



# Steve Yessie

## City of Guelph

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*Impacts and Alternatives to  
Residential Softening in  
Waterloo Region and Guelph*

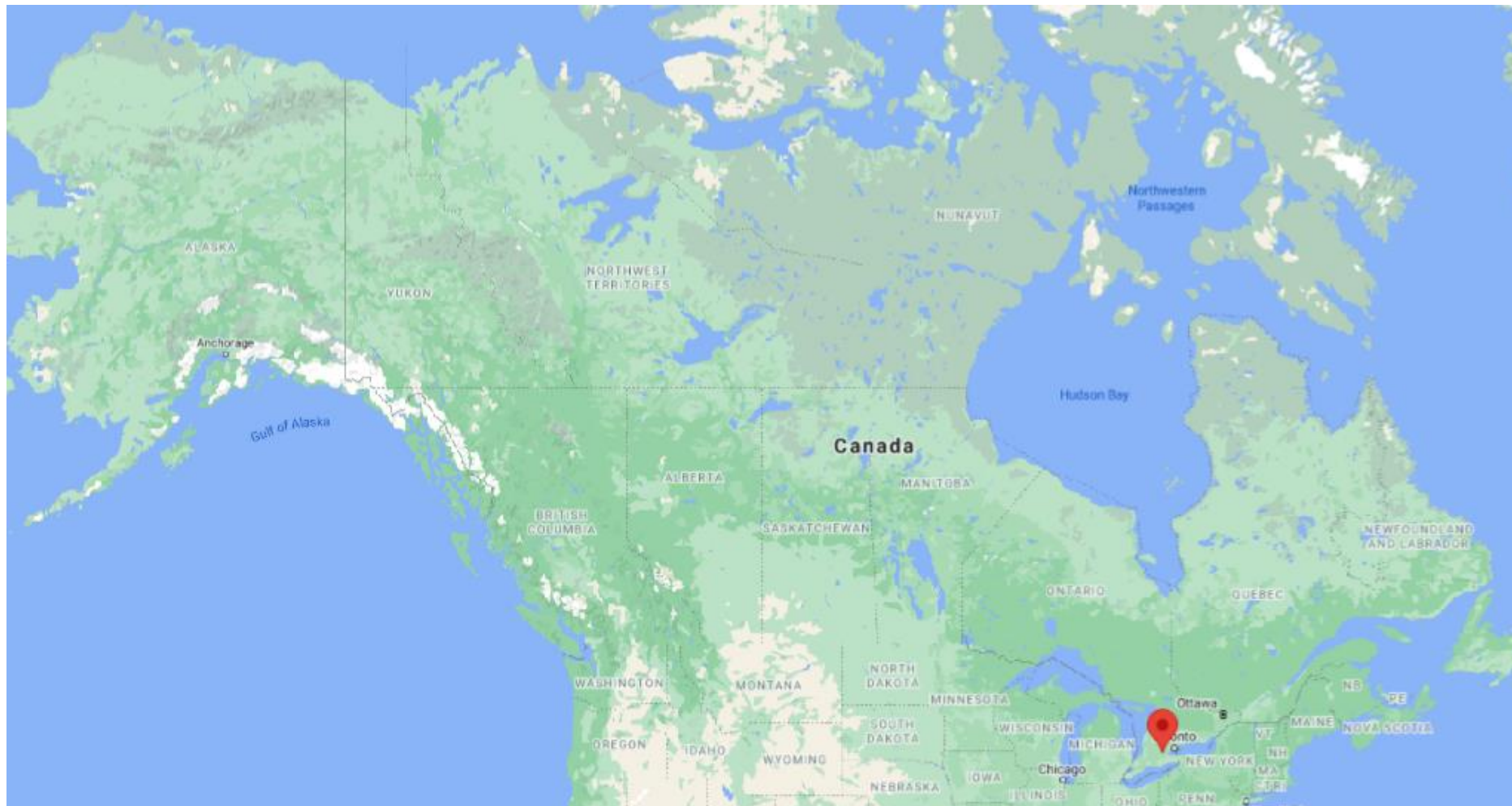
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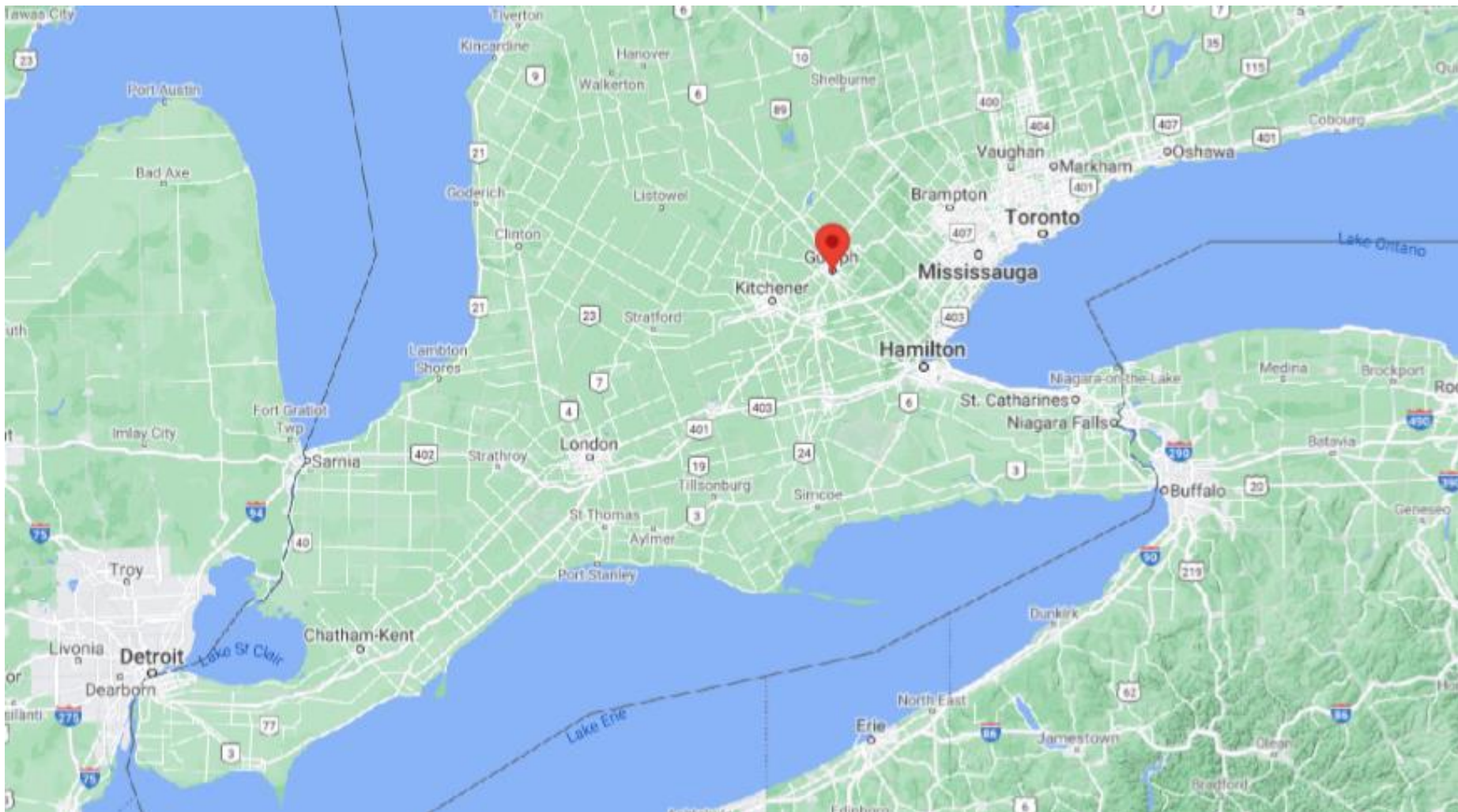


