

Figure 7 presents the recommended open-cut replacement program for the City’s water mains in five – year increments.

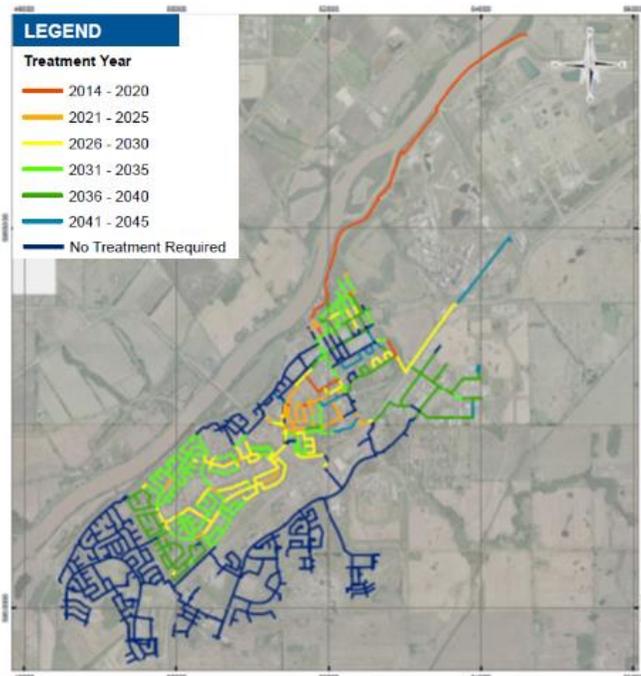


Figure 7: Water Pipe Open Cut Replacement Program

Annual savings in approximately five percent of the capital budget could be generated through coordinating and optimizing the interventions on the road and utility networks, which in the City’s case translated into approximately \$85,000 per year. Another benefit of the coordinated works is the elimination of cuts and patches in pavement, which are commonly one of the leading contributors to the accelerated deterioration of a road surface.

Conclusion

The project outputs helped to answer the following questions on financial sustainability for the City’s road corridor assets:

Is our City’s long-term financial performance and position sustainable by meeting planned long-term service and infrastructure levels and standards without unplanned increases in rates or disruptive cuts to services?¹

This project employed a number of innovations to address the financial sustainability and asset management challenges often faced by municipalities in

¹ Definition from Local Government Australia (2012): Financial Sustainability Information Paper No 1 – Financial Sustainability. Adelaide, SA

Canada. The intent of this article was to highlight these innovations and provide a framework for other municipalities that may want to implement it for themselves

Watershed Health, Resilient Rainwater Management, and Sustainable Service Delivery: How they are Connected?

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Local governments in BC are challenged with the question of how best to move forward with asset management and protection of watershed health in light of two considerations: a changing climate; and community expectations to provide higher levels-of-service at reduced levels-of-cost.

The unfunded ‘infrastructure liability’ is a driver for local governments to consider longevity, focus on what happens after developers hand-off municipal infrastructure, get it right at the front-end, and prepare for the future. Climate change is part of the liability equation – adaptation has level-of-service implications for infrastructure.

Cascading Objectives for Inter-Regional Collaboration

The Partnership for Water Sustainability is facilitating an inter-regional collaboration initiative within the Georgia

Basin. The initiative is connecting the cascading objectives for Watershed Health, Resilient Rainwater Management, and Sustainable Service Delivery.

Collaboration is guided by this mantra:

“Through sharing and learning, ensure that where we are going is indeed the right way”.

A guiding principle for collaboration is to leverage ‘science-based understanding’ of the relationship between land use changes and resulting stream health and financial liability consequences. A desired outcome is to influence community planning by means of an environmentally adaptive approach.

Local governments on the east coast of Vancouver Island and in the Lower Mainland are ‘learning by doing’ to implement affordable and effective science-based practices to achieve:

- Watershed Health: Protect and/or restore hydrologic integrity
- Resilient Rainwater Management: Mimic the natural water balance
- Sustainable Service Delivery: Integrate natural systems thinking and adaptation to a changing climate into asset management

Launched in 2012, the Georgia Basin Inter-Regional Education Initiative helps local government champions in each region understand what the other regions are doing, what works and what does not.

Protect and /or Restore Hydrologic Integrity

Watershed Health is a function of how the landscape is altered by humans. A primary measure is the condition of aquatic ecosystems in stream corridors. Altering the land surface short-circuits the water cycle. The result: either too much or too little flow in streams. ‘Design with Nature’ requirements for land development maintain a watershed’s hydrologic integrity.

