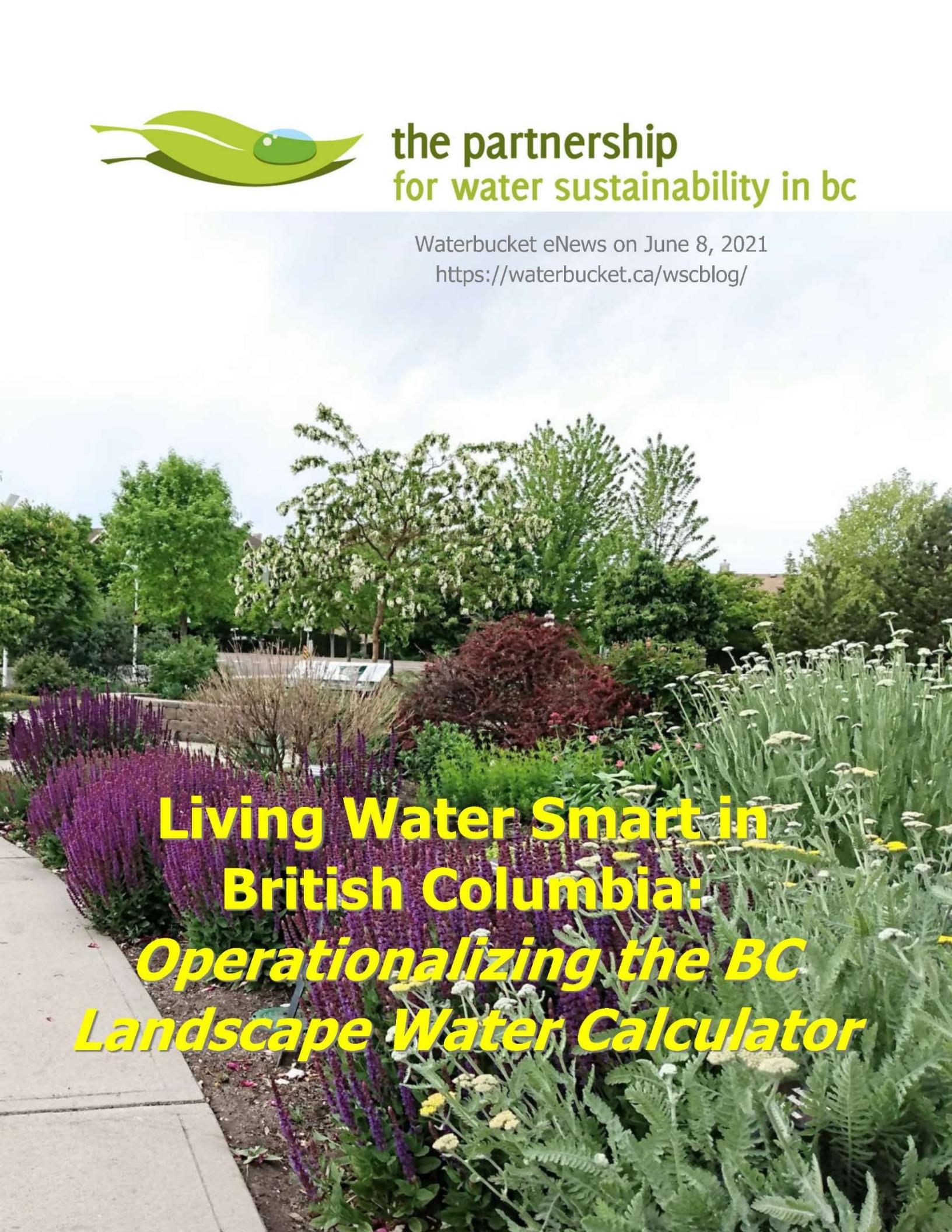




the partnership  
for water sustainability in bc

Waterbucket eNews on June 8, 2021

<https://waterbucket.ca/wscblog/>



**Living Water Smart in  
British Columbia:  
*Operationalizing the BC  
Landscape Water Calculator***

## Note to Reader:

Waterbucket eNews <sup>1</sup> celebrates the leadership of individuals and organizations who are guided by the vision for Living Water Smart in British Columbia <sup>2</sup>. The edition published on June 8, 2021 shone the spotlight on the program to operationalize the BC Landscape Water Calculator <sup>3</sup> in three regions: Okanagan, Vancouver Island and Fraser Valley.

