ENGINEERS &
GEOSCIENTISTS
BRITISH COLUMBIA

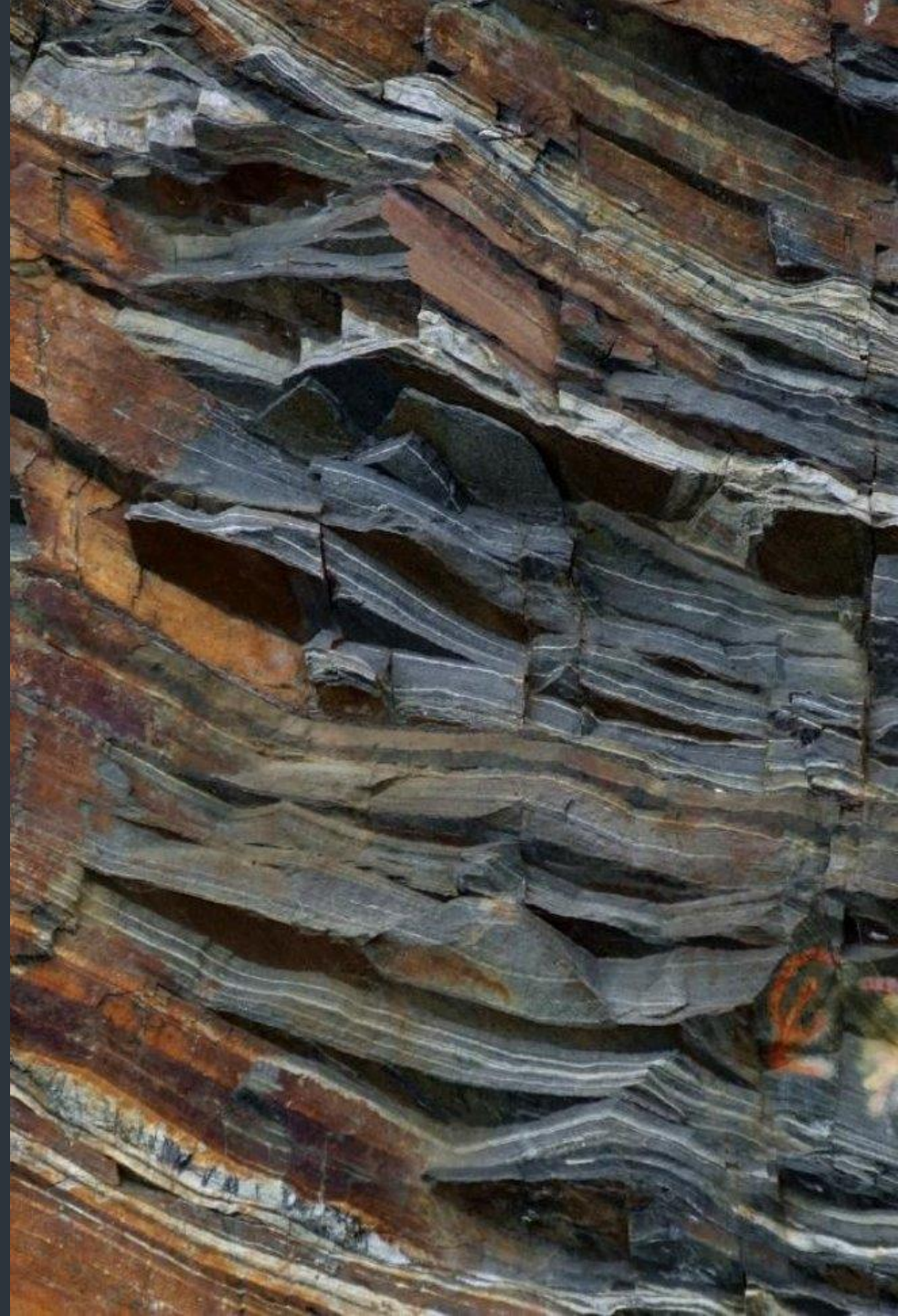
ENHANCING RESILIENCE THROUGH ONE WATER SYSTEM RISK MANAGEMENT

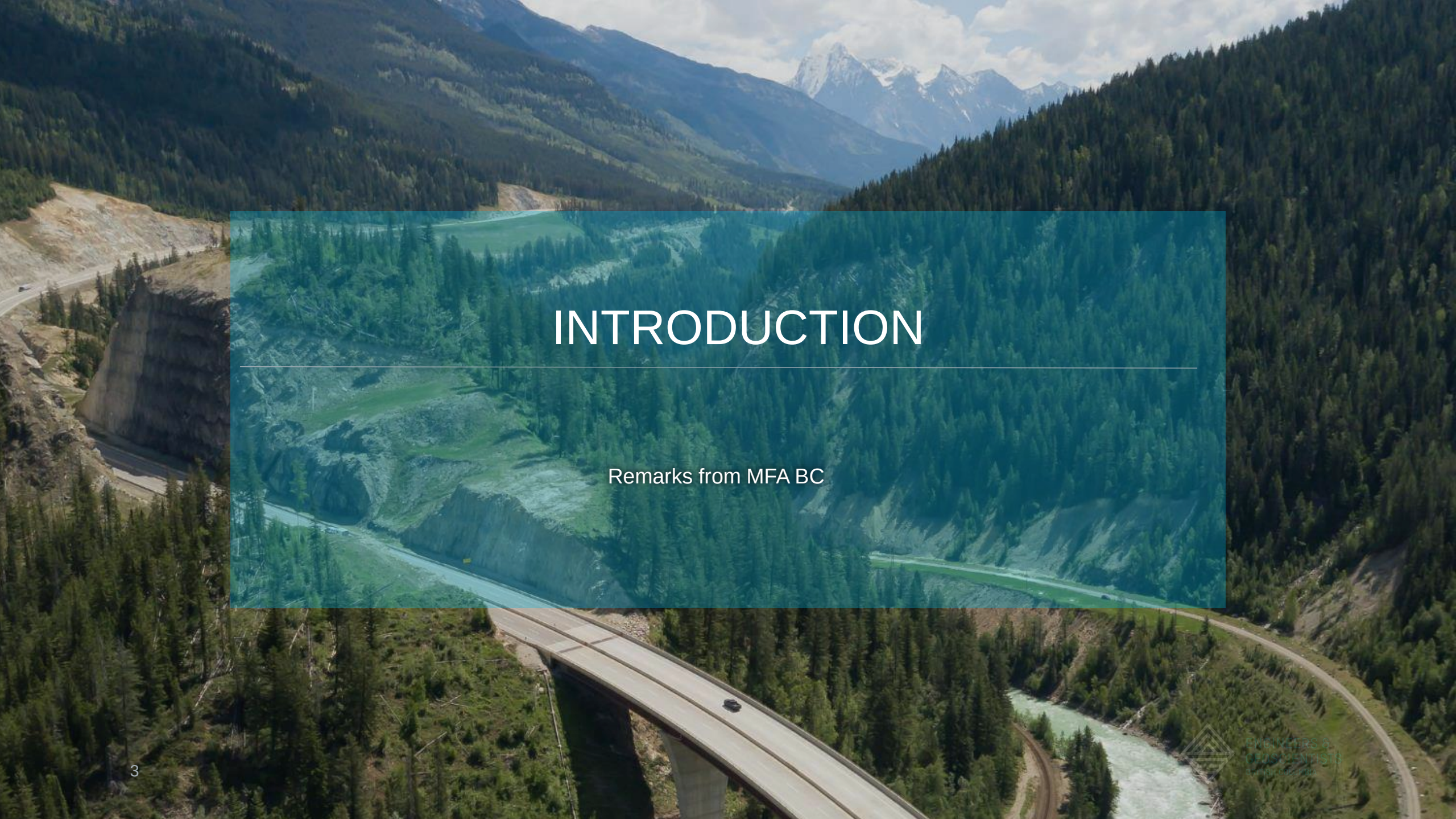
November 07, 2024

AMBC Conference

AGENDA

- Introductory Remarks from Allison Ashcroft, MFA BC
- Engineers and Geoscientists BC Context
- Planning Guide
- Professional Practice Guidelines w/ Case Study
- Interactive elements - throughout the presentation
- Q & A