Mimic the Natural Water Balance

Resilient Rainwater Management accounts for all the rainfall-days per year. Emphasis is on soil-water interaction, how rainwater reaches streams via three pathways (surface runoff, lateral interflow in shallows soils, and deep groundwater), and performance targets for ‘design with nature’ solutions. These address the implications for both water supply and drainage. The technical foundation is the ‘Water Balance

Methodology’. This integrates the site with the watershed, stream and groundwater aquifer.

Integrate Natural Systems Thinking & Adaptation to a Changing Climate into Asset Management

Sustainable Service Delivery builds on the principles of Asset Management. It integrates land use, infrastructure servicing, financial and ecological planning. Emphasis is on the **Levels-of-Service** that assets provide, and ‘what level is affordable’ over time. Nature is an asset and provides ‘services’. The benefits and value of ‘design with nature’ solutions grow over time.

Restore Watershed Health in the Built Environment

In 2014, two landmark developments provided local governments with a fresh impetus to do business differently:

- BC’s new Water Sustainability Act, passed in May 2014; and
- Asset Management for Sustainable Service Delivery: A BC Framework, released in December 2014.

Accepted ‘standards of practice’ - especially those for engineering, planning and finance - influence the form and function of the Built Environment. Implementing green infrastructure, turning the clock back, shifting the ecological baseline, and creating a watershed legacy will ultimately depend on the nature of changes in standards of practice.

Do Business Differently

Released in 2008, Living Water Smart: British Columbia’s Water Plan is a call to action to prepare for climate change, live water smart and build greener communities. Living Water Smart has 45 actions and targets. Asset Management for Sustainable Service Delivery: A BC Framework achieves this Living Water Smart policy objective:

“Governments will develop new protocols for capital planning that will look at the life-cycle costs and benefits of buildings, goods and services.”

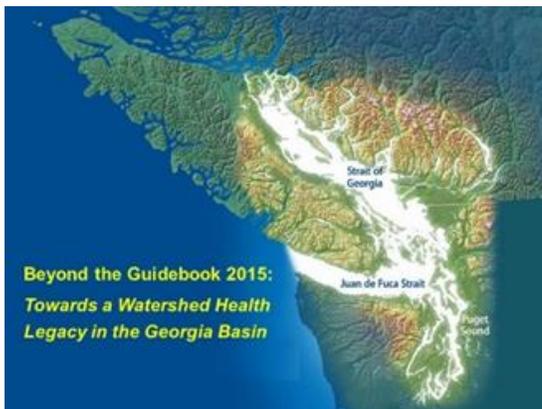
Reference: p 69, Living Water Smart

The term Sustainable Service Delivery was coined in 2010. It was introduced by the Province to integrate financial accountability, infrastructure sustainability and service delivery.

The 'Worth Every Penny Workshop' hosted by the Regional District of Nanaimo in September 2010 initiated the branding of the concept.

Towards a Watershed Health Legacy in the Georgia Basin

In 2002, the Province adopted the Water Balance Methodology as the technical foundation for *Stormwater Planning: A Guidebook for British Columbia*. The Guidebook vision is that community development activities and further alteration of the Built Environment will result in cumulative benefits, not impacts. In 2002, the Guidebook identified a path forward for local governments.



The 'Beyond the Guidebook Series' documents the progress of local government champions who are leading implementation of changes in practice. It takes time to make a difference. Doing business differently and making a difference is a building block process. Later in 2015, the Partnership will be rolling out the third in the series.

Titled *Beyond the Guidebook 2015: Towards a Watershed Health Legacy in the Georgia Basin*, this guidance document will present a framework for integration of the cascading objectives for watershed health, resilient rainwater management, and sustainable service delivery. It will also provide the springboard to the 2016-2017 program for inter-regional collaboration.

A Look Ahead

Implementing 'design with nature' standards of practice at the site scale – so that benefits accumulate and mimic the natural Water Balance at a watershed scale – ultimately means that communities will be more resilient during periods when there is either too much or too little rain. Community champions have a role to play in collaborating with local government decision-makers to achieve this outcome.

Asset Management for Sustainable Service Delivery

A BC Framework illustrates a holistic and integrated approach to asset management. It identifies natural services and the use of natural resources – and how they are part of / integrated into the overall services provided at a local government level.



Is Climate Change Part of Your Asset Management Strategy?

Climate Change is an issue of growing significance as part of our asset management strategies. Do you have a climate change action plan? Have you carried out work respecting climate changes impacts on your infrastructure? Then share it with other BC communities.



The BC Climate Action Toolkit provides the latest news; information and strategic guidance to help BC local governments successfully reduce greenhouse gas emissions and strengthen our communities. The community is being broadened to include all our infrastructure and address asset management processes.

Go to www.toolkit.bc.ca and join the discussion group.

Find climate change resources for addressing infrastructure and risk management issues on www.assetmanagementbc.ca.