



REGIONAL DISTRICT OF CENTRAL KOOTENAY
**RIONDEL WATER
COMMISSION MEETING
AGENDA**

Date: Tuesday, February 7, 2017
Time 7:00 pm – 8:00 pm (MT)
Location: 1511 Eastman Avenue, Riondel

Commission Members

- Garry Jackman, Electoral Area A Director
- Gerald Panio, Chair
- Garth Saunders
- Wade Wensink
- Ross Shears
- Brent Leibel
- Geoffroy Tremblay
- Bill Wallace

Invitees

- Uli Wolf, General Manager of Environmental Services, RDCK
- Jason McDiarmid, Manager of Utility Services, RDCK

Agenda

1. Additions and adoption of the Agenda
2. Operations Report (Jason - verbal)
3. Central Water Smart Ambassador Report
4. Asset Management Plan
5. Communications – DRAFT 'Annual Water System Information' Insert
6. Year to date Financial Report (Jason / Uli)
7. 2017 Draft Budget (Jason / Uli)
8. Adjournment

February 7, 2017 Commission meeting - Agenda Item #3.



REGIONAL DISTRICT OF CENTRAL KOOTENAY
Water Smart Ambassador
Central Region Year End Report



West Arm of Kootenay Lake – Chris Black Photo

TABLE OF CONTENTS

- Overview..... 1**
- Participating Communities and Water Systems 2**
- Historical Weather Comparison..... 4**
- Lawn and Garden Watering Assessments..... 5**
 - Total Completed Assessments 7
 - Assessments Booked 7
 - Advertising for Assessments 7
 - Balfour 8
 - Woodland Heights..... 9
 - Duhamel 9
 - Grandview 9
 - Riondel..... 10
 - Woodbury Village 11
 - West Robson..... 11
 - Ymir..... 11
 - Lucas Road..... 12
- Non-Compliance..... 12**
- Water Restriction Measures 14**
- Future Recommendations..... 15**
 - Continuation of RDCK Water Smart Program 15
 - Water Smart Newsletter 15
 - Water Smart Program Open to Public..... 16
 - Incentives..... 17
 - Water Meter Reading..... 17
 - Public Relations 17
 - Automatic Irrigation System Programming..... 17
- Columbia Basin Training Feedback..... 18**
- Questions From Neal Klassen 18**
- Water Smart Inventory 18**

Overview

2016 has so far experienced the highest average global temperatures recorded in our world history (NASA, 2016). In the year 2015, British Columbia experienced an extreme drought where temperatures breached the 40-degree mark for the first time in recorded history (Environment Canada, 2015). Over 60 British Columbia cities had record breaking high temperatures in 2015, with many previous records being established only within the two decades prior (Environment Canada, 2015). During the summer of 2015, many British Columbia regions experienced extreme water shortages, with highest level [4] drought conditions present in over 30% of the province (BC Ministry of Forests, Lands, and Natural Resource Operations, 2015).

The Water Smart Ambassador Program was developed by Columbia Basin Trust (CBT) to address high seasonal outdoor water use and help achieve the basin wide reduction goal of 20% in the Columbia Basin. The RDCK and the Town of Creston have participated in the Ambassador program for the past 5 years. There were an additional 9 communities participating for 2016. The role of the Water Smart Ambassador is to raise awareness of water conservation and engage local residents to reduce outdoor water use. In the summer months the Water Smart Ambassador provides free residential irrigation assessments and commercial building water assessments (Regional District Of Central Kootenay (RDCK), 2016).

The RDCK Central Water Smart Ambassador for 2016 was Chris Black, a first year Selkirk environmental planning student with a working background in commercial horticulture and agriculture. Chris worked from May 31st to September 3rd. The Ambassador was put to work in the following communities: Balfour, Woodland Heights, Duhamel, Grandview, Riodel, Woodbury Village, West Robson, Ymir, and Lucas Road.

Supporting the goals of each community, The Central Water Smart Ambassador travelled door to door, promoting efficient water use practices and providing free support services. Education and awareness was the primary directive of the Ambassador. Lawn and garden watering assessments were offered to residents, and water restriction information was provided via convenient fridge magnets. The Ambassador completed several projects during the summer, including residential and park watering assessments, bylaw monitoring, public education, radio and video interviews, information booths, informational pamphlets, advertisement campaigns, and a golf course watering assessment.

Bylaw education was a major part of the Ambassador duties. Residents who were watering outside of the water bylaw schedule (RDCK Bylaw No. 2470, 2015) were encouraged to modify their practices. The Ambassador noted that nearly every infraction took only one visit to regain compliance. It was also noted that during hot weather, instances of bylaw infractions were much higher.

Xeriscaping is the practice of planting drought tolerant and native plant species. This alternative landscaping method can reduce water use by over 50 percent (Columbia Basin Trust, 2010). Xeriscapes are ideal for homeowners, as they require less water, fertilizer and maintenance. The Ambassador promoted xeriscaping principles, and helped homeowners plan for future water shortages through smart landscape choices. For an example of xeriscape gardening, see figure 14.

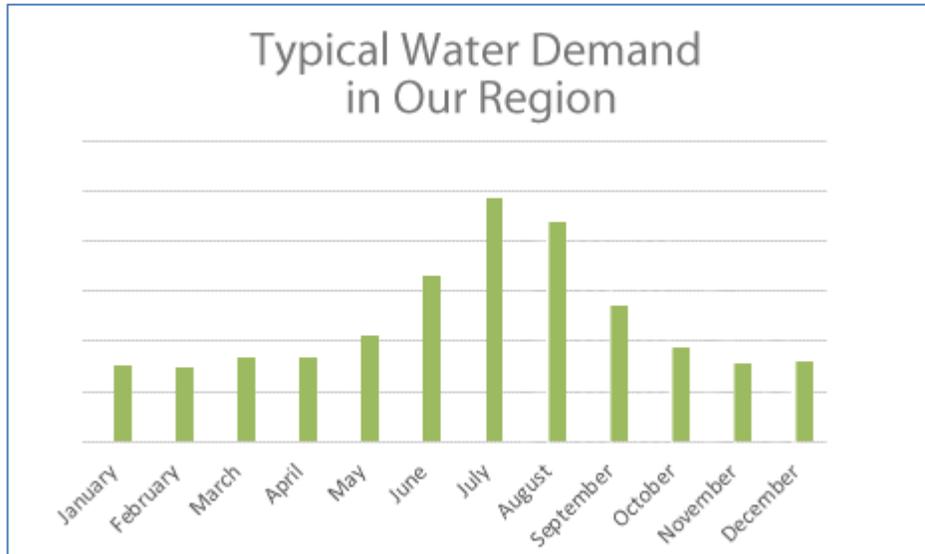


Figure 1 – Example of typical water demand ratios in the Kootenay Region (Columbia Basin Trust, 2016)

Participating Communities and Water Systems

Balfour

Balfour is a suburban community located 32 kilometers northeast of the city of Nelson. The population of Balfour is approximately 480 residents (Statistics Canada, 2006). The water system in Balfour is the second largest RDCK operated system with 255 service connections. Kootenay Lake provides the water source, with a wet well intake located 215 meters from shore. Maximum flow to the water treatment plant is 18.6L/s (300gpm US). A steel reservoir with a volume of 435,000 liters provides storage for treated water (RDCK, 2016).

Woodland Heights

Woodland Heights Subdivision is located in the community of Taghum, located 9 kilometers west of Nelson. A ground well provides the water source, with a flow rate of 0.6 - 1.77L/s (10-28gpm US). There are a total of 21 service connections to this system. A concrete reservoir provides storage with 155,000L of capacity (RDCK, 2016).

Duhamel

The community of Duhamel is located 12 kilometers northeast of Nelson. A ground well provides the water source, with a flow rate of 16.8L/s (266gpm US). 545,000L of storage is provided by a concrete reservoir. There are a total of 93 service connections (RDCK, 2016).

Grandview

Grandview subdivision is located 30 kilometers northeast of Nelson. The source of water is Kootenay Lake, with pumps providing a maximum flow rate of 5.7L/s (90gpm US). There are two in ground concrete reservoirs with 233,000L and 252,000L of storage capacity. Grandview water system currently has 20 active service connections, with a potential of 84 connections in total at full build out (RDCK, 2016).

Riondel

Riondel is a small village located on the East Shore of Kootenay Lake, 9 kilometers north of Kootenay Bay ferry terminal. The year-round population of Riondel is approximately 273 people (Statistics Canada, 2011). The water source is Indian Creek; which gravity feeds the water treatment plant. There are a total of 198 service connections on the Riondel water system, including one 9-hole golf course (RDCK, 2016).

Woodbury Village

Woodbury Village is a small community located 55 kilometers northeast of Nelson. The water source is Kootenay Lake, with a wet well intake located 90 meters from shore. Storage capacity is 272,765L, provided by an in ground concrete reservoir. There are a total of 40 service connections to this water system (RDCK, 2016).

West Robson

West Robson is a rural community located 47 kilometers southwest from Nelson, or 8 kilometers north of Castlegar. The source of this water system is two ground wells. Storage capacity is provided by a 318,00L steel reservoir. Design operating point is 15.1L/s (239gmp US). There are total of 105 service connections on this water system (RDCK, 2016).

Ymir

Ymir is a small town located 29 kilometers south of Nelson. The population of Ymir is approximately 231 people (Statistics Canada, 2011). The system source is surface water supplied by Quartz Creek. Storage capacity of 225,000L is provided by a steel reservoir. There are a total of 107 service connections on the Ymir water system (RDCK, 2016).

Lucas Road

Lucas Road is home to a small community located 45 kilometers southwest of Nelson, or 2.5 kilometers west of Castlegar. The water source is supplied by the Columbia River via the City of Castlegar. There are a total of 5 service connections on this system (RDCK, 2016).

Historical Weather Comparison

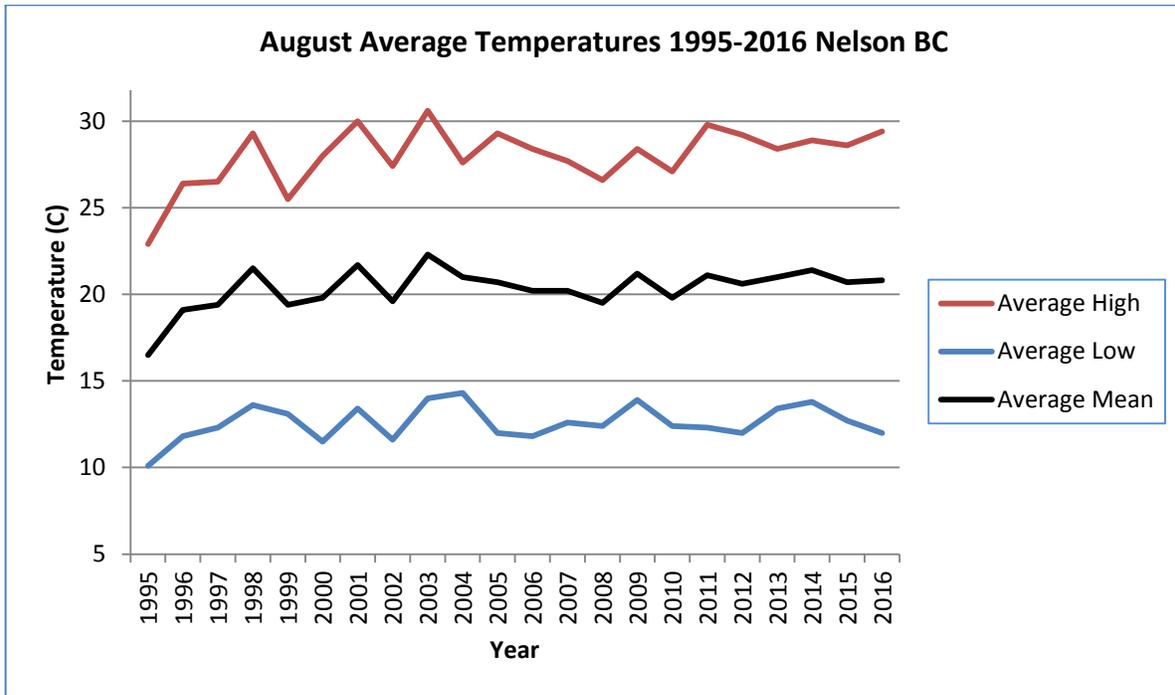


Figure 2 - Nelson BC August temperature averages 1995-2016 (Environment Canada)

August of 2016 saw average temperatures slightly above normal levels (see figure 2 and 4).