INTRODUCTION

Remarks from MFA BC

ENGINEERS AND GEOSCIENTISTS BC

Professional regulatory body with:

- 2800+ registrants working in the water sector,
- the responsibility to enhance the ability of its registrants to adapt to new practice environments, technologies and other emerging areas,
- the responsibility to regulate the practice by establishing minimum acceptable standards for professional practice,
- an evolving portfolio of professional practice guidelines that are revised on a scheduled basis, and
- a Strategic Plan which identifies EGBC responsibilities relating to climate action, reconciliation and EDI.

ONE WATER APPROACH

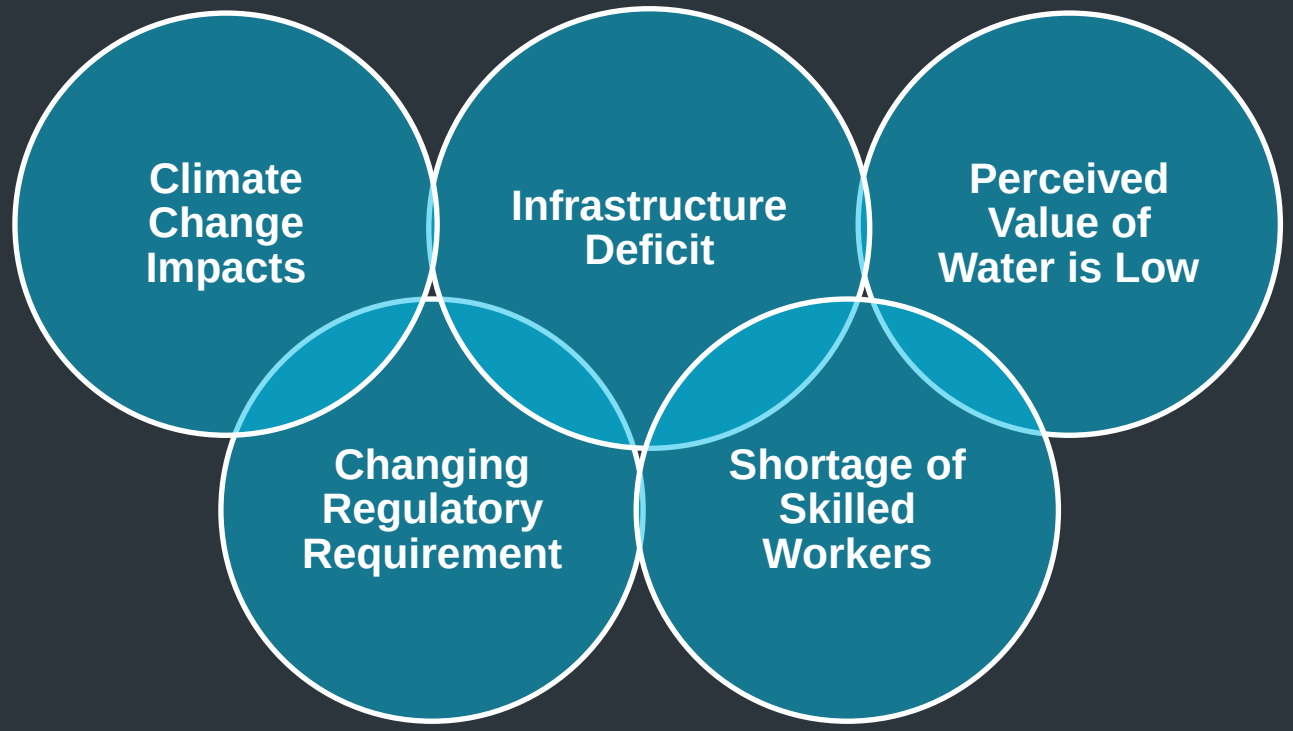
What is the One Water Approach?

Integrated planning and implementation *approach to managing finite water resources for long-term resilience and reliability, meeting both community and ecosystem needs.*

Water Research Foundation

WHY THESE NEW PROFESSIONAL PRACTICE RESOURCES?

- Moving toward an integrated One Water approach to managing water system risks
- Water systems facing many challenges
- Take enterprise-level system risks into account
- Fill regulatory gaps



PPG Receives Water Canada Award!

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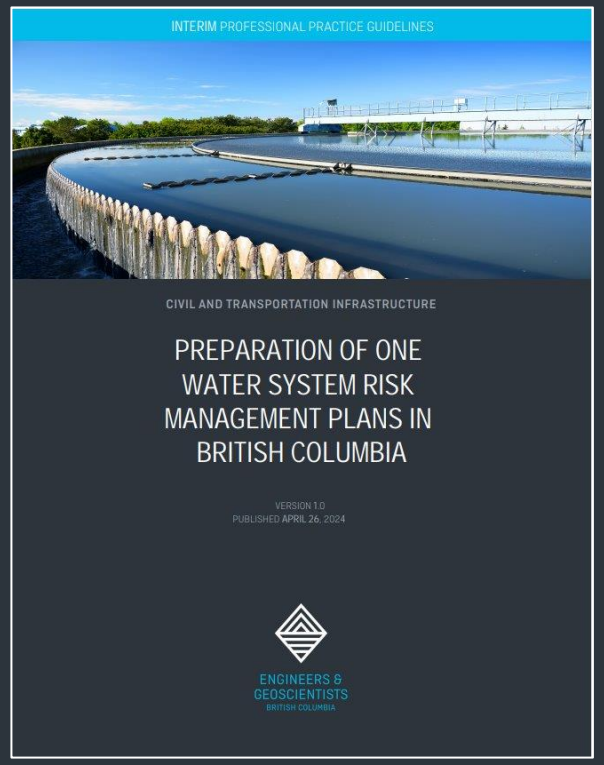
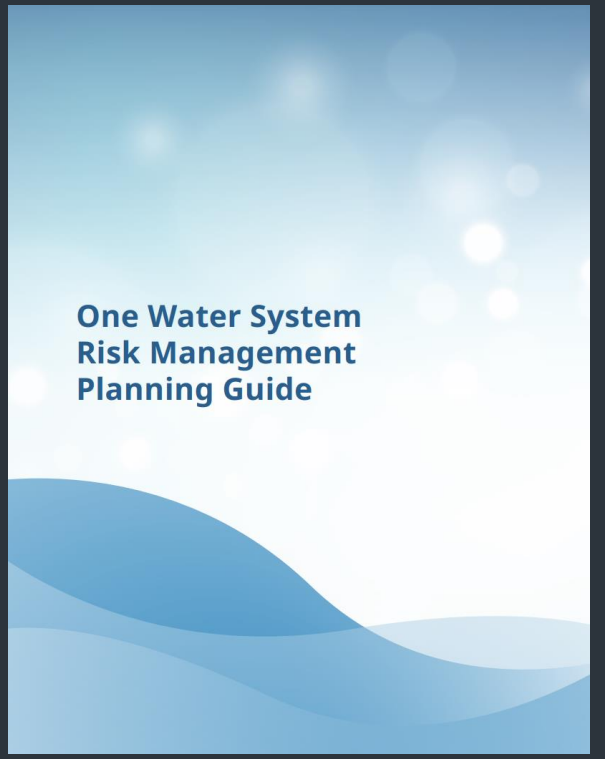
ONE WATER SYSTEM RISK MANAGEMENT

