

Convening for Action in British Columbia



Integrated Rainwater Management Planning: Apply a Knowledge-Based Approach to Focus on Solutions and Outcomes

Beyond the Guidebook 2010: Implementing a New Culture for
Watershed Protection and Restoration in British Columbia

Convening for Action in BC:

Visualize What We Want Our Regions to Look Like in 50 years

Create a Legacy: *Settlement Change in Balance with Ecology*

- 1. Influence choices by individuals and organizations*
- 2. Use the term "sustainability" as a lens for considering approaches that influence choices*

Integrated Rainwater Management Planning: Apply a Knowledge-Based Approach to Focus on Solutions and Outcomes

Water Bucket Web Story #3 in the ISMP Course Correction Series

Preface

*This article is the third in a series that is designed to inform local governments and others about **Integrated Stormwater Management Plans** (ISMPs): what they are; how local governments can do more with less; and how local governments can ensure ISMPs are outcome-oriented.*

*This series is adapted from case study experience presented in **Beyond the Guidebook 2010: Implementing a New Culture for Watershed Protection and Restoration in British Columbia**, released in June. This guidance document sets the stage for an “ISMP Course Correction”.*

As part of the “ISMP Course Correction”, the time has come to describe truly integrated plans as “IRMPs” to reflect the paradigm-shift to landscape-based ‘RAINwater’ from pipe-and-convey ‘stormwater’.

A holistic IRMP is a potentially powerful tool to achieve a vision for ‘green’ infrastructure, one that protects stream health, fish habitat and fish; and one that anticipates climate change. Local governments now have a decade of precedent-setting experience from which to extract lessons learned.

This Story #3 clarifies the objectives in making the change to IRMP from ISMP, introduces the knowledge-based approach to making decisions, and highlights the ‘learnings’ by those who are demonstrating leadership in establishing outcome-oriented precedents for watershed protection through green infrastructure: Establish the vision, set the target, and then implement.

**The ‘regional team approach’
is founded on partnerships and collaboration;
and seeks to align actions at three scales –
provincial, regional and local.**



“Everyone needs to agree on expectations and how all the players will work together, and after that each community can reach its goals in its own way.”

Eric Bonham
CAVI Leadership Team

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Regional Team Context for IRMPs

The purpose in publishing the “ISMP Course Correction Series” is to draw attention to lessons learned, and insights gained, by local government leaders who have ISMP and/or related, relevant experience. The spotlight is on aligning efforts in the local government setting to implement effective green infrastructure. Thus, the objectives in correcting from ISMPs to IRMPs are three-fold:

- Re-focus on stream health outcomes
- Utilize land use regulatory tools
- Build-in resilience to adapt to climate change

Sharing experience and pooling limited resources will enable local governments to ‘do more with less’, especially if they embrace the ‘regional team approach’ to doing business differently.

Form a Regional Team

Under the *Regional Team Approach*, all the players set their sights on the *common good* and challenge the old barriers of jurisdictional interests. To achieve the *common good*, this ultimately requires bringing together:

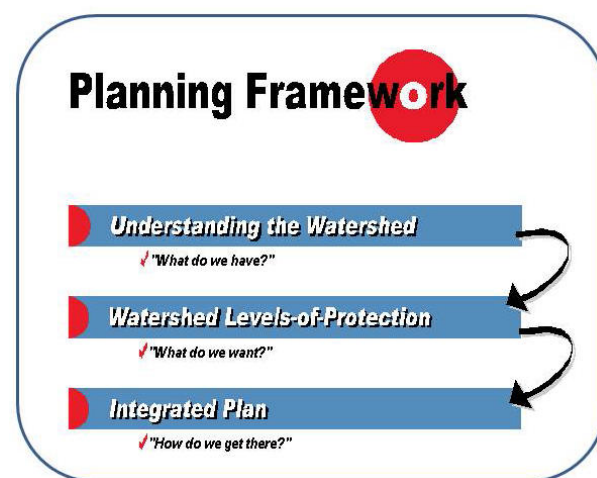
- ☑ **The Province** - those who provide the legislative framework;
- ☑ **Local government** - those who plan and regulate land use;
- ☑ **Developers** - those who build;
- ☑ **Stewardship sector** – those who advocate conservation of resources;
- ☑ **Agricultural sector** – those who grow food; and
- ☑ **Academia** - those who provide research.

Framing the Challenge for Local Government:

“How we can simultaneously work together as staff within a municipality and as a region, AND externally with developers and other private sector players, to ensure we implement sustainable approaches to the urban fabric.”

