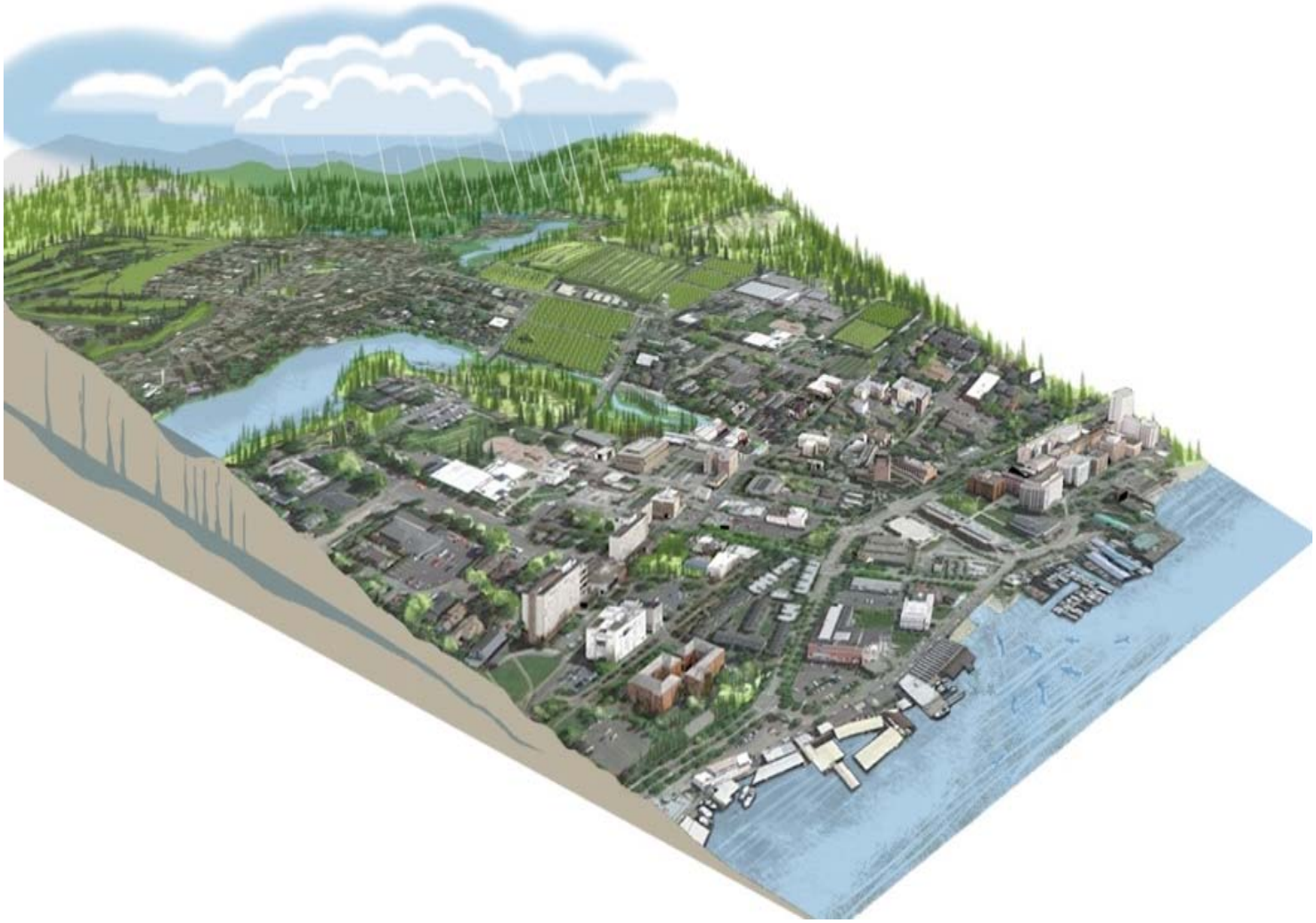
Convening for Action in the Capital Region



Storyline Overview

Section No. & Title	Key Messages
8 **Convening for Action in the Capital Region**	The water quality monitoring program in the Capital Region has evolved from 'stormwater-based thinking' to 'watershed-based thinking'. The genesis for the current *Integrated Watershed Management Program* is the Core Area Liquid Waste Management Plan.
a. **Integrated Watershed Management Strategy (IWM)**	The Inter-Municipal 'IWM' Committee developed the implementation strategy to move the region forward with IWM. The vision is to deal with watershed stressors near the source rather than at the municipal infrastructure or receiving environment level.
b. **2008 Showcasing Green Infrastructure Innovation Series**	Success helped reinforce early support for the IWM vision. The series drew attention to community-scale projects in the Capital Region that demonstrated how to **design with nature** to manage the urban landscape and maintain watershed function.
c. **Bowker Creek Blueprint / Forum**	A 'design with nature' ethic and 100-Yr Action Plan are driving watershed restoration. The Blueprint has established a benchmark for IWM. The Oak Bay High School and creek channel restoration project is a true 'watershed moment' for the creek and community.
d. **Towards a Watershed Health Legacy**	Authority for IWM work in the Capital Region presently flows from the Core Area Liquid Waste Management Plan. This work is the 'first step' to a regional service. Experience gained to date would ultimately inform the implementation of a full regional IWM service.

8. Convening for Action in Capital Region

CRD has been involved since inception of the 'convening for action' vision. Together with local governments from north of the Malahat divide, the Capital Regional District (CRD) was represented at the September 2006 launch of the *CAVI-Convening for Action on Vancouver Island* initiative in Victoria.

The occasion in 2006 was the CAVI consultation workshop held as an adjunct to the Water in the City Conference. This unique conference placed water 'front and centre' in community decision-making. The theme for the CAVI launch was *Towards Water Sustainability on Vancouver Island*.

Vision for Water-Centric Land Development: The conference and 2006 consultation workshop both inspired and seeded ideas that subsequently influenced and/or are now embodied in Capital Region initiatives, in particular the Integrated Watershed Management Implementation Strategy and the pilot Bowker Creek Blueprint.