Precipitation Levels were in the normal range for August 2016 (see figure 3 and 4).

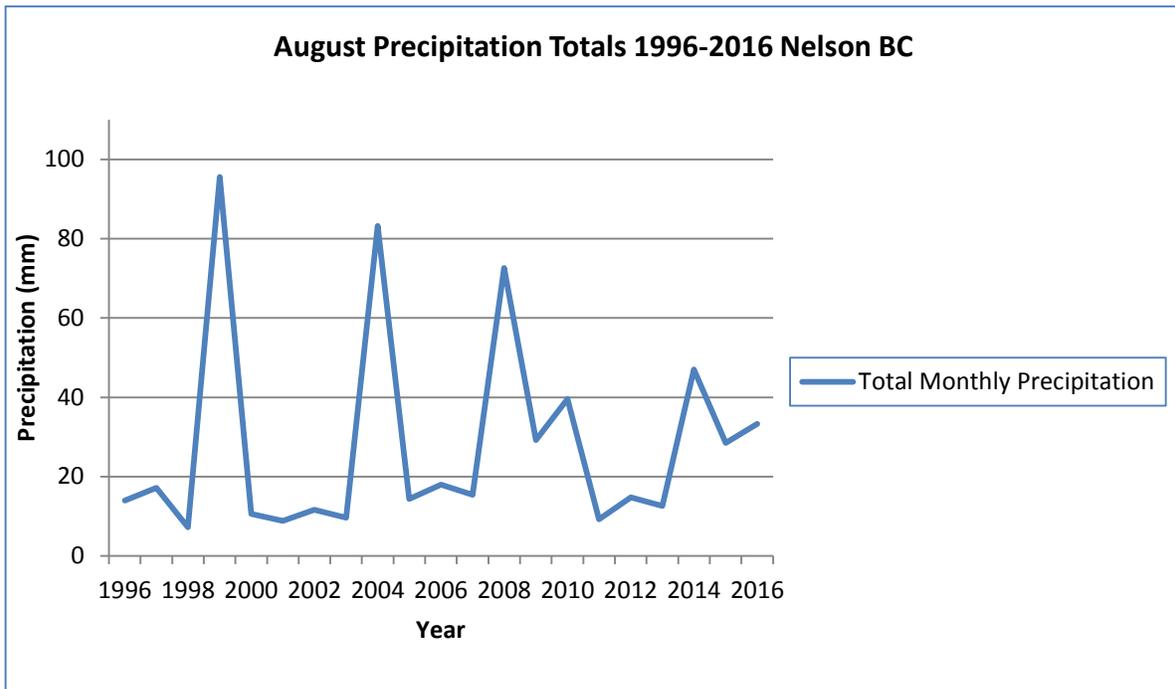


Figure 3 - Nelson BC August precipitation totals 1996-2016 (Environment Canada)

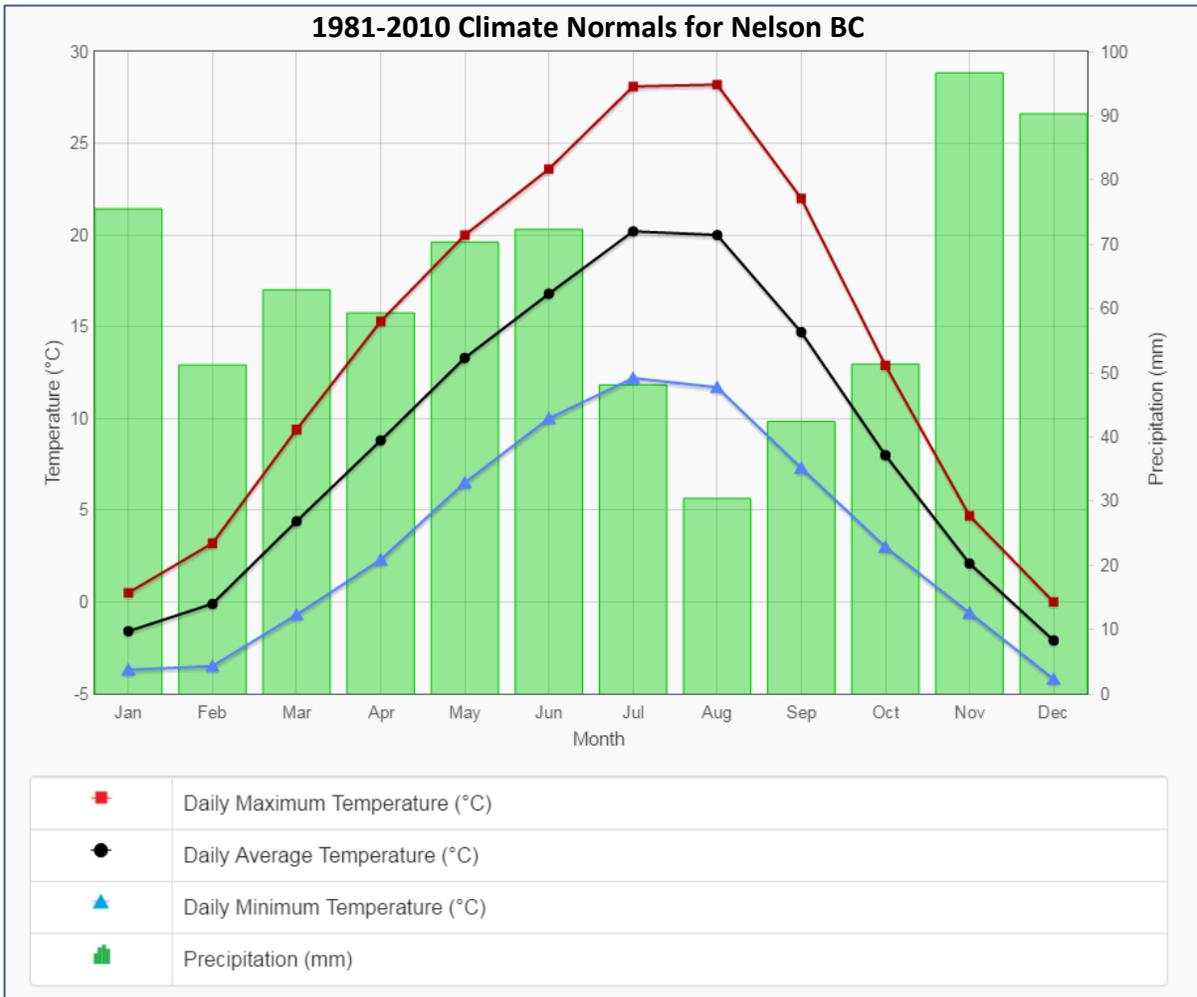


Figure 4 – Temperature and precipitation graph for 1981 to 2010 climate normals (Environment Canada, 2016)

Lawn and Garden Watering Assessments

The main focus for the 2016 Central Water Smart Ambassador was providing effective education for residents. Performing residential lawn and garden watering assessments was a great way to reach people in the community. Assessments involved working one on one with homeowners, providing invaluable information on efficient water use. The Ambassador aided residents with reducing their outdoor irrigation needs and helped them plan to get the most out of the water they were using. Soil and landscape analysis was performed for each assessment, best watering practices were determined, and items such as hose water timers, rain gauges, and lo-flow showerheads were distributed as needed. Drought tolerant lawn and alternative landscaping informational pamphlets were handed out to residents, which encouraged them to explore non-irrigated landscape options. The 2016 Water Smart Ambassador shared his extensive water-wise gardening and landscape knowledge with residents. Irrigation system scheduling and leak detection was also offered to homeowners with automatic irrigation systems. Once an assessment was completed, the homeowner was given a home report card from the Ambassador (Figures 5 & 6). The report card outlines inefficiencies spotted, remediation steps, efficient water scheduling, and drought tolerant landscape information. Some assessments required follow-ups throughout the summer. Homeowners were also reminded that the Ambassador would be patrolling regularly throughout the community.



Home Assessment Information



Recommended average maximum amount of water per month for local region:

Month	May	June	July	August	Sept-Oct
Amount in inches recommended	3	3	6	5.5	2

Based on your home assessment you should be watering:

Location at Property	Soil type	Sun Exposure	Recommended inches of watering per week
Front Flower Bed	Sandy, Dry, Clay	Moderate	10 Minutes – 2x per Week
Front/Back Lawn	Loam, Compacted	Mixed	15 Minutes – 2x per Week
Front Shrubs	Mixed	Mixed	Hand Water as Needed
Back Garden	Mixed	Mixed	Hand Water as Needed

