

Beyond Source Water Protection: Whitemans Creek Water Budget



Stephanie Shifflett, Water Resources Engineer



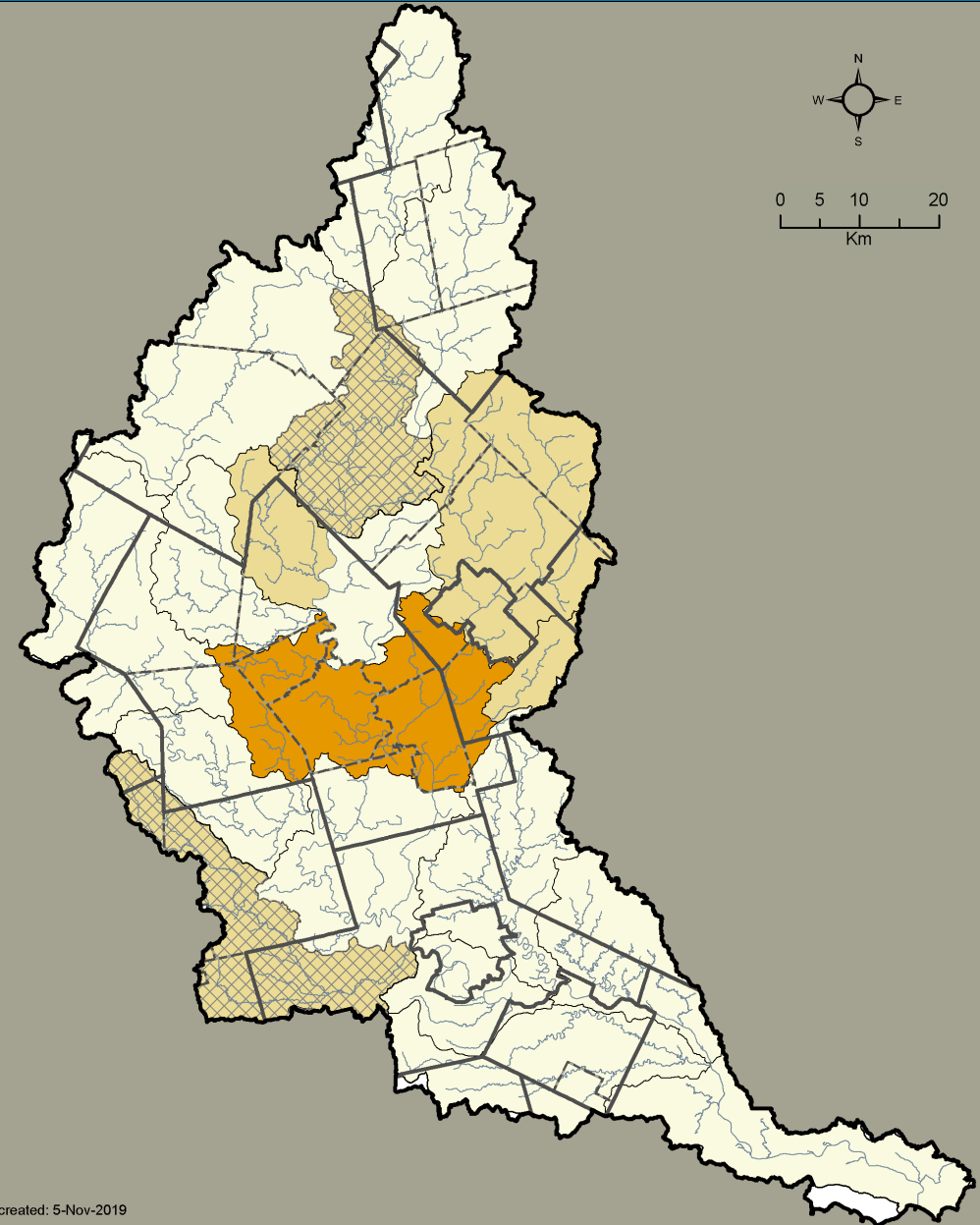
Source Water Protection

Multi-barrier
approach to
protect municipal
drinking water



Water Budgets

- Watershed wide water budget in 2009
- Resulted in four subsequent studies for municipal water systems (Tier 3 studies)
- Whitemans Creek sub-basin could be susceptible to drought