Apply a Knowledge-Based Approach

A decade ago, the Regional District of Nanaimo (RDN) partnered with the Province to develop case study content for **Stormwater Planning: A Guidebook for British Columbia**. The RDN contributed a *Knowledge-Based Approach* to setting watershed priorities. This pilot application, incorporated as Chapter 5 in the Guidebook, resulted in a pragmatic methodology that focuses on outcomes, by getting the right people together.



A decade later, the *Bowker Creek Blueprint* in the Capital Regional District (CRD) has demonstrated the effectiveness of the approach. The RDN and CRD experiences show that when the right people with the right knowledge are involved in a collaborative process, a knowledge-based approach to watershed protection and restoration will be both time-efficient and cost-effective.

Roundtable Process: The reach-by-reach process that defines the Bowker Blueprint is an application of what the Guidebook describes as an *Inter-Disciplinary Roundtable Process*. The objective in bringing together the planning, engineering and ecological perspectives in the same room is to make initial decisions based on informed judgement.

Figure 1, reproduced from the Guidebook, conceptualizes inputs and outcomes that define the *Inter-Disciplinary Roundtable Process*. It need not be, and should not be, a lengthy process.

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Knowledge-Based Approach

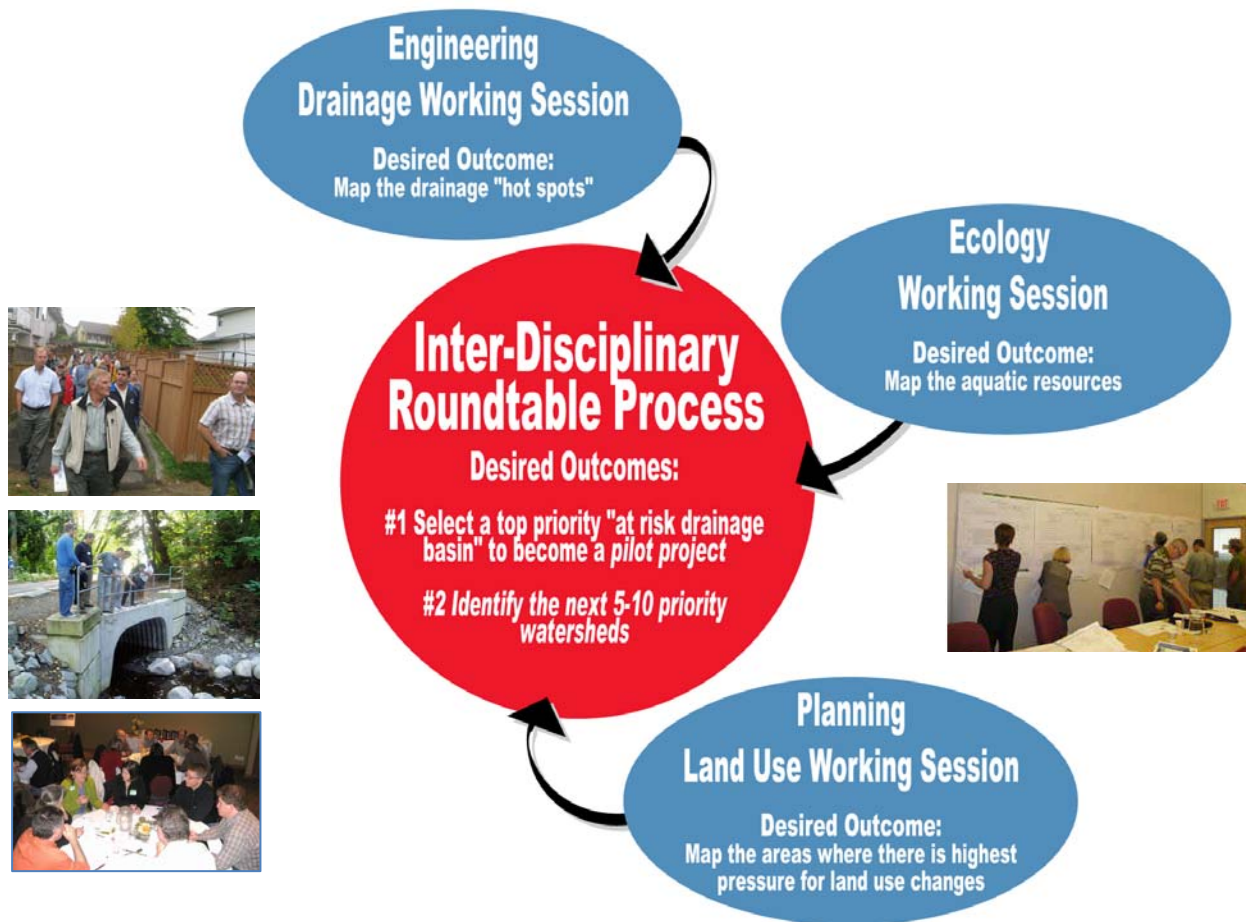


Figure 1

Source: *Stormwater Planning: A Guidebook for British Columbia*, 2002

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Bowker Creek Blueprint

The *Bowker Creek Urban Watershed Renewal Initiative* (BCI) demonstrates how a 'regional team approach' to urban watershed restoration has been applied in the Capital Region. The players driving the BCI have brought their shared vision to fruition through development of the **Bowker Creek Blueprint** (Figure 2 on next page).

