



ASTOTIN CREEK

RESILIENCY STUDY



Astotin Creek Resiliency Action Plan Council Presentation

June 14, 2022

About the Project

Astotin Creek and its tributaries have experienced three major flooding events in the past ten years. These events have caused flooded farmland, damaged county roads and threatened homes and industrial infrastructure within the Astotin Creek watershed. To help manage current and future water issues, Strathcona County has undertaken a detailed study to understand historical changes and current conditions for the Astotin Creek watershed.

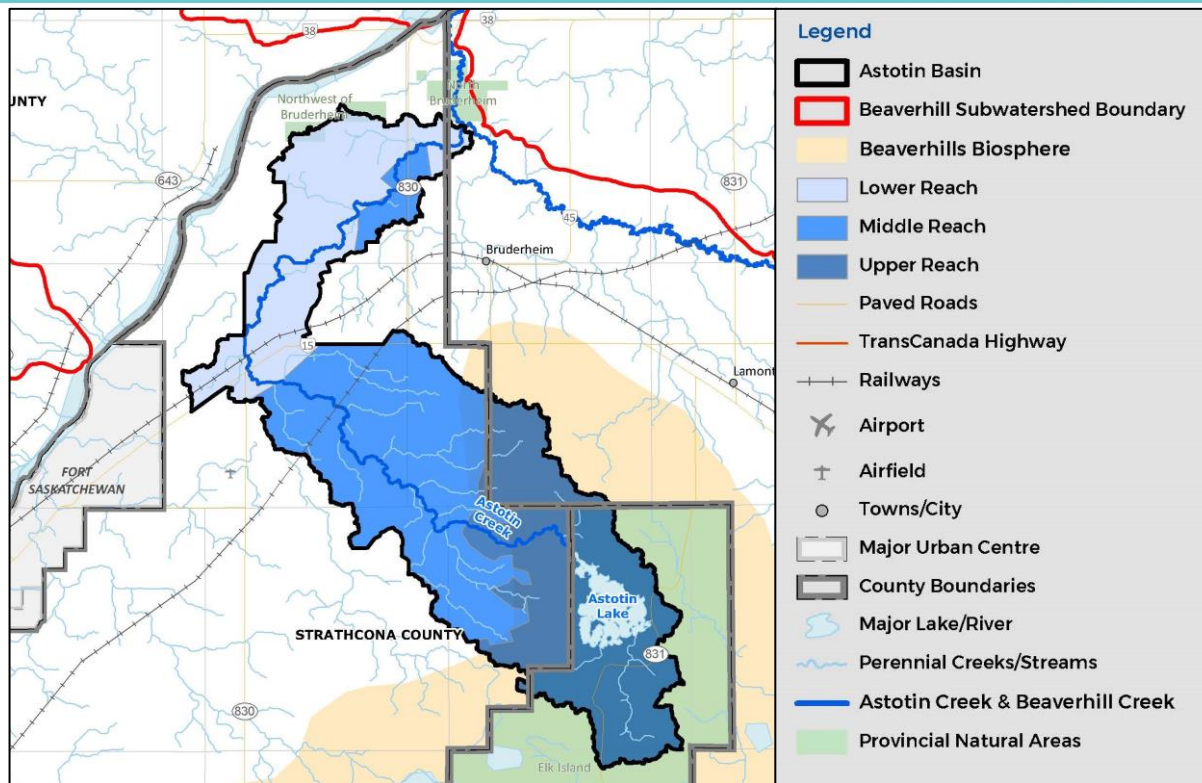
The key goals of the study were to:

- Create an action plan that addresses flood, drought, and water quality issues in priority areas within the Astotin Creek watershed,
- Restore and enhance ecological connectivity and function in critical areas of the Astotin Creek watershed, and
- Increase capacity, knowledge, awareness and participation by industrial landowners, private landowners, and agricultural producers in activities that can restore and maintain critical areas and functions of Astotin Creek watershed.

The study included technical assessments, analyses, planning and development of a Resiliency Action Plan. The technical work was accompanied by Indigenous, stakeholder, and community engagement.

This presentation will present the Resiliency Action Plan

Astotin Creek Watershed



The Three E's

Environment, Engagement, and Engineering

These three elements must be balanced when making decisions about Astotin Creek Watershed. The actions in the resiliency plan will reflect community and stakeholder input, sound engineering practices, and the need for a sustainable creek environment.



WATERSHED ANALYSIS

- Fieldwork
- Climate analysis
- Public GIS Data Atlas
- State of the Watershed
- Drainage Master Plan

ENGAGEMENT

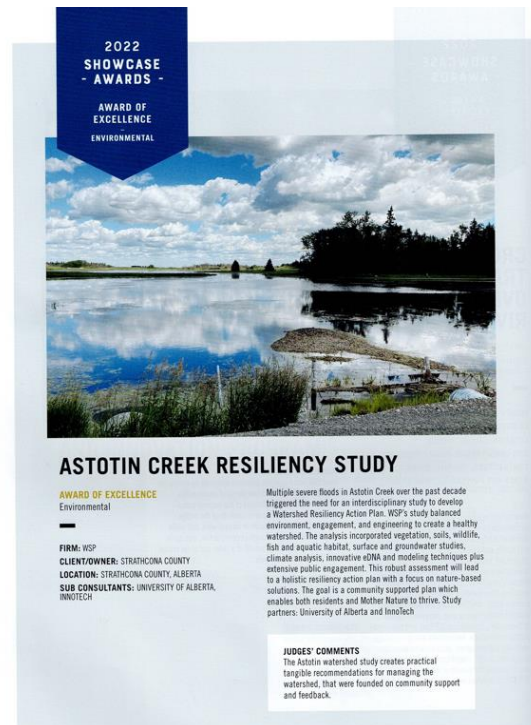
- Project Introduction Letter and emails
- Road Signs – 4 locations along major rural routes in the north
- Newsletters: Public Engagement, Project, & County Living
- Postcards (about 700 basin area residents & businesses)
- Public Engagement Calendar & Social Media
- Stakeholder Engagement Invite Letters, Emails, & Packages
- Online engagement sessions (Stakeholder & Community)
- Virtual Open House, Survey, & SCOOP survey (mixed topic survey)