- Enterprise-Level Risk Management:
  Coordinated, ongoing application of risk management across all parts of an organization, at all levels, from strategic planning to service delivery
- Integrated, inclusive and holistic approach
- Reconcile multiple values and benefits of water:
  - ✓ Social and cultural (e.g.: mental health, recreation, spiritual well-being)
  - ✓ Natural environment sustaining ecosystems and biodiversity
  - ✓ Economic role (e.g.: industry, agriculture, tourism, energy supply)

NEW RESOURCES





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COMMUNITY GOVERNMENT CONTEXT

One Water System Risk Management as a new tool for local governments and First Nations

Join at menti.com | use code 2219 8657

Mentimeter

How familiar are you with the One Water Approach?

1st I had never heard of it before

2nd I have heard of it but not sure what it means

3rd I know what it is but I don't apply it in my work

4th I know what it is and I already apply it in my work, where possible

ROLES IN ONE WATER SYSTEM RISK MANAGEMENT

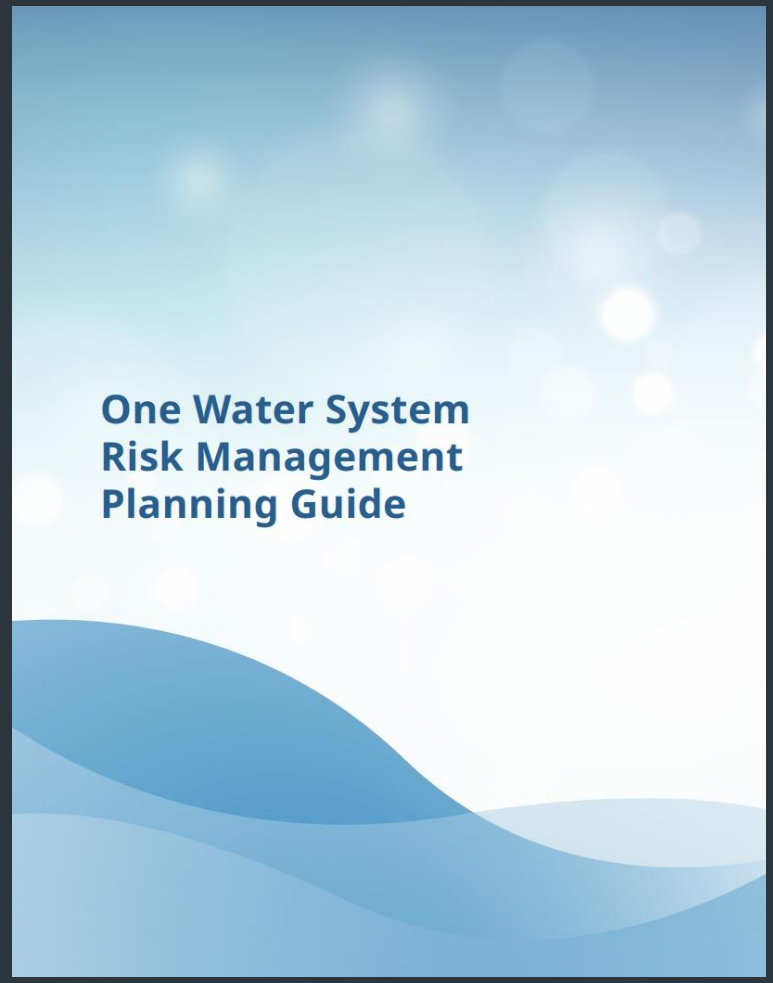
No direct responsibility for water services? Consider…

- Community buildings and housing rely on all water services
- Transportation services rely on stormwater management
- Parks can have important water management functions
- Climate adaptation is all about water
- Water services rely on effective governance, administration, finance, information and communication

→ We all have a role!

PLANNING GUIDE

- Standalone resource that is complementary to the Professional Practice Guidelines
- Helps with:
  - Understanding the One Water concept and how it can be applied at a community level
  - Introducing the concept of One Water System Risk Management and providing tools
  - Compiling and preparing resources needed to begin water system risk management planning



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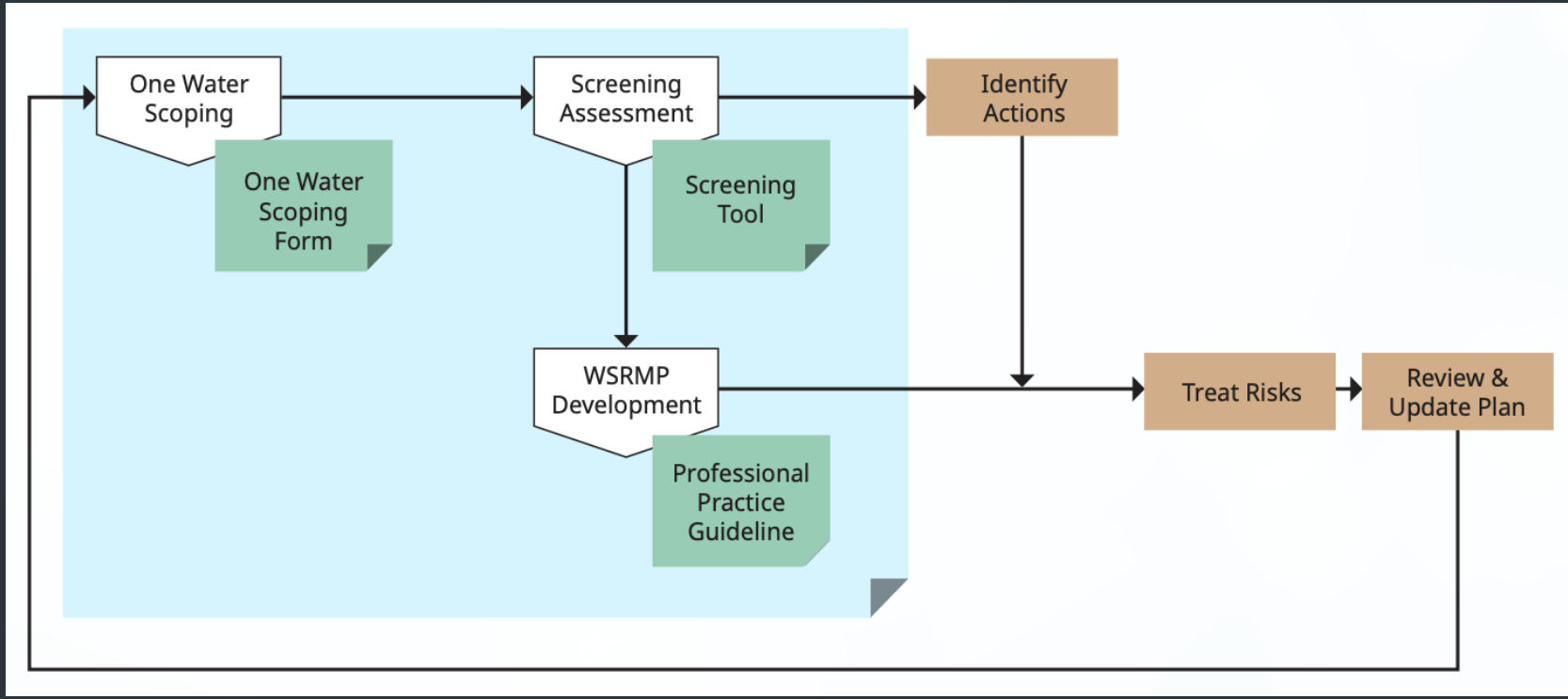
ONE WATER SYSTEM RISK MANAGEMENT PLANNING GUIDE

