
- Municipal expectations



Saint-Louis Street in Gatineau, May 2017

- April – May: total precipitation 257 mm, 174% higher than normal
- April: EC stated highest monthly precipitation recorded
- April 30 to May 6: two precipitation events.
- In 7-day period, the basin received 70 to 140 mm of rain, app twice the amount normally received in May.



- May 6: highest water level in records at Lake Deschenes in Britannia
- The highest flooding level recorded in Gatineau
- Record flow at the Carillon Dam on May 8
- Gatineau; Champlain; Clarence Rockland and Alfred Plantagenet municipalities declared State of Emergency





Lefaiivre Marina, Alfred Plantagenet(May 8, 2017)

- Coordinated approach between all partners
- Consistent forecasts
- Face to face meetings: pre-spring freshet
- Weekly conference calls: spring freshet, special weather events
- ORRB added water levels and flows in their forecast



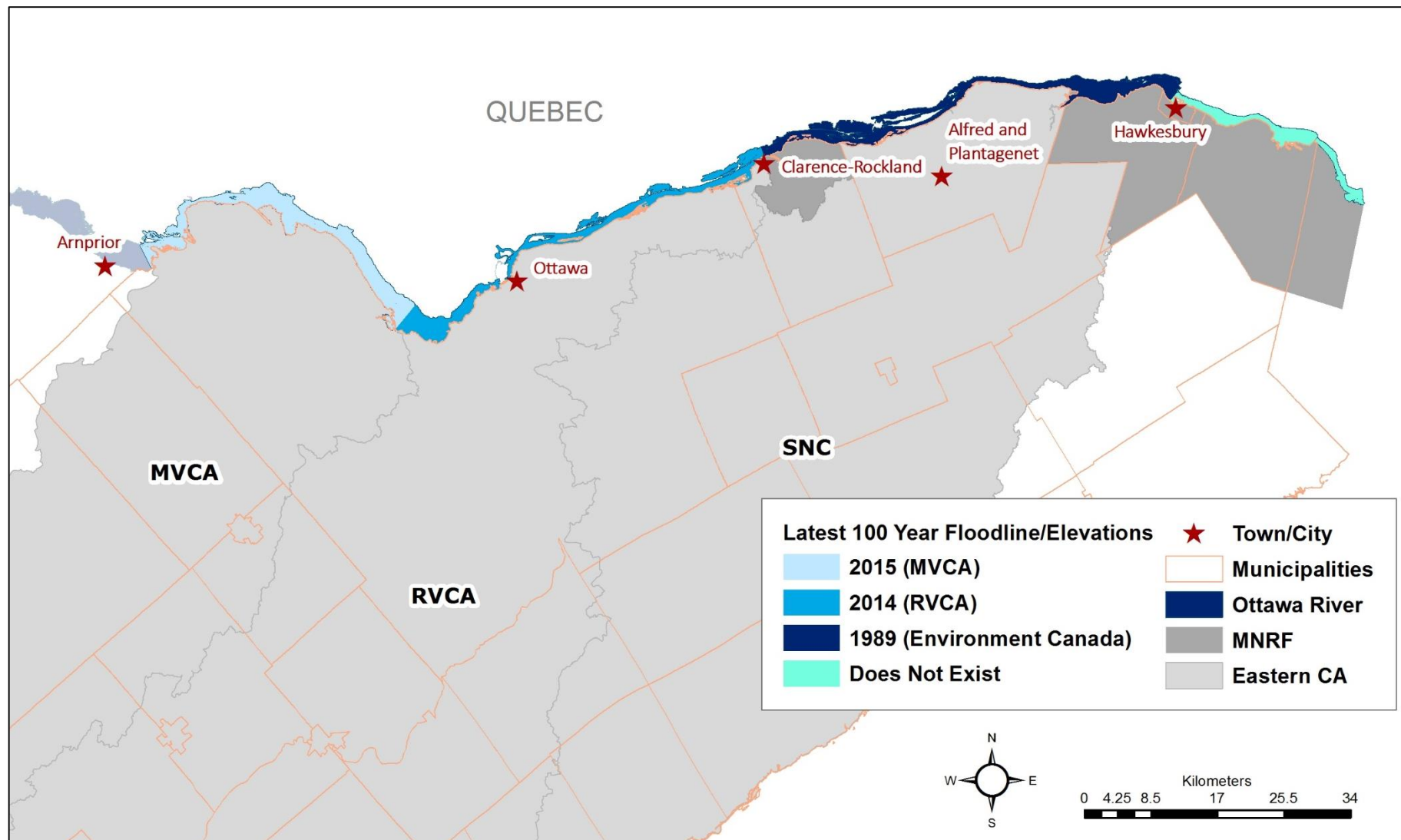
Ottawa River FFW Program Improvements



- Strengthened relationships between agencies: MNRF; RVCA; MVCA; ORRPB and municipalities
- Improving the forecast by having a better understanding of the river
- Enhancing Public Understanding
- Identify roles and responsibilities of each agency



Study Area





Environment
Canada

Environnement
Canada

Conservation
and Protection

Conservation
et Protection

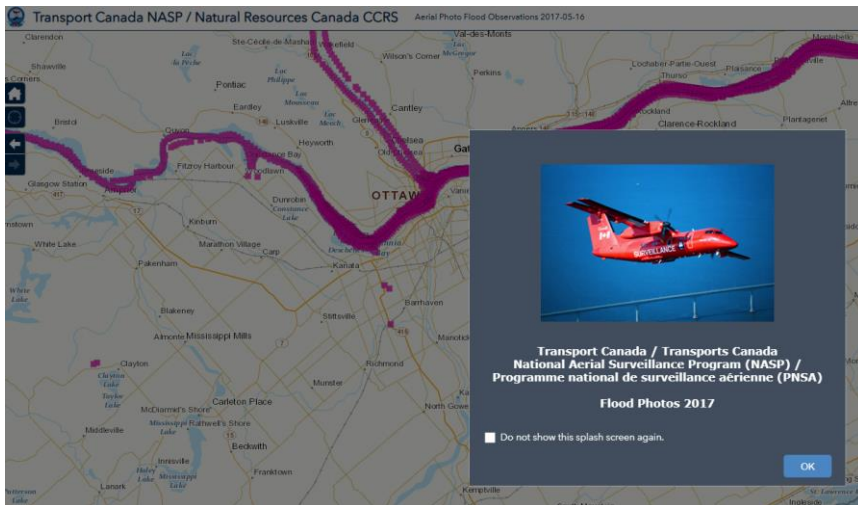
Canada-Ontario Flood Damage Reduction Program