# Impacts and Alternatives to Residential Softening in Waterloo Region and Guelph

**Steve Yessie, Water Conservation  
Program Coordinator**

August 3, 2021





## Background

- Speed and Grand Rivers' approaching chronic exposure limit for chlorides
- Here's why:
  - Winter road salting
  - Water softening



# Winter roads in Guelph

- Road salting has a large impact on salt loading of local waterways

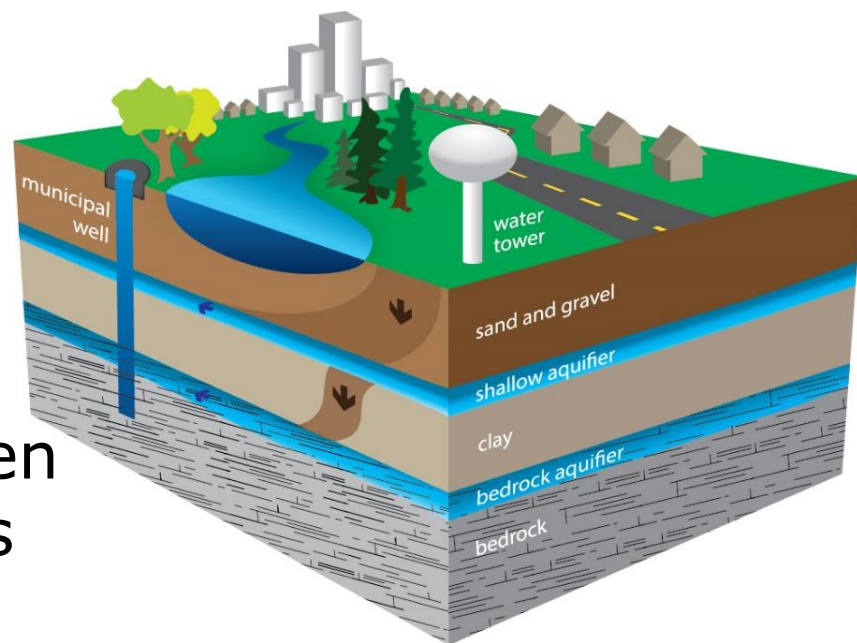
Year	Salt Application	Brine Application
2017/18	10,900,000 kg (24.0 M lbs)	95,300 L (22,000 kg) (25,176 gal - 48,500 lbs)
2018/19	8,490,000 kg (18.7 M lbs)	488,310 L (114,000 kg) (128,998 gal - 251,326 lbs)
2019/20	7,617,000 kg (16.8 M lbs)	472,190 L (110,000 kg) (124,739 gal - 242,508 lbs)
2020/21	6,474,000 kg (14.3 M lbs)	123,506 L (29,000 kg) (32,627 gal - 63,934 lbs)



