### Large-Scale Riverine Bathymetric LiDAR Collection and Application to Floodplain Mapping



Floodplain Mapping Technology Transfer Workshop March 5, 2019

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## **Presentation Overview**

- 1. Introduction to the Project
- 2. Considerations
- 3. Trials and Tribulations
- 4. Initial Results
- 5. Next Steps
- 6. Recommendations

# Introduction to the Project

- Undertaking large-scale updates / expansions to existing flood hazard mapping
- > High quality base data available (OMAFRA)
- Modeling software advancements
- Regulatory Floodplain and "inner lines" mapping
- NDMP successful application in Intake 4



## Introduction to the Project

- Between-the-banks data required
- Why bathymetric LiDAR?
- Limited information available re: riverine applications
- Discussions with experts



## Considerations

#### > Timing

Season	Pros	Cons
Winter	<ul><li>Typically lower flows</li><li>Lack of vegetation</li></ul>	<ul><li>Typically ice covered</li><li>Equipment constraints</li></ul>
Spring	<ul> <li>Lack of vegetation</li> </ul>	<ul><li>Higher flows</li><li>Higher turbidity</li></ul>
Summer	<ul> <li>Typically lower flows</li> </ul>	<ul> <li>Vegetation - in-water and above</li> </ul>
Fall	<ul><li>Typically lower flows</li><li>Lack of vegetation</li></ul>	Finite window

## Considerations

- Timing
- Contractor Availability / Willingness
- Cost
- > Clarity / Turbidity
- Flow Depths
- > Vegetation
- > Physical Obstructions
- Permissions

# **Trials & Tribulations**

- > Lack of Bidders
- > Conflicting Schedules
- > Uncooperative Weather
- Cloud
- > Snow / Ice
- ➢ Rain

## **Initial Results - Raw**





Grand River at Paris











## **Initial Results**











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## **Next Steps**

- > GDS to finish processing operations
- > Deliverables include:
  - Raw data / point clouds
  - Surfaces TINs / DEMs
  - RGB aerial imagery
- > Modelling, modelling, modelling!

## Recommendations

- > Know your watercourse characteristics
- > Pre-consult with providers
- > Provide quantitative data re: depths, clarity
- Plan ahead
- Larger-scale acquisition is preferred



#### **Questions?**