

WELCOME AND HOUSEKEEPING

David Seeliger
ALIDP President

Leta van Duin
Executive Director

DESIGNING FOR TOMORROW

ONLINE





Thank you to our ALIDP vendor partners



DESIGNING FOR TOMORROW LIVE! IS COMING



SAVE THE DATES

November 4 - pre-conference training

November 5 and 6 - conference and trade show

Holiday Inn & Suites Calgary South
Conference Centre

Call for Presentations
and Posters is open
until April 13, 2026

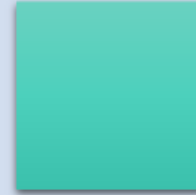




Housekeeping



The agenda is at the top middle of the page.



Double click to move tables;
Hover over icons to see who is at the tables;
Move to a table labelled “away” if you are not feeling social.



Recordings and ppts will be made available.



Spend some networking time after the event. We can extend to as late as 12:30.

ALSO: CHAT | PARTICIPANTS | Q&A | POLLS

Calgary



LID and The City of Calgary

What We Heard, the Road Ahead, Have Your Say

February 19, 2026

LID Narrative Background

Narrative Project Objectives

- Creation of a comprehensive picture of the historical drivers and context for implementation of LID in Calgary
- Review and understanding of current state of LID awareness, support and experience across all elements of the LID spectrum including suppliers & vendors, consultants, development industry, regulator/ approvals staff, non-profits and academia.
- Identification of themes associated with LID success, challenges, and pain points.
- Recommendations for moving LID in Calgary forward

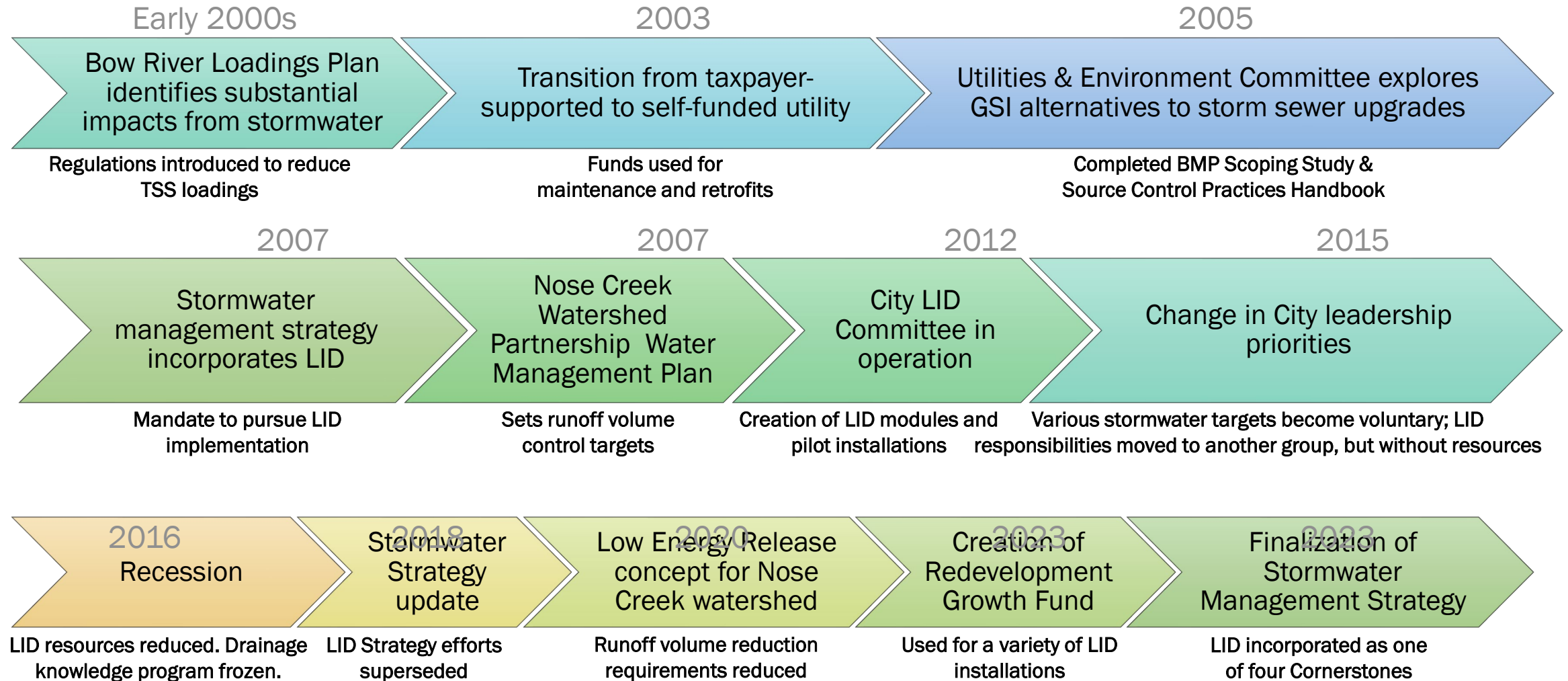
Narrative Inputs

- Throughout 2024 -2025 **29 Interviews** with current and former City staff as well as external partners with LID experience and perspectives from across the professional community