- City of Guelph Salt Reduction Plan
  - Finding a balance between public safety and environmental protection
  - Classifying roads for salting levels
  - Equipment maintenance
  - GIS tracking

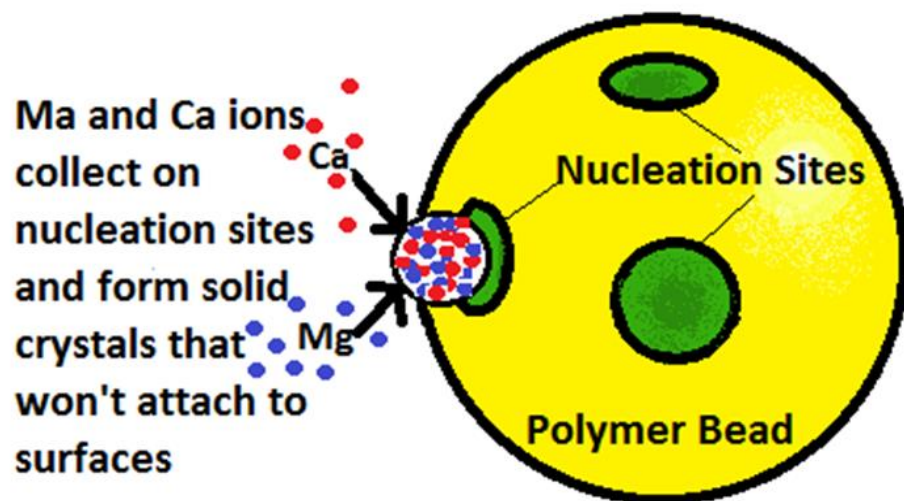
# Groundwater-based communities

- Region of Waterloo – 75-80% groundwater
- Guelph – almost exclusively reliant on groundwater
- 70-80% of households use traditional water softeners
  - 181,000 households between jurisdictions using softeners
  - Contributing approx. 175-200 kg salt/year (385-440 lbs)
  - 2 billion litres of backwash water (528.3 M gallons)



# Assessing alternatives

- Nucleation Assisted Crystallization (NAC) or Template Assisted Crystallization (TAC) as promising alternative technology
- 2017/18 market research study on NAC/TAC equipment





# The study

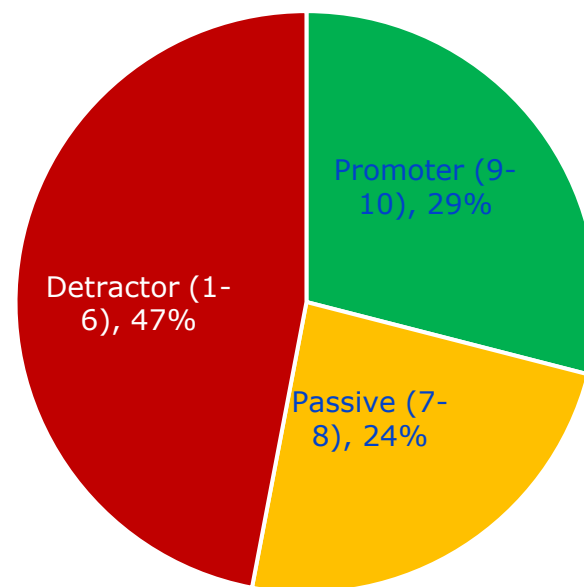
- 18 households selected
- Represent different:
  - Age of home
  - Household population
  - Participant lifestyles



# The Results

- 13 of 18 kept equipment when study completed
  - 3 became ambassadors of the technology
  - 10 kept, but acknowledged drawbacks
  - 5 had equipment removed
  
- Net Promoter Score = -18

## Net Promoter Score (- 18)



# The Feedback

## Advantages

- ✓ Cost savings – utility bills; no salt/maintenance
- ✓ No lugging heavy bags
- ✓ Sense of pride
- ✓ Ability to drink water from all taps
- ✓ Descaling of plumbing and fixtures

## Drawbacks

- ✗ Dishwasher perceived to not be cleaning properly
- ✗ Hard water feel when showering
- ✗ No indication if the system is working
- ✗ No indication the media needs to be replaced
- ✗ Not mainstream technology – will it affect home sale?

# Future of Alternative Technologies

- Strong salt (and water) savings potential attached to many barriers
  - highly dependent on community appetite
- Existing incentive program for industrial, commercial and institutional customers (including multi-residential property managers)
- Updating current Water Efficiency Strategy
- Monitoring the Region of Waterloo's plumbing rebate

# Questions?