Targeting seasonal outdoor water use represents the best opportunity to achieve “water use in balance with a changing water cycle”.

The umbrella for Partnership initiatives and programs is the Water Sustainability Action Plan for British Columbia <sup>4</sup>. In turn, the Action Plan is nested within Living Water Smart, British Columbia’s Water Plan.



<sup>1</sup> <https://waterbucket.ca/wscblog/>

<sup>2</sup> [https://waterbucket.ca/wcp/wp-content/uploads/sites/6/2017/11/livingwatersmart\\_book.pdf](https://waterbucket.ca/wcp/wp-content/uploads/sites/6/2017/11/livingwatersmart_book.pdf)

<sup>3</sup> <https://bcwatercalculator.ca/landscape/irrigation>

<sup>4</sup> <https://www.waterbucket.ca/cfa/sites/wbccfa/documents/media/81.pdf>

## **Editor's Perspective on Water Use in Balance with a Changing Water Cycle**

Warmer and wetter winters; longer and drier summers. When supply is at a minimum, demand is at a maximum. This is British Columbia's new reality. Adapting means that we must view water differently. Our seasonal use of water for yard and garden irrigation must be in balance with a changing water cycle.

To achieve the goal of water sustainability, the 45 actions and targets in **Living Water Smart, British Columbia's Water Plan** establish expectations for *Doing Business Differently, Preparing Communities for Change, and Choosing to Be Water Smart*.

To support necessary changes in water resource and demand management practice, the Partnership and governments are collaborating to develop resources and implement science-based tools that build understanding and influence choices. One of these tools is the **BC Landscape Water Calculator**.

Widespread use of this online, public domain tool would help communities meet their targets for allowable water use and total demand reduction at the property and community scales, respectively.

**A Storyline in Three Parts:** To paint a broad-brush picture of evolving expectations and requirements, the storyline that follows is structured in three cascading parts. First, an over-arching context. Then, a description of the BC Landscape Water Calculator. And finally, an overview of local government perspectives in the three regions where the tool now supports water conservation programs.

Provincial grant programs are aligned with water conservation targets, and **Water Conservation Plans** are a requirement. With many plans now being more than 5 years old, it is time for a refresh. And this is where the Ministry of Municipal Affairs and Housing believes the BC Landscape Water Calculator has a timely fit.



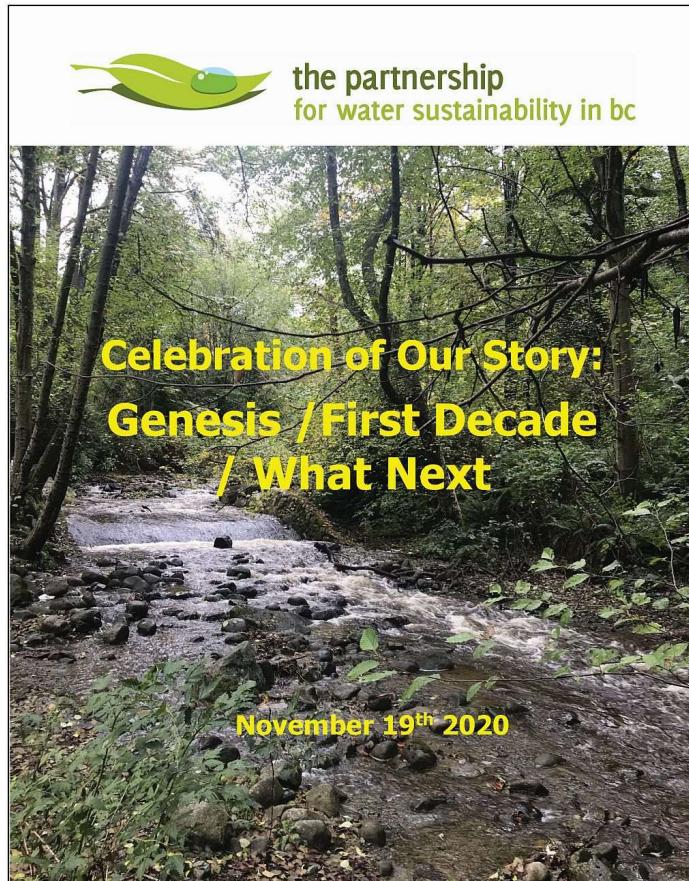
Kim A. Stephens, MEng, PEng,

Executive Director

Partnership for Water Sustainability in BC

June 2021





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**TO LEARN MORE, VISIT:**  
<https://waterbucket.ca/about-us/>