Related Stormwater Projects

- TBL Phase 1 Review and Phase 2 Tool development
- Roles & Responsibilities review and recommendations
- Updates to LID Modules & Specifications
- LID dedicated research site planning
- Development of O&M BP Framework for Public Sites

A BRIEF HISTORY OF STORMWATER TIME IN CALGARY



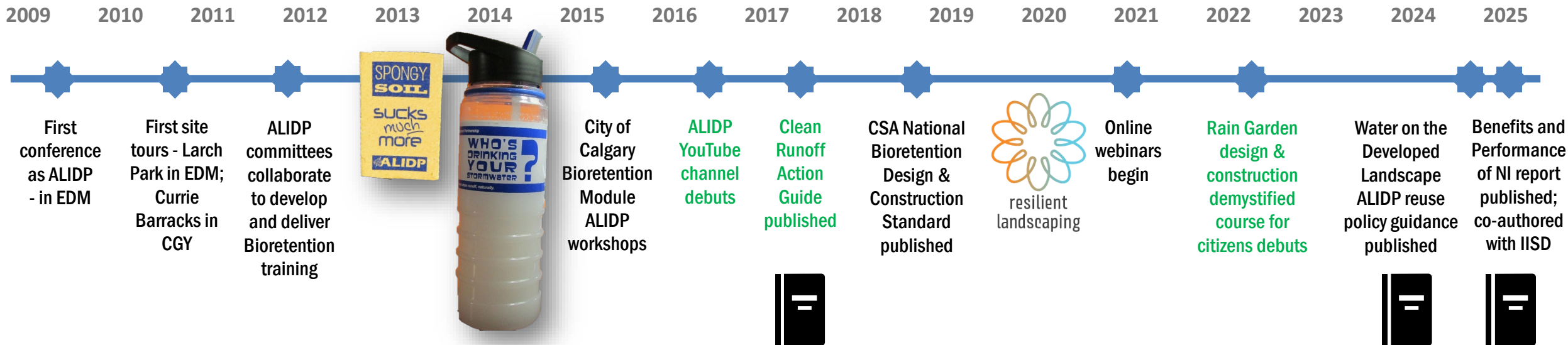
Education & Guidance



ERA OF GUIDANCE AND RESOURCE DEVELOPMENT – INCLUDING FOR CITIZENS

ERA OF CONFERENCES & TRAINING FOR PROS - INCLUDING ESC

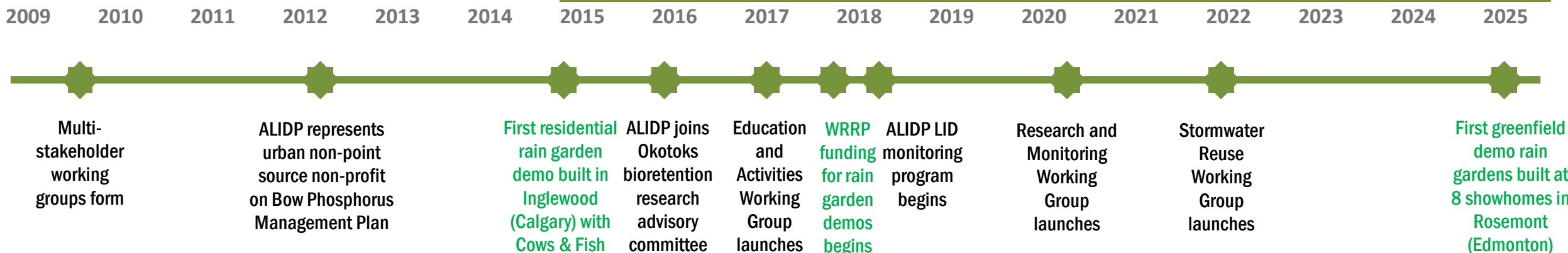