Whitemans Subwatershed

Natural features
and cold water
fishery

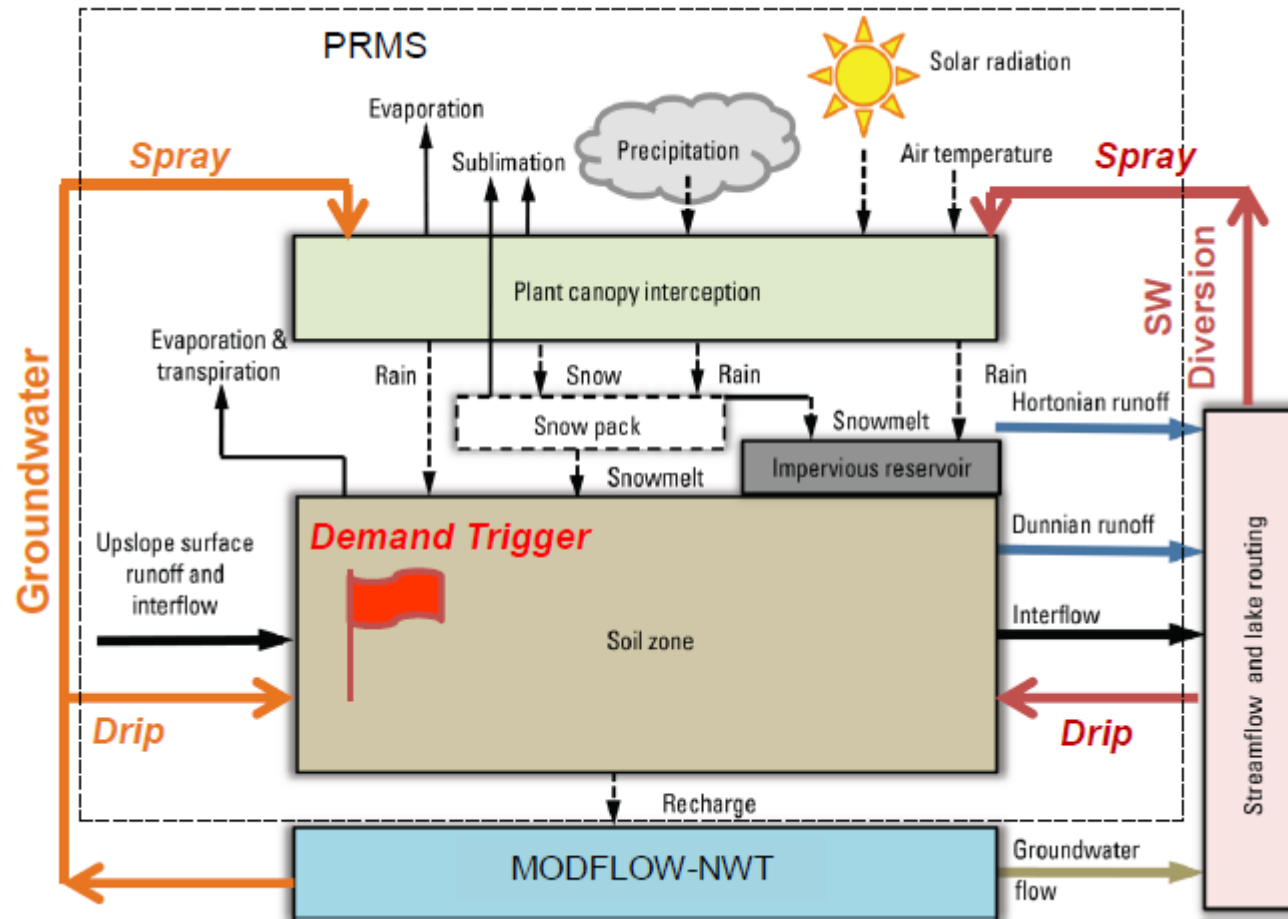


Whitemans Subwatershed



High water use
for agriculture

Model development





Phase 2: Drought, Water Use
Conflict and Natural Features

Phase two