> *The 2006 workshop introduced this vision --"land development done on a sustainable water-centric basis which balances how humans manage the full water cycle in harmony with nature."*

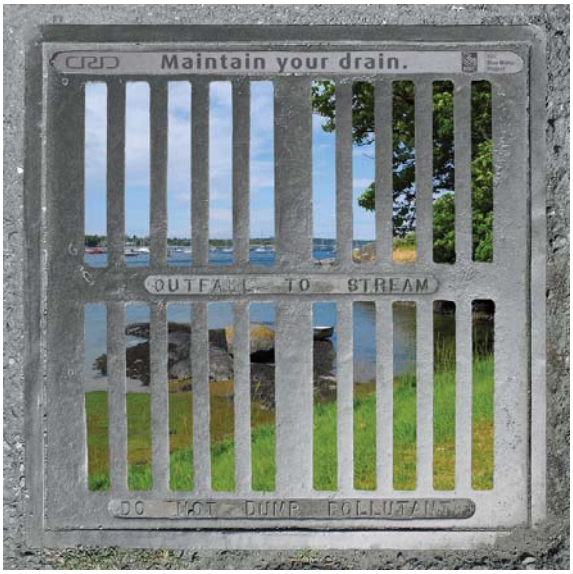
Timeline / Milestones

The timeline shown on Figure 43 provides context and identifies some milestones in the evolution of the Capital Region's watershed-based approach. The CRD's contribution to inter-regional "sharing and learning" is the watershed-based experience that CRD staff has gained over the past decade.

Historical Perspective: *"The program began in 1983 as an engineering response to high levels of fecal coliform on local beaches. In 1993 the program focus turned to chemical contaminants in sediment. A year later (1994), the program added sampling of*

creeks and streams at municipal borders to determine contaminant contributions. In 2000, the CRD initiated the Core Area Liquid Waste Management Plan (for 7 municipalities). Two chapters (stormwater quality and harbours environmental action) were the genesis for the current IWM program," explains Dale Green, CRD Program Manager for Integrated Watershed Management (IWM).

Moving Beyond Stormwater: CRD has undergone a transition, from 'stormwater-based thinking' that is narrowly focussed, to 'watershed-based thinking' that is holistic in approach. The broadening of scope is reflected in the re-naming of the Stormwater, Harbours and Watersheds Program (SHWP). In 2012, the program became the Integrated Watershed Management Program (IWMP). The storyline that follows discusses some of the changes and key initiatives.



Convening for Action in Capital Region: Time-Line & Milestones

COLOUR CODE:

Blue = provincial milestone

Black = Capital Regional District Milestone

Green = sharing at inter-regional event

Orange = BCI milestone

Figure 43

a. Integrated Watershed Management Strategy

Figure 44 illustrates the conceptual framework that has been adopted for integrated watershed management in the CRD. Supporting language in the IWM documentation mirrors the **Cascading Objectives** that were introduced in the Preface.

Political will as a driver for IWM coincided with the 2006 Water in the City Conference. This resulted in direction that enabled CRD staff to partner with member municipalities and community groups, with the objective of initiating IWM. By 2008, a consensus process had resulted in a working definition of IWM, which is unique to the CRD (Figure 44) and the development of a regional watershed vision.

> ***Regional Watershed Vision:*** *Multi-use watersheds support healthy, livable and vibrant communities. These properly functioning watersheds perform ecological services and ensure healthy terrestrial, aquatic and marine ecosystems while providing improved resiliency to a changing climate.*

The information presented in the elements that comprise Figure 44 shows that the approach to IWM in the CRD has moved well beyond 'stormwater-based thinking'.

Environmental Implications: *"Moving to a watershed-focused program allows the CRD to support the core area municipalities with new strategies for environmental protection, including an increased focus on dealing with watershed stressors near the source rather than at the municipal infrastructure or receiving environment level. Additionally, the strategy supports municipal efforts in watersheds that cross municipal boundaries and provides guidance towards measuring watershed and receiving environment health to better assess program actions and municipal efforts,"* wrote Glenn Harris, Senior Manager (Environmental Protection Division), in the February 2011 report that led to adoption of the IWM Implementation Strategy.

Approach to Implementation

CRD looked at the experience of other regions and countries. "One of the key things that we learned is that you need to have a whole lot of people involved because nobody has the overall authority or jurisdiction for watersheds. We would never be able to do this alone. We needed to bring our key stakeholders together and work together to move IWM forward," recalls Jody Watson, Harbours & Watersheds Coordinator.

Initial Focus on the Core Area: *"In 2008, CRD established working committees that would help guide the direction of the IWM process. A key committee is the inter-municipal group which has representation from many of the members. In 2011, CRD staff worked with the* ***Inter-Municipal IWM Committee*** *to develop an implementation strategy to move the region forward with IWM. In 2012, primary implementation commenced in the Core Area. If there are opportunities for non-Core municipalities to do some implementation as part of their everyday business, then they are up to speed as to what we are trying to do across the region,"* explains Jody Watson.

Inter-Municipal Sharing & Learning: The Inter-Municipal IWM Committee provides a regional forum for collaboration and integration, particularly among the smaller municipalities that have limited resources. Through participation in this group, the members are able to develop resources together, and then each municipality can choose whether to adopt or not. This form of collaboration and sharing of information and expertise is seen as critical for the Capital Region to move forward with IWM implementation.

Staff champions, who work to promote IWM within their agencies, play a key role in successful IWM implementation and their importance to a successful process cannot be understated.

In the Capital Region, Integrated Watershed Management is

the coordinated, sustainable management of land and water resources within a watershed to ensure the sustainability of vital ecosystems; where local governments and stakeholders work together to control and conserve hydrology, ensure biodiversity, minimize land degrading activities and maximize economic, social and environmental objectives.