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## About the Partnership for Water Sustainability in British Columbia

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Incorporation of the Partnership for Water Sustainability in British Columbia as a not-for-profit society on November 19, 2010 was a milestone moment. Incorporation signified a bold leap forward.

Over two decades, the Partnership had evolved from a technical committee in the 1990s, to a “water roundtable” in the first decade of the 2000s, and then to a legal entity. The Partnership has its roots in government – local, provincial, federal.

The Partnership has a primary goal, to **build bridges of understanding** and pass the baton from the past to the present and future. To achieve the goal, the Partnership is growing a network in the local government setting. This network embraces collaborative leadership and **inter-generational collaboration**.

The Partnership believes that when each generation is receptive to accepting the inter-generational baton and embracing the wisdom that goes with it, the decisions of successive generations will benefit from and build upon the experience of those who went before them.

# **Yard and Garden Irrigation in Balance**

## **Adjusting to longer and drier summers in British Columbia:**

**Our seasonal use of water must be in balance with a changing water cycle.**

"The Partnership for Water Sustainability and local government partners in three regions - Okanagan, Fraser Valley and Vancouver Island - have collaborated to operationalize the **BC Landscape Water Calculator**. This new online tool helps homeowners design water efficient yards and gardens."



## PART ONE: Ministry Expectations Evolve into Contract Requirements for Grants

"A longstanding goal of the Ministry of the Municipal Affairs and Housing is to find a balance between supporting those local governments who are leaders, while over time raising the bar to encourage the rest," reports Brian Bedford, Executive Director, Local Government Infrastructure & Finance, Ministry of Municipal Affairs and Housing.

"Going back 15 years to the mid-2000s, the Province recognized the need to encourage better water conservation by water users and water purveyors in BC. The question was – what policy levers were available to help make that change, and what would incentivize it? And so, **the Ministry found an opportunity to align provincial grant programs with water conservation targets.**"

"The Ministry defined the **Water Conservation Condition** as the contractual mechanism of choice. It is written into all contracts for infrastructure grants as a requirement. It must be satisfied before grants are fully paid out. The Water Conservation Condition has been the lynchpin for the Ministry's multi-year approach to incentivizing changes in practice."



"The new BC Landscape Water Calculator would allow local governments to further support their Water Conservation Plans with the next piece of education for those who are actually turning on the taps at their homes."

Brian Bedford, Executive Director,  
Ministry of Municipal Affairs & Housing

## Mandatory Requirement for Water Conservation Plans

"Over time, the process has been one of incrementally raising the bar in defined steps – awareness first, then education, and finally, full implementation," continues Brian Bedford.

"In the case of **Water Conservation Plans**, it went from being questions to becoming an optional document, to being a conditional requirement on approved contracts."

"The bar has been raised and no longer can a local government simply state in an application that they have a Water Conservation Plan endorsed by Council or Board resolution."

"A Water Conservation Plan is a mandatory document to even apply for an infrastructure grant. When a grant application is submitted, the Ministry asks for confirmation that an up-to-date plan has been approved by Council or Board resolution within the last 5 years."

## BC Landscape Water Calculator

**"It is in the look ahead that one can foresee the opportunity for a local government to identify what role the tool could play ."**

Brian Bedford, Executive Director,  
Ministry of Municipal Affairs & Housing



## **Pointing the Way to the BC Water Landscape Water Calculator:**

"Currently, the Water Conservation Condition points to the [Water Conservation Calculator](#)<sup>5</sup>, Brian Bedford points out. "This is an online decision support tool implemented more than a decade by the Ministry in collaboration with the Partnership for Water Sustainability."

