

Engineering



Engineering is responsible for water and sewer, transportation and environmental services

First Quarter Report, 2017

2016 Water and Sewer Combo Project

The project is a combination of one water main installation, one storm main installation and five sewer main upgrades throughout Chilliwack that have been combined to increase scope and economy of scale. The proposed water main installation will increase supply, fire flow capacity and improve water quality of the existing water system in the local area. The proposed sewer main replacements and upgrades will replace aging infrastructure and increase capacity to satisfy increased flow from new and future developments. The proposed storm main installation will convey storm water away from water supply production wells to protect the City's drinking water.

The following table shows water, storm and sewer main installation and upgrade projects.

Name of Project	Contract Value	Project Status
Keith Wilson Road Water Main	\$840,130	In Progress
Watson Road Storm Main	\$808,389	Completed
Watson Road Sanitary Main	\$82,147	Completed
Watson Road Paving Works	\$315,384	Completed
Evans Road Sanitary Main	\$348,242	Design completed
Vedder Road Sanitary Main	\$643,364	Design completed
Cheam Avenue Sanitary Sewer	\$935,604	In Progress
Hodgins Avenue Sanitary Sewer	\$746,777	Completed
Hodgins Avenue Paving Works	\$333,730	Design phase
Princess Avenue Sanitary Sewer	\$89,957	In Progress

The Sandpiper Contracting/Wedler Engineering Design Build team is proceeding with design and construction of the project. This \$5,143,724 overall project is scheduled to be completed in August 2017.



2016 Utilities Project

The project is a combination water main and sanitary sewer projects that have been combined to increase scope and economy of scale. The proposed water main installation will increase supply, fire flow capacity and improve water quality of the existing water system in the local area. The proposed sanitary sewer rehabilitation will replace aging infrastructure and improve system reliability.

The following table shows water and sewer main installation and upgrade projects.

Name of Project	Contract Value	Project Status
Chilliwack River Road Water Main	\$644,890	In Progress
Wellington Avenue Water Main	\$411,400	In Progress
Williams Street Sanitary Sewer	\$195,000	In Progress

The Sandpiper Contracting/Wedler Engineering Design Build team has completed utility installation work and planning to complete final restoration work. This \$1,251,290 overall project is scheduled to be completed in April 2017.



Well # 5 Pilot Testing Study

The objective of this project is to undertake all necessary water quality testing required before the commencement of successful pilot testing study to treat elevated concentrations of iron & manganese and to determine design parameters for a future treatment plant to treat Well # 5 groundwater before bringing on-line and put into the service when needed.

RFEI stage for this \$250,000 project is currently underway to select a suitable consultant to undertake the study. The project is scheduled to be completed in September 2018.



Yarrow Reservoir “A” Replacement Project



The project involves replacing the Volkert Creek existing reservoir “A” located within the Yarrow Waterworks District with a new 1,500 m³ capacity concrete reservoir including rock excavation, rock slope stabilization, demolition of the existing reservoir, associated pipe works and improvements to the access road. 83% of funding for this \$1,700,000 project was received under the Clean Water and Wastewater Fund and the rest is contributed by the Yarrow Waterworks District.

RFEI stage for this design build project is currently underway to select a suitable design build team to complete the project. The project is scheduled to be completed in March, 2018.

Digester Gas Boiler Installation

The Wastewater Treatment Plant Sludge digestion process was upgraded by constructing a third Digester along with a boiler room to house two (2) dual fuel bio-gas boilers and associated mechanical and electrical equipment. The project consisted of supply and installation of a dual fuel boiler complete with corresponding mechanical and electrical appurtenances. ESC Automation successfully completed this \$360,000 project in March, 2017 while AECOM provided the engineering support.



Kerr Avenue Sanitary Pump Station and Forcemain



The project involves construction of a dedicated sanitary pump station (SPS) which will be located on Kerr Avenue and forcemain (FM) to convey wastewater to the new High Strength Wastewater Pre-Treatment Facility at the City’s WWTP. The new SPS will have an ultimate pumping capacity of 70 L/s and interim capacity of 30 L/s.

RFEI stage for this \$2,000,000 design build project is currently underway to select a suitable design build team to complete the project. The project is scheduled to be completed in May, 2018.