The *Bowker Creek Forum*, held in February 2010, was a celebration of the Blueprint. In addition, the Forum provided an opportunity for Georgia Basin inter-regional sharing.

From 'Collective Indifference' to 'Design with Nature'

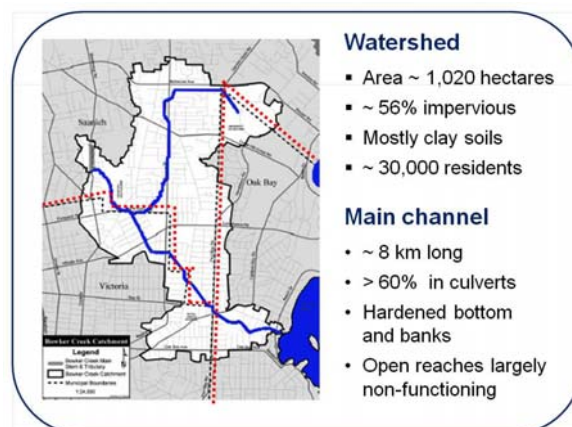
"Why did we choose Bowker Creek when it is a rather degraded watershed," Jody Watson asked rhetorically at the Bowker Creek Forum. "The answer is that we saw it as an opportunity. If we could make it right in Bowker Creek, we could make it right anywhere."

Jody Watson, Harbours and Watersheds Coordinator with the Capital Regional District, is BCI Chair. Her storytelling at the Bowker Creek Forum provided context for the 'collective indifference' that had characterized the urbanization of Bowker Creek for more than a century; and for the 'design with nature' ethic that is now driving watershed restoration.

A defining moment in the Bowker Creek process was the decision to 'let go of the ISMP Template'.

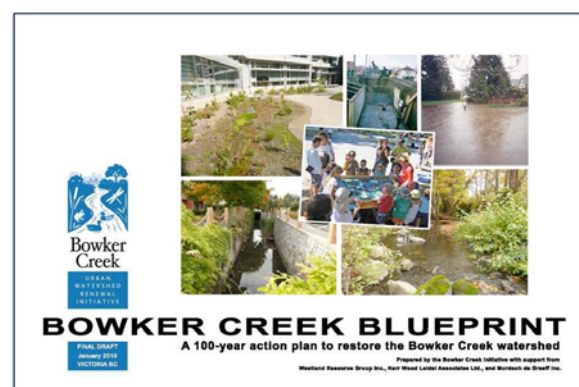
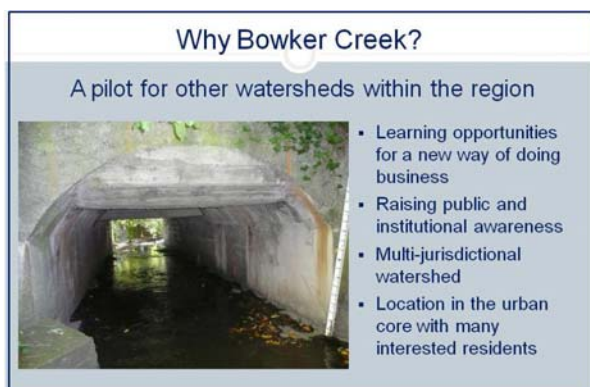
About the Bowker Creek Initiative

The *Bowker Creek Initiative* is a unique multi-jurisdictional effort. Four local governments (CRD, City of Victoria, District of Saanich and City of Oak Bay), community groups, post-secondary institutions and private citizens are collaborating to improve the health of Bowker Creek and its watershed.



100-Year Action Plan: The BCI developed the Blueprint as a 100-Year Action Plan to guide watershed and creek corridor restoration as the various neighbourhoods redevelop over time.

Because change can be slow in the urban environment, implementation will take decades. Having an action plan in place will ensure that positive changes can happen incrementally, and that opportunities for major improvements can be realized as they arise.