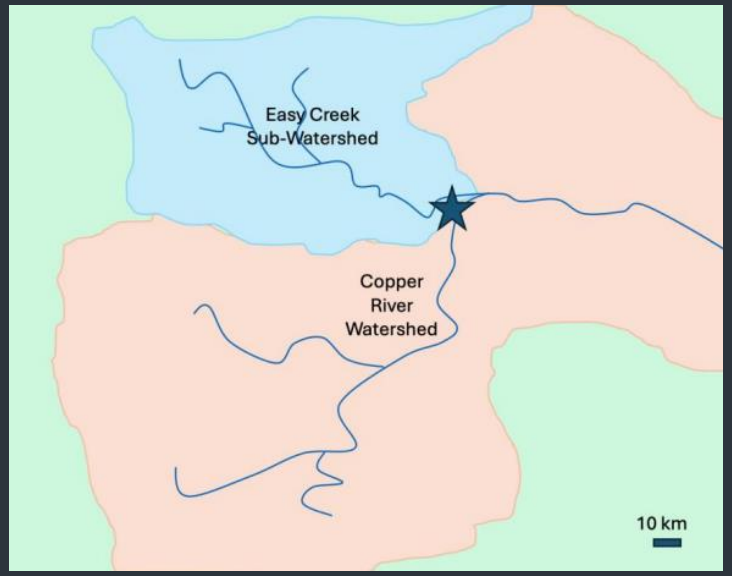
Tools:

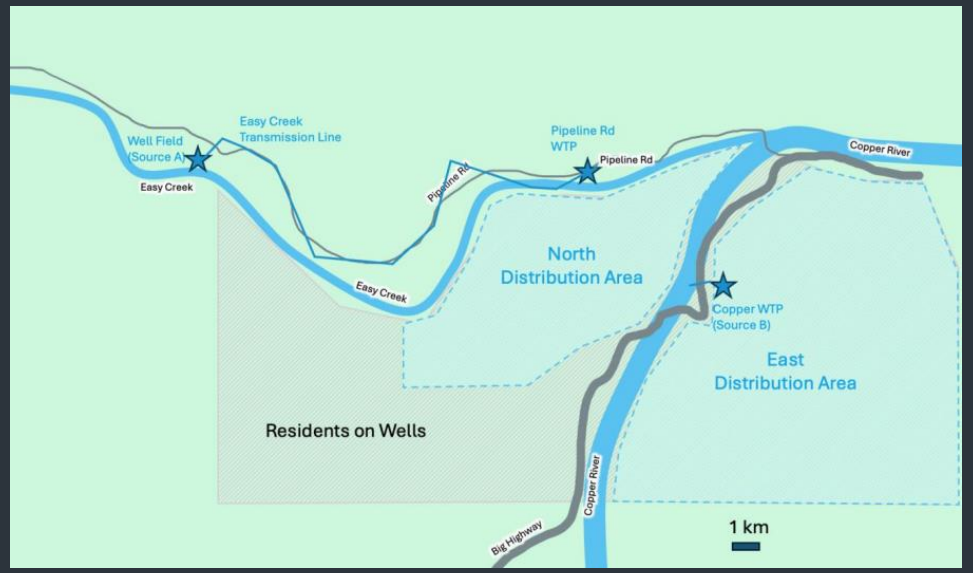
- One Water Scoping Form
- Screening Assessment
- WSRMP