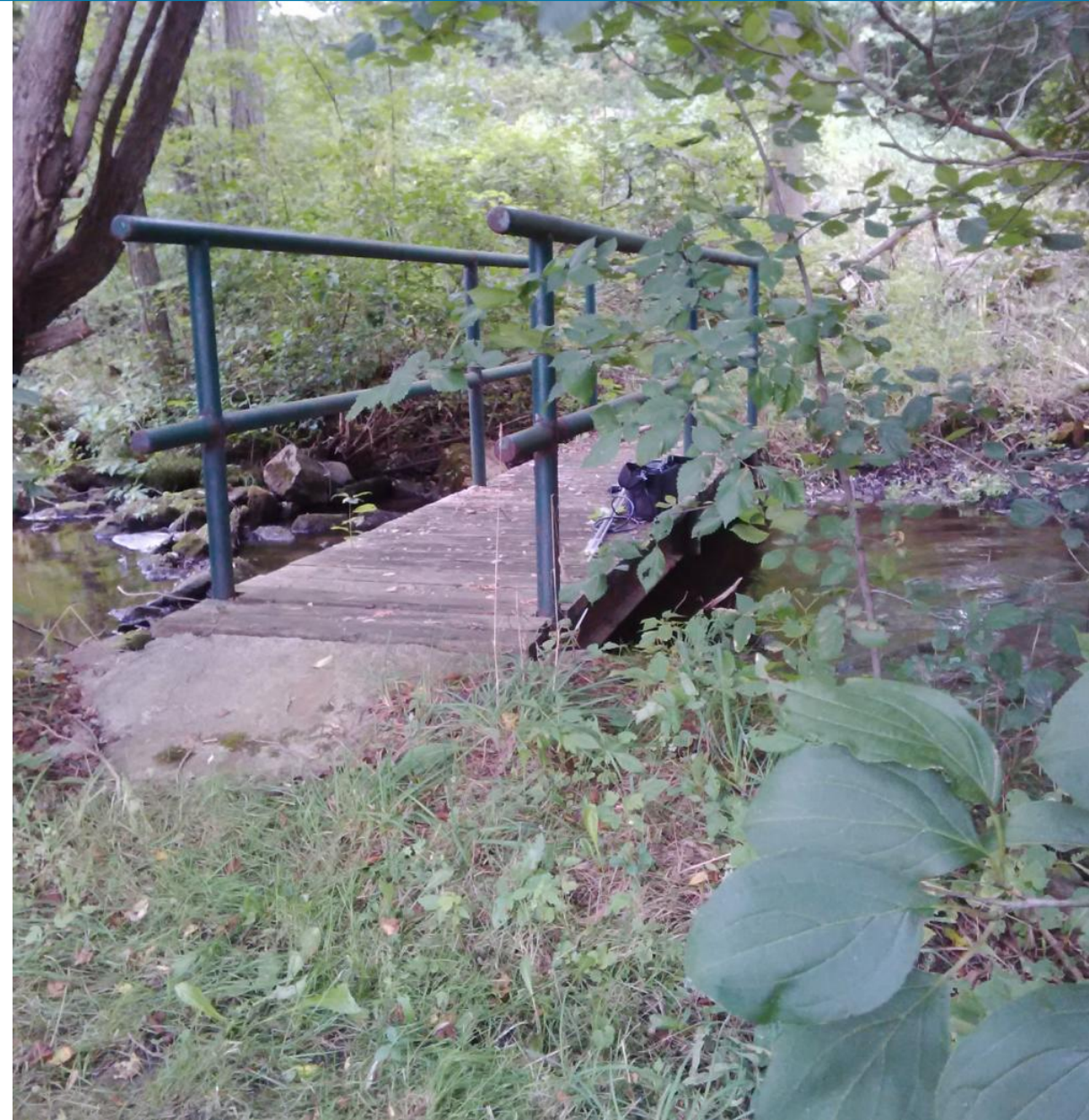
- Where is the water coming from that is supporting natural features?
- What will water use look like in the future?
- What will severe drought look like?
- What options are available to ease water use conflict?