ERA OF CONFERENCES, WEBINARS & TRAINING FOR PROS - NO ESC



Demonstration and Feasibility

RISE OF THE WORKING GROUPS

ERA OF RESEARCH, MONITORING AND DEMONSTRATION



HISTORICAL INFLUENCES AND DRIVERS



**Regulatory need to
manage TSS**

Total Loadings approach

**Limited corporation
buy-in outside of water
utility**



**Wet pond retrofits begin
in early 2000s**

**VCTs and water quality
objectives**

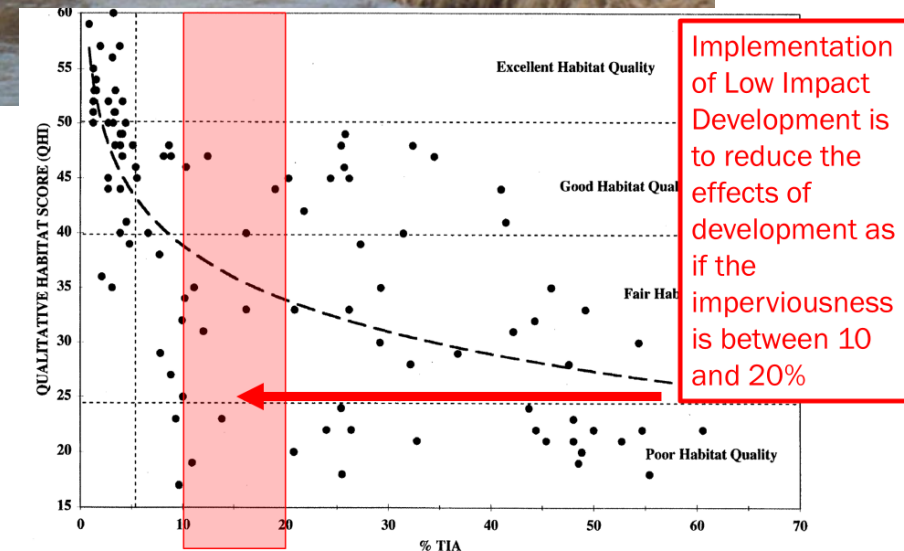
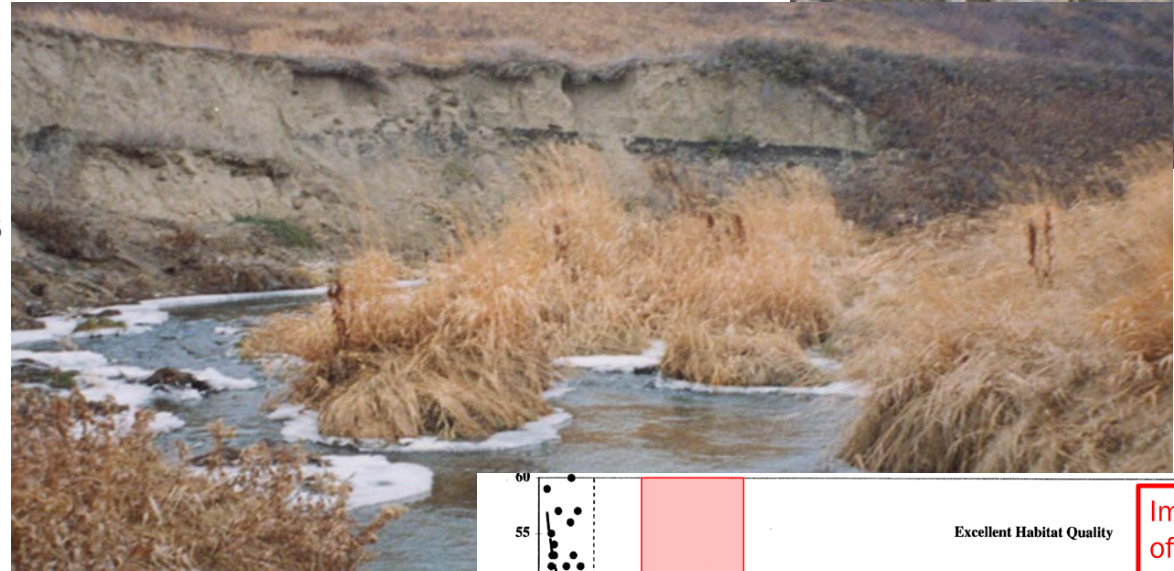
**Evolving broader lens of
stacked/ co-benefits**

WHY WAS AND IS THE CITY OF CALGARY INTERESTED IN LID?