"This front-end tool initially helped to leverage development of Water Conservation Plans across the province. A majority of local governments across the province now has such plans. This represents cumulative progress over time."

"With many of those Water Conservation Plans now being more than 5 years old, it is time for a refresh. And this is where the Ministry believes the new [BC Landscape Water Calculator](#) has a timely fit. The tool is an exciting new evolution. It would allow local governments to further support their Water Conservation Plans with the next piece of education for those who are actually turning on the taps at their homes."

"Moving forward, updating the Water Conservation Condition for the next iteration of the grants program would create the opportunity to also integrate the [BC Landscape Water Calculator](#) and start nudging local governments to be aware of the tool. Initially, we would flag it as an available tool that local governments can explore and work with."

## **Updating of the Water Conservation Condition**

"Prior to payment by the Province in excess of 75% of the approved funding amount, local governments must provide an update on their water conservation work and the goals that have been accomplished by the existing plan during the period following Council or Board approval," notes Brian Bedford.

"The Ministry requires that the local government include both an assessment of what their successes have been, and a look ahead as to where their Water Conservation Plan is going next."

***"It is in the look ahead that one can foresee the opportunity for a local government to identify what role the BC Landscape Water Calculator could play in achieving water conservation targets and further reducing water use in the community."***

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<sup>5</sup> <http://waterconservationcalculator.ca/>

## PART TWO: BC Landscape Water Calculator: Science-Based & Evolving Through Collaboration

"The power of the BC Landscape Water Calculator is that it is linked to a provincial 500 metre gridded climate dataset that was built for the Agricultural Water Demand Model. This is what establishes the **allowable water budget** for each and every property in British Columbia," explains Ted van der Gulik, Chair, BC Landscape Water Calculator Program. Prior to retirement from government, he was the Senior Engineer in the Ministry of Agriculture.

"The *allowable water budget* is a real number. It is based on average climate data for the period 2000 through 2010 for the active growing season. This establishes a location-specific performance target for landscape design. Users then test various combinations of plant types and irrigation systems to determine their total **landscape water need**. The objective is to find the combination that is within the allowable water budget for the location."

"Now any property owner in BC can zoom in to their property and quantify their outdoor water need based on climate, soil, plant type and irrigation system. Over time, province-wide use of the tool would result in enhanced resiliency of community water supplies, by developing landscapes that are water efficient."



**"Now any property owner in BC can zoom in to their property and quantify their outdoor water need based on climate, soil, plant type and irrigation system."**

Ted van der Gulik, Chair  
BC Landscape Water Calculator Program

## **Program for Operationalizing the Calculator Across British Columbia**

"A substantial grant from the RBC Blue Water Project enabled the Partnership to develop the BC Landscape Water Calculator. The grant made it possible for us to accelerate the timeline for implementing an idea. When we shared our vision with RBC Blue Water staff, they immediately grasped the potential of the tool. They urged us to submit a funding application asap," continues Ted van der Gulik.

"It is always about the right people in the right place at the right time. The City of Kelowna was also enthusiastic about the tool. Staff could see how the calculator would support Kelowna's requirement for a [Landscape Water Conservation Report](#)<sup>6</sup> as part of the City's adaptation of the *Qualified Water Efficient Landscaper program* (QWEL). And so, the City agreed to facilitate the RBC Blue Water grant on behalf of the Partnership. The stars were in alignment. The BC Landscape Water Calculator initiative was well and truly launched."

### ***The First Cohort of Demonstration Applications:***

#### **How Partners Benefit**

*"The inventory of water efficient plants is accessible only in communities where the local government is a project partner. In addition to this valuable feature, the calculator provides users with guidance as to whether plant selections are suitable for sun exposure or shade. Think about why that is important."*

- Ted van der Gulik

"Within the past 12 months, the Partnership has collaborated with three local governments to operationalize the BC Landscape Water Calculator in three regions: Okanagan (City of Kelowna), Fraser Valley (City of Abbotsford) and Vancouver Island (Capital Regional District). With each application, there is a new twist. Each time, we evolve the tool to meet the needs of our partners. Everyone benefits. This is the power of the collaborative approach."