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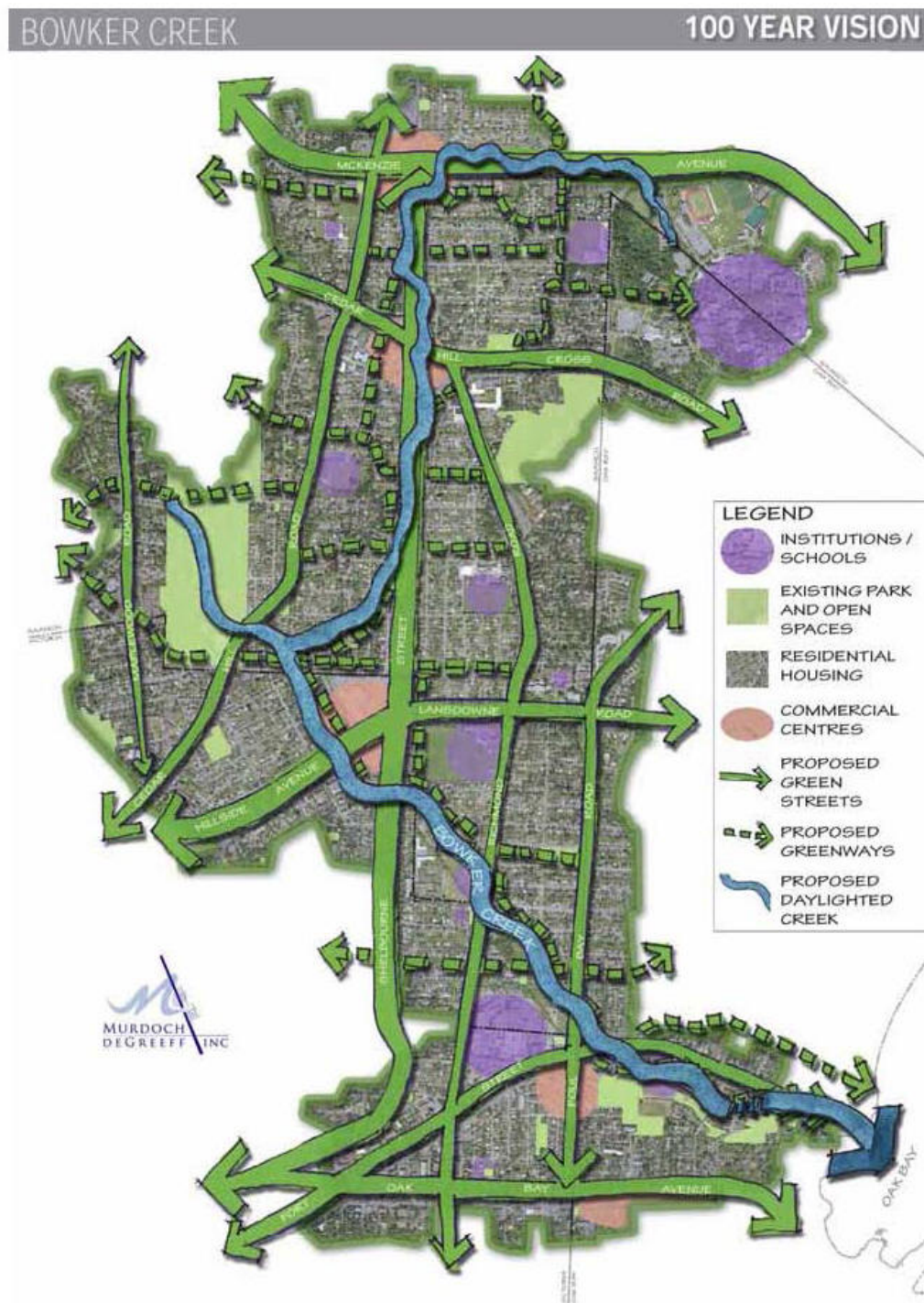


Figure 2

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Knowledge-Based Approach Works

Once the Bowker Creek regional team 'let go' of the *ISMP Template*, they applied a 'knowledge-based approach' to watershed restoration. The experience was transformational; and laid the foundation for Blueprint development.



Why the Blueprint: "In 2003, the three member municipalities and the CRD Board approved the *Bowker Creek Stormwater Management Plan*", Jody Watson told the Forum. "While this guidance document gave strategic direction, it did not provide municipal planners with the level of detail they need to effectively review individual development applications in the context of either a greenway or creek day-lighting strategy."

"This really stymied municipal staff. So we concluded that we needed to get those necessary details down on paper. The meat of the Blueprint lies in the appendices. We wanted to keep the document easy to read, and easy to get through."

"To help municipal staff make decisions, there were all sorts of things that we had to incorporate. To meet as many of the goals and objectives of the 2003 Management Plan as possible, we had to integrate a lot of information."