Ottawa River

Grenville
to
Rockland

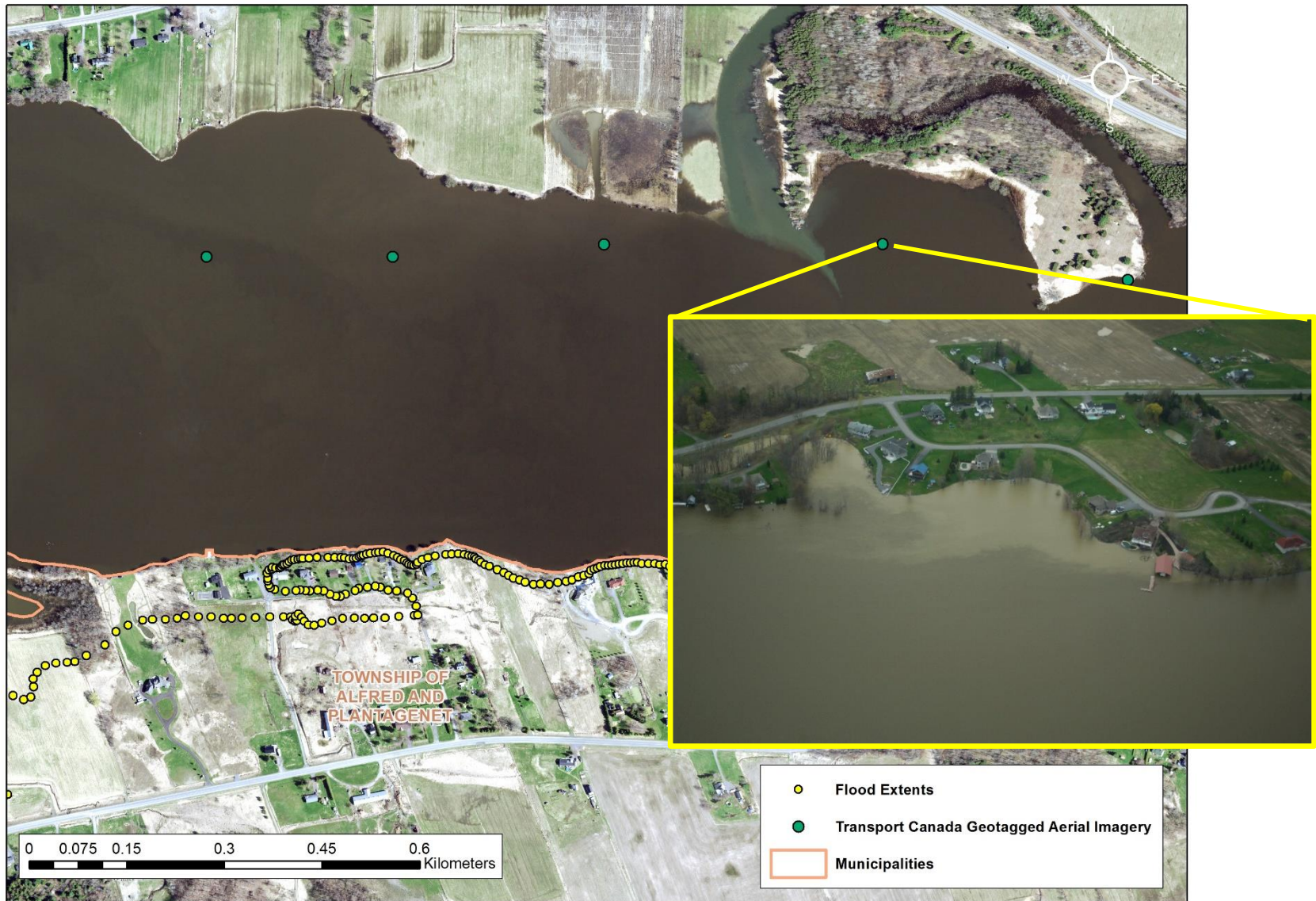
Hydraulics Study Report
(Draft Final Report)

- Past studies and reports
- Surveyed flood elevations
- ORRPB's water level observations
- Transport Canada – National Aerial Surveillance Program