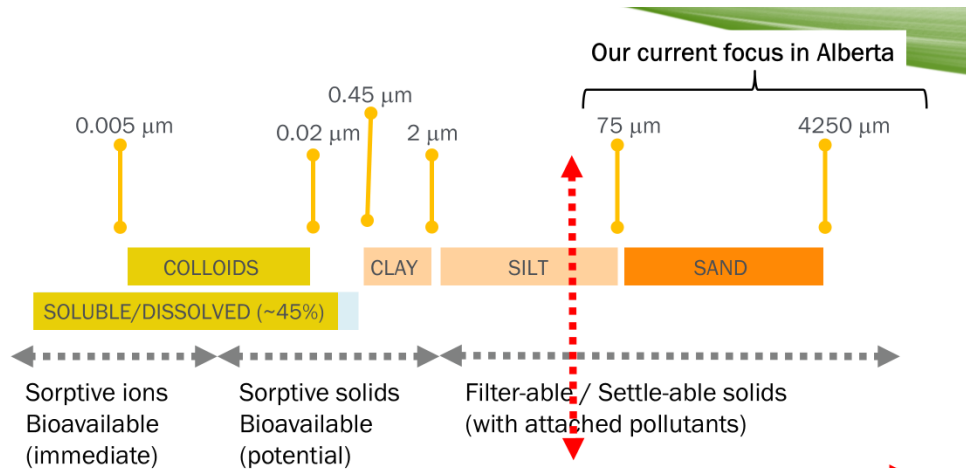
Originally

- Limiting the amount of specifically TSS entering the Bow River to meet The City's Total Loadings objectives.
 - Focus on the older communities where there is little to no space for retrofit wet ponds
- Limiting the volume of runoff entering our creeks to reduce the risk of excessive bed and bank erosion
 - Focus on the Nose Creek and Pine Creek watersheds
- Improve watershed health
 - Control the overall level of imperviousness

Calgary's traditional grey infrastructure has limitations or is not able to meet these objectives



WHY WAS AND IS THE CITY OF CALGARY INTERESTED IN LID?



Currently, also ...

- Protect source water quality and aquatic health
 - Focus on TSS ≤ 50 microns, nutrients, hydrocarbons, metals, biocides, and emerging contaminants (e.g., microplastics and tire residues)
 - Improve performance of treatment assets by limiting the rate and volume of runoff
- Add resiliency in the face of densification and climate change
- Improve asset management of existing storm ponds
- Contribute to City Building by maximizing the co-benefits of stormwater infrastructure and approaches



WHAT THE CITY HEARD – KEY CHALLENGE THEMES

AREA	IMPACT	CAUSES		
PLANNING	Doesn't carry through to subsequent stages	Too vague or aspirational	Competing for physical space; has a lower priority	Multi-purpose public space is not yet fully facilitated by planning
DESIGN	Redesigning and rebuilding	Failure to match actual field conditions	Poor plant or media selection	Only designing for flood considerations resulting in failure during drought
	Complex / costly process	Incomplete or overly complex design guidance	Missing standards and specifications	Lack of standard typical details
APPROVALS	Hesitancy to choose LID by developers	Acceptance criteria missing or misaligned	Processes unclear	Timelines unclear
CONSTRUCTION	Poor quality installations	Poor or missing inspections	Failure to adhere to specifications, or poor plant or media substitutions	Improper techniques
	Delays in getting FAC	Poorly outlined roles and responsibilities	Lack of a formal assumption process	
DATA MANAGEMENT	Lack of asset data	Missing or poor as-built or as-planted records	Incomplete asset database structure	Poor process to transfer records into asset database
OPERATIONS AND MAINTENANCE	LID assets are not effectively resourced and maintained once handed over to the City	Role clarity	Lack of skills	Lack of capacity
		Lack of asset data	Data not properly input	Lack of as-builts

WHAT THE CITY HEARD – KEY CHALLENGE THEMES 2

Negative experiences can create long-lasting perceptions of lack of project viability, even when tactics and techniques have evolved.

AREA	IMPACT	CAUSES		
ATTITUDES	LID is ‘cringey’ and to be avoided	Paralysis by analysis Comfort with familiar grey infrastructure	Being held to a higher standard than conventional infrastructure	Perception of higher risk, limited success in meeting objectives, costly, land-intensive
INTERNAL CITY ALIGNMENT	Confusion, lengthened design/ approvals process	Lack of alignment on LID priorities	Lack of alignment on installation specifics	Lack of alignment on benefits
	Inconsistency in quality of installations between BUs	Failure to adhere to specifications	Improper techniques	
INDUSTRY AND CITY	Lack of accountability and flow of LID knowledge as projects move from inception to completion	Silos		
REGULATORY	Weak GoA backstop for municipal action	Lack of understanding at GoA	Lack of support from GoA	Lack of / outdated guidance at GoA
UNDERSTANDING / KNOWLEDGE	LID implementation opportunities are missed	Lack of understanding of LID opportunities	Lack of understanding of benefits	Uncertainty around implications for both water quantity and quality management
	Limited full-scale examples	Mechanisms to scale-up LID lacking		

REASONS FOR HESITANCY TO IMPLEMENT LID – WHAT WE HEARD

A lack of comfort with LID performance has created a culture that has led to slow adoption of LID approaches



FATAL FLAW OR GROWING PAINS? CURRIE BARRACKS

EARLY



NOW



- ① Identify, protect, restore, and manage natural assets, e.g., forests, wetlands, grasslands
- ① Plan to optimize interventions at a regional/watershed scale
- ① Reduce the area of hard surfaces in new development and redevelopment

THE LID TOOLBOX IS LARGE!