Wastewater Treatment Plant High Strength Wastewater Pre-Treatment Facility Project

The project involves construction of a pre-treatment facility with high-rate anaerobic treatment technology combine with a biogas heat recovery system to heat anaerobic bioreactor, an effluent heat recovery system to be used to maintain the required thermal balance, odour control and waste biomass handling components and a dedicated building to house electrical and testing equipment.

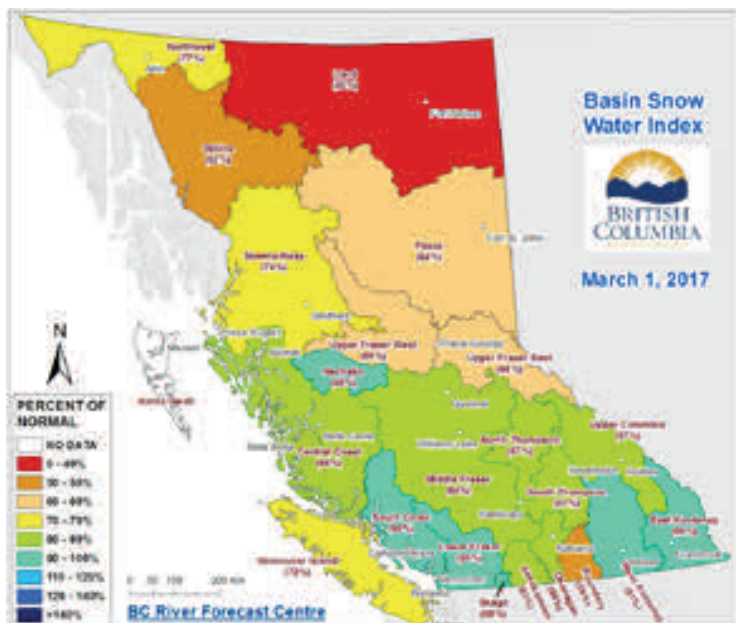
The PCL Constructors Westcoast Inc. (PCL) has been selected as the preferred Construction Manager along with Associated Engineering (B.C.) Ltd. as the design consultant for this Construction Management Project. Request for Proposal (RFP) to select a vendor to supply an anaerobic wastewater treatment system for the pre-treatment facility is currently underway along with ground improvement works at the site. The project is scheduled to be completed in June, 2018.

Snowpack Report and Freshet Preparation

The BC River Forecast Centre has issued the March 1, 2017 snowpack report as follows:

Upper Fraser:	66% of normal	Nechako:	95% of normal
Middle Fraser:	84% of normal	North Thompson:	87% of normal
Lower Fraser:	95% of normal	South Thompson:	87% of normal

By early March, 80% of the annual BC snowpack has typically accumulated. The March basin index for the entire Fraser River basin is at **83%**, which is approximately a 1-in-15 year low snowpack or the 10th lowest March index in the past 65 years. This season's snowpack can be considered "upside-down", with higher than normal snowfall occurring at low elevations, but below-normal snow at high elevations. At this stage in the season there is limited indication that any region of the province is developing increased seasonal flood risk due to high snowpack. The City of Chilliwack will continue to monitor snowpack and weather conditions to provide updated seasonal flood risk, however, at this point, the risk is quite low.



Art in the Evans Road Roundabout

The City of Chilliwack Council adopted the Chilliwack Public Art Policy in 2014 to promote and facilitate the integration for public art throughout Chilliwack. The City issued a request for proposals to seek artists submissions for public artwork to be placed in the Evans Road Roundabout. Successful proposals were forwarded by council to the Chilliwack Public Art Advisory Committee (CPAAC) for their recommendation.

Together the City of Chilliwack and CPAAC have selected Ronald Simmer's piece "Giant Flowers" to be the artwork for this roundabout. Completion for this project is estimated to be in the fall of 2017.