Key features of the CRD IWM program include

OR MORE SIMPLY PUT*…..IWM is collaboratively managing the landscape to maintain watershed function and create sustainable communities.*

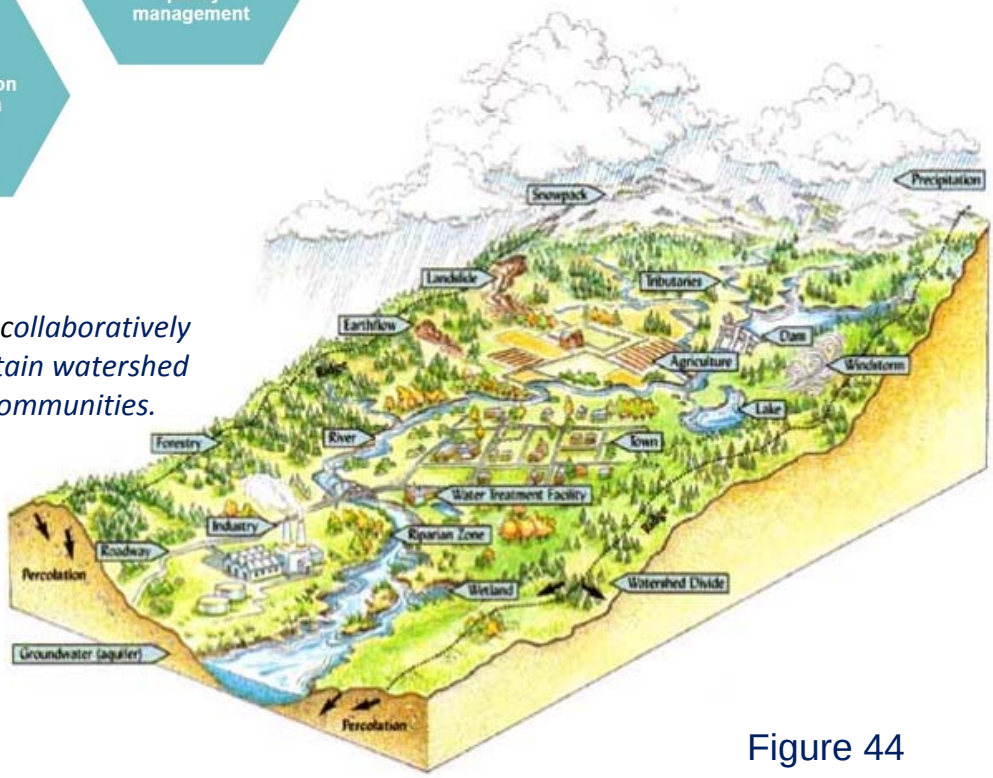


Figure 44

Regional IWM Strategy

The CRD IWM Strategy has 4 goals, which are addressed by 12 strategies and numerous supporting actions for the Capital Region, member municipalities and electoral areas (Figure 45). The supporting actions are linked and reinforce each other; their implementation requires collaboration and integration to ensure they are not undertaken in isolation.

Guiding Principles: The IWM program is guided by four key principles:

- **Collaborative approach**: Work collaboratively with local government, senior government agencies, First Nations, communities and public stakeholders
- **Ecosystems based**: Acknowledge and foster the interconnectedness and interdependence of watershed ecosystems in the region
- **Forward thinking**: Promote innovative technologies and approaches and reflect a shift in focus to green infrastructure
- **Climate Adaptation**: Recognize that climate change will impact watershed ecosystems and aim to reduce environmental, social and economic vulnerabilities

Stakeholder Input - *To be successful, IWM requires collaboration and involvement of a wide variety of community interests and water users including First Nations, municipalities, businesses, residents, agencies and landowners. They decide on the priority issues that need to be addressed, help to set goals, decide on what actions to take and implement locally.*

During implementation, it is anticipated that there will be collaboration between the CRD, member municipalities and other partners to ensure an informed and coordinated process.

Implementation - Monitoring

A key component of the Capital Region's IWM Program is monitoring watersheds and receiving environments. The program's monitoring and assessment activities were updated to include many improvements such as:

- creation of maps for key watersheds using available land use data for future work to compare against water quality issues
- intensively monitor a few streams each year then return to those streams in a 3-5 years to evaluate change
- working with the Provincial Government on development of Water Quality Objectives and undertaking the subsequent attainment monitoring on a 5-year cycle
- where appropriate, shifting from single samples to a five sample in 30 days scheme to properly understand average conditions and variability
- mapping of watershed boundaries was updated with new information and LIDAR and municipal GIS were used to improve upon boundaries from air photo interpretation
- installation of several real-time water monitoring stations (flow, temperature and pH) to gather baseline watershed runoff and contaminant loading data and monitor for change over time
- working closely with the CRD's Climate Action Program as changes in climate affect runoff and flow
- evaluation of new contaminant indicators such as caffeine
- more attention to first flush type events
- beginning to monitor lakes
- periodically self-assess the program's effectiveness

Regional Watershed Vision

Multi-use watersheds support healthy, livable and vibrant communities. These properly functioning watersheds perform ecological services and ensure healthy terrestrial, aquatic and marine ecosystems while providing improved resiliency to a changing climate.

Goal 1. Protect clean water and effectively manage flows

- Strategies include:
  - Use existing and innovative approaches and technologies that mimic natural hydrology and geology to reduce contamination of rainwater and to ensure that there is no net increase in flows entering watercourses and stormwater systems
  - Effectively monitor water quality and quantity and assess impacts on the recieving environment

Goal 2. Protect and enhance terrestrial, aquatic and nearshore marine habitats

- Strategies include:
  - Encourage retention of the natural services and functions of the landscape
  - Support coordinated efforts to plan for, and protect, the region's urban forests and envronmentally sensitive and significant areas
  - Minimize the impact of invasive species
  - Protect coastal and riparian processes

Goal 3. Improve the resiliency and adaptive capacity of watersheds to a changing climate

- Strategies include:
  - Encourage the preservation and protection of natural systems that improve the adaptive capacity of the natural environment
  - Coordinate a vulnerability assessment of regional watershed and shorelines and deliver tools to assist muncipalities in planning for and adapting to a changing climate
  - Develop integrated watershed management strateigies and program to address projected changes in precipitation and sea level rise

Goal 4. Pursue effective and collaborative watershed management and stewardship

- Strategies include:
  - Work collaboratively to address regional watershed priorities, issues and coordinated management
  - Engage and establish partnerships with local First Nations around common watershed goals
  - Develop and deliver coordinated IWM outreach programs and activities

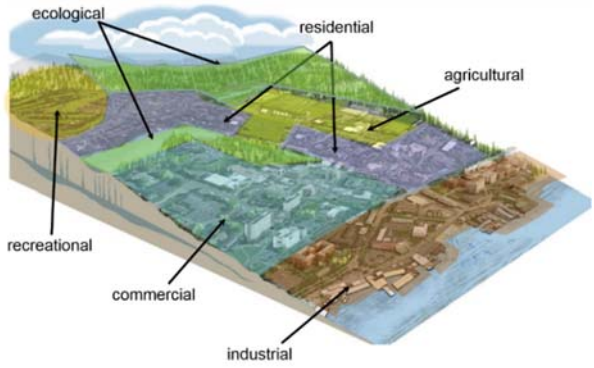
Figure 45

Implementation - Outreach

Part of the shift in the IWM Program involved how the CRD perform its outreach strategy.