Better planning

Non-structural

Site-level

Conveyance

Roadside and open space

End-of-pipe

- ① Prevent pollution, e.g., restrict fertilizers, ecocides; nothing but rain down the drain; pick up after your pet

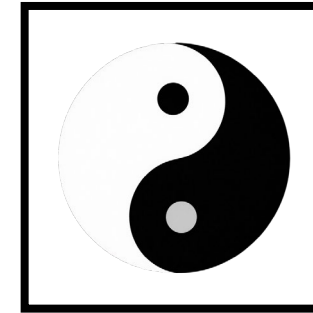
- ① Bioswales
- ① Ditch enhancement retrofits
- ① Ditches and swales

- ① Stormwater dry and wet ponds
- ① **Constructed wetlands**
- ① **Storm parks**
- ① Nutrient polishing devices
- ① Stormwater reuse

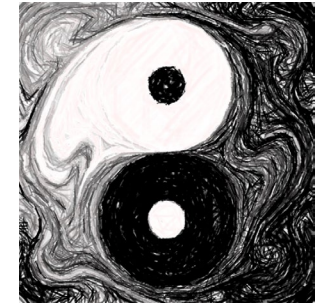
- ① Deeper topsoil
- ① Rainwater harvesting
- ① Rain gardens
- ① Green roofs
- ① Mini-wetlands
- ① Naturalization, etc.
- ① Control erosion and manage sediment during construction

- ① Oil/grit separators
- ① Bioretention
- ① Soil cells
- ① Impoundments

A 'failure' of one type of practice in one context is not the END of the journey; it is the START.



Perception of
"success"



Reality of
"success"



ALIDP graphic in IISD Report: Nature That Works: Benefits and performance of natural infrastructure for water management on the Canadian Prairies