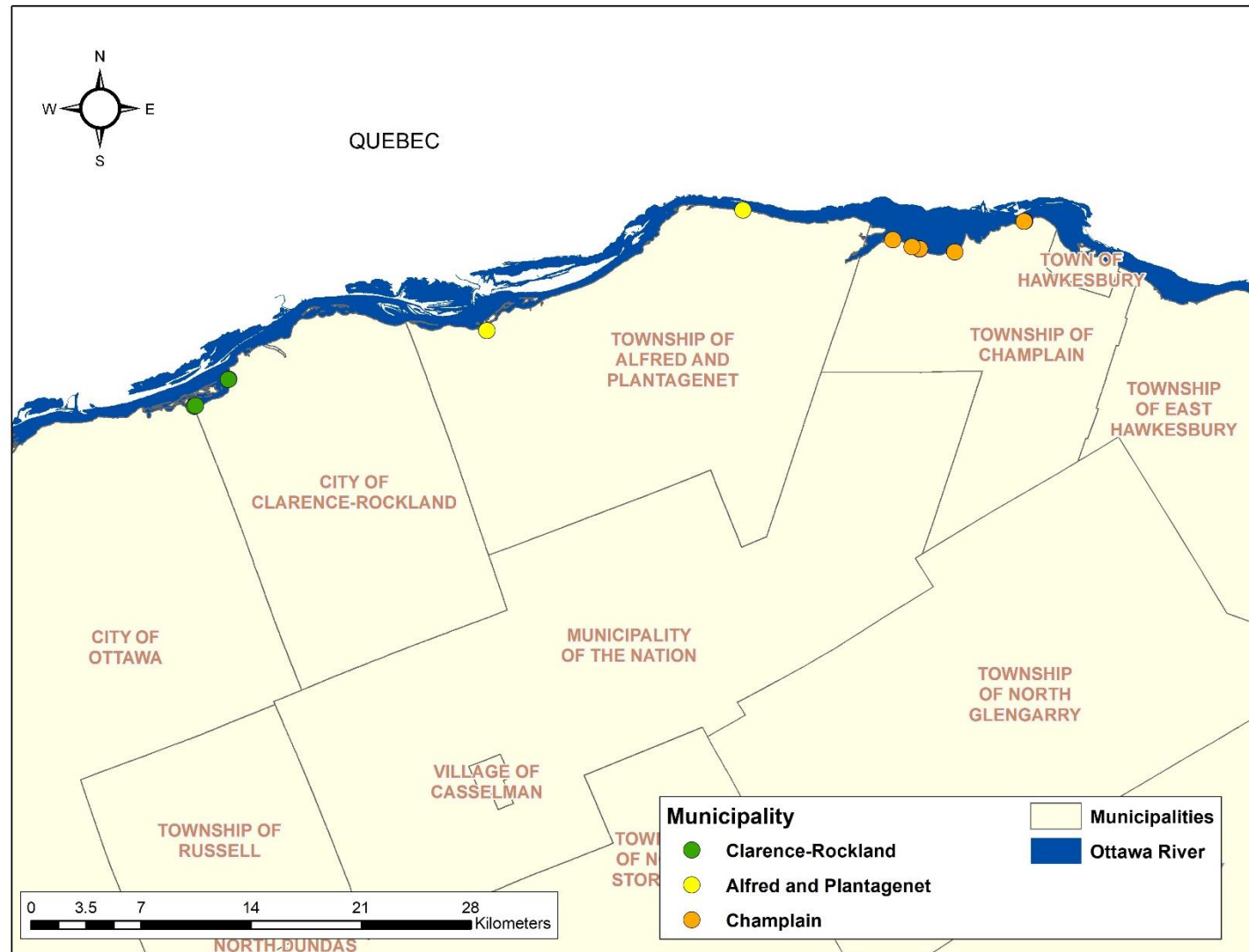


Aerial Photo Flood Observations





Ground Truth Surveys



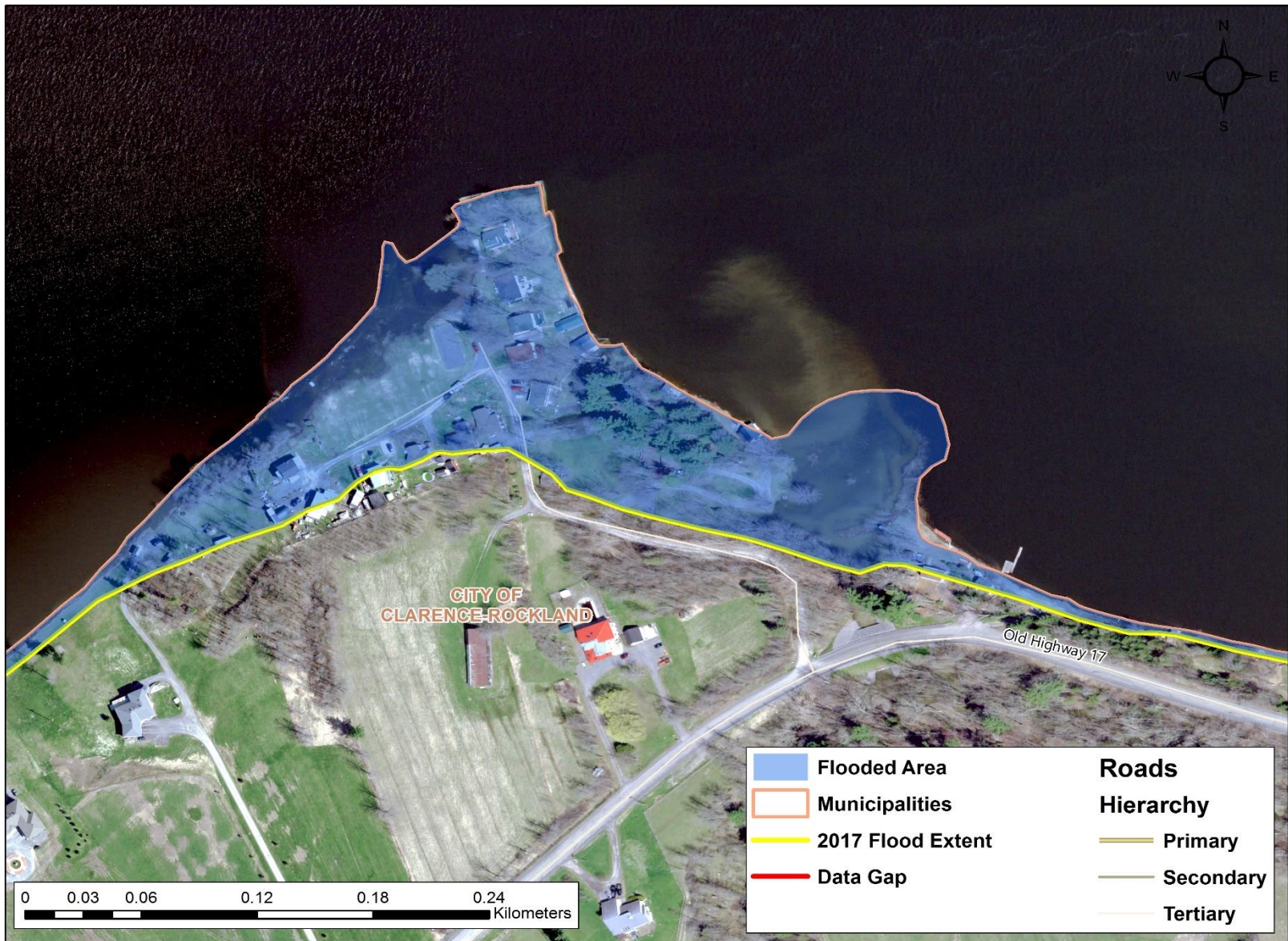
Field survey with homeowner property, Township of Champlain

- 80+ property owners were contacted
- Validate digitized flood extents

2017 flood extent field surveys



Flooded Areas





ORRPB 2017 Water Levels

Location	Date	Time	Water Level (m)*
Lac Chats	5/2/2017	16:00	75.6
	5/3/2017	14:00	75.6
	5/4/2017	15:00	75.67
	5/5/2017	15:00	75.75
	5/6/2017	15:00	75.91
	5/7/2017	14:00	75.94
	5/8/2017	15:00	75.94
	5/9/2017	14:00	75.93
Lac Deschenes/Britannia	5/2/2017	17:00	60.05
	5/3/2017	14:00	60.12
	5/4/2017	16:00	60.12
	5/5/2017	15:00	60.09
	5/6/2017	15:00	60.36
	5/7/2017	15:00	60.44
	5/8/2017	15:00	60.43
	5/9/2017	15:00	60.4
Gatineau/Hull Marina	5/2/2017	16:45	44.34
	5/3/2017	14:00	44.53
	5/4/2017	16:00	44.56
	5/5/2017	15:00	44.65
	5/6/2017	15:00	45.01
	5/7/2017	15:00	45.18
	5/8/2017	15:00	45.17
	5/9/2017	14:00	45.06
Thurso	5/2/2017	16:45	42.96
	5/3/2017	14:00	43.13
	5/4/2017	16:00	43.19
	5/5/2017	15:00	43.22
	5/6/2017	15:00	43.49
	5/7/2017	15:00	43.68
	5/8/2017	15:00	43.68
	5/9/2017	14:00	43.6
Grenville/Hawkesbury	5/2/2017	16:45	42.25
	5/3/2017	14:00	42.39
	5/4/2017	16:00	42.42
	5/5/2017	15:00	42.37
	5/6/2017	15:00	42.6
	5/7/2017	15:00	42.8
	5/8/2017	15:00	42.81
	5/9/2017	14:00	42.72