For more information visit: cbt.org/watersmart

Water Smart Ambassador – Chris Black – 250 505 8167

Figure 5 - Example of home assessment report card given to homeowner in Riondel

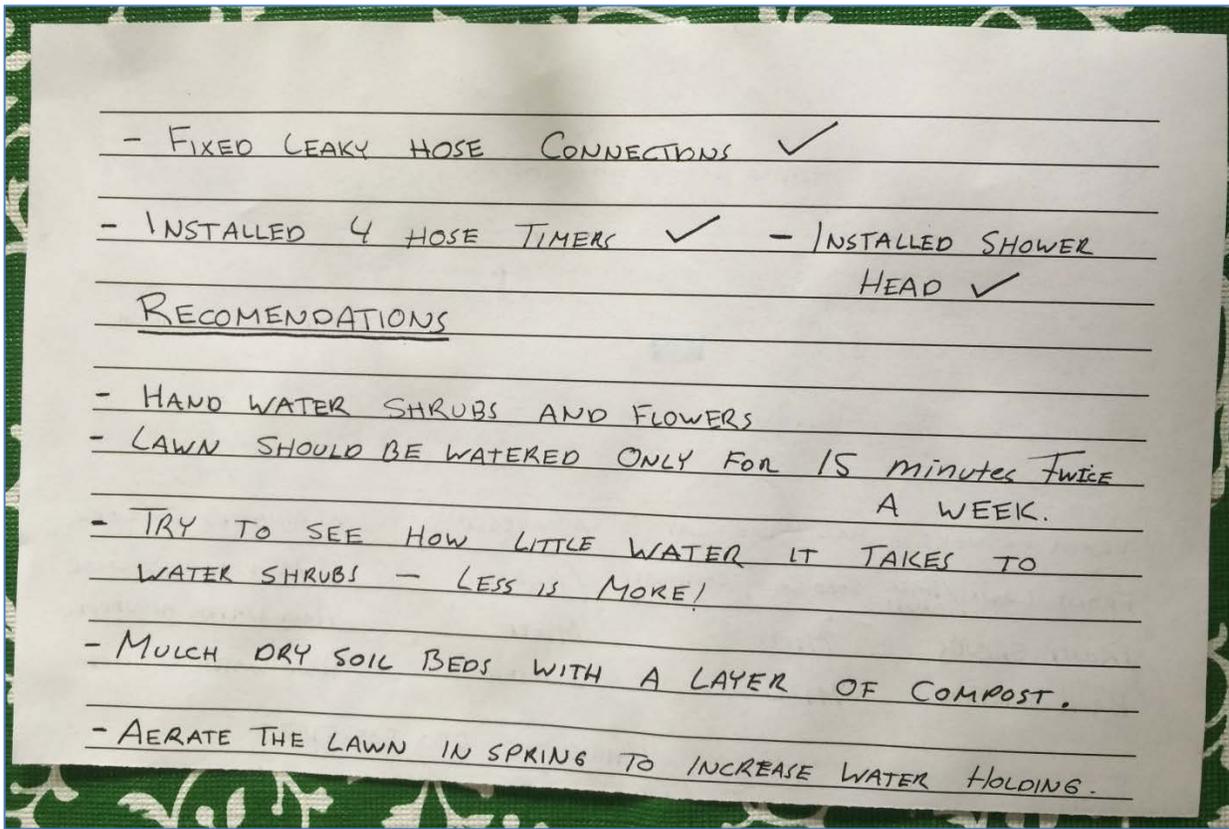


Figure 6 - Reverse side of report card given to homeowner

Total Completed Assessments

A total of 78 full watering assessments were completed throughout the nine participating communities. Including the assessments, there were a total of over 100 home visits, where residents were engaged beyond simply advertising the program. A total of 450 doors were knocked on within the nine participating communities. 2016 was the first year of the RDCK Central Water Smart Program; it could be expected that there would be increased participation if the program were run in the future (as seen in other Water Smart communities).

Assessments Booked

Since it was the first year of the Central Water Smart Program, knocking on doors was the best way to inform residents of the assessment services offered. Almost all assessments were booked this way, and many were performed during the initial visit.

Advertising for Assessments

The majority of advertising was done by knocking on the doors of residents. This was the best way to engage people and get them thinking about conserving water in a positive way. Residents were offered a free hose water timer and a chance to win a rain barrel if they chose to participate.

Posters were put up in each community providing program details. The RDCK Facebook page was utilized to share Water Smart information.

The City of Nelson provided a booth during the downtown Baker Street Market in Nelson (figure 9). The RDCK Water Smart Ambassador worked along side the City of Nelson Water Smart Ambassador for these events, where residents could sign up for assessments and learn more about conserving water. This provided a great opportunity to engage with market goers and promote efficient water use. Many of the attendees were residents of RDCK Water Smart communities. Three markets were attended.

A large banner was purchased, featuring 10 ways to conserve water (figure 8). This banner was useful during booth displays, drawing people in and sharing invaluable information. The banner features no branding other than a RDCK logo and could be utilized for future water conservation projects.

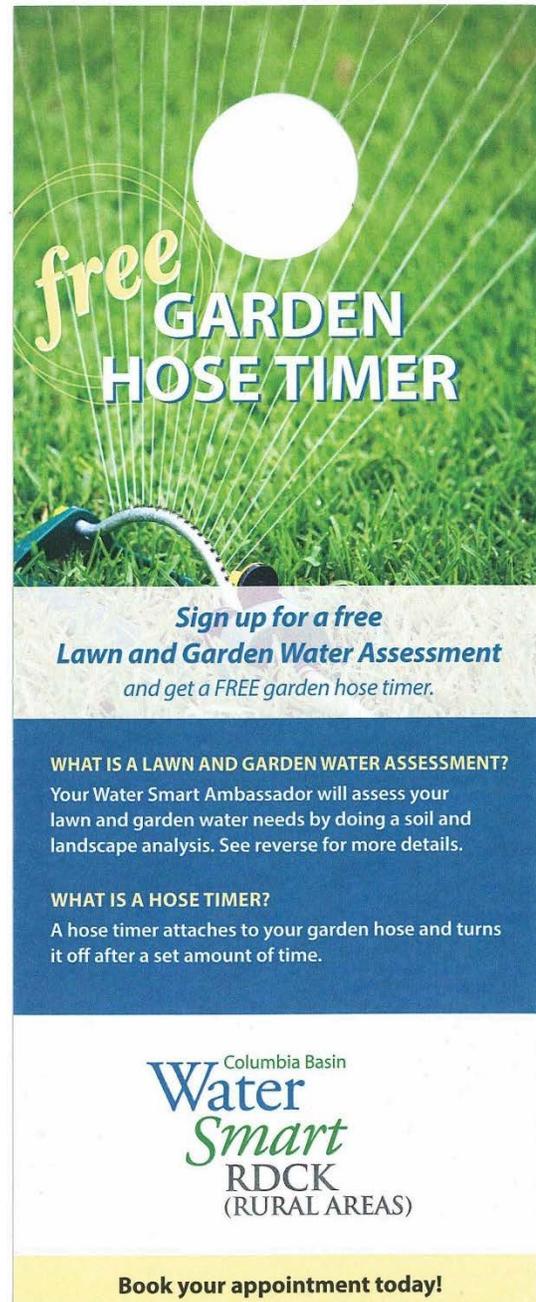


Figure 7 - Door hanger card



Figure 8 - RDCK water conservation banner

The Ambassador spread Water Smart awareness by broadcasting live radio interviews, two with Kootenay Boundary Easy Rock, and one with Kootenay Co-op Radio. The Ambassador was video interviewed at the Nelson Baker Street Market, and the results were shared online via the Nelson Star News page and RDCK Facebook page. An article outlining the Water Smart Program was printed in the Nelson Star Newspaper. Riondel news sites shared the Water Smart Ambassador contact details, and dates were advertised for each of the Ambassador visits.

An incentive program was implemented, where participating residents could enter to win prizes. Three rain barrels were supplied by Columbia Basin Trust, and one was given away each month through a raffle. A \$200 grocery gift card was donated by Fortis BC, and the winner was drawn at the end of the summer. Two drip irrigation kits were also given away. Hose water timers and rain gauges were provided during every assessment. Providing incentives and free giveaways was an integral part of getting residents on board with the program.

Balfour

Twenty-two full assessments were completed for Balfour. Advertising was done by posting on community boards at the grocery store, bakery and post office. Many residents in Balfour reported having negative feelings towards the RDCK water service. This was reportedly due to a

water shortage experienced in the summers of 2013 and 2014. This water shortage was caused by record high levels of demand. Some residents temporarily lost water service; while all residents were required to adhere to severe watering restrictions. Engaging with residents in a friendly and compassionate manner proved to be beneficial to overcome most communication hurdles. Public relations between the RDCK Water Smart Ambassador and these residents seemed to greatly improve throughout the summer. Residents were generally pleased with the interactions they had with the Ambassador. Observations saw Balfour soil conditions to be especially rocky, sandy, and low in organic matter – poor for lawn cultivation. Water-wise lawn care information was distributed to residents specifically to address this problem. Lawns with poor soil conditions were often overwatered, with undesirable results (see figure 15). The Ambassador worked with residents to lower the irrigation

needs of their turf, and helped them implement plans for drought resistant landscape. Some homeowners along the waterfront used irrigation water directly from the lake and were asked to compassionately follow the water restriction guidelines for the sake of not confusing other residents. More focus on drought resistant landscaping is needed in this community (see figure 14 and 15). One Balfour resident was the lucky draw winner for the Fortis \$200 grocery gift card.

Woodland Heights

Six full assessments were completed for Woodland Heights. All 21 homeowners were engaged by the Ambassador and were given water restriction information magnets. Due to high instances of lawn irrigation in this community, water-wise lawn care instructions were also distributed to residents. The assessment service was especially targeted towards those who appeared to irrigate often, with repeated contact from the Ambassador throughout the summer. Initially there was no interest in the assessment service, but with repeated presence of the Ambassador, residents were willing to participate. Automatic irrigation systems have the potential to waste large amounts of water if not programmed or maintained properly. The Ambassador worked with homeowners to provide irrigation equipment education to ensure best practices were being exercised. One resident of Woodland Heights was the lucky winner of a rain barrel. The Ambassador helped install the rain barrel and provided the winner with guidelines for its use.

Duhamel

Six full assessments were completed for residents in Duhamel. This community was especially hard to get assessments in. Lawn culture is strong in Duhamel and many residents did not want input or scrutiny relating to their irrigation activities. High use of chemical fertilizers was common. These fertilizers require more water use than natural fertilizers such as compost or manure. Use of banned chemicals (City of Nelson Bylaw No. 3081, 2007) such as pesticides or herbicides was also common. Many of the residents living along the lakefront were utilizing the lake water for irrigation purposes, and it was suspected that several of these residents did not hold proper licensing to do so. Some homeowners were especially bad at following the RDCK water conservation measures (RDCK Bylaw No. 2470, 2015). It was noticed that a few residents were watering during the day on Sundays when they knew the Ambassador was not patrolling. The Ambassador would follow up with every known instance of bylaw infraction – providing support to homeowners by giving them water timers and education about the restrictions. It was clear to the Ambassador that abuses of the community water system had been occurring for a number of years, as indicated by residents of Duhamel. More public education and support should be utilized in the future to address these concerns. The ambassador provided comprehensive information on topics of drought tolerant turf landscaping and environmentally friendly lawn care practices.

Grandview

Nine full assessments were performed in Grandview. Being a relatively new subdivision, this community has large homes with manicured landscapes. Some of these landscapes require a substantial amount of water. A southern sun exposure means landscapes happen to severely dry out during the summer. Each residence in Grandview was visited by the Ambassador and water efficient landscapes were promoted. Reception of the Water Smart Program was good in this community, with many residents asking questions on how they can do their part to reduce water consumption. Pressure was put on homeowners with automatic irrigation systems to regularly update programming and be conscientious of water volumes. Three homeowners in this

community installed non-irrigated or water-wise landscapes after consulting with the Water Smart Ambassador. Two other homeowners were in the process of planting non-irrigated plants and they valued input from the Ambassador. A continued focus on high water use in Grandview is needed as more houses are constructed each year. A number of residents were unaware of the energy intensive process involved with pumping and treating the water. Providing education to homeowners was pivotal in this community. One particular residence in Grandview was using very large volumes of water on a daily basis. The homeowner was contacted three times with visits from the Ambassador, then a firm letter was sent addressing this issue. Once the letter was received, an immediate and drastic reduction in water use was noted on the homeowners' water meter.