WINS AND CHALLENGES – IT'S NOT BLACK AND WHITE



SOIL VOLUME



CANOPY

AMENITY

INLET AND
DISTRIBUTION
DESIGN



EVOLUTION: ORGANIZATIONAL ALIGNMENT/ MATURITY



EVOLVING: EROSION AND SEDIMENT CONTROL



EVOLVING: PRETREATMENT



EVOLVING: GRADING



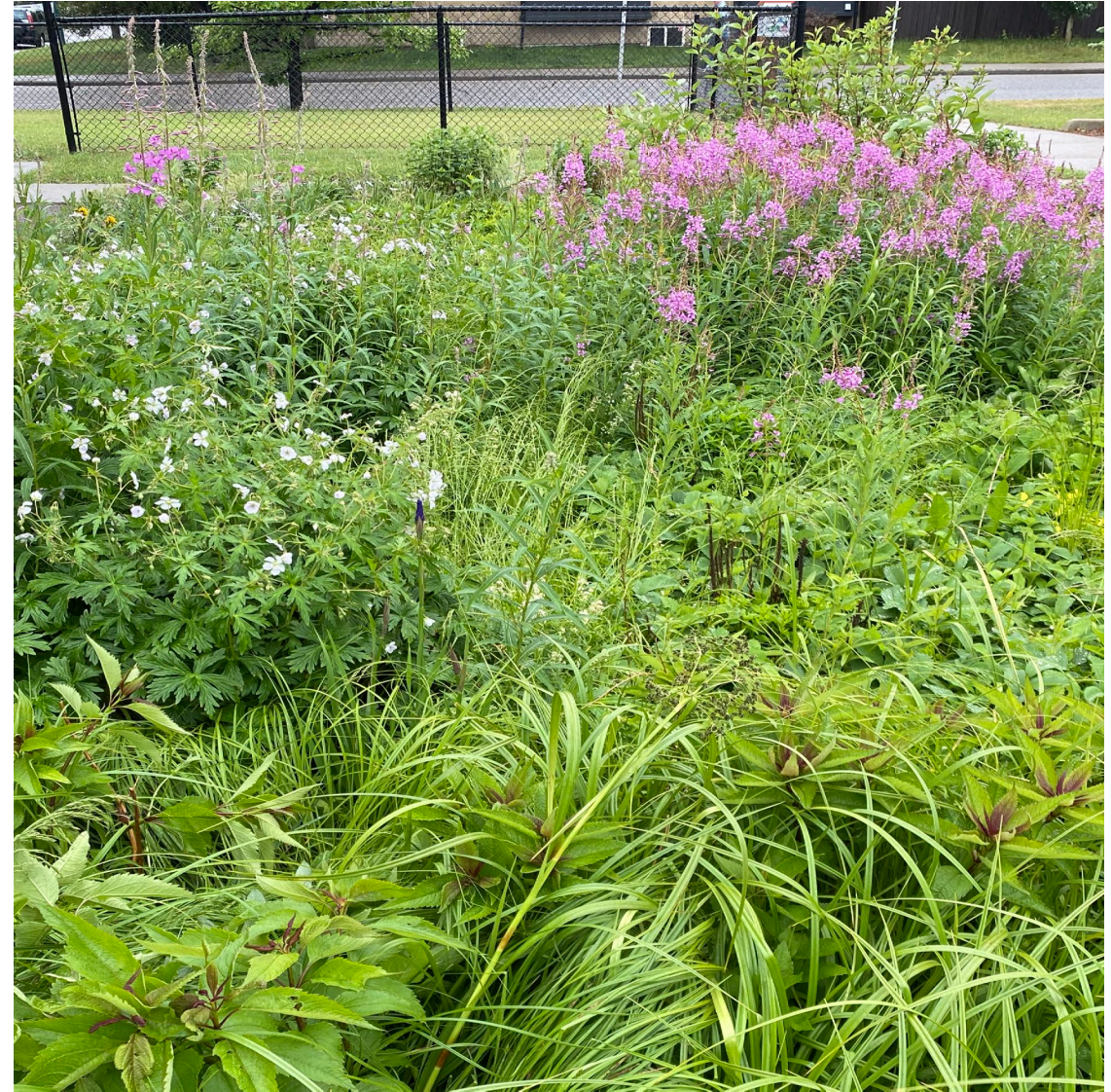
EVOLVING: RATIOS AND VELOCITIES, PLANT DENSITIES



EVOLUTION: MORE THAN WOODY SPECIES



EVOLUTION: LESS MULCH, MORE MATRIX PLANTING



EVOLUTION: PLANTS



SHORT-LIVED SPECIES

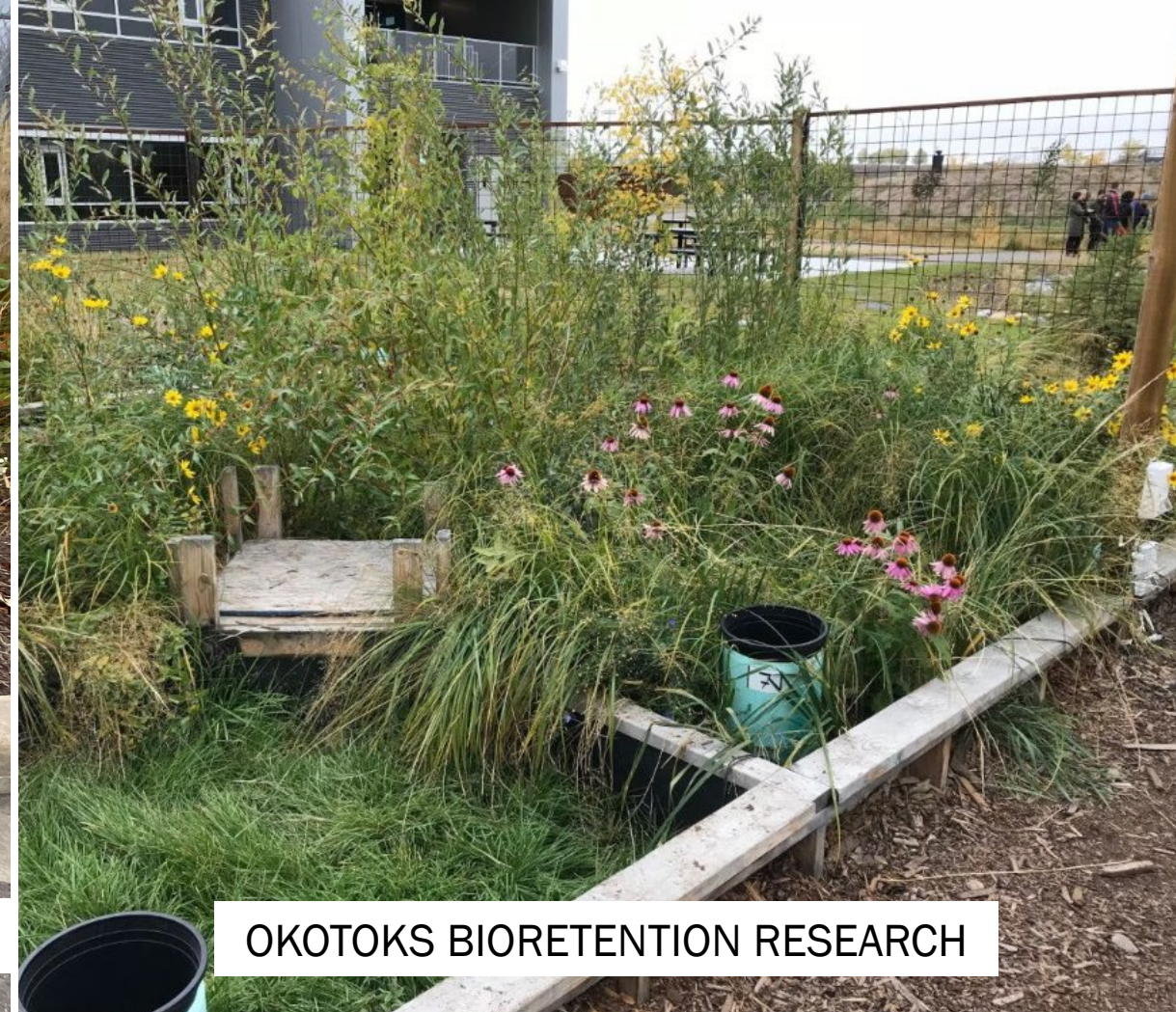


USE OF NATIVE SPECIES

EVOLUTION: TESTING