Inter-Disciplinary Roundtable: The knowledge-based approach meant that the regional team convened as an inter-disciplinary roundtable to synthesize their individual areas of knowledge. "Drainage, land use, environmental and social information was compiled and assessed in an holistic way that enabled the members of the team to apply their collective best judgment, reach-by reach," emphasized Jody Watson.

What Are the Lessons Learned?

The BCI Steering Committee has identified seven distinguishing characteristics ('key messages') that capture the essence of lessons learned and experience gained. These are:

1. Community Values Drive BCI and Blueprint
2. Coordinator Role is Crucial
3. Outreach – A Powerful Tool
4. Commit to the Vision
5. Integrate Watershed and Creek Actions.
6. Regional Alignment Starts With a Regional Team Approach
7. Blueprint Allows for Climate Change

There is a story behind each 'learning', and the Steering Committee is interested in sharing those stories. These stories are central to the founding of the BCI and the development of the Blueprint.

Community Values Drive BCI and Blueprint:

The partnership has enabled community groups and municipal staffs to coalesce around a shared vision for watershed restoration over time.

Coordinator Role is Crucial: In a five year review of the BCI, all partners agreed that having a dedicated part-time coordinator was the most important factor contributing to successes to date.

Outreach – A Powerful Tool: Community groups and individuals have taken ownership and responsibility for "telling the Bowker story".

Commit to the Vision: The US versus THEM way-of-thinking changed to the WE paradigm. The players around the table realized that they can help each other.

Integrate Watershed and Creek Actions:

Community representatives and municipal staffs must be hands-on in developing a watershed restoration plan. Involvement is what creates the sense of ownership.

Blueprint Allows for Climate Change: Good urban watershed management overlaps with climate change action – e.g. riparian restoration.

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Implementation: Municipal Perspectives

At the Bowker Forum, Adriane Pollard (District of Saanich) elaborated on what should be simple and what might be difficult to implement. Then Anne Topp (District of Saanich) dealt with issues, opportunities and key factors for success. They set the scene for Steven Fifield (Manager of Underground Utilities, City of Victoria) to describe the Trent Street Rain Gardens. This is an example of what implementation looks like on the ground.

What Should Be Simple, What Might Be Difficult: "Council has been recently engaged by the Bowker Creek Initiative: a bus tour of the watershed; an open house for councillors to be introduced to the Draft Blueprint; a public open house; and presentations to Council committees. There is generally a good feeling and understanding of the work being done," stated Adriane Pollard, Manager of Environmental Services.



What should be simple...

- Council's acceptance of the blueprint
- Annual financial support for the BCI
- Maintaining the community momentum of raising awareness and taking initiative
- Supporting/completing the Blueprint's top ten creek corridor key actions
- Most of the Blueprint's watershed actions

What might be difficult...

- Moving from the old business-as-usual/existing infrastructure to LID and rainwater management
- Day-lighting on private property
- Competing for acquisition dollars
- Recognizing the gains made over time
- Keeping track of actions & setting future priorities

Issues: "The big elephant in the room is always money. Municipalities have lots of competing interests for spending money; lots of projects to keep staff busy; and finite financial resources. We are all challenged to do more with less and get it done," stated Anne Topp, Manager of Community Planning.



Opportunities: "We all have heard the quote 'if you don't know where you are going, it doesn't matter what road you take'. With completion of the Blueprint, the Bowker Creek Initiative knows where it wants to go and now we need to find the road to get there. Integrating with and using other plans to advance the Blueprint will be ongoing. An example is the proposed **Shelbourne Corridor Action Plan**. Integration of the Blueprint with that plan will strengthen both."

Key Factors for Success: "I do not remember who came up with the idea to make this a 100-year plan but I think the group agreement to use the idea was **brilliant**. There are some big ideas in the plan and a 100-year time frame might take the sting out for the people thinking about all the little issues that could impact implementation.... This approach gives us time. This plan is not just about water. It is about how this community wants to live and connect to the environment."

"Back to money... the 100-year approach should help us. We don't have to do the \$20 million, \$40 million ISMP approach. Keeping the pieces small and creating bite-sized pieces should allow the slow and steady approach."

"The reach-by-reach approach is *marketing friendly* for citizen and council. They can focus on the piece they know best and relate to the picture. The actions are *descriptive and understandable* without the overkill of the background technical work that supports the plan."

Trent Street Rain Gardens: "You have to be committed and you have to think long-term. Location wise, Trent Street was a great opportunity. This type of green feature is the future of good watershed management in Bowker Creek and other watersheds in our region," concluded Steven Fifield.