Riondel

Seventeen full assessments were performed. The town of Riondel is a gardening community with many residential fruit orchards and gardens that require irrigation. Generally, residents were interested in learning more about water conservation. It was noted that some gardeners use water saving techniques such as surface ground water catchment, rainwater storage, and soil cover mulch. Residents of Riondel helped the Water Smart Ambassador by anonymously informing him of high water users, which were then targeted for assessments or bylaw education. Some residents did need help setting a water schedule, as they were watering far too much. Residential irrigation systems often had leaks or other inefficiencies that could easily be remedied. One property required repeated contact attempts to bring into compliance. An automatic irrigation system was turning on during the day while the owners were away. The ambassador had called the property owner a dozen times, visited the property three times, and sent a letter to the address outlining restriction measures and offering an assessment. The property manager responded to the Ambassador late in the summer and then made the appropriate changes to their irrigation schedule. Awareness of the Water Smart program grew over the summer as the Ambassador became well known in the community. The August rain barrel contest winner was Bluebell Manor, a senior's home in Riondel. The rain barrel will be used for the community garden with many active gardeners on site. The senior's center has implemented the Ambassadors watering recommendations and has also installed five low flow showerheads. The Ambassador could complete many more assessments in this community with an extended timeline for the program.

Riondel Golf Course is a nine-hole golf club that is currently using the town water supply for irrigation. The Ambassador worked with golf course staff to reduce watering inefficiencies, and information was provided on new water conserving technologies. The Ambassador performed an industry standard golf course irrigation audit, and the data was presented in a professional report to the golf course management team. During the summer months, Riondel Golf Course consumes more water than the entire residential component of Riondel (RDCK, 2016). Residents voiced a strong concern about this high usage of treated water. Residents were pleased the RDCK and Water Smart Ambassador were looking at ways to reduce golf course community water demand. There is still much work to do with the Riondel Golf course, as it is still the highest consumer of the town's water resource. There is so-far no commitment from the golf course towards implementing the water smart recommendations. A continued collaboration with the RDCK and the Riondel Golf Club is expected, and more work with the Ambassador would be beneficial. Historically, the water demand from this golf course has increased throughout the years (RDCK water meter data).

Woodbury Village

Three full assessments were performed in Woodbury. More advertising and another round of door knocking could have potentially netted more assessments in this community. Bylaw education proved to be very important, as many residents were unaware of summer watering restrictions. Some Woodbury Village homeowners utilized non-irrigated landscape plants such as drought tolerant species of native vegetation. Vegetable and flower gardens in Woodbury Village were often watered inefficiently with overhead sprinklers, and the Ambassador worked with homeowners to recommend and design water saving drip irrigation systems. At least two residents reported installing more efficient irrigation systems after the Ambassador visit. Some residents requested assistance with programming their automatic irrigation timers to lower water consumption. A number of residents were irrigating excessively and accepted irrigation schedule advice from the Ambassador. One resident of Woodbury Village was the lucky winner of a rain barrel.

West Robson

Ten full assessments were performed in West Robson. This community has a hot and dry micro-climate during the summer and a south facing sun exposure. A few residents in West Robson reported “not liking” people from the RDCK organization. This provided a great opportunity for the Ambassador to take their comments and address their concerns about the water system. Generally, people seemed pleased with the interactions they experienced with the Ambassador, even if they were asked to shut off their water. A supportive approach was utilized, where the Ambassador was offering to help residents, rather than police them. Water timers and informational handouts were given to residents who needed them, especially those who were watering during the day. Residents were happy to receive magnets with the watering restrictions printed on them; they reported that it made things easier for them. Lawn irrigation was common in West Robson. Residents who appeared to irrigate lawns often were successfully targeted to receive assessments or education. Tree watering was an issue in a few instances, and homeowners were informed on how to properly care for trees during drought conditions.

Ymir

A total of four full assessments were performed. The town of Ymir proved to be a challenging place for the Ambassador to book assessments. This was due to multiple factors. Travelling door to door in Ymir did not work well, as many residents owned dogs and had fences surrounding their properties. A public booth was set up downtown on three dates, where residents were engaged in conversations about conserving water. Many of the residents of Ymir were not interested in an assessment service; this was due to a poor understanding what the service entailed. Lo-flow showerheads were the most popular item residents were interested in. The assessment service was advertised in Ymir all summer on three community bulletin boards. The Ambassador had put up posters with tear-off contact details; many people had taken the Ambassadors phone number and email address, but did not follow through. Awareness of the Ambassador Program and assessment service was generally poor in Ymir. Increased presence of the Ambassador and more public awareness would likely increase participation in the future. More education is needed for Ymir, as many residents reported concerns of non-existent problems with the water system such as fluoridation and maintenance issues.

Lucas Road

Out of the five service connections, only one assessment was performed for Lucas Road Water System. The Ambassador distributed door knockers and engaged with residents who were available to chat. The Ambassador did another round of door knocking at the end of August, distributing water restrictions magnets to residents.



Figure 9 - RDCK and City of Nelson Water Smart Ambassadors promoting assessments at the Baker Street Market

Non-Compliance

Residents who were watering outside of the bylaw schedule (RDCK Bylaw No. 2470, 2015) were either spoken to by the Ambassador, or were left a lawn flag if not home. The lawn flag had text which directed residents to the Water Smart web page where they could learn about the current watering restrictions in place. The goal was to educate residents about being water smart. Addresses that received a lawn flag or those that had direct contact with the ambassador about the infraction were observed to be compliant from that point forward. A friendly and supportive approach was used by the ambassador, and most people responded in kind. The Ambassador would expect a large increase in non-compliance if the weather had been drier than what was experienced during the summer of 2016.

Patrolling

Patrolling occurred in each community throughout the summer. The Ambassador travelled on foot, by bike, and by electric hybrid vehicle, while looking for bylaw infractions and homeowners to target for assessments. The need for patrolling increased as the Ambassador finished door to door knocking and the summer weather became hotter and drier.

Lawn flags were used on about 20 occasions, usually due to unattended hose leaks (figures 11 and 12) or running sprinklers. The Ambassador spoke to the resident first if they were home.



Figure 10 - Lawn Flag



Figure 11 - An unattended hose leaking over one liter per minute, encountered by the Ambassador



Figure 12 - One of the dozens of leaking faucets encountered by the Ambassador

Water Restriction Measures

Stage 1 water restrictions go into effect every year from June 1st to September 30, regardless of seasonal weather patterns. For the entire summer of 2016, the restriction measures did not exceed stage 1. This is not the norm and not representative of past years where many systems find themselves in Stage 2 or Stage 3 restrictions.

Activity	Mandatory Restrictions			
	Stage 1	Stage 2	Stage 3	Stage 4
Watering of lawns	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	Prohibited	Prohibited
Watering of new lawns (seed within 45 days and sod within 21 days of installation)	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	Prohibited (Except where permitted by the Manager)
Watering of gardens, trees and shrubs (excluding watering of commercial agricultural products)	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	Prohibited
	<i>Watering using drip irrigation, a watering can, and or hand held hose, which eliminates over-spray is permitted at any time.</i>			
Watering of Commercial Agricultural Products (production and sales)	Permitted	Permitted	Permitted	Permitted (Voluntary Conservation)
Wash down (sidewalks, walkways, driveways, exterior building surfaces, window, vehicles or other outdoor surface)	Permitted	ONLY between the hours 6 am – 10 am, and 8 pm – 10 pm	Prohibited (Except where critical for health and safety, and business operations)	Prohibited (Except where critical for health and safety)
Filling of fountains or other decorative features	Permitted	Prohibited (Except where permitted by the Manager)	Prohibited	Prohibited
Filling of outdoor hot tubs and/or wading pools.	Permitted	Permitted	Prohibited	Prohibited
Filling of swimming pools	ONLY between the hours 8 pm - 7 am	Prohibited (Except where permitted by the Manager)	Prohibited	Prohibited
Dwelling water consuming appliances such as washing machines and dishwashers	Permitted	Permitted	Permitted (Voluntary Conservation)	Permitted (Voluntary Conservation)
Large commercial water use such as laundromats, washers, carwashes, etc.	Permitted	Permitted	Permitted (Voluntary Conservation)	Permitted (Voluntary Conservation)

Future Recommendations

Continuation of RDCK Water Smart Program

The 2016 summer Water Smart Conservation Program was a huge success. This was only the beginning of the RDCK central water conservation project. Continued efforts of education, bylaw patrolling, and implementation of drought resistant landscapes would be beneficial. Many homeowners do not understand the high electrical, operational, and infrastructure costs that are inherent in providing water service to the users. The general attitude the Ambassador encountered was that water is an unlimited resource that does not need conserving. “We live next to a lake, why should we conserve water...” was a comment heard more than once this summer. Rising rates for electricity and inflated operating costs means that resources will continue to be strained in the future. British Columbian residents are amongst the biggest water users in the world (Environment and Climate Change Canada (Government of Canada), 2016). There is a lot of room for residents to reduce their water footprint, therefore getting more value from the water infrastructure they use. It is not economically viable to allow treated water to be wasted by homeowners as the infrastructure must be continually maintained and upgraded to meet their demand.

Water Smart Newsletter

The Ambassador could be utilized to create a water smart newsletter. The newsletter would contain important water system information and would outline current water conservation measures. A newsletter could promote the assessment service and advertise the incentive program. Increased awareness of water infrastructure and conservation measures is needed for all communities; this could be one potential way to do it. The newsletter could be distributed door to door, in order to better engage with residents.

Drought Tolerant Turf and Landscape Support

Estimates show that 30-60% of treated residential water is used for lawn irrigation during the summer months. Soils in the West Kootenay Region were observed to be particularly bad for cultivating turf grass – with rocky, sandy, and clay conditions noted by the Ambassador. Drought tolerant turf alternatives are available and should be heavily promoted in the region. Many drought resistant plant species thrive in poor soil conditions. Drought resistant grasses such as tall fescue and buffalo grass can be alternatives to typical thirsty grass species seen in lawns. Planting attractive micro-clover or yarrow could replace typical turf grass while requiring less fertilizer, irrigation and maintenance. Ground covers such as kinnikinnick, creeping thyme and sedum stonecrops work well for greening up dry slope areas. Informational pamphlets and possibly seeds could be distributed by the ambassador to promote drought resistant landscapes. Many municipalities in BC have implemented programs to help residents utilize drought tolerant plants – using pamphlets, demonstration gardens, and seed distribution (see end resource section for examples). Public education is important for this topic, as most homeowners are not aware of irrigation free gardening options.



Figure 13 - Micro clover demonstrating its drought tolerant characteristics amongst dried out grass

Water Smart Program Open to Public

The 2016 Central Water Smart Program was open to 9 RDCK water systems in the central Kootenay region (inclusion was based on whether or not the respective Commission of Management, Community Advisory Committee, or Director supported the initiative). Inquiries for the assessment and education service came from all over the region as the public became aware of the program. The Ambassador received dozens of inquiries from communities such as: South Slokan, Nelson North Shore through to Balfour, Krestova, Pass Creek, Blewett, Bonnington, and Crawford Bay. If the program were open to the general public, different levels of resources could be provided for each community based on regional funding. Many residents would benefit from education, but do not necessarily need incentives or free giveaways if they are on their own water system. Users on RDCK owned water systems should be encouraged to get assessments with incentives. While the Ambassador could not perform the requested assessments in non-participating water systems and communities, he did provide useful water conservation web links via email to those residents. It should be noted that there were 10 assessment requests from users of the South Slokan RDCK water system. These residents were disappointed that they were not eligible for assessments, as this area opted out of participation with the Water Smart Program.