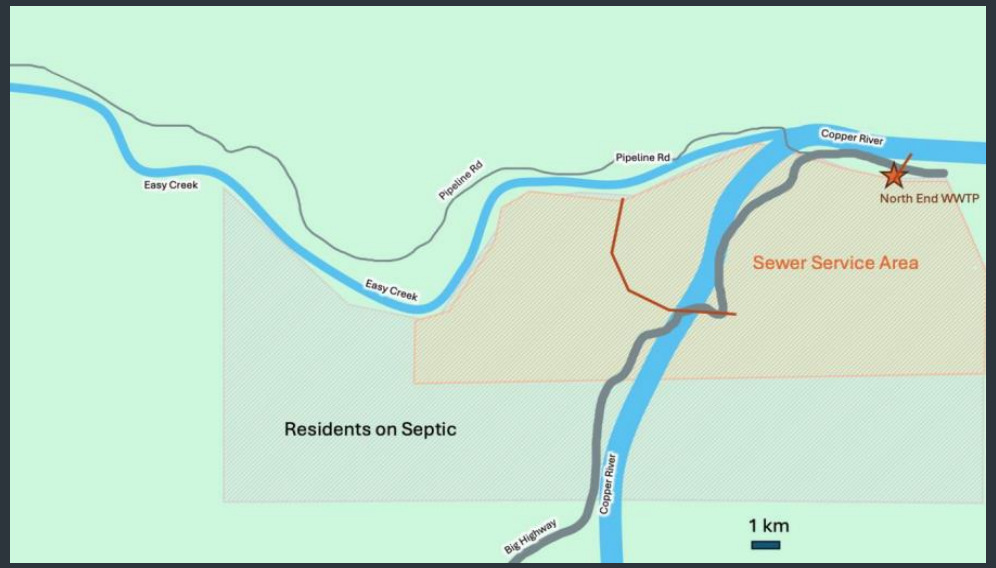


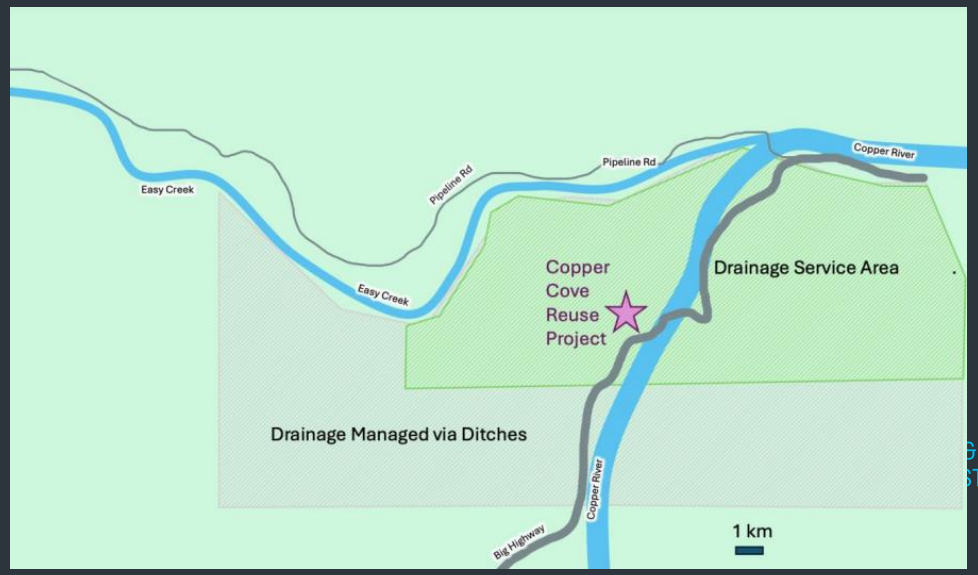
Provides multiple entry points to institutionalize the One Water approach within a community

ONE WATER SCOPING PROCESS









DRIVERS FOR A ONE WATER APPROACH

- Water quality issues
- Water quantity issues
- Aging or inadequate infrastructure
- Climate change
- Pricing and/or affordability
- Ecosystem degradation
- Integrating inclusion
- Reconciliation

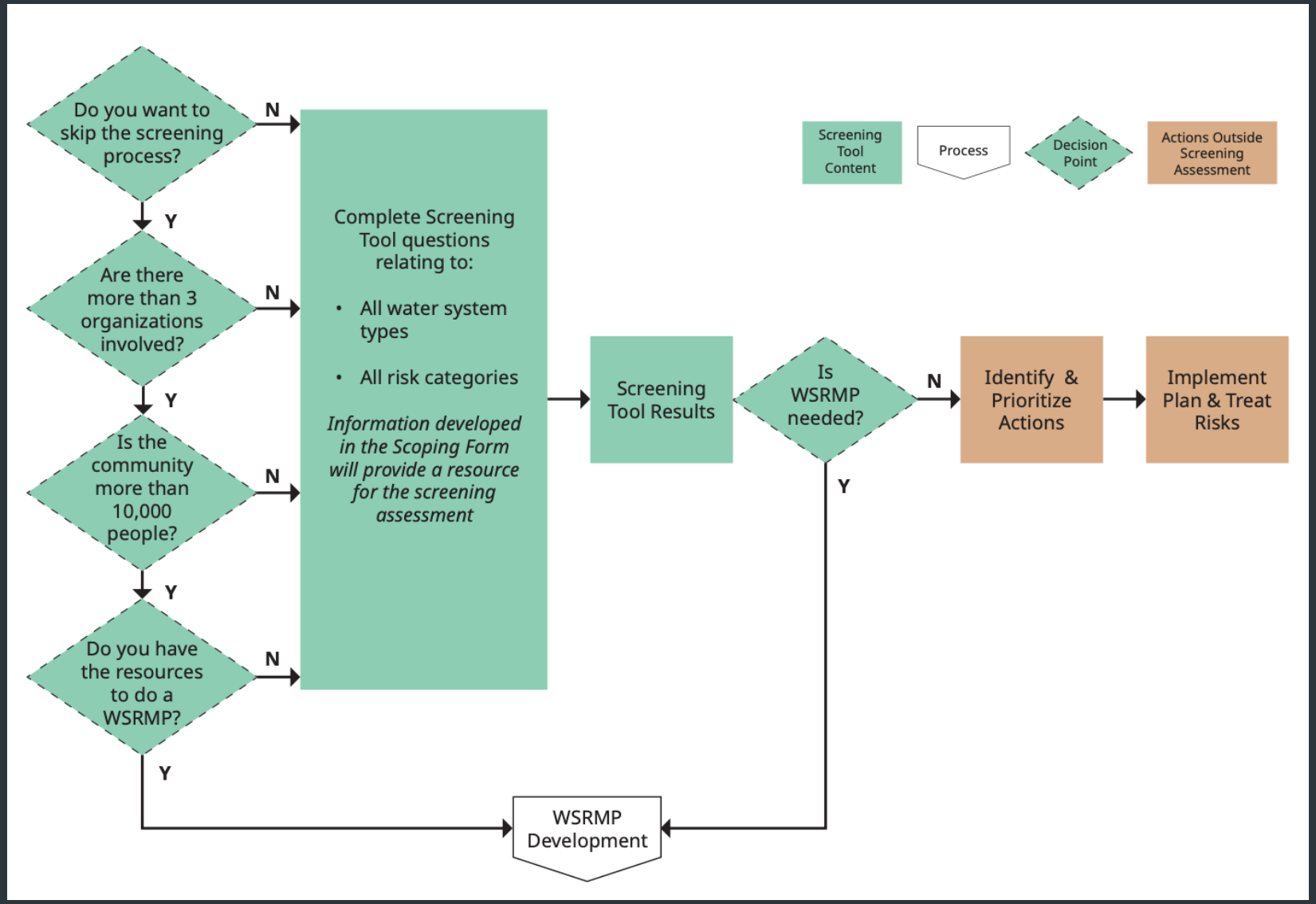
ROUNDING OUT THE ONE WATER SCOPING

The questionnaire helps define your context for One Water System Risk Management:

- Geographic extents of your water systems and service areas
- Purpose, objectives and vision
- Desired outcomes
- People and organizations involved
- Previous risk analysis
- Next steps

SCREENING ASSESSMENT

- Assess how to appropriately scope a WSRMP
- Identify immediate priorities
- With the scoping questionnaire, helps you prepare for a WSRMP