RESILIENCY ACTION PLAN

- Identified recommended actions based on findings from Watershed Analysis and Engagement
- Resiliency Action Plan - Draft (November 2022)
- Priorities Committee Presentation - Draft Action Plan (February 2022)
- Prioritization of Actions
- Technical Working Group Meetings
- Resiliency Action Plan - Final (April 2022)

Award Winning Project

Astotin Creek Resiliency Study
won the Environmental
Award of Excellence from the
Consulting Engineers of
Alberta on April 8, 2022



What is the “Resiliency Action Plan?”

The Resiliency Action Plan is a **set of recommended actions** that the County, landowners, the public, and other stakeholders can use to build and restore flood and drought resilience in the Astotin Creek Watershed.

Six visions have been identified which contribute to resilience for Astotin Creek Watershed. Supporting actions have been developed for each vision.



Actions were prioritized based on the following criteria. Each criterion was **weighted** on a scale from 1 – 3 [shown in brackets] based on stakeholder feedback, alignment with County priorities, and feedback from Technical Working Group

- | | |
|--|---|
| <ul style="list-style-type: none">• Contribution to flood/drought risk reduction [3]• Environmental benefits [3]• Economic benefits [2]• Social benefits [2]• Capital cost [1] | <ul style="list-style-type: none">• Non-capital costs [1]• Funding alignment & available resources [2]• Ease of Implementation [1]• Autonomy [1]• Low-carbon resilience (GHG emissions) [1] |
|--|---|

Criteria scoring:

- Criteria were scored from 0-3, and then overall weighted scores were calculated for every action
- Actions were then prioritized within each Vision as well as assigned an overall priority level
- Actions are presented on the following slides in order of priority

Criteria	Weighting	0	1	2	3
Contribution to flood/drought risk reduction	3	No impact on flood/drought risk	Minor risk reduction	Moderate risk reduction	Considerable risk reduction/elimination of risk

Increasing benefit

Vision 1: Healthy Ecosystem

Healthy Ecosystem



Vision Statement

Astotin Creek has a healthy watershed with rich vegetation and aquatic habitat, which supports biodiversity, maintains water quality, and provides flood and drought resilience.

Supporting Actions

- Implement co-existence with wildlife strategies
- Ensure aquatic connectivity
- Conserve/restore natural water retention features
- Conserve/restore vegetated buffer
- Implement erosion and sediment control measures
- Prevent livestock from accessing creek

Increasing benefit

Vision 2: Integrated Watershed Management

Integrated Watershed Management



Vision Statement

Responsible land management within Astotin Creek watershed reduces flood and drought risk and protects ecosystems.

Supporting Actions

- Maintain ecological function in Upper Assessment Reach
- Develop land buyback and/or compensation programs
- Conserve and restore wetlands
- Protect and enhance drainageways

Increasing benefit

Vision 3: Resilient Infrastructure

Resilient Infrastructure



Vision Statement

Infrastructure in the Astotin Creek watershed is designed to reduce flood risk and enable adaption to climate change.

Supporting Actions

- Include climate change considerations in infrastructure and development standards/policy
- Incorporate flood construction level requirements in the LUB
- Replace undersized infrastructure
- Update the allowable stormwater discharge rate for new developments
- Elevate roads along with crossing upgrades

Increasing benefit

Vision 4: Proactive Management

Proactive Management



Vision Statement

Strathcona County's programs and operations reduce flood risk in the Astotin Creek watershed.

Supporting Actions

- Landowner education and partnership for private property clean up
- Implement a debris management program
- Expand asset management program
- Proactive creek inspections and monitoring

Increasing benefit

Vision 5: Flood and Drought Preparedness

Flood & Drought Preparedness



Vision Statement

Strathcona County will invest in response planning to ensure staff and residents can deal with flood and drought events.

Supporting Actions

- Incentivize property level flood protection
- Develop a drought mitigation plan
- Increase public understanding of flood prevention and drought mitigation, property protection and emergency response
- Develop flood response plan and training
- Develop flood forecast, monitoring, and warning system
- Investigate availability of flood insurance for landowners

Increasing benefit

Vision 6: Educated, Engaged, & Empowered Public

Educated, Engaged and Empowered Public



Vision Statement

Strathcona County residents will have a shared understanding of flood and drought risks and feel empowered to participate in actions to manage risks.

Supporting Actions

- Implement pilot programs to showcase nature-based solutions
- Indigenous relations
- Implement public outreach programs
- Implement citizen science initiatives

Increasing benefit

Planning and budget considerations for implementation:

- Many actions items can be operationalized with minimal budget impacts. Existing department work and projects will be modified to include actions *(for example: future infrastructure replacements will use recommendations for right sizing culverts and ditches.)*
- Action items with budget impacts will be brought back during budget consideration and prioritized with all other recommended initiatives.
- Timing of some actions will be driven by grant availability and landowner support

Questions