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Surrey ISMPs Establish Watershed Objectives

Similar to the Bowker Creek Initiative, the City of Surrey's approach to ISMP development is guided by a philosophy that is outcome-oriented. The City's approach is framed by this mind-map:

- What do we have?
- What do we want?
- How do we put this into action?

Furthermore, Surrey has moved beyond pilot projects. ISMPs are establishing watershed objectives and targets to achieve a watershed vision for getting green infrastructure right: *"Once we know what we want our watersheds and neighbourhoods to look like, the next step is to decide what the tools are that will get us there."*

Water Balance Model Building Blocks

One such tool is the Water Balance Model (WBM). Surrey experience has informed WBM development. The WBM evaluates performance targets for rainfall capture. The *Stream Health Methodology* embedded in the WBM evolved through three successive case studies: East Clayton, South Newton and Fergus Creek.

A decade ago, the East Clayton Sustainable Community was an early application of performance targets at a neighbourhood scale. Also, and most importantly the analysis combined mass balance and flow duration to test the achievability of performance targets.

But it was the South Newton case study five years ago when the methodology really came together in terms of how to integrate the mass balance and stream erosion analyses. Until then, they were separate analyses.

The experience gained in East Clayton and South Newton was then applied in the Fergus Creek ISMP to develop the *Stream Health Methodology*. This methodology is a function of flow duration, and hence stream erosion. It enables correlation of green infrastructure effectiveness (in reducing runoff volume) with stream health.

Community Outreach in Surrey

"We are not just 'greening' urban drainage, we are facilitating a stewardship ethic through ongoing celebration of innovation", states Carrie Baron, Drainage & Environment Manager.

Celebration of East Clayton Success: "To sustain the early momentum, each successive homeowner in East Clayton needs to understand the WHY behind the on-site drainage retention philosophy. Each year, high school students deliver a brochure door-to-door. We also tell our story at Community Day events and at mall displays."



"It is all about continual education. Slowly we are changing the mind-set. It makes a difference that the educational approach is endorsed by Council through Sustainable Surrey,"

Transformation of Robson Park: "In North Surrey, we are really excited about the impact that Robson Creek day-lighting has had in mobilizing the community in a 70-year old neighbourhood. Park transformation started with Engineering and Parks collaborating on a joint project. We then involved the neighbourhood, streamkeepers and local school to create a shared vision. The community now has a great new park with educational water features."

"The locals say they have never seen so many people use the revitalized Robson Park. This success story shows that things don't have to stay the same; over time we can bring value back into a neighbourhood."

Connecting with High School Students: "We are working with the Surrey School District to help teachers incorporate local environmental examples into course curricula. We are targeting high school students. We make the material relevant to their interests."

"This is a long-term commitment. We believe we are successful even if we only reach 2 students out of 30. It will catch on over time."

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Vision for District-Wide IRMP in North Vancouver

The District of North Vancouver has a bold vision to systematically retrofit individual properties as they come up for redevelopment. The catalyst for pending action is the 'death by a thousand cuts' consequences for 'watershed health' that result when current zoning is applied to small lot redevelopment. The District's outcome-oriented approach seeks to address the link between single family zoned lands and the health of the municipality's streams.

Through its Official Community Plan Update, the District is advancing a vision for preserving and/or restoring the rainfall absorption capacity of its watersheds, one property at a time, over time. Much like the vision for the *Bowker Creek Blueprint*, watershed landscape restoration will take a multi-decade commitment.

Risk to Watershed Health

To draw attention to the urgent need for action on single-family residential properties, the District has created a set of images to illustrate why and how watershed health is at risk. Using the Mackay Creek watershed as a case study, the District analyzed trends and examined specific properties to quantify the implications of an expanding house footprint. The data show that:

- The watershed is at maximum build-out; and is undergoing redevelopment as the older housing stock is replaced.
- Within 20 years, 10 percent of the existing single family lots in the Mackay watershed could be redeveloped.
- Redevelopment could result in a **25% increase** in impervious area and **10% increase** in annual runoff volume.

Figure 3 illustrates what happens when a single family property is redeveloped: the impervious area approximately doubles and accounts for over half the property; and the tree canopy coverage is reduced from three-quarters of the property to zero.

Strategy for Watershed Landscape Restoration

"We have observed the experience of other municipalities that have applied the *ISMP Template*. They have spent a lot of money to get reports that say spend more money. The District simply cannot afford to go down a path that leads to engineering solutions that are unaffordable and unrealistic," states the District's Richard Boase.



"We suspect the ISMP process as originally defined is beyond the District's financial ability to undertake and implement. Yet we are faced with a looming 2014 deadline to have work done to meet our regulatory commitment under the Metro Vancouver region's *Integrated Liquid Waste & Resource Management Plan*."