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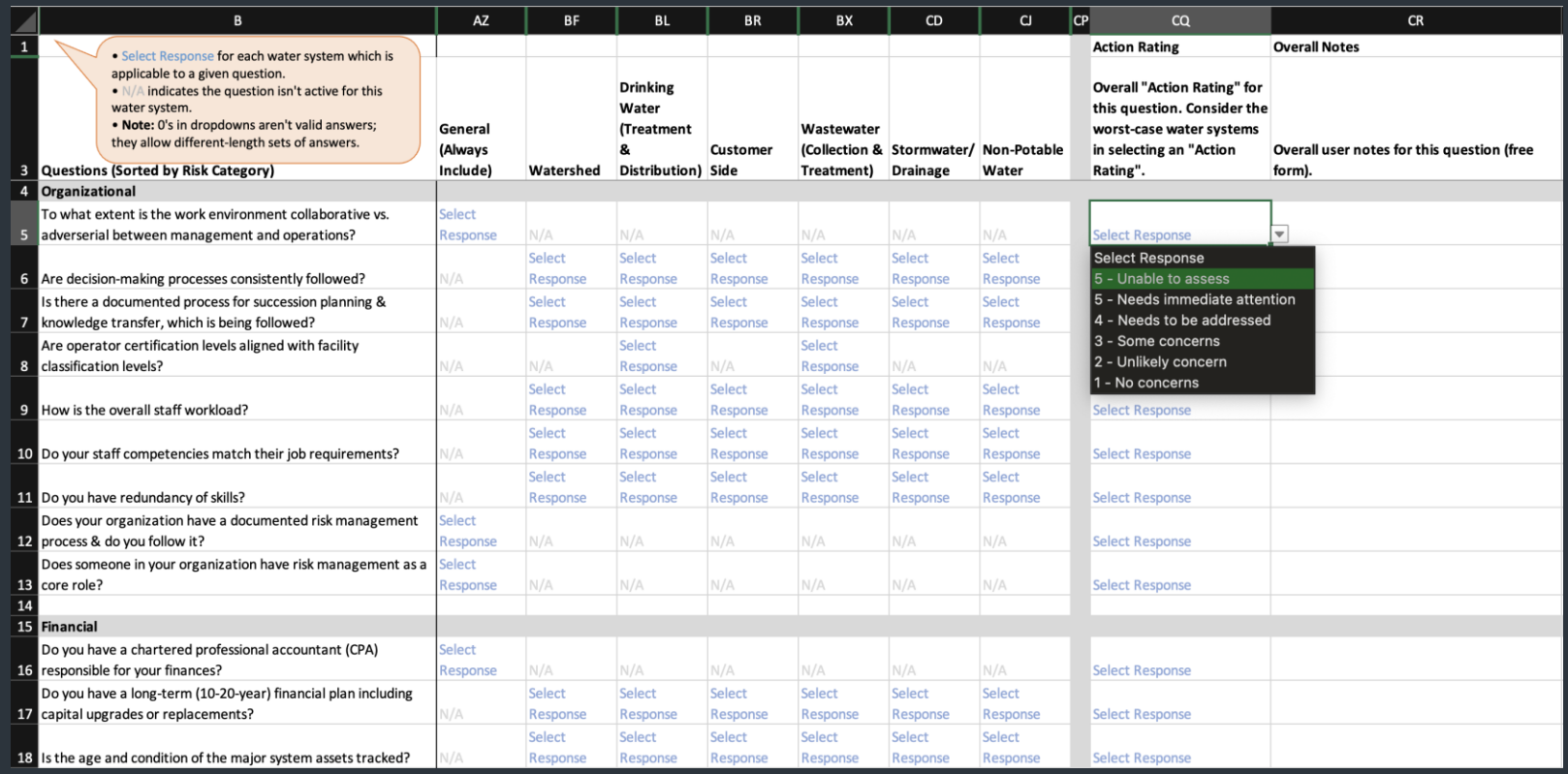
SPREADSHEET BASED SCREENING TOOL

- 72 questions in 7 risk categories, aligned with WSRMP Guidelines
- Multiple choice responses for each type of water system, and general questions
- User selects an “action rating” based on responses
- Indicators of elevated risk in certain categories trigger “red flags”
- Action ratings are summarized by risk category



	B	AZ	BF	BL	BR	BX	CD	CJ	CP	CQ	CR
1	• Select Response for each water system which is applicable to a given question. • N/A indicates the question isn't active for this water system. • **Note:** 0's in dropdowns aren't valid answers; they allow different-length sets of answers.									**Action Rating**	**Overall Notes**
3	**Questions (Sorted by Risk Category)**	**General (Always Include)**	**Watershed**	**Drinking Water (Treatment & Distribution)**	**Customer Side**	**Wastewater (Collection & Treatment)**	**Stormwater/ Drainage**	**Non-Potable Water**		**Overall "Action Rating" for this question. Consider the worst-case water systems in selecting an "Action Rating".**	**Overall user notes for this question (free form).**
4	**Organizational**										
5	To what extent is the work environment collaborative vs. adverserial between management and operations?	Select Response	N/A	N/A	N/A	N/A	N/A	N/A		Select Response	
6	Are decision-making processes consistently followed?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
7	Is there a documented process for succession planning & knowledge transfer, which is being followed?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
8	Are operator certification levels aligned with facility classification levels?	N/A	N/A	Select Response	N/A	Select Response	N/A	N/A		Select Response	
9	How is the overall staff workload?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
10	Do your staff competencies match their job requirements?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
11	Do you have redundancy of skills?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
12	Does your organization have a documented risk management process & do you follow it?	Select Response	N/A	N/A	N/A	N/A	N/A	N/A		Select Response	
13	Does someone in your organization have risk management as a core role?	Select Response	N/A	N/A	N/A	N/A	N/A	N/A		Select Response	
14											
15	**Financial**										
16	Do you have a chartered professional accountant (CPA) responsible for your finances?	Select Response	N/A	N/A	N/A	N/A	N/A	N/A		Select Response	
17	Do you have a long-term (10-20-year) financial plan including capital upgrades or replacements?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	
18	Is the age and condition of the major system assets tracked?	N/A	Select Response	Select Response	Select Response	Select Response	Select Response	Select Response		Select Response	

Select Response
5 - Unable to assess
5 - Needs immediate attention
4 - Needs to be addressed
3 - Some concerns
2 - Unlikely concern
1 - No concerns

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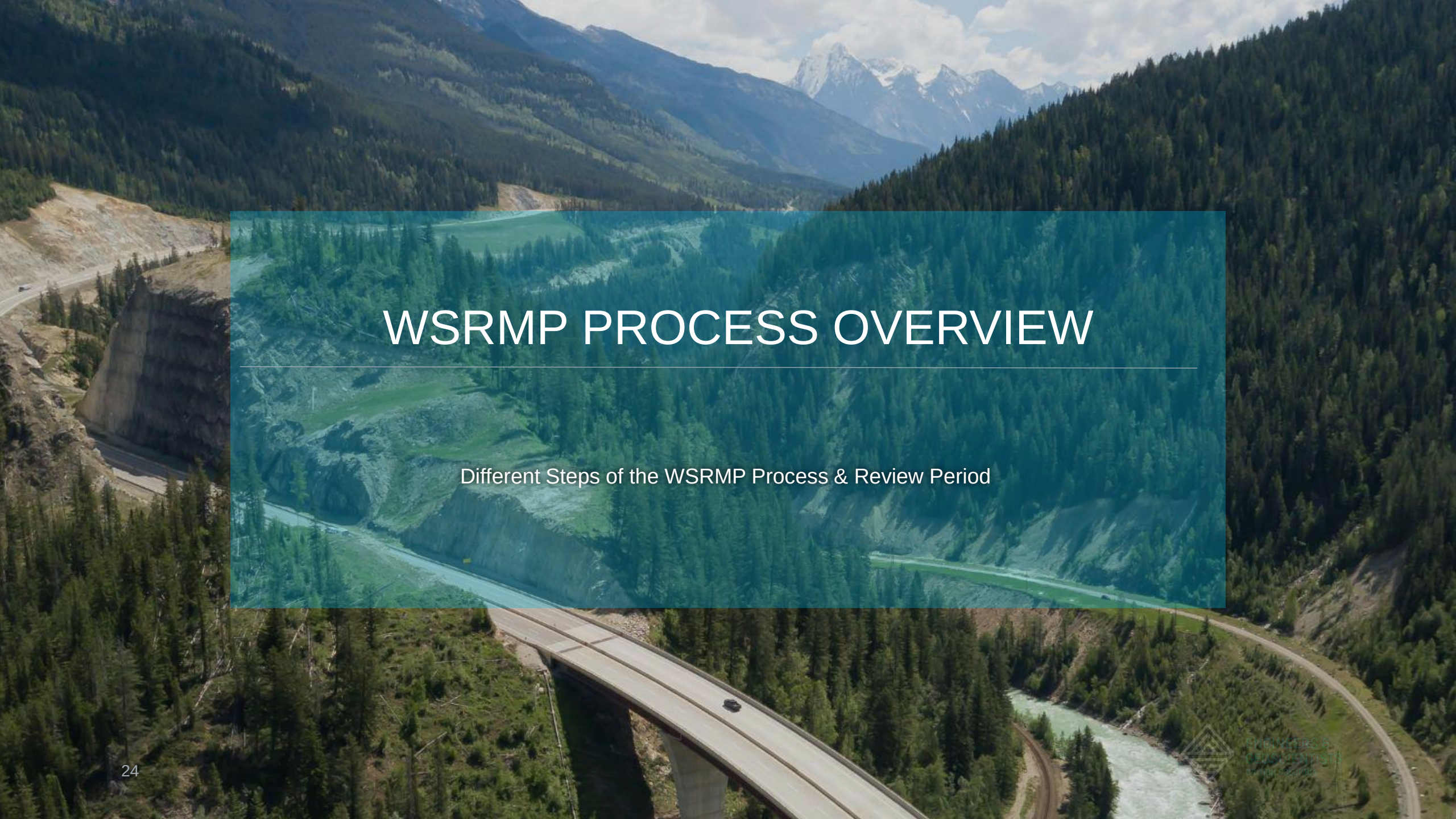
AFTER A SCREENING ASSESSMENT