RBC Blue Water Project: In 2013, the Integrated Watershed Management Program received a $75,000 RBC Blue Water grant for watershed education. According to Dale Green, staff applied for this grant because the IWM Program was undertaking watershed-scale messaging and additional funds would enable the program to do more in a shorter time in order to educate, inform, engage, inspire and build capacity of residents, business and local governments with a range of region-specific educational programming, tools and resources for watershed stewardship. The project included programming for residents, youth and businesses.

Examples of environmental benefits under this work are ***Land Cover Watershed Maps and Flow Diagram*** (image below).



These tools are widely used by all levels of government and watershed community groups. Applications of the new tools include the Ministry of Environment's draft Water Quality Objectives for the Core Area Harbours. Both the CRD and municipalities have improved existing watershed and catchment area mapping, some of which had never been mapped before.

Watershed Education and Outreach: According to Jody Watson, having a sense of connection to our natural environment is key to taking action and understanding where we as individuals, business or government can best focus our limited resources and have the biggest positive impact of our cumulative efforts.

She adds that the CRD's new array of watershed education tools has opened new entry points to increase public understanding of the issues, opportunities for engagement and an array of actions diverse stakeholders can take. For example, schools located in City of Victoria may earn Education Credits for City of Victoria's new Stormwater Utility.

Green Infrastructure Initiatives: Urban and rural rain and stormwater management are vital to addressing the current and future well-being of regional watersheds. Green Infrastructure focuses on infiltrating rain and stormwater to decrease the burden of volume in the municipal storm drain systems, while improving in ground water for landscape vegetation (i.e., urban trees) and to clean stormwater, thus protecting local waterways and the marine environment. The CRD **Green Infrastructure Common Design Guidelines** (scheduled for completion in early 2016) will assist municipalities to move forward with promoting the construction of Green Infrastructure that is specific to the region's rainfall and climate change forecasts with consistency throughout the region.

b. 2008 Showcasing Green Infrastructure Innovation Series

In 2008, the Capital Region hosted the second in the *Vancouver Island Showcasing Green Infrastructure Innovation Series*. The series was a prelude to the Bowker Creek Forum in February 2010. It helped build support for the IWM vision.

> *The historical relevance is that the series drew attention to projects in the Capital Region that demonstrated how to achieve **design with nature** outcomes at a community scale.*

Design with Nature Outcomes

The 2008 Showcasing Series featured a 'Design with Nature' strategy for land use planning at a community scale, with the objective of transforming the built environment.

"The vision was that the series would play an integrating role to cut across disciplines and ultimately serve as a catalyst to create neighbourhoods that integrate both good planning and innovative engineering designs, for overall greater sustainability," recalls Dale Wall, former Deputy Minister and CAVI champion.

Celebration of Innovation

The Town of View Royal, City of Langford and University of Victoria showcased community-scale initiatives and/or projects that achieved all six elements of a Design with Nature strategy. The series was a progression, starting with a roadway in View Royal and ending with the mini-municipality that is the University of Victoria.

Town of View Royal: The *Transportation Master Plan* was featured because the implementation strategy for reconstruction and enhancement of the old Island Highway set a provincial benchmark for other municipalities to measure themselves against when applying for senior government funding. The strategy integrated transportation, drainage and water quality objectives in order to restore water quality in Portage Inlet, often described as the jewel of Victoria.

City of Langford: The spotlight was on the Westhills Green Community, one of the first Canadian pilots for *LEED Neighbourhood Development*. The project integrated the principles of smart growth, new urbanism and green buildings into a system for neighbourhood design.

University of Victoria (UVic): A community of more than 25,000 people, the campus is a case study for green buildings and compact growth. Leadership, collaboration and partnerships enabled UVic to transition (within a 5-year period) from an incremental to integrated approach to planning and resource management.

c. Bowker Creek Blueprint / Forum

The Bowker Creek watershed area encompasses much of the urban core of the Capital Region. Collective indifference for more than a century had resulted in a degraded watershed. Now, a 'design with nature' ethic is driving watershed restoration by means of a 100-Year Action Plan.

> *The **Bowker Creek Blueprint** has established a benchmark for IWM. It is an inspirational story of champions in government and community, and the power of collaboration and outreach.*

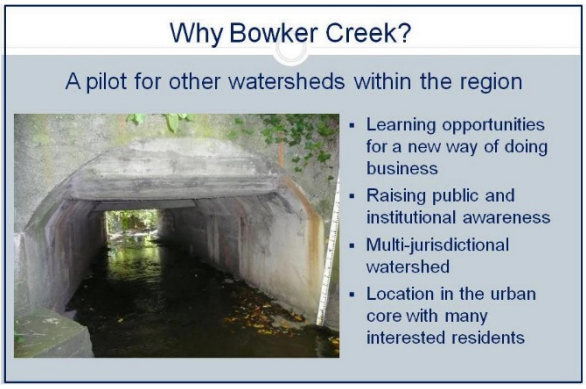
"Why did we choose Bowker Creek when it is a rather degraded watershed," Jody Watson asked rhetorically at the 2010 Bowker Creek Forum. "The answer is that we saw it as an opportunity. If we could make it right in Bowker Creek, we could make it right anywhere."

Everyone Lives in a Watershed: *"The Bowker Blueprint is helping the community understand that we all live in a watershed, all water ends up in the same place when it runs off the land, and everyone must commit to actions that improve watershed health. As we improve the way we deal with water runoff, our world will be a better place,"* states Steve Fifield, retired Manager of Underground Utilities with the City of Victoria.