- Sourced from the Ottawa River Regulation Secretariat
- Water levels peaked on May 8th
- **Threshold 1:**
 - a) Thurso – 43.0 m
 - b) Grenville/Hawkesbury – 42.0 m
- **Threshold 2 (May 8th):**
 - a) Thurso – 43.68 m
 - b) Grenville/Hawkesbury – 42.81 m

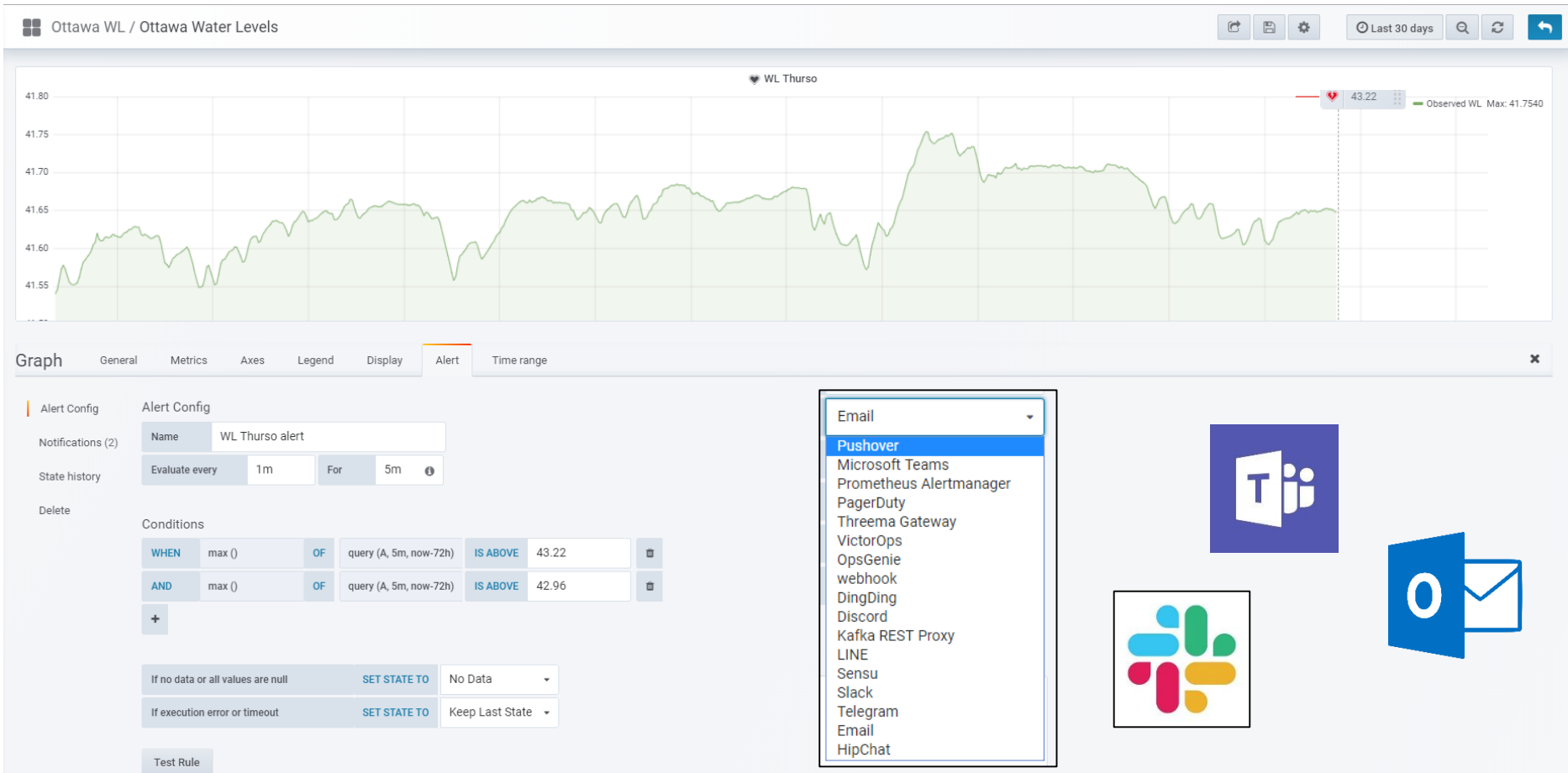


Water Level Dashboard Interface



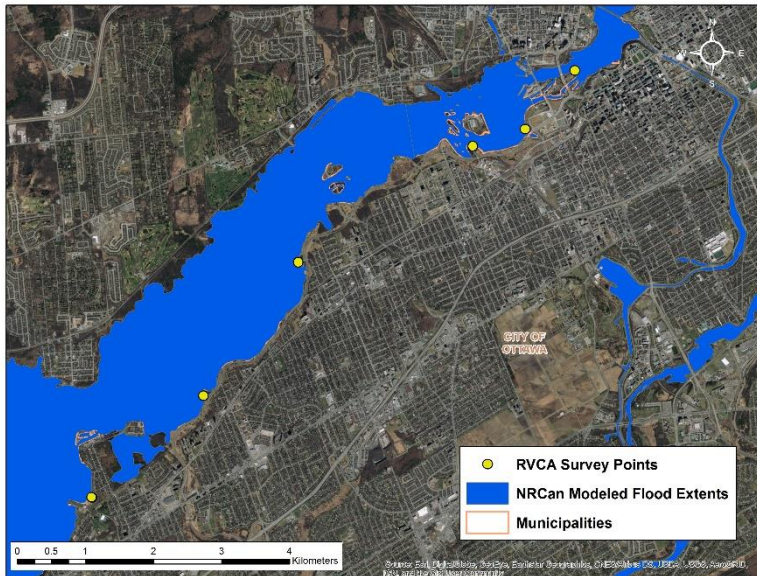


Alert Notification System



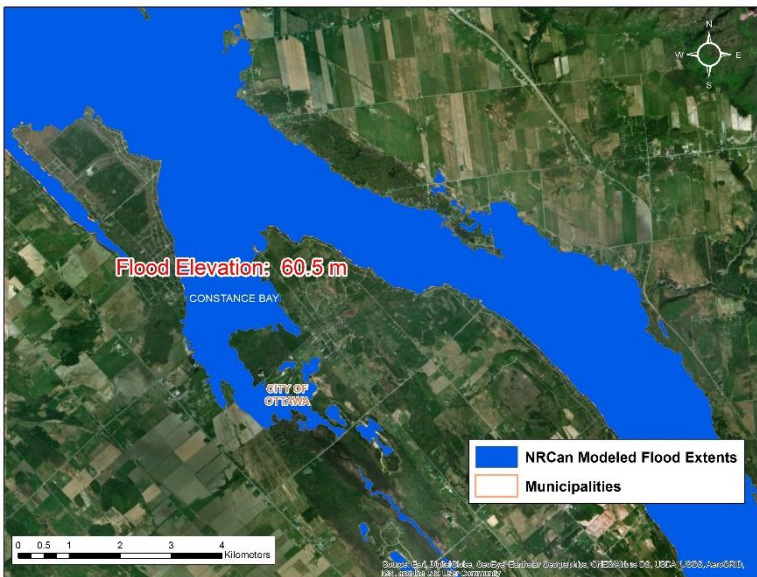


RVCA and MVCA Jurisdictions



RVCA flood extents with surveyed points

RVCA surveyed 36 points during the peak of the flood



MVCA flood extents

Flood extents based from NRCan's satellite imagery

Constance Bay flood elevation at 60.5 m



Project: Ottawa River Support for Flood Forecasting and Warning Communications



Clarence Rockland, Ottawa River, flooding event 2017

1. Enhance Communications Between Partners
2. Enhance CMN between Partners and Municipalities
3. Providing a forecast that will help emergency managers to make informed decision
4. Enhancing Public Understanding

Our Local Environment, We're in it Together.



SOUTH NATION
CONSERVATION
DE LA NATION SUD