Corrugated Plastic Water Smart Advertisement Signs

Inexpensive plastic lawn signs could be purchased to promote Water Smart community awareness. The Ambassador noted the need for increased water smart awareness in every community. These signs could be placed throughout participating communities to provide information and advertise the assessment service. They could also serve as a gentle reminder to residents about the water conservation measures in effect.

Update Water Smart Branding and Informational Pamphlets

Some of the pamphlets and web content provided by Columbia Basin Trust appear dated and do not contain fully comprehensive information. Two examples would be the CBT xeriscaping pamphlet and the indoor water saving tips pamphlet. These pamphlets only overview those topics and many residents have requested more detailed information sources. Municipal governments such as the City of Kamloops and the City of Nanaimo have created vibrant and information rich documents covering water smart topics such as drought resistant lawns, xeriscape gardening, and water conservation facts. The Water Smart Ambassador could be utilized to compile information that is comprehensive, informative and attractive to residents.

Incentives

The incentive program proved to be a crucial component of the Water Smart Program in 2016. More items to give away such as rain gauges, hose flow meters, toilet tank bags, and faucet aerators would be helpful for increasing participation. Children's toys such as shower timers and fun fact coloring sheets could help spread awareness to the younger generation.

Water Meter Reading

The Ambassador could be utilized to read and record water system data for the water utilities department. This was a goal for 2016, but training for this was unavailable due to new software implementations happening at the time.

Public Relations

The Ambassador played an important role for RDCK public relations in 2016. Working with residents one on one proved to be very valuable for educating residents about the RDCK water service and water conservation measures. An uneducated public may be sharing the wrong information amongst themselves; as noted by the Ambassador in a few instances. Having the Ambassador provide the facts in a personable and friendly way promotes the RDCK image and the services it provides. Most residents were extremely pleased with the interactions they had with the Ambassador. Continuation of the Water Smart Ambassador education campaign would be beneficial for RDCK public relations.

Automatic Irrigation System Programming

Automatic irrigation systems have the potential to waste large amounts of water while the homeowner is unaware. This was often the case throughout every participating community. Irrigation systems should be assessed yearly to check for leaks and for properly scheduled watering intervals. Many individuals do not know how to operate their controllers and do not understand the importance of updating their watering programs as the seasons shift. The general attitude about automatic irrigation is "set it and forget it". This behavior often results in wasteful watering practices. An incentive program should be implemented to entice homeowners into getting their

automatic irrigation systems checked by the Ambassador. Education for the homeowners is essential in dealing with this problem. The Ambassador had difficulty convincing homeowners to sign up for the assessment service, as the incentives offered such as rain barrels and water timers were not applicable for these residents. Repeated contact from the Ambassador did result in some homeowners getting assessments. Most automatic irrigation systems the Ambassador looked at were running inefficiently and required adjustments to be made by the homeowner.

Columbia Basin Training Feedback

The Water Smart Ambassador Training Program took place in Nelson BC over the course of four days. The training covered many water smart topics and involved two days of field work. An extension of the training timeline would be beneficial to get more hands on experience with performing assessments. More resources on the topic of xeriscape gardening would also prove beneficial for the Ambassadors.

Questions from Neal Klassen:

1. **What did you like most about the Water Smart program?** Public relations became a big part of my role and I was happy to provide invaluable water related information to homeowners. The feedback from residents was incredibly positive. I also enjoyed seeing a real transformation in the communities I was working in. As the summer progressed there was increased participation in the program and more interest for Water Smart education from the public. Working one-on-one with residents during assessments was the best part of the program.
2. **What did you learn from the program?** Working with the Regional District of Central Kootenay provided valuable work experience in a professional environment. I was able to learn more about regional government policies and operations, and explore career options relating to water and environmental services. The Water Smart program taught me valuable marketing and communication skills.
3. **What would you change about the program in your area?** Increasing the number of incentives and free giveaways would improve participation greatly. Providing detailed and in-depth information on drought resistant landscapes should be emphasized. Many municipalities are creating extremely comprehensive xeriscape planting guides and resources. I would like to see more of this from the Water Smart Program in my area. A changing climate means people’s habits need to change as well – we need to prepare for a future where droughts are more common.

Water Smart Inventory

Hose Water Timers -----	53
Lawn Flags -----	950
Water Smart Banner -----	1
Catch Cans -----	8
Soil Probe -----	1
Rain Gauges -----	12
Graduated Cylinder -----	1
Xeriscape Pamphlets -----	20
Door Hangers Card -----	150
Low Flow Showerheads -----	50

Further Resources

City of Kamloops, Creating a Xeriscape - <http://www.kamloops.ca/ipm/pdfs/Brochure-CreateXeriscape.pdf>

Columbia Basin Trust Water Smart - <http://www.cbtwatersmart.org/>

Environment and Climate Change Canada (Water) - <http://www.ec.gc.ca/eau-water/>

Province of British Columbia (Water) - <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water>

Province of British Columbia Drought Portal - <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/drought-flooding-dikes-dams/drought-information>

Province of British Columbia (Climate Change) - <http://www2.gov.bc.ca/gov/content/environment/climate-change>



Figure 14 – Non-irrigated xeriscape garden in Balfour



Figure 15 – Sun damaged turf grass observed being irrigated in Balfour

Funding Water Infrastructure for the Long Term

Regional District of Central Kootenay

Riondel

February 2, 2017 (DRAFT)





Table of Contents	Page #
1.0 Executive Summary	3
2.0 Best Practices	4
3.0 TCA Reporting	5
3.1 Asset Depreciation	5
4.0 Asset Inventory	6
4.1 Water Transmission and Distribution Network	7
5.0 Annual Cost of Sustainable Ownership (ACSO)	8
5.1 Asset Replacement Schedule	10
5.2 Asset Maintenance	12
6.0 Funding Scenarios	13
7.0 Recommendations	15
8.0 Related Reading	16
9.0 Glossary of Terms	17
Appendix A - Methodology: Funding Infrastructure Renewal for the Long Term	



1.0 Executive Summary

The Riondel water system is owned and operated by the Regional District of Central Kootenay (RDCK) and is located in Electoral Area A on the East shore of Kootenay Lake. The system comprises two concrete dams with intakes on Indian (primary) and Hendryx (secondary) Creeks. Water is treated through a treatment plant then stored in a steel reservoir. Water is distributed through just over 5 km of pipe network serving about 200 customers.

This report summarizes the infrastructure of the Riondel water system. The report identifies the Annual Cost of Sustainable Ownership (ACSO) for the water system, and presents a funding scenario for long term sustainable renewal of the system.

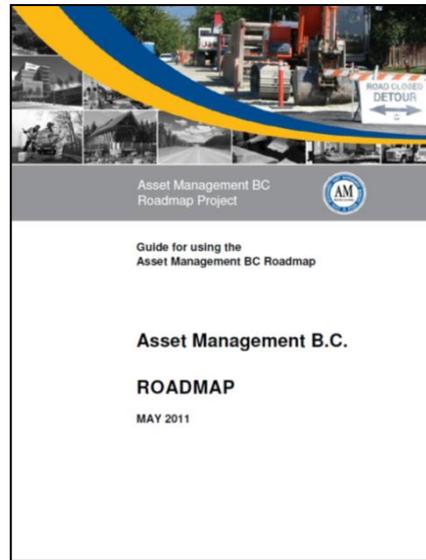
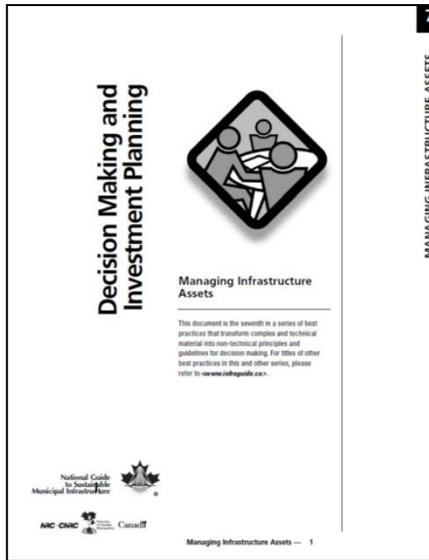
The analysis is based on assumptions current as of February 2017. Infrastructure management is a work-in-progress and should be reviewed from time to time as assumptions and other influencing factors change over time.

Four recommendations follow from this analysis as follows:

1. Review regularly the unit costs for pipe replacement and other pricing assumptions.
2. Prioritize work using a risk-based approach by considering condition and impact of failure of assets.
3. Bolster annual contributions for asset renewal from rates and fees and build up reserves to required target levels.
4. Update the asset schedule on ongoing basis.

2.0 Best Practices

The information in this report is developed using an adaptation of best practices, methods and frameworks from several sources. See section 8.0 References for details.



Best practices encourage elected representatives to ensure there are adequate provisions in local government budgets to renew infrastructure when it is required. Sufficient funds should be raised for that purpose and whenever appropriate an infrastructure reserve fund can be used to accumulate funds until they are needed.

3.0 Tangible Capital Asset Reporting

With the introduction in 2009 of new reporting requirements as per section 3150 of the Public Sector Accounting Board (PSAB) Handbook, local governments are required to report tangible capital assets¹ as assets (versus expenses) in the financial statements as shown below in Table 1.

Table 1: Tangible Capital Asset Value Reported in Financial Statements (2013-2015)

	Dec 31, 2013	Dec 31, 2014	Dec 31, 2015
Historic Cost			1,571,129
Accumulated Depreciation			415,126
Net Value			1,156,003
Annual Asset Depreciation			20,844

Source: RDCK Finance Department

3.1 Annual Asset Depreciation

Annual asset depreciation² is an accounting term that represents how much an asset’s book value reduces every year. It is normally calculated by dividing an asset’s historic cost by its estimated service life. Depreciation can be used as an indicator of how much funds should be put aside each year for the eventual future replacement of the asset. However, because asset depreciation does not reflect the effects of inflation, technological advancements or changing standards, relying on depreciation can result in under funded reserves.