> *The **'Story of the Bowker Creek Blueprint'** is told in a set of five documents released by the Water Sustainability Action Plan for BC in January-March 2010*
>
> *http://waterbucket.ca/viw/category/convening-for-action-in-2010/2010-bowker-creek-forum/*

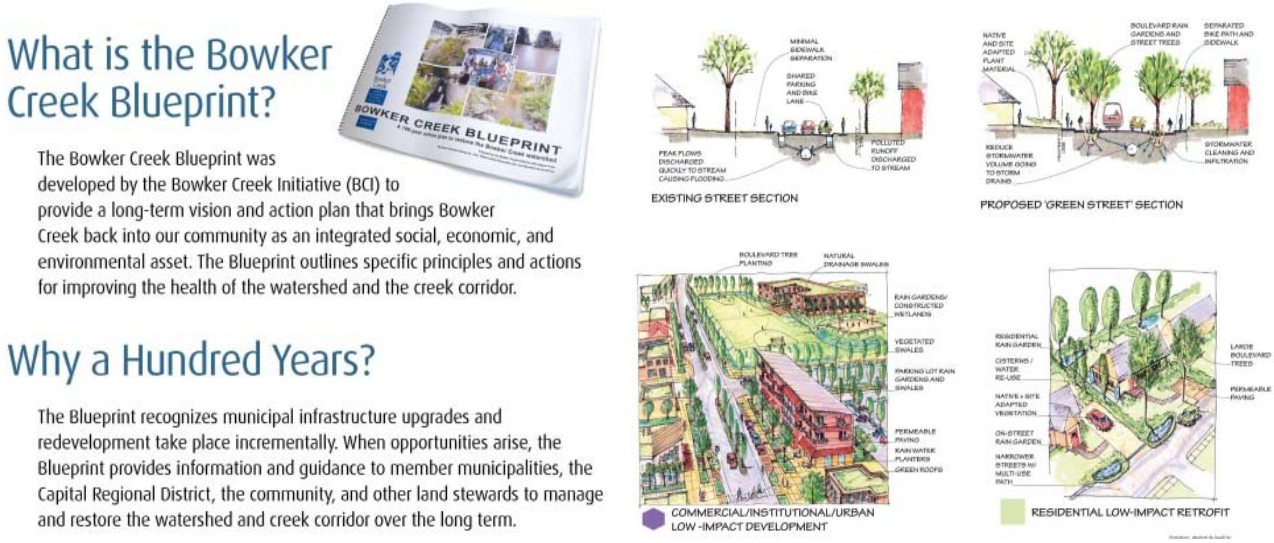
The Story of the Blueprint

The Bowker Creek Blueprint is a 'game-changer'. In a series of four conversational-style documents released in the build-up to the *2010 Bowker Creek Forum*, the inspirational story of how the Blueprint and Action Plan came to fruition is recounted from the perspectives of those who made it happen. A fifth document was released after the Forum to complete the series.



The 100-Year Vision: The branding graphic (Figure 46) for the Bowker Blueprint personifies the outcome-oriented vision for restoring 'islands of nature' throughout the watershed. The plan elements literally jump off the page. A ribbon of blue runs the length of the watershed; this represents the daylighted creek. The greening of the watershed is portrayed by a green grid: green streets and greenways.

Outreach is a Powerful Tool: Community groups and individuals have taken ownership and responsibility for 'telling the story' of the Bowker Creek Blueprint. *"People eagerly embrace the opportunities for engagement and education. They really want to share their thoughts and experiences. Residents have a stake in restoring watershed health. There is so much experience that we can mine. We who live in the watershed are the experts,"* says Soren Henrich, Bowker Creek Steering Committee.



Bowker Creek Blueprint – Provincially Significant & Precedent-Setting for Integrated Watershed Management