"We need an outcome-oriented alternative to the ISMP Template, and we hope we have it with our proposed *Watershed Landscape Restoration Strategy*. This could be our District-Wide Integrated Rainwater Management Plan (IRMP), and there is an opportunity to implement it through the current OCP Update.

Ecological Integrity: "A key message is that the focus of this landscape-based strategy is on restoring ecological integrity. We are not talking about changing floor space ratios. We are just saying people have to pay closer attention to the surficial treatment of our watershed landscape."

"Restoring and protecting our watersheds starts by changing the land ethic. Since this is about behaviour, we have to build from the ground up. This can be achieved by a holistic strategy that is keyed to *cumulative and complementary steps*. We start with the individual property and we move out from there."

"The District hopes to develop a set of performance-based solutions, representing multiple options for landowners, to restore ecological integrity. An absorbent topsoil layer and tree canopy protection are examples of the fundamental building blocks and options we are pursuing to achieve our watershed restoration vision," concludes Richard Boase.

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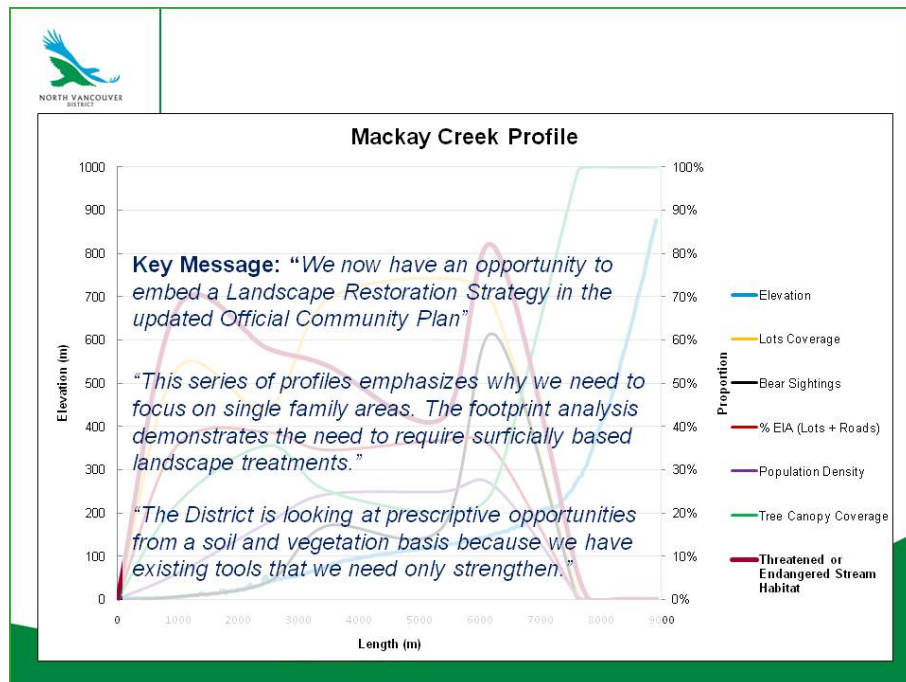
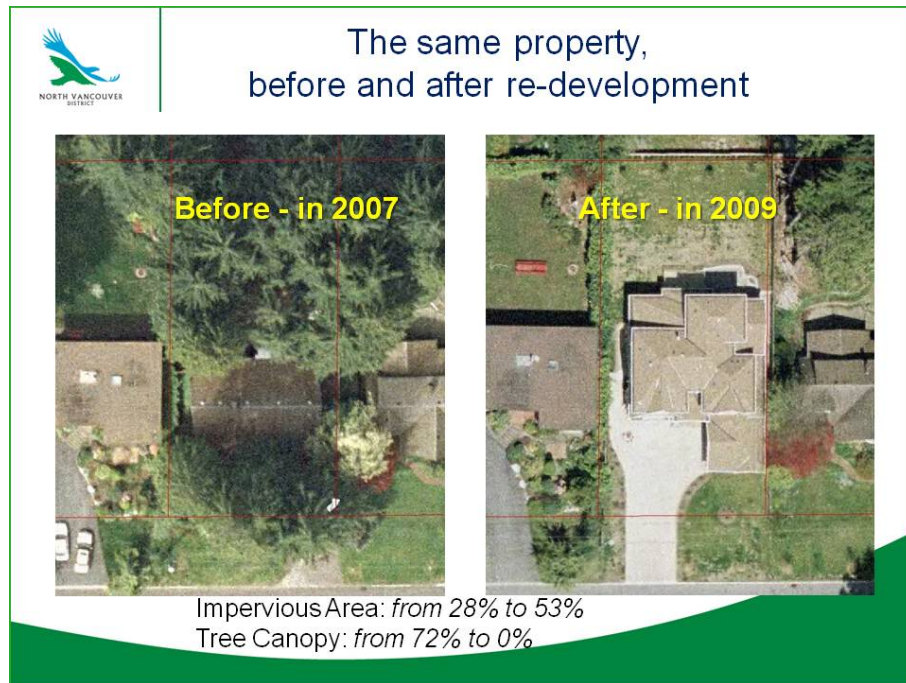