EVOLUTION: MEDIA SPECIFICATION

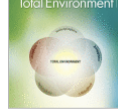


RESEARCH: PHOSPHORUS-BINDING AMENDMENTS



Science of The Total Environment

Volume 1013, 20 January 2026, 181263



Nutrient leaching dynamics of bioretention systems: The impacts of design parameters and their interactions

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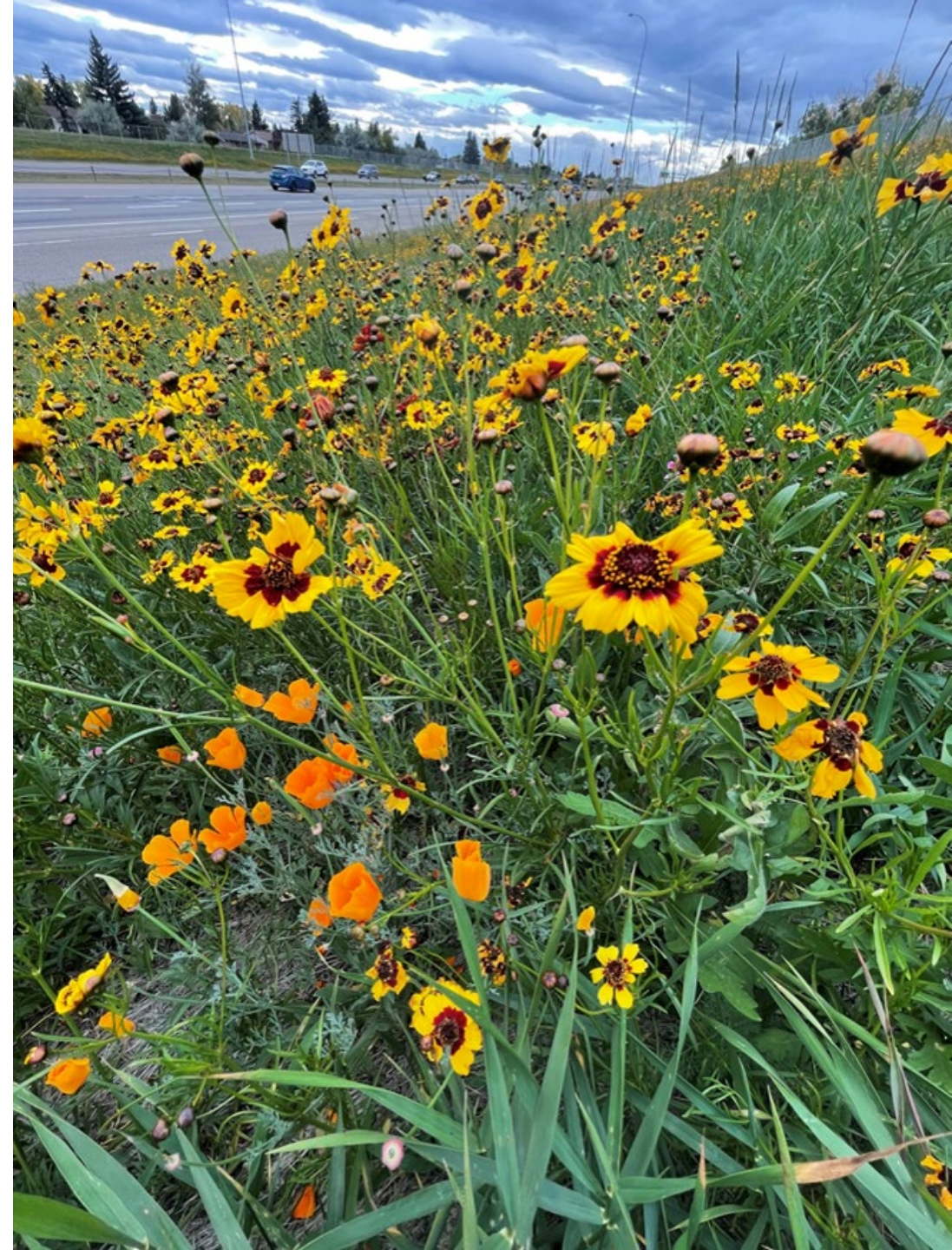
Received 3 September 2025, Revised 22 November 2025, Accepted 17 December 2025, Available online 26 December 2025, Version of Record 26 December 2025.