"The tool is universal, but the drivers for local governments using it are different. The Kelowna version is oriented to contractors who must submit reports as a requirement of the QWEL program. In the case of Abbotsford, the focus is squarely on homeowners who wish to apply for a \$250 [Waterwise Landscape Rebate](#)<sup>7</sup>. In the Capital Regional Region, the tool supports Live Green and Work Green educational programs in the residential and commercial sectors, respectively."

"Customizing of the tool for each region included plant selection dropdowns. Sounds innocuous, doesn't it? Not so! There is no readily available resource for water efficient plants in British Columbia. The Partnership had to customize a database for each region. This is a key resource; and is unique to the BC Landscape Water Calculator."

<sup>6</sup> <https://www.kelowna.ca/city-services/water-wastewater/city-water-utility/water-smart/residential-irrigation>

<sup>7</sup> <https://waterbucket.ca/wuc/wp-content/uploads/sites/7/2021/05/2021-Irrigation-System-Landscape-Water-Efficiency-Program.pdf>

## PART THREE: Case Study 1 - Landscape Water Conservation Reporting in the City of Kelowna

"Over the past decade, collaboration with the City of Kelowna was a natural fit to both build the BC Landscape Water Calculator and undertake a pilot demonstration application," reports Ted van der Gulik. "The City has implemented innovative approaches to management of water use and landscape irrigation, such as the QWEL program. The City has an oversight system in place to ensure that landscape design and irrigation design work together to achieve water efficiency."

"QWEL, the Qualified Water Efficient Landscaper certification program, is a great way for homeowners to ensure that landscape and irrigation contractors have water conservation in mind, consider native landscape material, and provide top notch workmanship in their services," adds Ed Hoppe, City of Kelowna.

"The City's approval process for integration of landscape and irrigation system design is keyed to three requirements. First, use of turf-grass is limited to a maximum of 60% of the site. Secondly, irrigation systems must be sized so that water use would not exceed the allowable **annual water budget**. Thirdly, a **Landscape Water Conservation Report** must be submitted for the City's approval."

"The City Utility is excited to promote this online water tool (BC Landscape Water Calculator) to our residents. It makes the process of understanding, calculating, and submitting water use reports to the City so much easier and user-friendly.

**Ed Hoppe**  
Water Quality and Customer Care Supervisor, City of Kelowna



## PART TWO: Case Study 2 - Irrigation and Landscape Water Efficiency in the City of Abbotsford

"I started with the City of Abbotsford in 2010 at a time when water conservation was really ramping up because of high peak demands in the late 2000s," recalls Amy Peters. She coordinates the City's water conservation program.

### Context for Water Use Efficiency

*A regional bulk water supply system serves the City of Abbotsford (south side of Fraser River) and District of Mission (north side of the river). The principal supply source is Norrish Creek/Dickson Lake.*

"Because the Fraser Valley's population had been (and still is) growing so fast, our peak demands were getting quite high a decade ago. In addition to looking for a new water source, the City's immediate priority was to target peak demands to reduce total water use."

"In 2011, Abbotsford was the first municipality in Canada to implement Advanced Metering Infrastructure (smart meters). Soon after, the City switched from an annual water billing to bi-monthly billing."

"We were really lucky. Implementation of the smart meters combined with the changes in billing made a massive difference. We saw a 20 to 30 percent drop in peak demand! This level has held steady over the past decade and bought us time to explore different source options."

"An unintended outcome of customizing the BC Landscape Water Calculator for Abbotsford conditions is in the way it gives homeowners direction for selection of native and water efficient plants based on sun, shade or a combination. This is powerful."

Amy Peters  
Water Quality and Resource Coordinator, City of Abbotsford



## You Manage What You Can Measure

"In 2011, the City looked at options to reduce peak water demands due to the high cost of a new water source. This included conservation, optimizing existing sources and system efficiencies. Several different conservation programs were explored, one of the programs implemented was a voluntary program for irrigation and landscape water efficiency," continues Amy Peters.

**Irrigation and Landscape Water Efficiency Program:** "This program involved doing assessments of individual properties. Because they were in-depth, the assessments took a lot of time. We did not know whether the impact was great or small. Our rationale was that it is more about building awareness."

"These assessments led homeowners to ask for incentives. In turn, this led to the rebate program. And so, we wanted to find a way to evaluate the program and demonstrate that there were water savings."