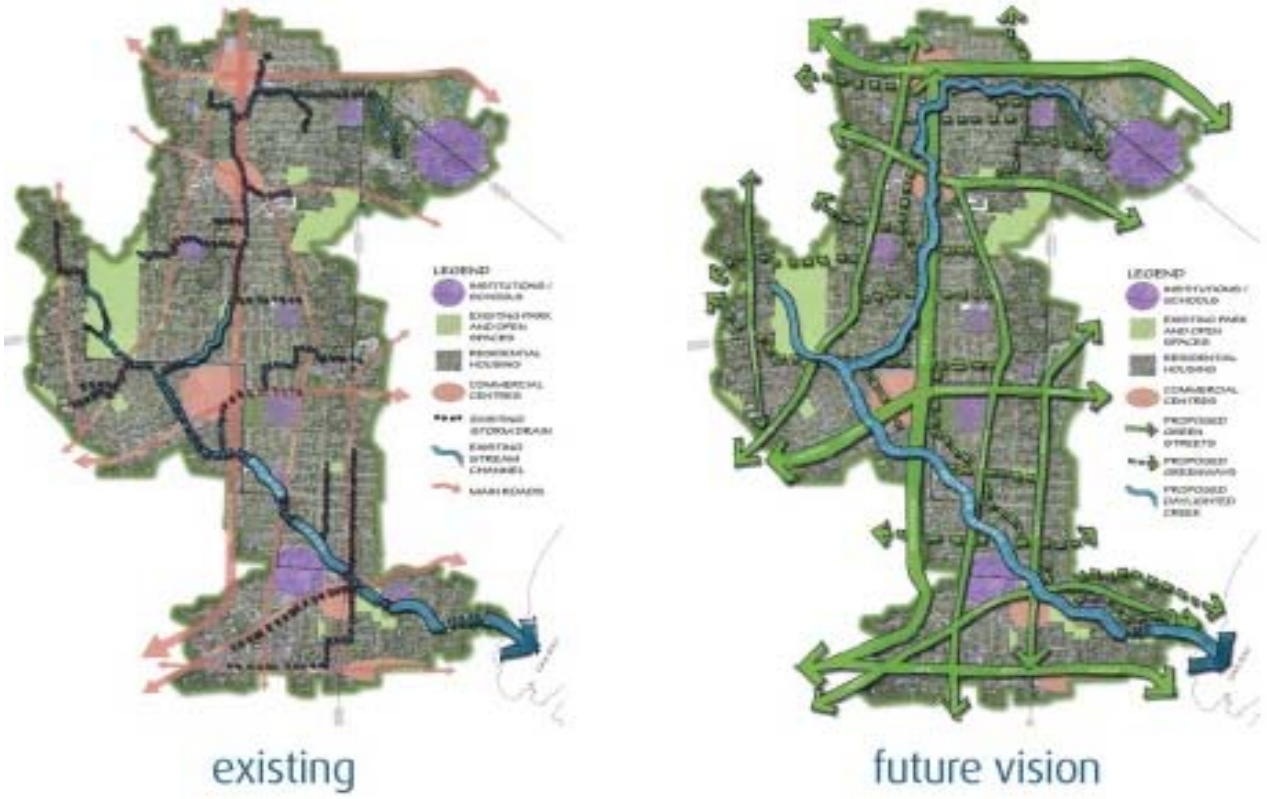


Figure 46

Bowker Creek Forum

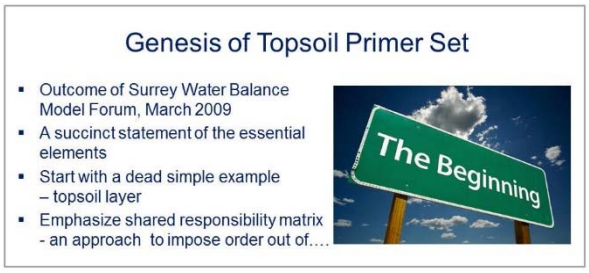
In February 2010, the Bowker Creek Forum brought together champions from Vancouver Island and Metro Vancouver to celebrate the Bowker Creek Blueprint and share their stories.

"In local government, we have seen what works and what doesn't. Agree on the vision. Set the targets. Provide municipal staff with the detail necessary to guide site level decisions as opportunities arise. Then implement," stated Jody Watson, speaking as Bowker Creek Chair.

> *The Bowker Creek Forum was one of two high-profile initiatives that drew the attention of local governments to the need for the '**ISMP Course Correction**' (discussed in Chapter 9).*

How to Design with Nature: The Forum provided the venue for announcing the release of two important documents: the *Topsoil Primer Set* (Law & Policy; Technical) and *Re-Inventing Rainwater Management: A Strategy to Protect Health and Restore Nature in the Capital Region*.

Look at Watersheds as Whole Systems: *"Traditional stormwater management broke the natural water cycle. In contrast, modern rainwater management looks at the dynamics of the entire watershed to restore the function of trees, soil and open space,"* said Calvin Sandborn, Legal Director of the Environmental Law Clinic at the University of Victoria (and lead author, Re-Inventing Rainwater Management).



Why 100 Years?

It took 100 years to put Bowker Creek in pipes and concrete channels…it may take another 100 years to daylight and bring life back to the Creek, says Jody Watson. She notes that the Blueprint is intended to be implemented over a period of decades, because it recognizes that change can be slow in the urban environment. Acknowledging the 100-year timeframe in the title of the Action Plan gave the partner municipalities' comfort and reassurance that they do not have to act immediately on everything in the Blueprint. Staff are able to incorporate actions and recommendations into operational work plans as priorities and resources permit.

Sustainable Planning for Infrastructure: *"The District of Saanich and our partners have all started to internalize the watershed management mandate. Within Saanich this means that the Planning, Engineering, and Parks and Recreation Departments have been directed to consider the principles and actions for watershed management, the 10-key actions for short-term implementation, and stream reach actions laid out in the Bowker Creek Blueprint when developing Departmental work plans and budgets,"* wrote Colin Doyle, former Director of Engineering, in an article published by the American Public Works Association in 2012.

A Plan of Opportunity

The Bowker Creek Blueprint is a first-of-its-kind, opportunistic plan that lays out many principles of integrated watershed management. It offers ways to deal with flooding, water pollution and habitat loss that the creek has suffered and provides recommendations for greenways and pockets of nature within an urbanized watershed. Having a plan in place will ensure that positive changes can happen incrementally, and that opportunities for major improvement can be achieved as they arise.

9 Key Principles Drive Plan Implementation: The Bowker Creek Blueprint includes many watershed-wide and reach-specific actions. To simplify the implementation, nine key principles were developed, that, if considered in all development, land use and operational decision making, will lead to improved watershed health.

Principles for a Healthy Watershed

- Use creek-friendly management approaches wherever possible
- Adopt requirements to reduce effective impervious areas
- Construct water infiltration and retention features in boulevards
- Incorporate Bowker Creek goals into municipal plans
- Maintain effective communication of the Bowker Creek vision, goals and actions
- Plant trees and shrubs and protect existing trees
- Purchase and protect key land in the watershed
- Incorporate proposed greenways into land use planning
- Include climate change adaptation and mitigation in all activities

Short Term Priority Actions

The Blueprint contains extensive detail about actions to be taken over varying timeframes and in different locations, reports Jody Watson. To ensure Blueprint "operationalization" within the municipalities and to create positive momentum for implementation, the BCI steering committee highlighted 10 priority areas for implementation within the first 5 years of Blueprint adoption.

Watershed Moment: A flagship project makes a visionary plan real to the community and spurs plan implementation. Reconstruction of Oak Bay High School (Figure 47) resulted in a flagship opportunity to demonstrate how to mimic a natural system.

"Moving forward with the Oak Bay High School project is a true 'watershed moment' for the creek and the community. It will be a wonderful example of how a long term coordinated plan to restore function to a degraded watershed can happen, piece by piece, and when opportunities arise, when we work together towards a common vision," observes Jody Watson.

This is the first major restoration project along the creek and is a joint project of the BCI, District of Oak Bay, School District 61 and Oak Bay High School. Funding was provided as part of the federal Gas Tax Innovations Fund. Restoration will improve flow conveyance, create habitat, improve water quality, provide a community-accessible outdoor classroom space and refurbish a greenway along the creek.

Before restoration, Bowker Creek through Oak Bay High School was channelized, overgrown with invasive trees and shrubs and inaccessible to the community.

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Flagship Project Through Oak Bay School Lands Demonstrates Commitment to Restoring Watershed Function:

The decision to reconstruct Oak Bay High School created the opportunity for restoration of the school lands section of Bowker Creek into a healthier riparian environment and a community-accessible greenspace. In 2014, the project partners, students and community members participated in a design charrette to identify the desired restoration and community objectives for this section of Bowker Creek. This input guided the detailed design of the restored creek and the associated community amenities as shown above. Constructed in summer of 2015, the project demonstrates collaboration, partnerships, long-term visionary thinking and development of innovative green rainwater infrastructure.

Completed in fall 2015, the newly restored section of Bowker Creek features an outdoor classroom among the native trees and shrubs in the newly planted riparian area.

Oak Bay Secondary staff and students were involved in many aspects of creek design and restoration including the design charrette, development of curriculum and planting the riparian streambank.