RESEARCH: RAIN GARDEN AND BIORETENTION PERFORMANCE



RESEARCH: NATURALIZATION



EVOLVING PRACTICE: GREEN ROOFS



EVOLVING PRACTICE: BIORETENTION



EVOLVING PRACTICE: SOIL CELLS



PAST



EVOLVING PRACTICE: PERMEABLE PAVEMENT

PAST



CURRENT



EVOLVING PRACTICE: STORMWATER USE

PAST



CURRENT



2023 SWM STRATEGY FOCAL AREAS: 4 WORKING GROUPS

**1. Making
established
communities more
resilient**



**2. Proactively
managing and
maintaining our
assets**



**3. Utilizing
low
impact
development**



**4. Setting
stormwater
performance
measures**



Cornerstone #3 Utilizing Low Impact Development

Actions Completed

- O&M Best Practice guidance for Bioretention assets.
- LID Narrative results compiled and shared
- TBL Phase 1 report completed
- GSI Capital Plan has budget

**For specifics, join us
at the March webinar!**

Actions Coming Up

- LID Research Site
- TBL Tool for Infrastructure Investment
- O&M Best Practice guidance developed for soil cells, tree trenches and permeable pavement
- LID Modules 2B and 2C
- GSI Design Guidance – Specs and Standards

Other Stormwater Strategy Implementation Actions

- Stormwater Redevelopment Fund
- Advanced stormwater modelling and flood mapping
- Community Drainage Improvement program
- Stormwater Education and Awareness
- Stormwater Asset Management Plan and Performance Measures
- City-Wide Stormwater Loading
- Watershed Targets
- Water Quality Design Guidance
- Source Water Protection

... and So Much More!

Ville De Montreal – Sponge Parks



Draining green infrastructure
© Ville de Montréal



Rainwater accumulation in Parc Pierre-Dansereau following heavy rains
© Ville de Montréal



Dickie-Moore Park slightly damp
© Ville de Montréal

[Infrastructures and developments designed to capture and absorb heavy rainfall | Ville de Montréal](#)

TABLE DISCUSSIONS

Break into group by land development stage – planning/ design & approvals / construction & operations. There are multiple tables per stage.

Facilitator pose questions:

- Most pressing next step?
- What do you see?
- Anything missing?
- Do you have examples from other jurisdictions as to how challenges were overcome?

Facilitators report back in the chat



David Seeliger
Stormwater Director
MPE A Division of
Englobe



Anton Skorobogatov
Green Infrastructure
Sr. Specialist
KWL



Josh Maxwell
Practice Lead, Water
Resources
WSP



Jill Prosser
Business & Policy
Planner
Urban Forestry



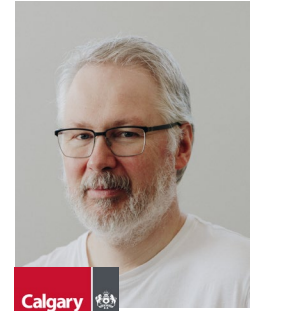
Craig Kipkie
VP Strategic Initiatives
KWL



Sophie Warren
Operations Engineer



Brier Reid
Sr. Stormwater
Engineer



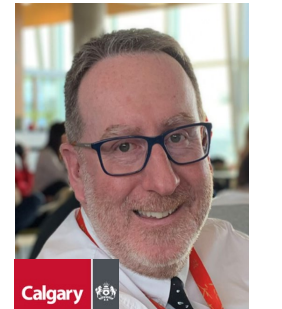
Bert van Duin
Drainage Technical
Lead



Abdullah Mamun
Watershed Engineer



Evangeline Eldridge
Public Program
Coordinator



Kyle White
Acting Team Lead
Watershed Resilience

PANEL DISCUSSION

FACILITATED BY
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Senior Stormwater
Engineer
Environmental
Analysis



Kyle White
Acting Team Lead
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Stormwater Strategy
Implementation



Sophie Warren
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Lead



Lawrence Wong
Manager
Development
Engineering



Maggie Choi
Manager
Growth
Infrastructure
Planning



Frank Frigo
Manager
Environmental
Management

EXIT POLL BEFORE NETWORKING

Q: How confident are you that the activities proposed by the City will start to address the key challenges identified in the LID Narrative interviews?

Scale of 1 to 5

- 1 – not confident at all**
- 2 – somewhat skeptical but will wait and see**
- 3 – not sure either way**
- 4 – fairly confident**
- 5 – high level of certainty that they will**

You can also help us interpret your response by using the **chat** to provide insight on why you chose this rating.

Provide the rating number and why you chose it.