"The solution to our need was the [BC Landscape Water Calculator](#). The value of the calculator is that homeowners can now provide us with a report that shows how their choice of water efficient plants and landscape design meets their water budget. The report is the basis for payment of a rebate."

**Managing Peak Water Demand:** "The City sees the BC Landscape Water Calculator in helping us manage our peak demand. It really is about building the awareness through education. I like that the calculator will be able to show people just how much they can reduce their water use."

"Many homeowners are now familiar with how much they are using because the number is on their utility bill. It really is important that they be able to see how much outdoor water use contributes to their total water demand. The BC Landscape Water Calculator does this."

**Conversion of Lawns to Water Efficient Landscapes:** "I have been looking at different ways to market water conservation. It is something that I really want to focus on. We already have sprinkler patrols, the main purpose of which is education. The patrol members also talk to homeowners about the [Irrigation and Landscape Program](#)."

"We are encouraging people to transform their front yards by replacing grass with water efficient plants. We are promoting both water efficient and native plants. The BC Landscape Water Calculator provides them with choices for both. **An unintended outcome of customizing the tool for Abbotsford is in the way it gives homeowners direction for plant selection. This is powerful.**"

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*To support the City of Abbotsford's use of the BC Landscape Water Calculator, the Partnership for Water Sustainability developed a database of common waterwise plants that can be used towards the City's Water Wise Landscape Rebate Program.*

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*An important feature of the Calculator is how the dropdown settings guide the user selection of native and water efficient plants depending on whether planting locations are in the sun, shade, or a combination.*

## PART THREE: Case Study 3 - Live Green, Work Green in the Capital Regional District

"The BC Landscape Water Calculator is yet another example of how being one of the partners in the Water Sustainability Partnership means that local governments can benefit from the work of others, and then take that work a little bit further each time," observes Glenn Harris.

He is the Senior Manager of the CRD's environmental protection team. The team has responsibility for CRD water conservation initiatives and programs. Their work covers both the residential and business sectors. For the latter, the primary focus is on the owners of large properties that have multiple dwelling units.

"The cities of Kelowna and Abbotsford were instrumental in operationalizing the tool. Now, the CRD has come on board. As well, CRD has a different water regime and climate. This inter-regional collaboration showcases how the [BC Water Landscape Calculator](#) is adaptable to different regions that have different concerns and constraints around water supply."

**"The BC Landscape Water Calculator is a new tool for the CRD's Summer Waterwise Campaign. It has real potential to foster a stewardship ethic on the part of homeowners."**

Glenn Harris, Senior Manager,  
Environmental Protection  
Capital Regional District



## **Vision for Integrated “Live Green” Program**

“Late in 2020, our team introduced the vision for implementing an integrated [Live Green](#) residential program focused on the yard and garden,” notes Glenn Harris.

“CRD is embarking upon a broader, integrated educational approach to align water conservation and watershed health messaging. Using the online [BC Landscape Water Calculator](#) as part of this program will enable participation by more homeowners and businesses to design their green spaces to use water wisely. Once we raise awareness of the calculator through outreach and education, use by homeowners will be voluntary.”

“The ultimate goal of a whole-system approach to a healthy landscape program would be to use less water during dry weather and reduce rainwater runoff during wet weather.”

### ***Live Green in your yard and garden this summer campaign:***

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*Use less water during dry weather and reduce rainwater runoff during wet weather.*

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“[Live Green in the Yard and Garden](#) is the umbrella for an integrated campaign featuring the [Summer Waterwise Campaign](#) in 2021. The focus will be on efficient irrigation and water conservation measures, as well as what homeowners can do to improve the health of the watershed that they live in.”

“We will also engage with businesses, especially those who own large properties. We are really talking about working with the owners of MURBs – that is, multi unit residential buildings. But it could also encompass institutional properties. Our objective is to encourage building owners and strata councils to think differently about their site landscaping and how they are using water.”

“The integrated piece is bringing in all the water conservation messaging and aligning it with biodiversity, pollution prevention and reduction of impervious surfaces. It is all about ensuring there is an absorbent landscape to accept rainfall. If we can achieve that, it delays runoff during wet weather.”