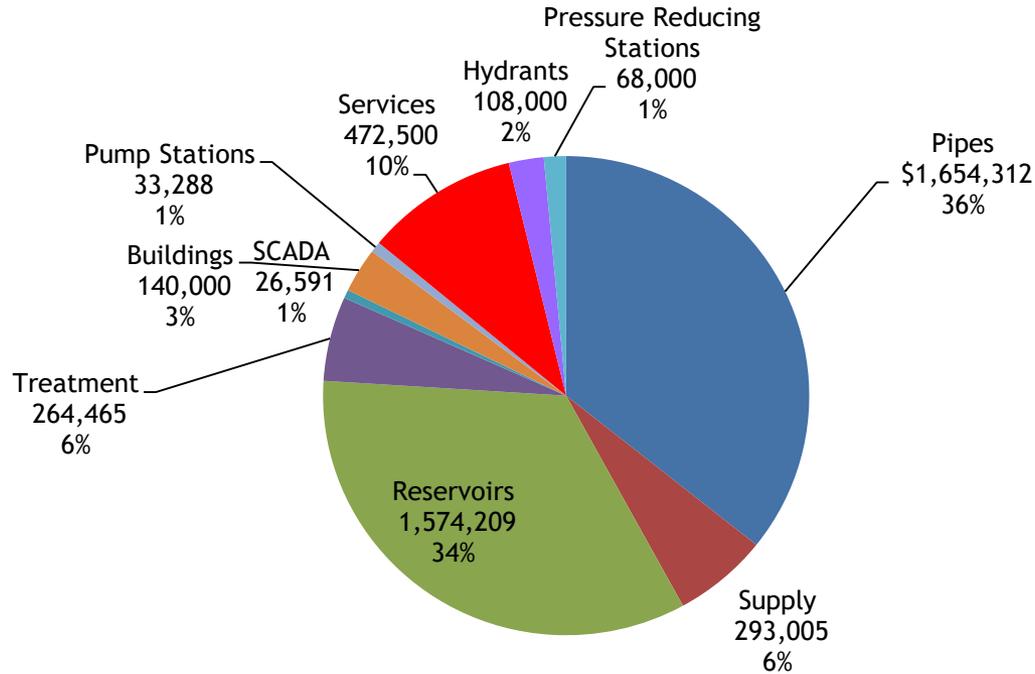
1. Tangible Capital Assets (TCA) are defined by the Public Sector Accounting Board as a physical asset used in the delivery of service and having a useful life of more than 1 year.
2. Is sometimes termed annual asset amortisation.



4.0 Asset Inventory

Denver Siding water infrastructure is summarized here. The total value of the infrastructure and the value of each asset category is shown here in 2015 dollars.

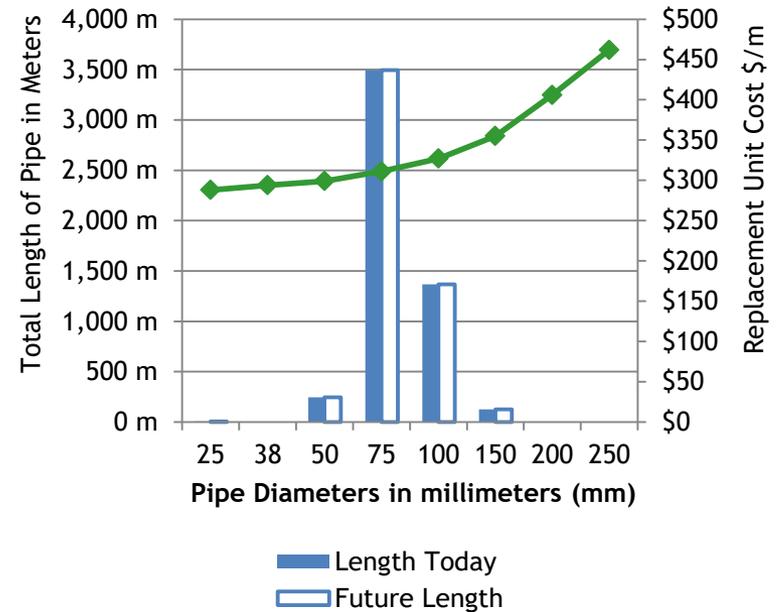
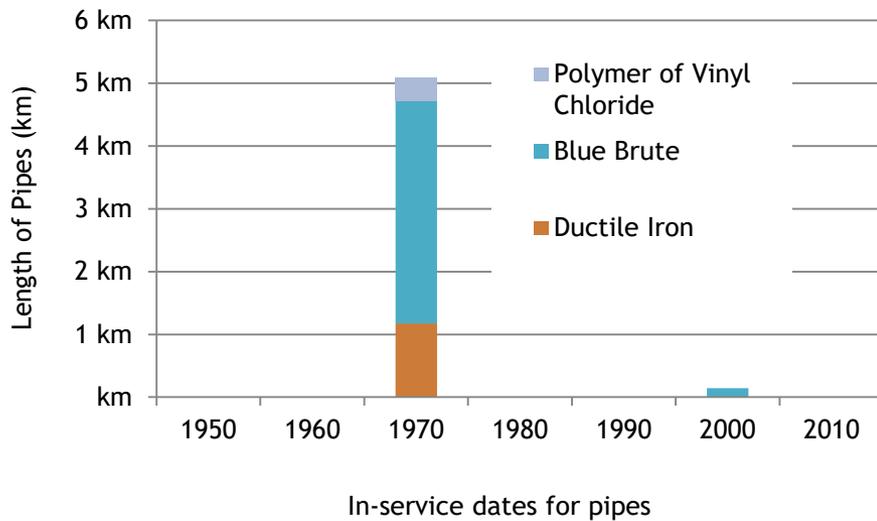
Figure 1: Riondel 2017 WATER Asset Value: \$4,634,369



4.1 Water Transmission and Distribution Network

Approximately 5 Km of mostly 3” and 4” pipes made of plastic and iron was installed in Riondel circa 1977 and a small expansion in 2004.

Figure 2: Riondel Pipe Distribution Network (Length, Material, Diameter)



Note: due to minimal availability of records, some in-service dates may be estimated by decade from old maps.

5.0 Annual Cost of Sustainable Ownership (ACSO)

Because things wear out over time and with constant use, including water infrastructure, it makes sense that eventually they will need to be replaced. Replacing infrastructure is often very expensive so it is typically desirable to put funds aside during the life of the infrastructure so that funds are available when needed. So a question that infrastructure-based organizations should ask is: *how much should be contributed annually to keep up with the asset wear?*

This question can be answered in different ways. Some look to the financial statements to find the annual asset depreciation amount. Although conveniently available in any financial statement, this figure likely does not accurately answer the question. Asset depreciation is useful for determining the net value of assets on the books. Because depreciation is based on historic cost, it doesn't reflect present day costs and therefore under represents actual wear and tear.

Another approach in determining *annual asset wear* is to determine the present day replacement value of the assets and take a percentage, say 1% or 2% of that value. Establishing 1% as the average annual wear and tear cost implies that the entire asset base is replaced, on average, every 100 years (every 50 years at 2%). This is easy to calculate if you have present day valuations for the assets. However this method makes a broad assumption about estimated service life (ESL) of assets. In fact, different asset types have different ESLs.

In a more refined approach, instead of aggregating ESL, an asset replacement schedule is developed itemizing each asset along with their specific ESLs. In this way, the replacement time frames for each asset can be accounted for separately. This approach enables a risk-based approach to determining replacement time frames. For example, assets of the same class that are in good condition may have delayed replacement despite reaching their ESL.

See Appendix A for a more detailed discussion on Annual Cost of Sustainable Ownership.



Assets wear out over time and eventually need to be replaced.



5.0 Annual Cost of Sustainable Ownership (continued)

Recall the annual asset depreciation which was discussed earlier in section 3.0. This figure is an indication of annual wear and tear but is based on historic cost and does not reflect replacement cost in present day terms.

Annual depreciation, also known as annual amortisation, from financial statements is shown here for comparison purposes but not recommended as ACSO.

Annual Depreciation		\$20,844
----------------------------	---	----------

Another approach to determine annual cost of sustainable ownership is to use a figure between 1% and 2% of the total system replacement value. This implies the aggregate estimated service life of the system is between 50 and 100 years.

Calculation based on percentage of present day replacement value.

1% of estimated replacement value		\$46,344
--	---	----------

2% of estimated replacement value		\$92,687
--	---	----------

To get a more refined figure, instead of taking an aggregate approach, an asset replacement schedule is developed and each asset's estimated service life is taken into account separately. See Appendix A for a more detailed discussion on Annual Cost of Sustainable Ownership.

Calculation based on Asset Replacement Schedule

25 year replacement cost (\$today, no infl.)		\$52,348
---	---	----------

100 year average replacement cost (\$today, no infl.)		\$89,120
--	---	----------

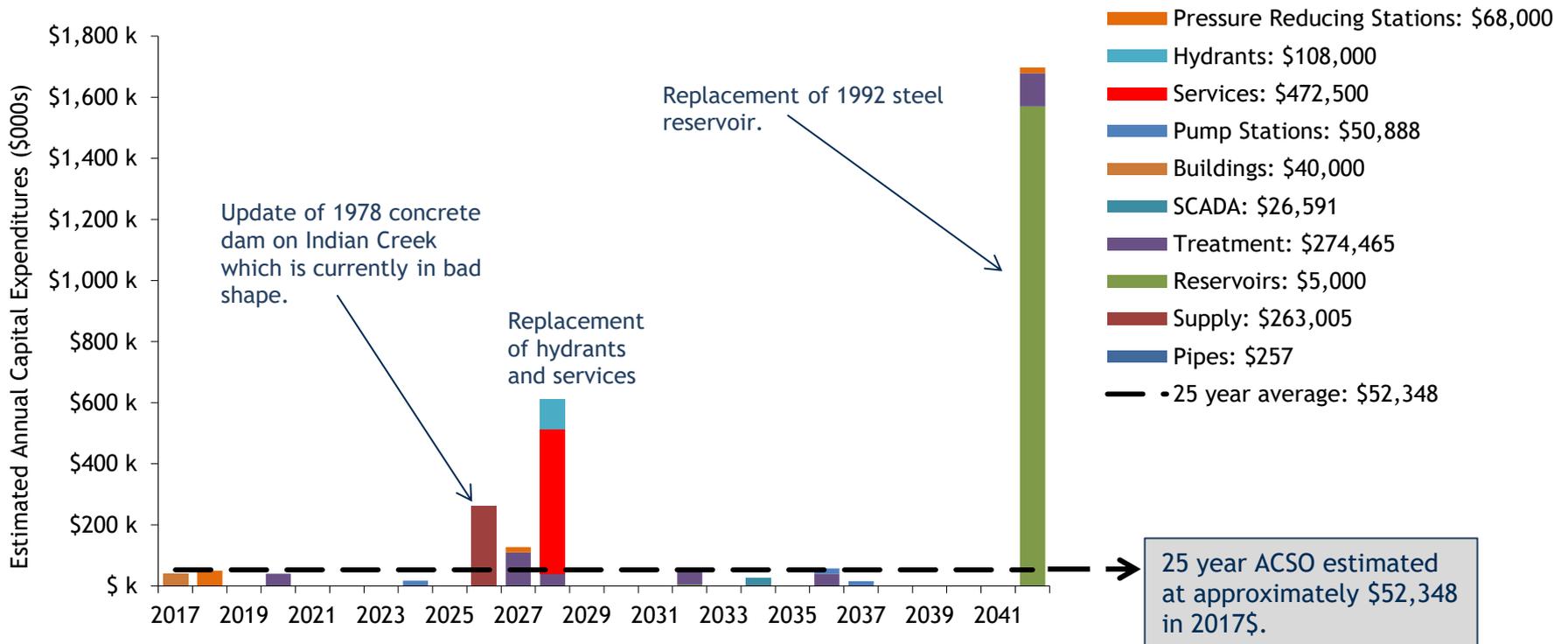


5.0 Annual Cost of Sustainable Ownership (continued)

5.1 Asset Replacement Schedule

This chart summarizes the Asset Replacement Schedule (ARS) 25 year period projection of asset replacement. The average cost over the 25 year period, also termed the Annual Cost of Sustainable Ownership (ACSO) is shown by the dash line.