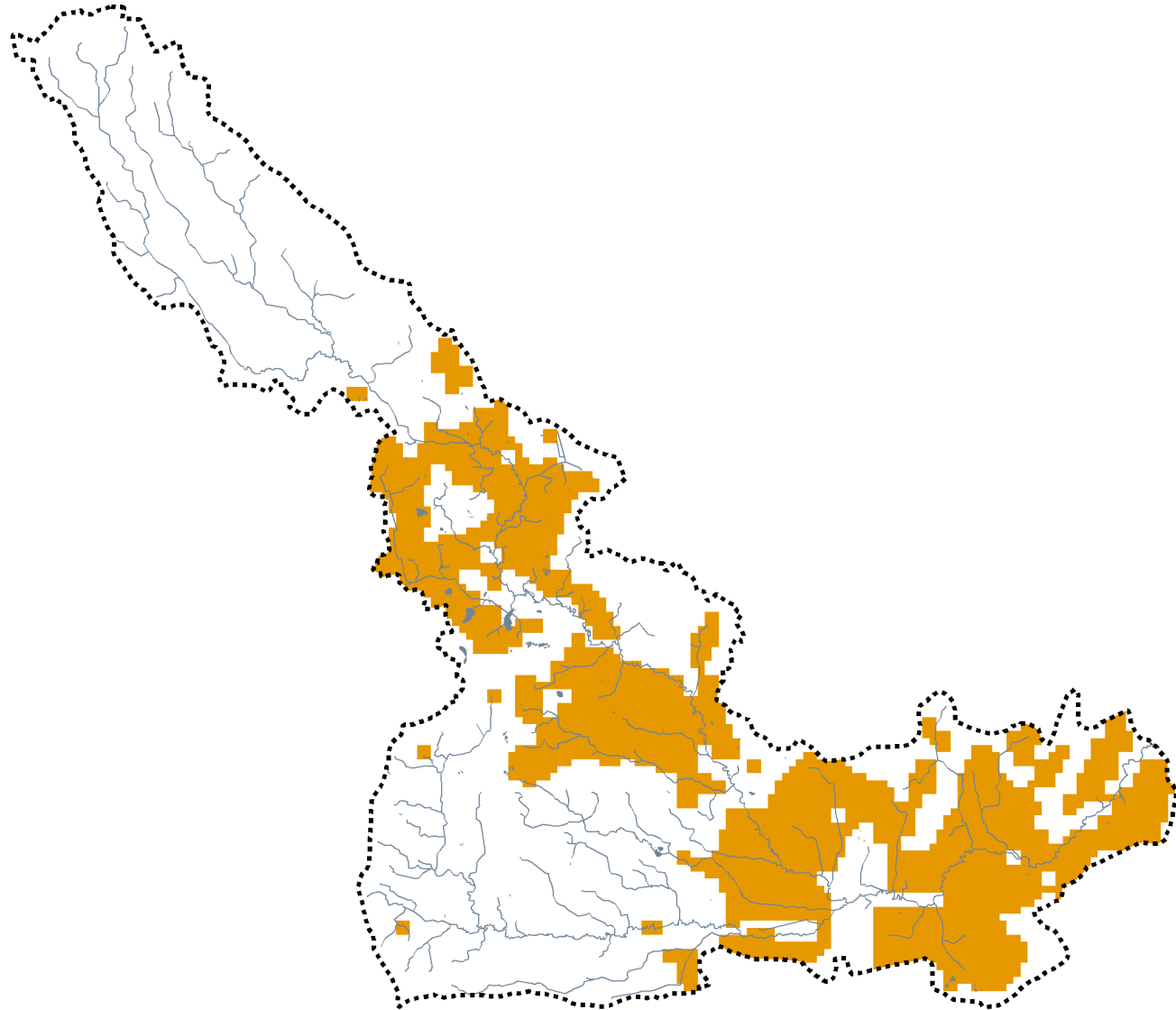
Natural Features

- Cold water fishery
- Wetlands
- ANSI
- Species at Risk

Groundwater Dependent
Ecosystems

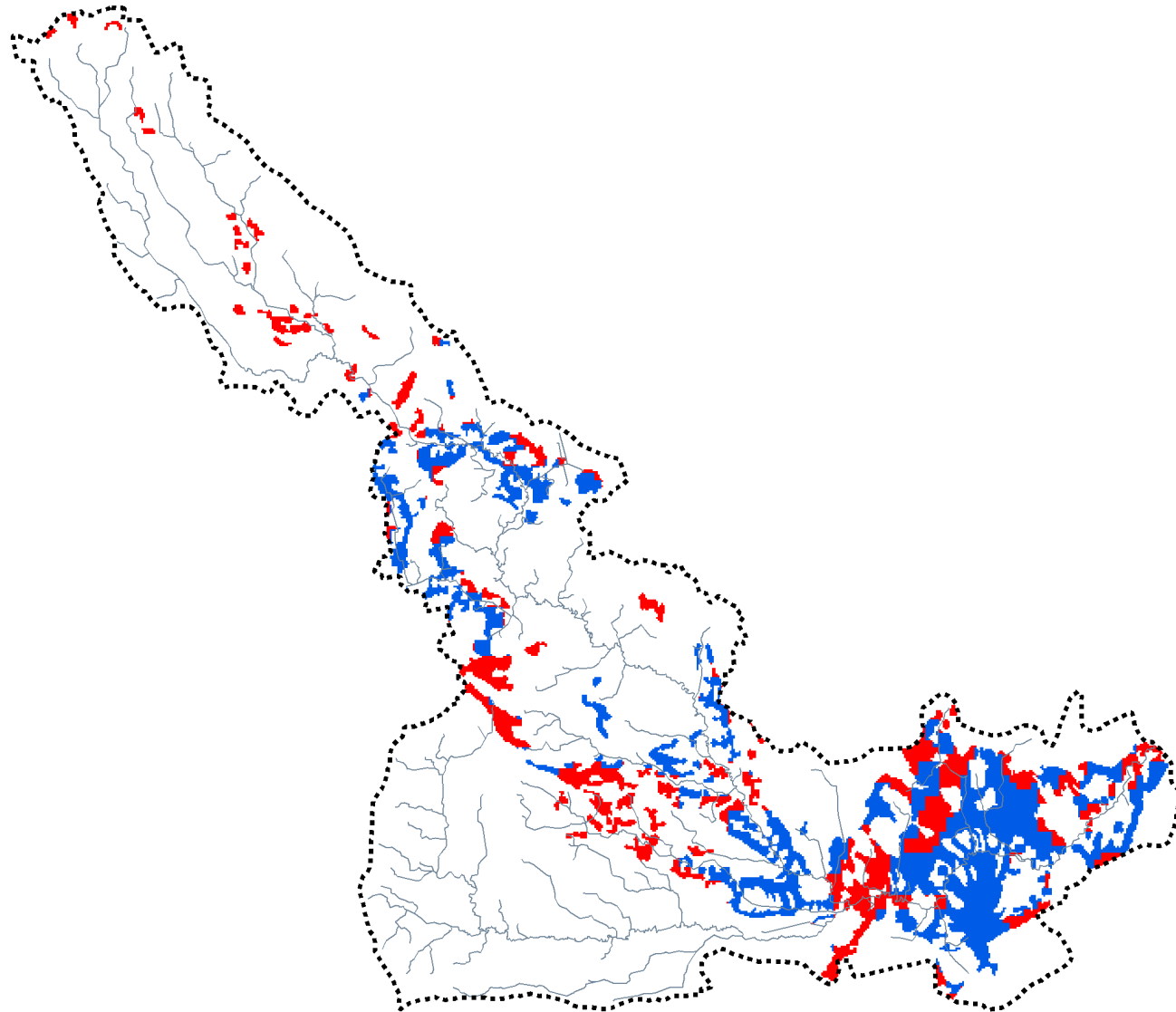


Significant Recharge Areas



- Significant Groundwater Recharge Areas (SGRAs)
 - areas of high recharge
- Ecological Significant Groundwater Recharge Areas (ESGRAs)
 - areas that support groundwater dependent ecosystems