“We are early in the planning for a [Healthy Landscape Program](#). We hope this would be a component of the *Yard and Garden Campaign* in 2022. In terms of integrated messaging, the landing page for anything residential will be [www.crd.bc.ca/livegreen](http://www.crd.bc.ca/livegreen).”

## Waterwise Summer Campaign 2021

"CRD saw that our participation in the BC Landscape Water Calculator initiative would benefit both our residential and business water conservation programs," continues Glenn Harris.

"When CRD launches [Waterwise Summer](#) as part of *Live Green in the Yard and Garden*, we will promote the BC Landscape Water Calculator as part of the program. The campaign objective is to raise awareness throughout the region about water conservation."

"We will present the BC Landscape Water Calculator as a tool that anyone can use to design a water efficient irrigation system and landscape plan."

"Looking ahead, the [Winter Live Green Campaign](#) will focus on indoor water use. This campaign will bring together the CRD's regional source control messaging (for liquid waste management) and indoor water conservation messaging. In short, the CRD is doing full-on integration! We are striving for water balance management over the entire year."

### ***Fostering Stewardship in the Capital Region:***

"Everything is linked. [Live Green in the Yard and Garden](#) is taking the waterwise and watershed messaging, putting the two together, and delivering them under one umbrella."

"An aspect of the BC Landscape Water Calculator that CRD staff really like is that it encourages use of native plants. Native plants are great for reducing outdoor water use. Not only do they require less water because they are adapted to this climate, use of native plants also promotes biodiversity and healthy ecosystems across the region."

"A list of common native and drought tolerant plants has been populated into the BC Landscape Calculator for the Capital Region so users can plan a water efficient landscape; care was taken to ensure that no invasive plants were included."

"If homeowners can be discouraged from using invasive species while being encouraged to use native plants, then this would be Win/Win for water efficiency and the natural ecosystem. **The BC Landscape Water Calculator is a new tool for the CRD's Summer Waterwise Campaign. It has real potential to foster a stewardship ethic on the part of homeowners.**"

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*Native plants are great for reducing outdoor water use.*

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An illustration of a woman with orange hair wearing a straw hat, a white t-shirt, and blue shorts, standing in a garden. She is holding a long-handled garden tool and wearing purple gloves. The garden is filled with various flowers (purple, yellow, pink) and plants. A white picket fence runs along the background, behind which are two tall evergreen trees and a two-story house with a balcony. In the foreground, there's a wheelbarrow filled with soil and some small plants growing in a rock-lined bed. Butterflies are flying around the flowers and plants.

## Live green in your yard & garden this summer.

You can do a lot to save water, support biodiversity  
& prevent pollution. Learn more at [crd.bc.ca/livegreen](http://crd.bc.ca/livegreen).

**CRD**  
Making a difference...together

## PART THREE: What Next?

“The CRD application of the BC Landscape Water Calculator has opened the door to interlinking it with the [Water Balance Express for Homeowners](#)<sup>8</sup>, another of the Partnership’s online tools,” states Ted van der Gulik.

### A Look Ahead: Water Balance Management at the Property Scale!

#### Water Balance Express for Homeowners

*Like Lego, homeowners can add building blocks to test how to infiltrate rainwater runoff on their property, and thus reduce discharge to municipal drainage systems.*

“The future is now closer than ever. The reason for optimism is that, prompted by the CRD, we have incorporated dropdowns for the non-irrigated portion of properties, including building footprint. This feature has jump-started the conversation. Interlinking with the Express is an exciting prospect for further exploration.”

“Once the tools are interlinked, it would be within the grasp of communities to achieve ‘whole-system, water balance management’ at the property scale. The BC Landscape Water Calculator is a dry-weather tool for water use management; the Water Balance Express is a wet-weather tool for drainage runoff management and stream health.”

“The commonality is soil and how soil functions as an absorbent sponge to hold and slowly release water, thereby maintaining the water balance during wet and dry cycles.”

**“As more local governments join the BC Landscape Water Calculator and Water Balance Express initiatives, the scope of cost-sharing of interlinking and other enhancements will further add to the capabilities and ease-of-use of both tools.”**

<sup>8</sup> <https://waterbalance.ca/tool/water-balance-express/>

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