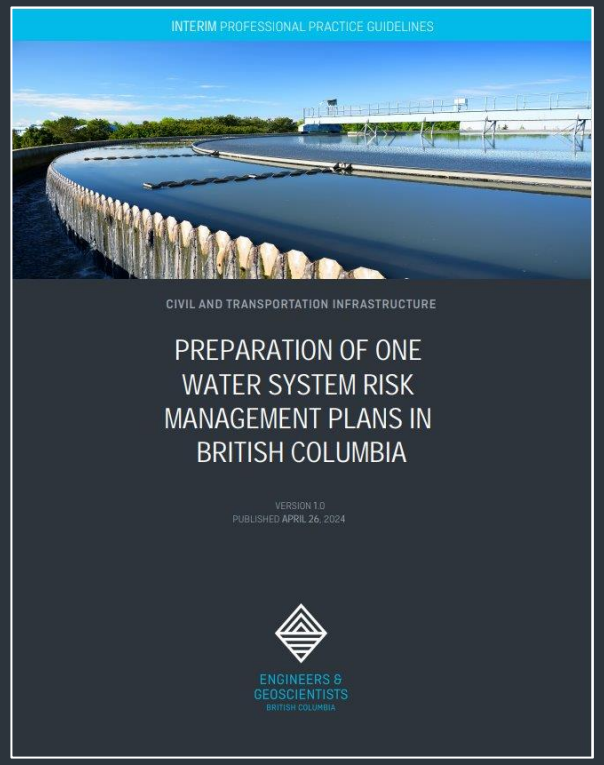
- Make a plan and schedule to address “red flagged” or high priority actions from the screening process
- Use the completed scoping and screening tools to prepare for a WSRMP
- Timeframe to complete WSRMP can be guided by screening outcomes…could be indefinite for a small community with few high priority actions and no “red flags”
- Let us know how it worked!

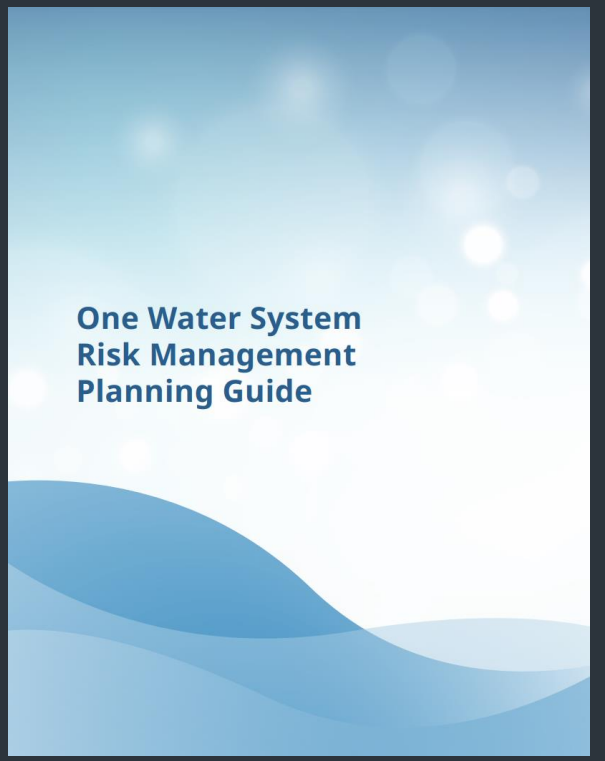


WSRMP PROCESS OVERVIEW

Different Steps of the WSRMP Process & Review Period

NEW RESOURCES





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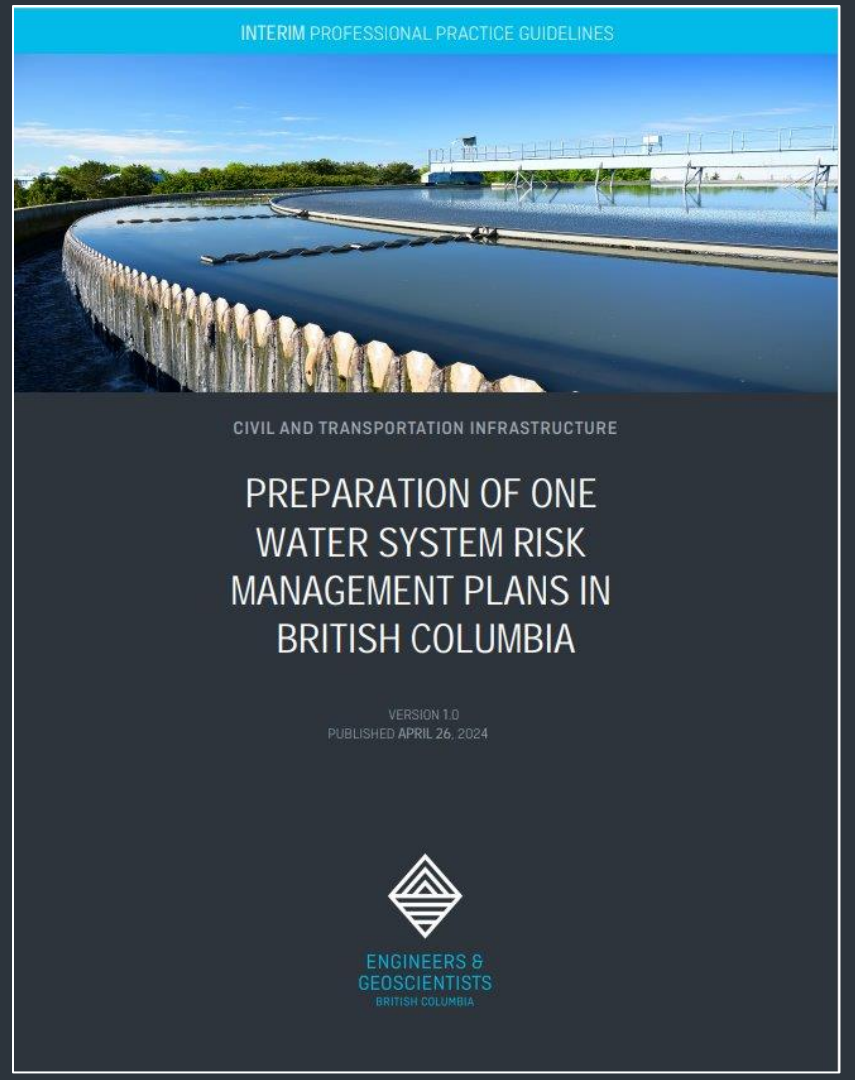
PROFESSIONAL PRACTICE GUIDELINE OBJECTIVES