Figure 3: Riondel 25 Year Asset Replacement Schedule



Figures are in 2017\$ and not adjusted for inflation.

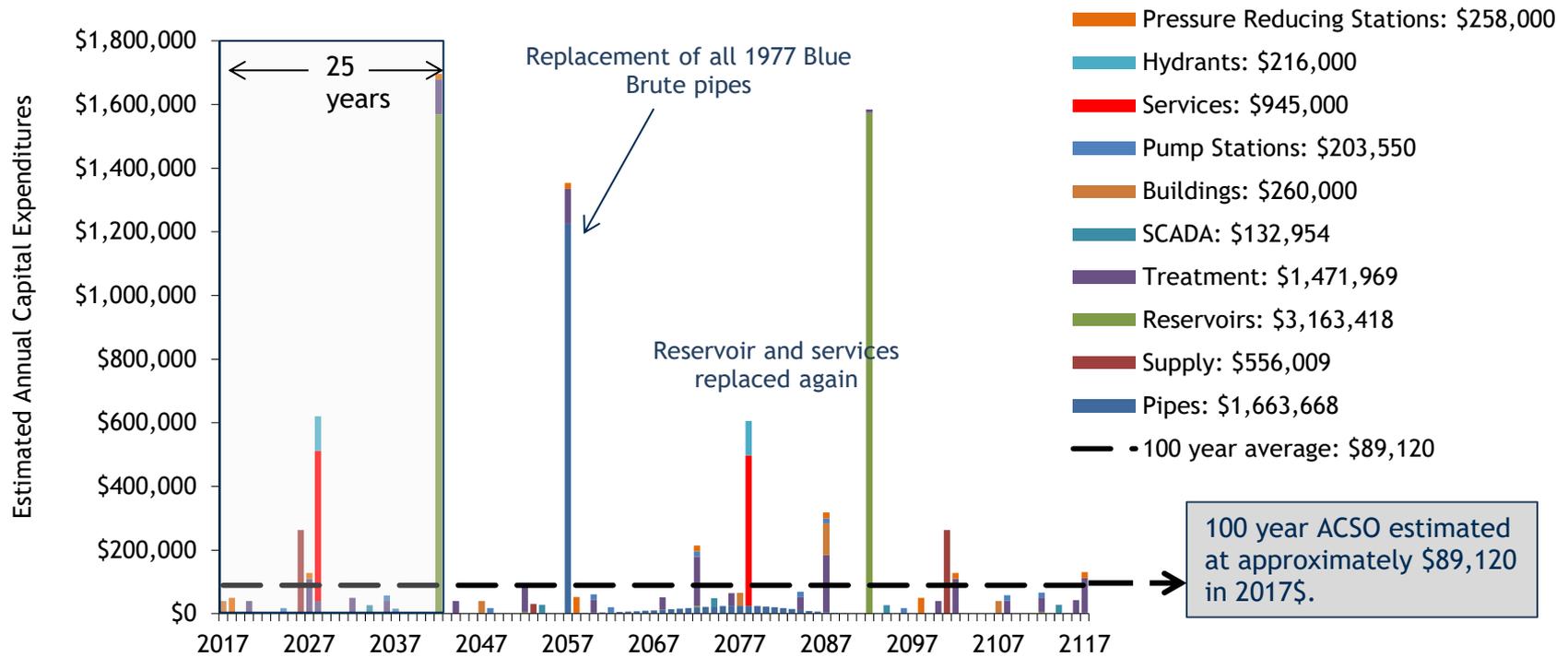


5.0 Annual Cost of Sustainable Ownership (continued)

5.1 Asset Replacement Schedule (continued)

This chart summarizes the Asset Replacement Schedule (ARS) 100 year period projection of asset replacement. The average cost over the 100 year period, also termed the Annual Cost of Sustainable Ownership (ACSO) is shown by the dash line.

Figure 4: Riondel 100 Year Asset Replacement Schedule





5.0 Annual Cost of Sustainable Ownership (continued)

5.2 Asset Maintenance

Certain infrastructure components undergo maintenance on a regular basis to maximize operating conditions and extend the life of the infrastructure as much as possible before replacement is required. Maintenance activities are covered under the operations and maintenance budget rather than the capital budget. The following table outlines maintenance activities specific to the Riondel water system.

Table 2: Riondel Maintenance Activities

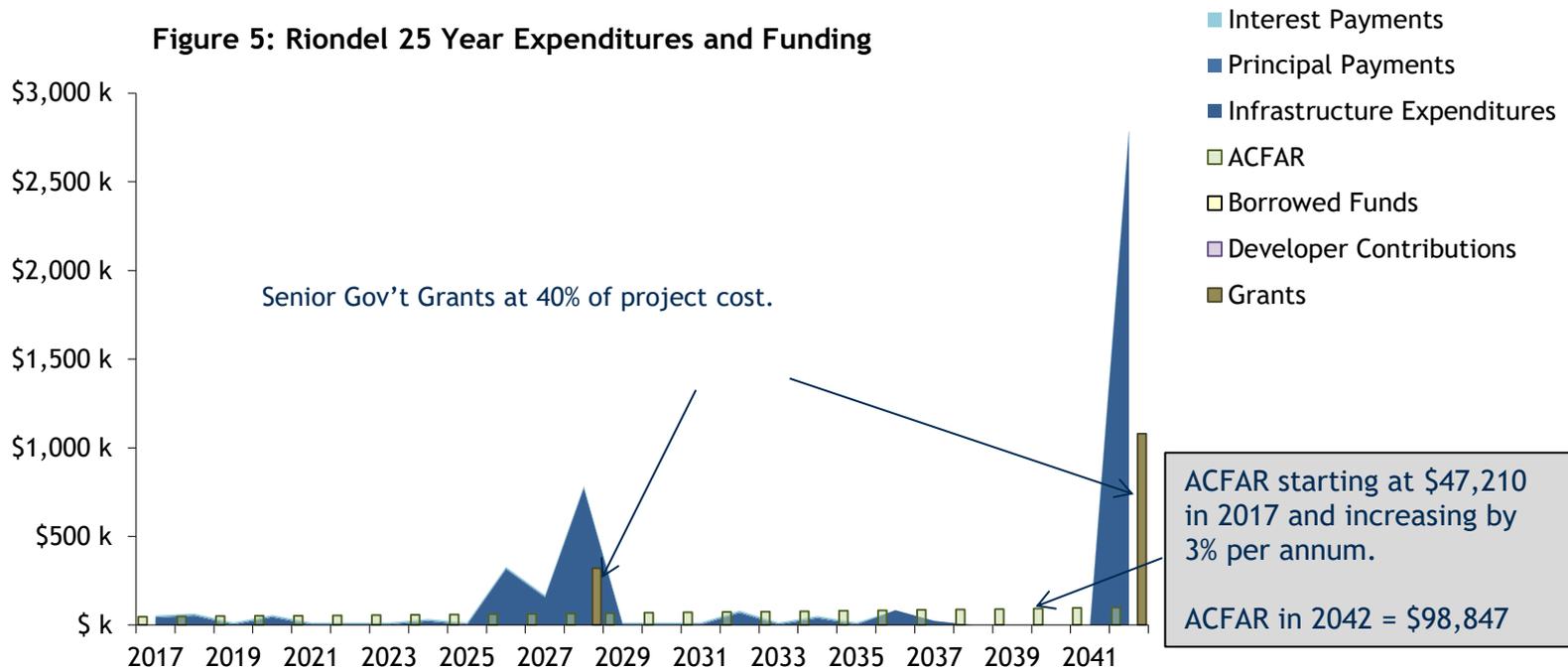
	2015	2016	2017	2018	2019	2020	2021
Riondel							
Reservoir Cleaning and Inspection							
Flushing							
Valve Exercising							
Full Comprehensive Sampling							
Annual THM testing (June, September)	twice/year						
Hydrant tear down							
Intake cleaning							
back flow test golf course							
Curb stop Location and Inspect							

6.0 Funding Scenarios

The Annual Contributions for Asset Replacement (ACFAR) refers to the amount of funds allocated annually from operating revenues towards asset replacement. ACSO, described earlier is the theoretical amount to be achieved. ACFAR is the actual amount generated from operations. Ideally ACFAR = ACSO.

The funds are used in different ways: some funds are spent annually on asset renewal projects for the year, some portions may be put away into reserve, or some used to service debt associated with past projects. RDCK policy is to cover ACFAR through parcel taxes.

Figure 5: Riondel 25 Year Expenditures and Funding

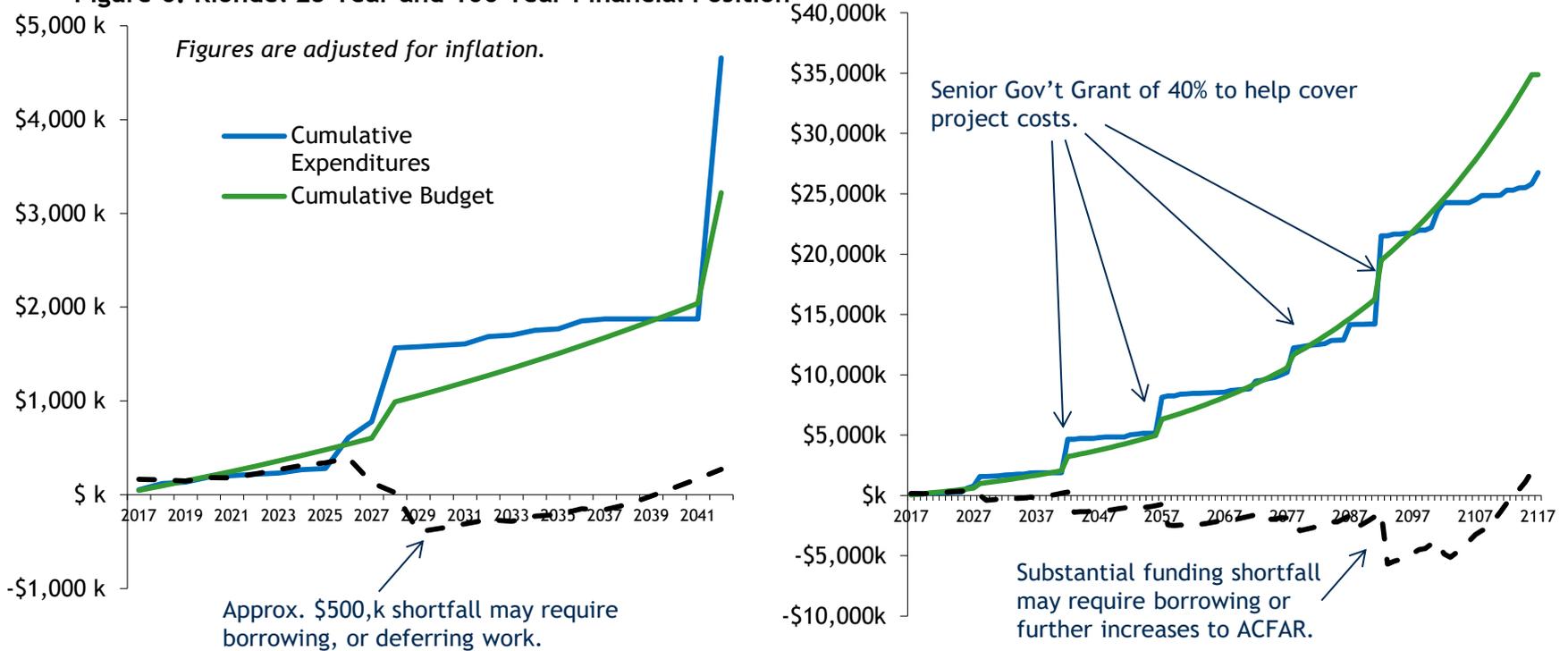


6.0 Funding Scenarios (continued)

This chart compares the expenditures and allocated funds from figure 6. The blue line shows the cumulative expenditures, inflation adjusted, projected over the next 25 years in the asset schedule. The green line shows the cumulative funds allocated towards these projects.