Figure 3 – Turning a Risk into An Opportunity in
the District of North Vancouver

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Guiding Principles for IRMP Development

The Bowker Creek Initiative, City of Surrey and District of North Vancouver are all demonstrating leadership in establishing provincial precedents for outcome-oriented approaches to watershed protection through green infrastructure: *Establish the vision, set the target, and then implement*

Success Will Follow When...

A key message in *Beyond the Guidebook 2010* is that success will follow in the local government setting when all the players are motivated by these guiding principles:

1. Choose to be enabled.
2. Establish high expectations.
3. Embrace a shared vision.
4. Collaborate as a 'regional team'.
5. Align and integrate efforts.
6. Celebrate innovation.
7. Connect with community advocates.
8. Develop local government talent.
9. Promote shared responsibility.
10. Change the land ethic for the better.

A second key message is that community representatives and municipal staffs must be hands-on when collaborating to develop a shared 'watershed vision' and implementation plan.



Convening for Action

The *Bowker Creek Forum* drew attention to five watershed-based initiatives in five regional districts within the Georgia Basin. All five are keyed to integration of water and land planning. Each one has established a provincial precedent.

Vancouver Island and Metro Vancouver are learning from each other, and are moving in the same direction. Commencing in 2006, 'convening for action' program elements implemented on Vancouver Island have built on Metro Vancouver approaches and precedents.

Subsequently, Vancouver Island experience has informed and influenced elements of the *Metro Vancouver Integrated Liquid Waste & Resource Management Plan*, in particular those actions that will advance a 'regional team approach'.

2009 Green Infrastructure Forum in Surrey: An example of intra-regional sharing and learning is the 'Surrey Forum'. Figure 4 captures the vision of the partner organizations and desired outcomes for the Surrey Forum: start a dialogue between policy-makers and project implementers; get green infrastructure built right; be a catalyst for additional regional forums; and champion a consistent region-wide approach to integration.

Looking Ahead

The first three installments in this series have established the context for embracing the *regional team approach* and making the change to IRMP from ISMP:

- re-focus on outcomes;
- capitalize on opportunities; and
- apply a knowledge-based approach.

Next, the spotlight shifts to *sustainable service delivery* and *doing more with less* in the last two segments.

An increasing local government infrastructure deficit means that there will be even stiffer competition for available funding. Thus, there is an incentive for local governments to demonstrate how a regional team approach and innovation will meet the goals of *Living Water Smart*.

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Convening for Action in Metro Vancouver Getting Green Infrastructure Built

Moving Beyond Pilot Projects to a Broader Watersheds Objectives Approach

THE CHALLENGE: *How do we simultaneously work together as staff within a municipality and as a region AND externally with developers and other private sector players, to ensure we implement sustainable approaches to development?*

"The best laid plans...."

The problem is the gap between design and build
How to ensure that the best laid plans come to fruition?
How to get all the actors singing from the same song sheet?

To get to the big picture, it starts with the smallest pieces. For this reason, the Surrey Forum is advancing a regional team approach that aligns local actions with provincial policy goals as articulated in the **Living Water Smart** and the **Green Communities** initiatives. Making this happen requires partnerships, collaboration, innovation and integration.

We see the Forum as providing an opportunity to generate positive energy in the region. In particular, the Forum will inform the actions identified in the rainwater/stormwater component of Metro Vancouver's updated **Liquid Waste Management Plan**. We believe this is where the opportunity for implementing a regional team approach resides.

We anticipate that the Forum sharing sessions will show that there are solutions if people talk to each other about what they each could do differently. This will help all parties collaborate to more effectively fulfil their piece of the sustainable development puzzle.

Once we know what we want our watersheds and neighbourhoods to look like, the next step is to decide *what the tools are that will get us there*. All of us ...whether we are regulators, developers or designersneed to understand and care about the goal if we are to create the future that we all want.

Ted van der Gulik, P.Eng.
(BC Ministry of Agriculture & Lands)
Chair, Inter-Governmental Partnership

Vincent Lalonde, P.Eng.
(City of Surrey)
General Manager, Engineering

Raymond Fung, P.Eng.
(District of West Vancouver)
Chair, Green Infrastructure Partnership



Figure 4