- Support local government and communities in developing a holistic understanding of the risks facing water systems
- Prioritize these risks by identifying recommended actions and opportunities to deliver consistent levels of service and by focusing finances where most needed
- Strategically communicate identified risks and opportunities to decision makers, the public and other water users
- Strengthen relationships with regulators, ministries and/or other partners
- Enhance resilience of infrastructure and ecosystems



GUIDELINE APPLICABILITY

- Key audience: Engineers and Geoscientist BC registrants who develop WSRMPs for local governments and communities
- Broader intent: water utility staff and operators, community staff, public health authorities

PROCESS OVERVIEW FOR DEVELOPING A ONE WATER SYSTEM RISK MANAGEMENT PLAN

QP signature & seal

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ENTERPRISE RISK CATEGORIES

Eight categories of risks to identify, assess and understand risks.

FORT ST JOHN CASE STUDY

Approach:

- Using the WSRMP guideline and risk categories
- Roundtable with group of interest holders who are involved in water management in FSJ to discuss system level risks
- Site visits to critical water system infrastructure,
- Interviews with operations, financial, management staff in Fort St John

Key outcomes from the WSRMP pilot:

- WSRMP was able to leverage the voice of the many professionals involved in water system management to communicate key risks to decision makers
- Redundancy and training for key operations positions was funded
- Backup power for critical pump station was implemented

CITY OF VANCOUVER CASE STUDY

- Multi-disciplinary team
- Integrated Stormwater Risks Identified
  - CSO overflows (46% of sewers remaining combined)
  - Flooding
  - Aging Infrastructure
  - Funding

- Implementation of green infrastructure as identified in Rain City Strategy
- Develop city wide plan for sewage and rainwater management
- Review and update Emergency Response Plan
- Investigate levy for stormwater levy to fund infrastructure
- Clear pathways for separating combined sewer overflows, communication, flow monitoring
- Improve flow monitoring data

CLOSING

- These resources support local government and communities in developing a holistic understanding of the risks facing water systems
- Potential for the WSRMP approach to support new requirements for HRVAs for critical infrastructure under the EDMA
- EGBC will partner with BCWWA and other industry associations and continue to provide training opportunities/ facilitate the development of sample plans and case studies.
- Follow: www.egbc.ca/wsrmp for updates and more information

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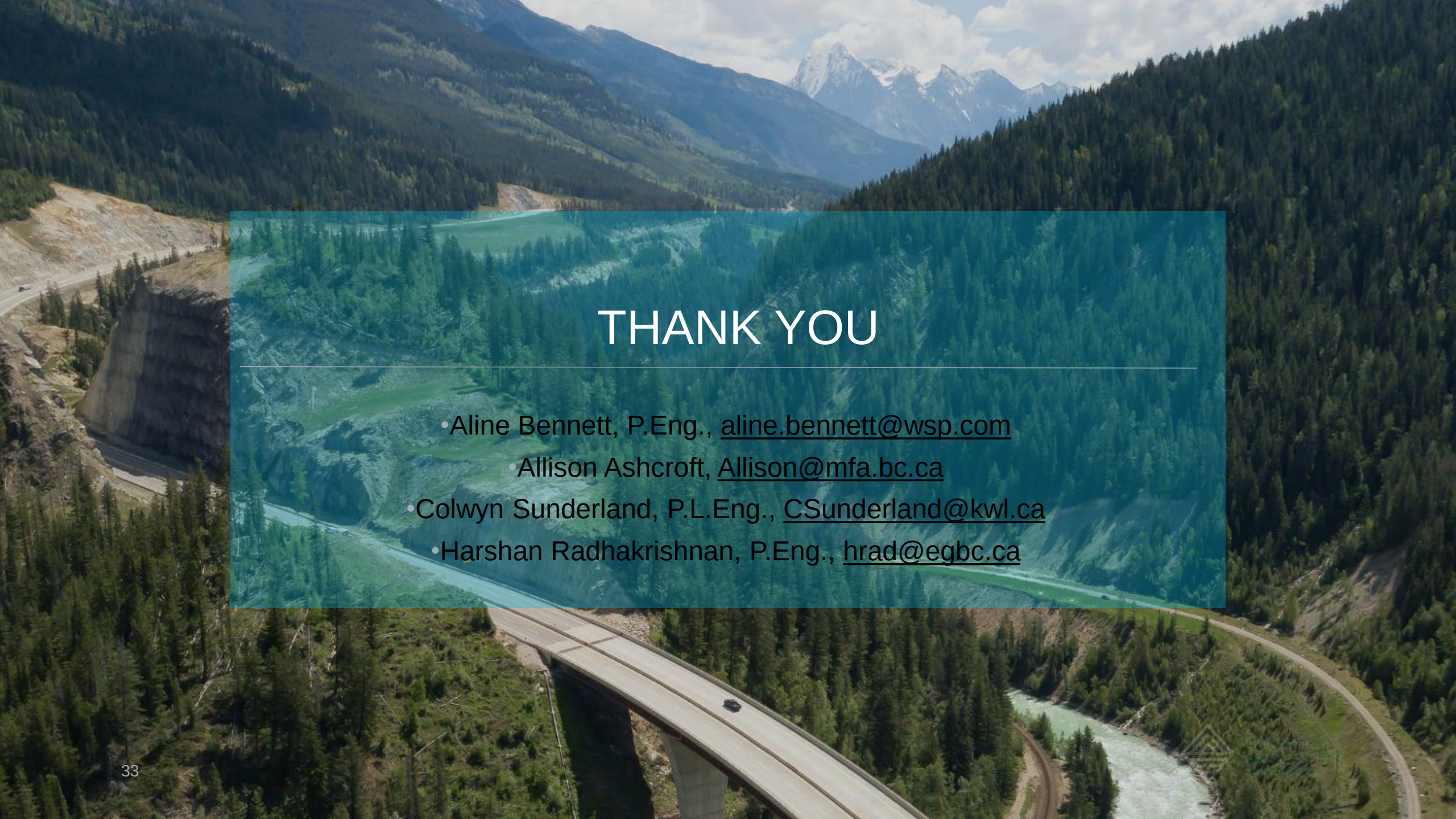

THANK YOU

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