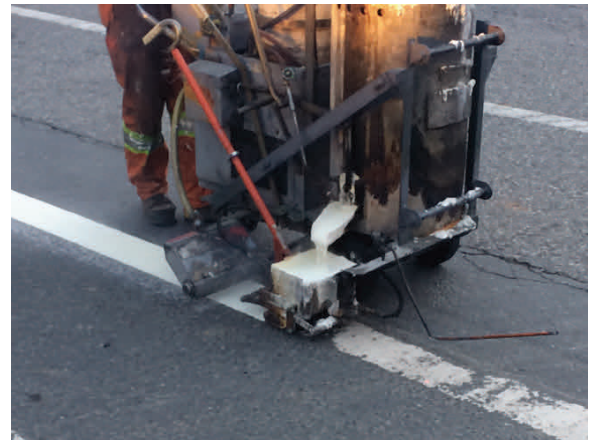


Roadway Markings

Roadway markings are a critical component of our traffic control devices for motorists, cyclists and pedestrians. These markings include centerline marking, stop bars, crosswalks, railway crossing, bike stencils etc.

This year's Roadway Marking Program will have significant budget challenges due to the extended winter conditions. Plowing, brine and sand have rapidly advanced the deterioration of our road markings. Major corridors with our highest volumes will receive the bulk of the roadway markings while lower priority roads and markings (such as parking stalls) will be reduced.

Council has renewed the Annual Roadway Marking Contract to 647354 BC Ltd., dba Aardvark Pavement Marking Services for 2017. It is anticipated that Aardvark will be starting the program at the end of May, continuing through the fall as weather permits.



Roadway Reflectors



This year's roadway reflector program has been awarded to Roaron Construction Ltd. in the amount of \$20,506.98 for the placement of raised roadway reflectors. These reflectors help the motorist determine the vehicle placement in the road particularly in areas with minimal street lighting and adverse weather conditions.

Vedder Bridge Replacement Design-Build Project

Bridge foundation works were completed that included the north and south abutments along with the south pier. Bridge deck and arch assembly along with the installation of utilities (water, sewer, gas, hydro, tel) under the bridge were completed in preparation for the launch across the River scheduled for early April. Underground hydro/tel duct installation was completed on Chilliwack Lake Road, Vedder Road and Vedder Mountain Road. Road widening and retaining wall construction was completed on Chilliwack Lake Road.



Left-Turn Signal Installation



In April, left-turn signals will be commissioned for southbound on Vedder at Keith Wilson and for eastbound and westbound on Keith Wilson at Garrison.

At Vedder and Keith Wilson an additional

eastbound beacon cluster is being added to reinforce signal recognition and overcome challenges due to the offset of the east leg of the intersection and seasonal landscaping growth in the west leg median.



2017 Asphalt Rehabilitation and Shoulder Paving

The long period of freezing weather followed by an extended period of wet weather, keeping base gravels saturated, resulted in much more rapid asphalt deterioration than usual this winter. An updated asphalt condition survey will be completed by a consultant prior to re-evaluation of priorities and the tendering of the 2017 Asphalt Rehabilitation program.

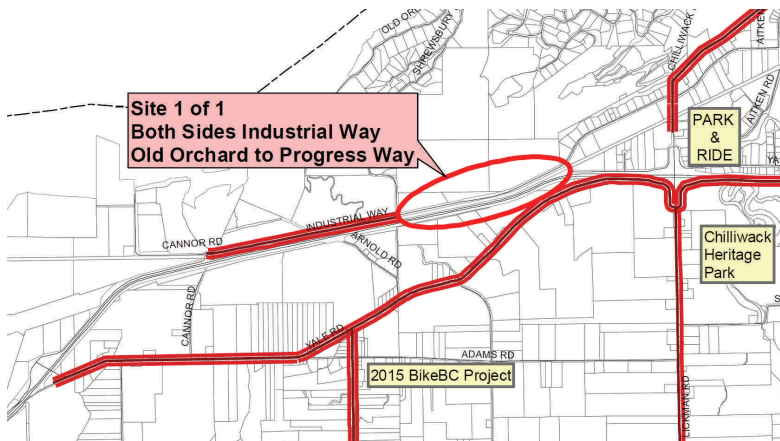
The following photos show a few roads being considered for rehabilitation this year that were not anticipated as priorities at the time of the 2017 budget deliberations:



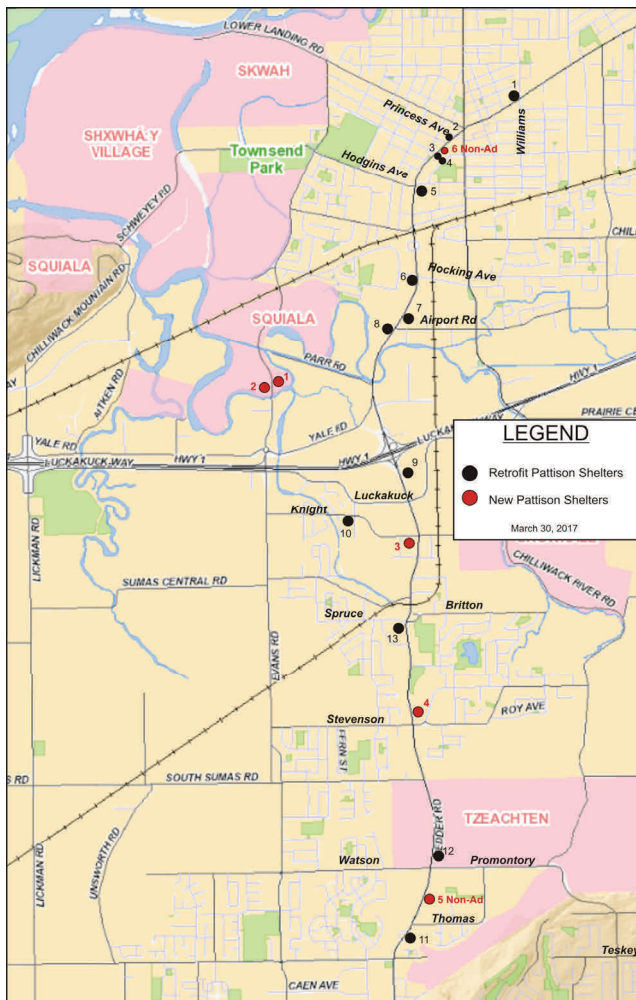
BikeBC Application

Our application to the Provincial BikeBC program for bicycle lane construction funding on Industrial Way has been accepted. BikeBC will provide up to 50% of the actual cost of the project.

This project will link the east end of the bicycle lanes that were paved in 2016 to Progress Way. The entire road will be repaved in conjunction with this project.



Bus Stop Shelters



The map to the left indicates the location of shelters that will be installed at new sites (Red Circle) and existing sites where shelters will be replaced with the new style (Black Circle).

Several bus stop shelters have been replaced with the new style shown in the photo below. There will be 6 new shelter sites and 13 shelters replaced for a total of 19.



Distracted Driving

The month of March held the focus of Distracted Driving education for the Safer City Team. The use of hand-held personal electronic devices has been prohibited in the Province since 2010. Data indicates that one quarter of vehicle crash fatalities in B.C. are due to distracted driving. The Safer City team chose to deploy a distracted driving projects while working with our partners at BC Transit and our colleagues in Public Works. When drivers are distracted they react slower; data is showing that most rear-end crashes that result in injury are being caused by distracted drivers.

Safer City is appreciative for the efforts of Chilliwack RCMP, Fraser Valley Traffic Services, Speed Watch, ICBC, BC Transit in conjunction with First Canada and City Public Works staff all who assisted in raising awareness of distracted driving in the community by participating in enforcement projects throughout the month.



Roundabout Training Session

A Roundabout Open House was held on March 30th. The training session is held twice a year to assist road users in broadening their knowledge on the rules of road for roundabouts. Visitors were able to view a roundabout simulator, display boards showcasing our local roundabouts; speak with Engineering staff and the RCMP; and have their questions answered.



Safer School Travel



McCammon Elementary and Safer City hosted a Safer School Travel (SST) Program meeting. The meeting provided an opportunity for parents and guardians to offer their final input into the draft Road Safety Plan and Best Walking Routes Map prior to its completion. The commitment of the Safer School Travel team from McCammon Elementary (PAC representatives, parents and school administration) has created a comprehensive report that will provide an exceptional reference document for years to come.