The dash line is the difference between what is projected to be spent and available funds. When this line is above 0, it represents a surplus of funds typically held in an asset reserve fund; when below zero, the dash line represents a shortfall and implies the need for additional funding, or the works need to be delayed or canceled.

Figure 6: Riondel 25 Year and 100 Year Financial Position





7.0 Recommendations

The following recommendations follow from the analysis in this report.

1. Unit costs for pipe replacements can vary significantly between the average default unit costs provided in the model and a real unit cost determined from a carefully costed project budget. To ensure the accuracy of the long term revenue requirements and avoid over-stating funding requirements, unit costs for pipe replacement and other pricing assumptions of the other assets should be reviewed regularly;
2. To ensure accuracy of the model, remaining service life of assets should be reviewed and updated regularly. Detailed condition assessments should be conducted on the oldest assets, those assets nearing or beyond the 2/3rd or later stage in their estimated service life. Also, assessing the impact-of-failure for each asset may help to prioritize on a risk-assessment basis;
3. Make necessary adjustments to rates and fees to bolster the annual contribution for asset replacement (ACFAR) with an aim to have ACFAR meet ACSO and to build up a reserve fund in advance of large future expenditures. The financial position on page 14 can be a guide in determining reserve fund target level; and,
4. Update the asset schedule tool on a regular basis to reflect changes brought about from items 1, 2 and 3 above, and other external factors that change the financial picture.



8.0 Related Reading

Opus (2011). Guide for Using the Asset Management BC Roadmap. Opus International Consultants (Canada) Limited 2011

Infraguide (2005). Decision Making and Investment Planning: Managing Infrastructure Assets. Federation of Canadian Municipalities and National Research Council, Ottawa, ON, October 2005.

Econics (2013). Funding Infrastructure Replacement for the Long Term: Developing an Asset Replacement Schedule (ARS) and Establishing an Annual Contribution for Asset Renewal (ACFAR). November 2013. See Appendix A.



9.0 Glossary of Terms

Annual Asset Depreciation (Annual Amortisation) - The amount the net value of an asset decreases each year; normally calculated by dividing the historic cost by the estimated service life. Does not factor inflation.

Annual Contribution for Asset Replacement (ACFAR) - ACFAR refers to the amount of funds allocated annually from operating revenues towards asset replacement: spent on projects that year, put away into reserve; or used to service debt associated with past asset replacement projects. Increasingly, ACFAR is becoming a budgeted line item rather than based on unplanned revenue surpluses.

Annual Cost of Sustainable Ownership (ACSO) - ACSO is the average annual cost of replacing infrastructure over a long time period, say 25 or 100 years. ACSO is given in today's dollars and therefore does not consider inflation. ACSO therefore increases over time and should be recalculated periodically.

Asset Liability - Assets currently overdue for replacement based on theoretical estimated service life.

Asset Replacement Schedule (ARS) - A forward looking method that considers in-service year, estimated service life and current replacement value of assets to estimate extent of future anticipated capital expenditures.

Asset wear and tear - A concept that is meant to imply that assets wear down every year and it is therefore logical that the beneficiaries of the assets repay the dollar value of that *wearing down*.



9.0 Glossary of Terms

Estimate Service Life (ESL) - refers to the number of years an asset or group of assets is expected to remain in service before being replaced. This value may change over time from its original estimate to reflect assets that are wearing out more quickly than anticipated, or lasting longer than originally expected.

Financial Position - The term *financial position* is used in this report to mean the relationship between the long-term expenditures and long-term funding available to support expenditures. The financial position is calculated by subtracting the cumulative expenditures from the cumulative available funding. If the financial position is positive, then there are surplus funds available in reserve. A negative financial position implies borrowing.

Infrastructure Deficit - An infrastructure deficit exists if the average annual contributions towards asset replacement are not sufficient to meet the annual average cost of sustainable ownership.

Tangible Capital Assets (TCA) - Defined by the Public Sector Accounting Board as a physical asset used in the delivery of service and having a useful life of more than 1 year.

WATER SMART AMBASSADOR UPDATE

Riondel participated in the 2016 Central Water Smart Ambassador (CWSA) program. The CWSA completed 17 full residential irrigation assessments in Riondel. The golf course was also assessed and the CWSA performed an industry standard golf course irrigation audit. During the summer months, the golf course consumes more water than the entire residential component of Riondel. Recommendations to reduce water consumption were given to the golf course for their consideration. Bluebell Manor won the rain barrel and this senior's centre also implemented the CWSA's watering recommendations and installed 5 low flow showerheads.



Rain barrel winners—Bluebell Manor staff, August 2016

NEW WATER ALERTS SYSTEM

The RDCK has rolled out a new water alerts system. The system will alert water users of Boil Water Notices and Water Quality Advisories. Other information such as system maintenance outages and water conservation measures will also be relayed.

Sign up for water alerts at:

www.xxxxx.ca

Water users can choose which water system that they wish to receive the alerts for, plus how they would like to receive alerts: landline phone call, text, and/or e-mail.

THANK YOU!

Riondel Water System has a full and active Commission of Management. The RDCK would like to extend a heartfelt thank you to the Commission for their commitment to the water system.



Completed water treatment plant, February 2016

WHO DO I CONTACT FOR DRINKING WATER INFORMATION?

For billing inquiries:

1-800-268-7325 ext.8182, 250-352-8182

General RDCK water system inquiries:

1-800-268-7325 ext.8171, (250) 352-8171
www.rdck.ca

For water system emergencies 24/7:
(250) 352-1504



WATER SERVICES

Riondel

February 7, 2017
Commission meeting -
Agenda Item #5.

Annual Drinking Water Information 2017



RDCK Water Services

1-800-268-7325 www.rdck.ca

For water system emergencies 24/7:
(250) 352-1504

SYSTEM NEWS

Operation & Maintenance

- Repaired major water break in February 2016 on line feeding new Ambulance building, and two service breaks on Campbell Street.
- Installed stand pipe on the end of Campbell Street line.
- Inspected reservoir which led to the draining, cleaning and sealing of two small holes on the reservoir floor.
- Installed a free chlorine analyzer off of the outflow distribution main from the reservoir, and an air relief off of the distribution line.
- Abandoned and capped the old vent pipe from the reservoir and the old bypass from Hendryx Creek into the distribution system.
- Regular flushing has been completed in the distribution system. Valves have been exercised (opening and closing of the valves to ensure that the valves are working properly and to clean the seals).
- Repaired golf course meter and installed an meter interface unit for remote reading.
- Inspected, mapped, took photos and made up inventory cards for all of the storm sewer catch basins.

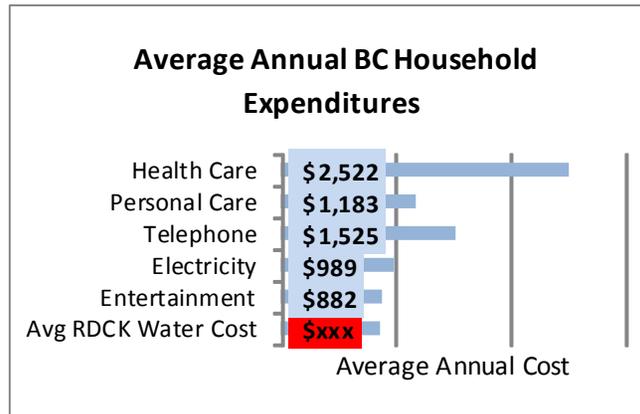
Future Capital Projects

- xxx—to be determined

Water Quality

- **Currently, water quality is good.**
- In 2016, a Boil Water Notice was issued in February due to a major water main leak. This was continued into March to accommodate the completion of the new water treatment plant. The Boil Water Notice was rescinded March 21st.

THE VALUE OF WATER



Source: Statistics Canada, CANSIM, table 203-0021, 2014.

DOLLAR\$ & \$ENSE

2017 Riondel Annual Water Rate for a Single Family Dwelling (including mobile and manufactured homes) is \$xxx, plus a capital reserve contribution (parcel tax) of \$xxx for a total water utility cost of \$xxx, a x% increase from 2016.

This means that you pay **\$x.xx per day** to receive fresh water to your home. While your water is naturally sourced, there are costs for the pipes, pumps, equipment, and people who ensure that it is delivered to our taps.

WATER BYLAW

A bylaw was adopted in 2016 that describes the terms and conditions under which water from the RDCK water systems are supplied, used and regulated.

The bylaw, which complements the existing Utilities Rates, Fees and Charges bylaw, covers topics such as: ownership, responsibility and access to the water system, water usage and conservation, new servicing and development, backflow prevention, and water meter requirements.

See the accompanying insert which explains how the new water bylaw may affect you as a water user.

WATER CONSERVATION

Water conservation is everyone's responsibility. By lowering water demand, communities can mitigate the increasing cost of delivering fresh, potable water and extend the life of their existing infrastructure.

While water is generally abundant in the RDCK, climate projections indicate that water supply in the future will not be as reliable as it has been in the past.

Water Conservation Measures

Stage 1: June 1-Sept 30 annually, may go to Stage 2, 3, or 4 as required.

Activity	Mandatory Restrictions			
	Stage 1	Stage 2	Stage 3	Stage 4
Watering of lawns	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 am - 10 am, and 8 pm - 10 pm	Prohibited	Prohibited
Watering of new lawns (seed within 45 days and sod within 21 days of installation)	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 am - 10 am, and 8 pm - 10 pm	ONLY between the hours 6 am - 10 am, and 8 pm - 10 pm	Prohibited (Except where permitted by the Manager)
Watering of gardens, trees and shrubs (excluding watering of commercial agricultural products)	ONLY between the hours 7 pm - 10 am	ONLY between the hours 6 - 10 am, and 8 - 10 pm	ONLY between the hours 6 - 10 am, and 8 - 10 pm	Prohibited
<i>Watering using drip irrigation, a watering can, and or hand held hose, which eliminates over-spray is permitted at any time.</i>				

For a complete list of water conservation measures including commercial properties visit www.rdck.ca.