Figure 47

d. Towards a Watershed Health Legacy

Under the IREI umbrella, each of the five regional districts is spearheading a different part of the Watershed Health Legacy puzzle picture. The lens for the Capital Region is *Watershed Health Assessment*. When the CRD hosted the second session in the 2014 Inter-Regional Collaboration Series, the 'sharing and learning' covered the **past, present** and **future** of watershed health monitoring and assessment in the Capital Region.

> *Guiding principles for inter-regional sharing and learning include: 1) achieve more with the same resources; and 2) through sharing and learning, ensure that where everyone is going is indeed the right way.*

Watershed Assessment in Future

Watersheds are complex: evaluating their health can be challenging and require significant staff and financial resources. These are drivers for an evaluation methodology that would enable a coarse assessment of watershed health to assist in prioritizing watersheds for action and guide a wise investment of effort.

Development of an Evaluation Tool: The 2014 IREI session initiated a discussion about how to measure the health of watersheds at different scales and different levels of effort.

"With over 300 watersheds in the Region, we just do not have the money to do a massive characterization of each watershed," notes Jody Watson. "So how can we use data that are readily accessible to do a coarse level screening or prioritization of watersheds? How, for example, could we utilize the roads information that is in GIS databases to tell us something about a watershed and how it is functioning? If we think creatively, the door opens to all kinds of analytical possibilities."

Application of Tools: A rough level watershed characterization can be achieved using landscape level data that will help to prioritize watersheds requiring further action or more detailed assessment. CRD staff want to utilize landscape level GIS data that characterizes watershed functions and/or watershed stressors to conduct a rapid, albeit, coarse evaluation of watershed health. Figure 48 depicts the type of data being used to conduct coarse landscape level watershed assessments.

Stressor	Data Layer/Source	Possible Metrics
Human Use	Road layer	• # Km of roads • # vehicles/road type
Altered Hydrology	• Volume / Flow data • Proper Functioning Condition (PFC) Assessments • Municipal ISMPs • Infrastructure: - Trunk sewers - Stormwater infrastructure and Catchments - Inflow & Infiltration data • SHIM data	• Identify areas of erosion • # km above ground • # km piped/buries • Riparian habitat
Land Use	• BC Assessment Data • Municipal Zoning	• % watershed area by land use classification
Habitat Loss **Fragmentation** **Impervious Surfaces**	• Urban Forest Inventory: - land cover - tree cover - impervious cover	• % watershed area by land cover type • % impervious cover by class • % tree cover by density class • Change over time

Next Steps Towards Integration: Issues of watershed and receiving environment are regional by definition. Developed in 2010, the IWM Strategy described what could be done to protect and enhance watersheds and receiving environment. Full implementation was deemed beyond the scope of existing authority, resources and staffing levels. Therefore, components of the IWM plan are being undertaken in the Core Area.

Authority for IWM work in the Capital Region presently flows from the Core Area LWMP. This was described as a 'first step' to a regional service in the *July 2010 Progress Report to Core Area LWMP Committee*. Experience gained to date would ultimately inform the implementation of a full regional IWMP service.

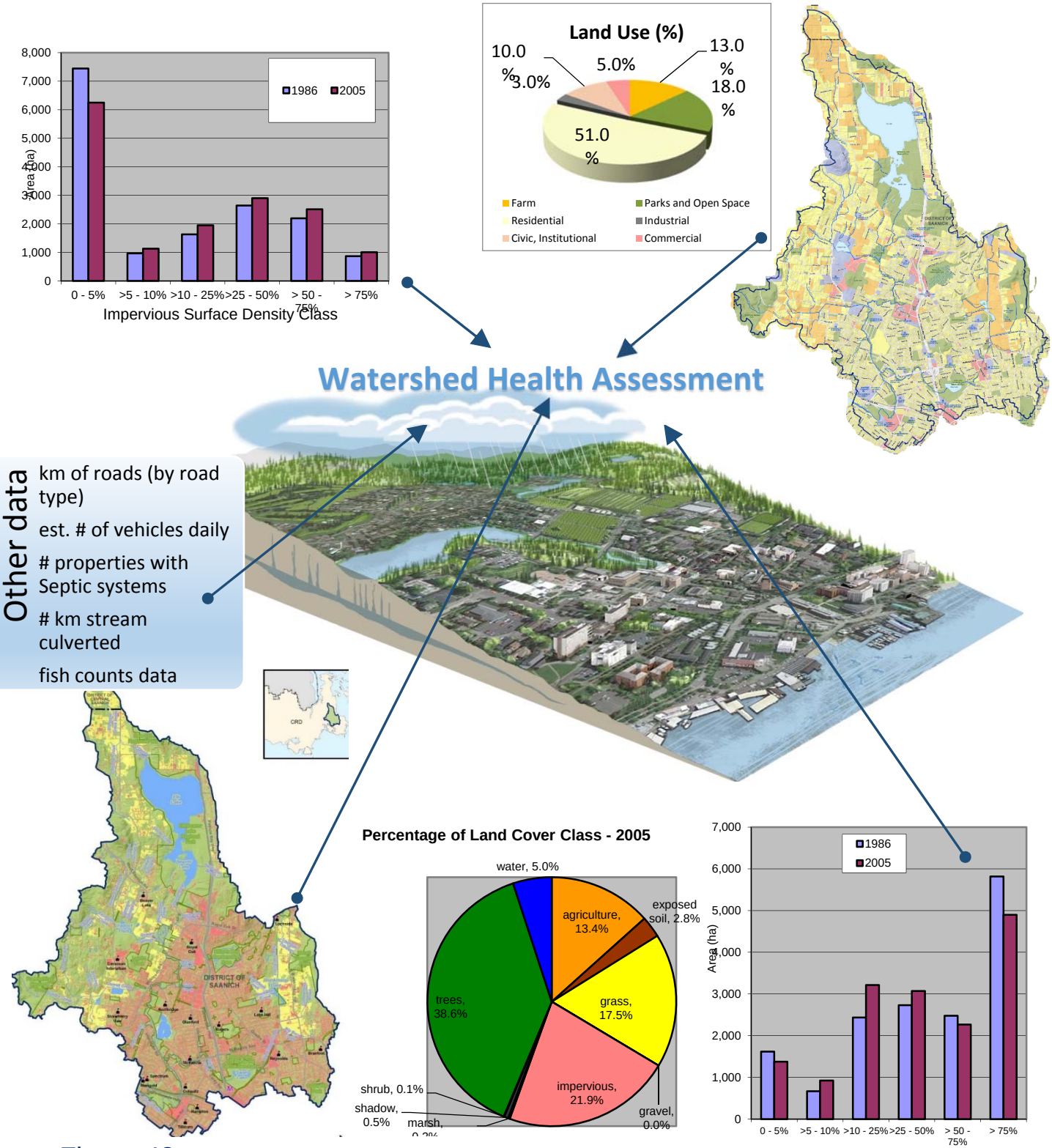
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Area (ha)
1986
2005
0 - 5%
>5 - 10%
>10 - 25%
>25 - 50%
> 50 - 75%
> 75%
Impervious Surface Density Class
Land Use (%)
10.0 %
3.0%
5.0%
13.0 %
18.0 %
51.0 %
Farm
Parks and Open Space
Residential
Industrial
Civic, Institutional
Commercial
Watershed Health Assessment
Other data
km of roads (by road type)
est. # of vehicles daily
properties with Septic systems
km stream culverted
fish counts data
CRD
DISTRICT OF SAANICH
Percentage of Land Cover Class - 2005
water, 5.0%
agriculture, 13.4%
exposed soil, 2.8%
grass, 17.5%
impervious, 21.9%
gravel, 0.0%
trees, 38.6%
shrub, 0.1%
shadow, 0.5%
marsh,
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Area (ha)
1986
2005
0 - 5%
>5 - 10%
>10 - 25%
>25 - 50%
> 50 - 75%
> 75%
Tree Cover Density Class