ESGRAs Watercourses

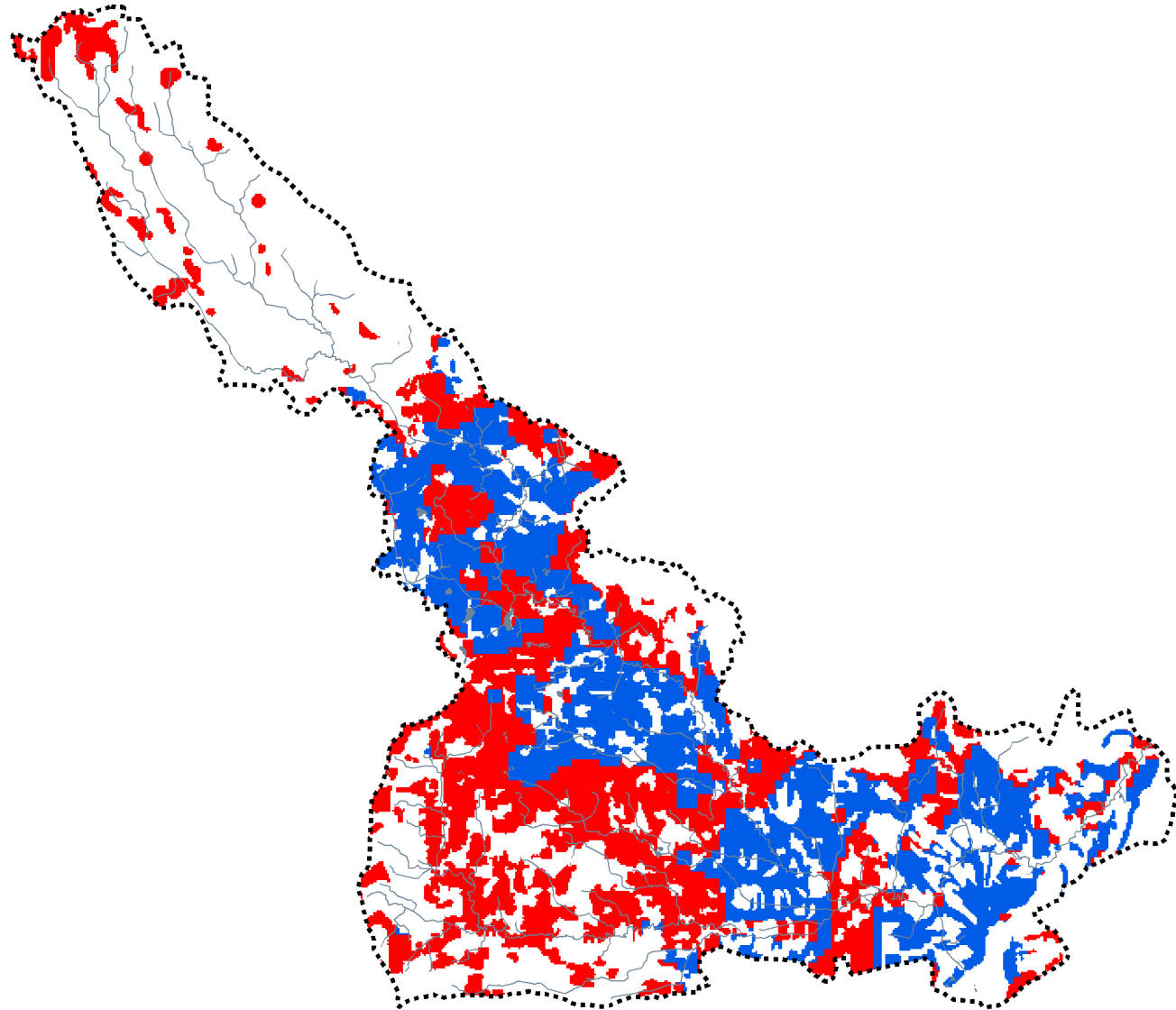


areas within SGRAs



areas outside of SGRAs

ESGRAs Wetlands



areas within SGRAs



areas outside of SGRAs

ESGRAs

- Areas of low recharge can also be significant to support natural features
- Wetlands are supported by local recharge
- Watercourses are supported by a mix of regional and local recharge



Future Water Use



- Likely to stay mostly agricultural

Questions:

- Irrigation – increase or decrease
- Livestock – increase or decrease
- Greenhouse – increase or decrease
- Future Sources – groundwater or surface

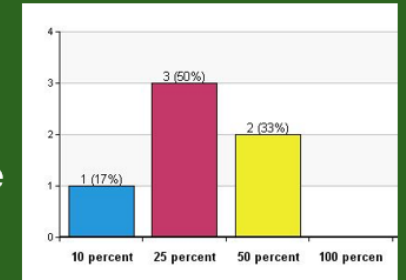
Stakeholder engagement

- Public meeting with Brant Federation of Agriculture
- Limitations to some of the ideas we tested
- Very similar future use to current use

A scenario could involve an increase in irrigated acres.

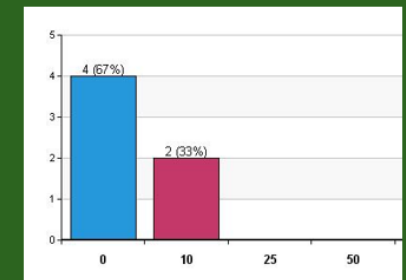
What amount of increase should be tested?

- A. 10% increase
- B. 25% increase
- C. 50% increase
- D. 100% increase



Should a scenario involve an increase in livestock water use?

- A. 0% increase
- B. 10% increase
- C. 25% increase
- D. 50% increase



Scenario Development



Emergency Planning



Irrigation



Alternative
Water
Sources



Acknowledgements

- Project Team:
 - Sonja Strynatka, Tony Zammit, Robert Messier GRCA
 - Rebecca Shortt, OMAFRA
 - Scott Bates, MNRF
- Source Water Team:
 - Martin Keller, Ilona Feldman, Stewart Sutherland
- Consultants:
 - EarthFX Inc.