Winner of Sustainability Excellence Award



Every year, the City of Chilliwack sponsors the Sustainability Excellence Award as part of the Chilliwack Chamber of Commerce's Business Excellence Awards event. The winner of the 2016 Sustainability Excellence Award was the Coast Chilliwack Hotel.

The Coast Chilliwack Hotel won the award for taking measures to minimize their environmental footprint by increasing their sustainable operating practices to conserve water and energy and reduce waste.

Fraser River Clean-Up

March 18 Clean-Up: Gill Bar Area

Household garbage, wood debris, and scrap metal were among the 24 metric tonnes of waste removed during the March 18 event. The annual cleanup takes place in and around the Gill Road area and surrounding Fraser River, and sees hundreds of volunteers and families participating each year.

The garbage and metal were hauled to the Bailey Landfill (metal was recycled), and the wood debris was hauled to the Parr Road Green Depot for composting, with the City providing free disposal for all of the contents. Fraser Riverkeeper and the Fraser Valley Illegal Dumping Alliance were the event hosts, and the event was supported by many local businesses.



Christmas Tree Composting

The City's annual Curbside Christmas tree collection program started off the New Year with Emterra Environmental collecting trees from Curbside customers and delivering them to the Parr Road Green Depot for composting. Residents also dropped off over 130 trees for free at the Parr Road Green Depot.

Combined, these two annual options provide Chilliwack residents with convenient ways to compost Christmas trees and help to reduce illegal dumping and burning.

Curbside Program Changes

The City joined a provincial recycling program administered by Multi-Material BC (now RecycleBC) on March 1, 2017, which changed some of the items accepted in the Curbside Collection Program. New items are now included in curbside recycling, such as aerosol containers, dairy cartons, frozen dessert containers, cardboard/metal tins (eg. for chips, nuts, etc.), and un-numbered rigid plastic packaging (eg. for batteries, toys, etc.). Plastic bags, glass containers and jars, and styrofoam are recycled at four depots. By joining the program, the City receives financial incentives to keep our curbside fees as low as possible.

Preparations continued for the Curbside Collection Program changes that will take effect in May, including the collection of organics/compostable waste (food waste, food-soiled paper and yard waste) from contractor-provided Green Carts.

The Chilliwack Home, Leisure and Outdoor Living Expo provided an excellent opportunity for Environmental Services staff to interact with hundreds of Chilliwack residents and answer questions about the Curbside Collection Program. The event ran from January 27 through 29, 2017.



Organic Waste Transfer Station Project

This \$3,600,000 project is well under way by the design-build team of Titan Construction Company Ltd. / Morrison Hershfield Engineering. The project scope includes a 900 m² Transfer Station building and modifications to the existing residential waste off-load area. Construction work began mid-August 2016 with project substantial completion scheduled for the end of April 2017.



McGillivray Pump Station Upgrade Project

The Province of BC recently announced an investment of \$4.2 million through the BC Disaster Mitigation Program to support the McGillivray Pump Station, increasing the pumping capacity to meet the standard to protect against a one-in-100-year rainfall event. It will benefit the area bounded by the dikes of the Fraser River along the Trans-Canada Highway to the north, Vedder River dikes to the south, Lickman Road to the east and Vedder Canal dikes to the west, protecting a 30-square-kilometre floodplain area.

Preliminary engineering design was completed by the consulting firm Urban Systems Ltd. (USL). The McGillivray Pump Station upgrades, along with the previously completed Collinson Pump Station upgrades were recommended in the Greendale Drainage Study after extensive flooding occurred during the January 2009 flood event. The 2010 USL study included the conceptual design for both Pump Station Upgrades. The project objective is to increase the capacity of the pump stations to reduce or eliminate flooding caused by a 1:100 year return period rainfall event.

The McGillivray design scope of work includes:

- Upgrading the existing 2-300HP pump / motors with 2-600HP pump / motors;
- A new dedicated electrical building to house the new motor control center, VFDs control panel, and standby generator for the upgraded pumps;
- A new 600V 3 phase service from the transformer to the new motor control center;
- Provisions for an automated trash raking system, and reconfiguration or replacement of the existing debris conveyors; and
- Upgrades to the Flood-box to correct structural deficiencies and provide an automated slide gate actuator to enable conversion between gravity flow and pump flow.