Figure 48

'Regional Team Approach' - Looking Ahead

Dale Green
Program Supervisor
Integrated Watershed Management Program
Capital Regional District
October 2015

"The evolution of IWM at the CRD mirrors somewhat my own career. Like the program, before coming to the CRD I started as an analyst, looking at what's in water but not thinking as much about where that water came from or where it was going. The program and I simultaneously evolved to consider watersheds as units containing multiple interacting factors and that the water quality issues we were measuring were the indicator of undesirable changes in the watershed. Along the way it was quickly understood that regional government, local governments and stakeholders cannot work on watershed condition and function in isolation nor can they leave it to each other to handle. A combined effort is essential for success."

There are no passengers on spaceship earth. We are all crew – *Marshall McLuhan*

"From this chapter, the reader should have a sense of the rapid realignment of our program's focus and the work still to be done. This took the effort and contribution of the entire program team, as well as our municipal champions and community stewards. Significant effort was put into creating a vision of the program future and at the same time ensuring that the service we deliver to protect watersheds, biodiversity and ecosystem health is effective in terms of benefits as well as cost."

"We see through our work, the incredible efforts put into watershed protection by community stewards. These seemingly tireless volunteers often are the kick-starters of new initiatives by identifying the need for action before staff are aware. Those walking the trails and using the waterways and ocean are often the first to know of changing conditions and effects on the environment. These are also the people that maintain the knowledge and make requests for change as staff and politicians' transition in and out of their positions over time and things are forgotten in old reports and filing cabinets."

"**Cooperation is key**. The CRD is composed of 13 municipalities and 3 electoral areas. Watershed boundaries are not political boundaries or even neighbourhood boundaries. We are lucky to live in a region of such significant environmental values. When local government champions come to the table to work with regional staff and each other, great things happen. The IWM program is about to re-engage with regular meetings with community groups and is also taking steps to enhance existing relationships and build new connections to First Nations. We continue to look forward and enhance cooperative efforts to make us all stronger and better able to protect and enhance our watersheds."

Creating a new 'Land Ethic' through IWM

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October 2015

"A land ethic changes the role of Homo sapiens from conqueror of the land-community to plain member and citizen of it. It implies respect for his fellow-members, and also respect for the community as such."

Aldo Leopold, Land Ethic, Sand County Almanac, 1949

"Many people living in an urban environment, especially young people, have no idea what a natural, properly functioning creek should look like. Their 'norm' is often a channelized creek with hardened walls and bottom, with few trees, if any, along the banks. Or worse, they don't even know a creek exists because it has been put underground. Some had never played in a creek, which was unfathomable to me as a free-range kid from the prairies."

"Our collective 'baseline' or memory of what a healthy creek should look like has shifted significantly. Within the urban environs, this baseline had shifted even more through generations of development and decades of engineering practices designed to get the water off the land as quickly as possible. This approach to land development has resulted in a loss of hydrological and ecological function in many areas."

"Published in 1949, Aldo Leopold's 'Land Ethic' suggested that humans exist within an integrated community of life that also includes other animals, plants, rocks, soils and waters, collectively: the land. A land ethic, he postulates, 'cannot prevent the alteration, management and use of these resources'. He argued that the health of the land is linked to the ways a community functions ecologically; to its capacity, under human use, to remain fertile and productive over the long term. Leopold heralded:

"A thing is right when it tends to preserve the integrity, stability and beauty of the biotic community. It is wrong when it tends otherwise."

"A similar ethic is often echoed in conversations with First Nation colleagues in the Region. They have generously shared their land principles and helped me to understand their deep spiritual connection to the land and the resources it provides. Theirs is an age-old land ethic that is reinforced through customs and ceremonies, feasts and dance, and through stories of First Nations way of knowing and being. The teachings include that of interconnectivity which is critical to the health of our communities. A strong desire to return to traditional food harvesting practices requires actions closely aligned with improving watershed health and creates opportunities to forge a new relationship with our First Nations neighbours, with whom we share this land. "

"A land ethic, Leopold proposed 'reflects a conviction of individual responsibility for the health of the land'. The multi-jurisdictional nature of our watersheds requires the collective commitment of local and senior government agencies, First Nations, and communities to improve the health of our watersheds. Through IWM, utilizing a 'Design with Nature' approach, we are changing the way we develop our land by attempting to re-engineer the hydrological function back into our urban landscape and restore ecologically functioning pockets of nature. We are, in some ways, cultivating a new land ethic."

"I remain hopeful that by gathering together change-makers from First Nations, local governments and our communities to work towards a collective vision for healthy watersheds that we will emerge with a strong new land ethic here in the Capital Region. And over time, we will shift the baseline of a healthy creek closer to one which I held as a young girl."