

Engineering



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

Second Quarter Report, 2018



CITY OF
CHILLIWACK

Wastewater Treatment Plant High-Strength Wastewater Pre-Treatment Facility Project



The project includes the construction of a high-strength wastewater pre-treatment facility (HSWWTF) at the City's Wastewater Treatment Plant (WWTP) to accept and manage high strength wastewater.

PCL Constructors Westcoast Inc. is proceeding with construction of the facility while Associated Engineering is providing design and construction services. Global Water & Energy is in charge of process design and anaerobic treatment technology use at the facility. Ground improvement, civil construction works and treatment building construction are now completed and wastewater holding and process tanks as well as the installation of process and electrical equipment works are currently

underway. The overall project is scheduled to be completed in December 2018.

Kerr Avenue Sanitary Pump Station and Forcemain Project

The project includes the construction of a sanitary pump station and the installation and upgrade of a forcemain which are being constructed to convey high-strength wastewater to the pre-treatment facility (HSWWTF) at the wastewater treatment plant (WWTP). The Kerr Avenue Sanitary Pump Station will include a 30 L/s capacity duplex submersible sanitary pump station, including a pump house building to house electrical controls, a backup generator, and other appurtenances. Kerr Avenue Sanitary Forcemain is a dedicated sanitary forcemain to convey wastewater flows from the new sanitary pump station to the high-strength wastewater pre-treatment facility (HSWWTF) at the wastewater treatment plant (WWTP). The forcemain pipe installation works are now completed and Jakes Construction Ltd., is currently proceeding with construction of the sanitary pump station. The overall project is scheduled to be completed in December 2018.



Yarrow Reservoir "A" Replacement Project



The project consists of the demolition of the existing damaged reservoir, rock excavation to prepare the reservoir foundation, slope stabilization, a duty/standby pumping arrangement, 1,500 cubic metre capacity glass-lined, bolted steel circular tanks and related piping and improvements to drainage systems. The Maple Reinders Inc. / Ecora Engineering & Resource Group Ltd. design-build team completed detailed design work, demolition of the existing concrete reservoir and ground improvement works. They are currently in the process of installing steel tanks and underground pipes. The overall project is scheduled to be completed in Fall 2018. This \$2,011,567 project is funded by Yarrow Waterworks District and a grant from the Provincial-Federal Clean Water and Wastewater Fund.

Mechanical Systems Replacement Project

The project is a combination of four sanitary pump station (SPS) upgrades and one pressure reducing valve (PRV) upgrade throughout Chilliwack that have been combined to increase scope and economy of scale. The proposed SPS #5, 6 and 7 replacement is to increase pump station capacity to meet future flow conditions, upgrade to continue to meet current WorkSafeBC regulations and to replace aging infrastructure which has reached the end of the serviceable lifespan. The proposed SPS #10 upgrade is to meet future flow conditions and to improve operational reliability. The proposed Goldspring PRV is to upgrade the PRV station to continue to meet current WorkSafeBC standards and to improve operational reliability.

Timbro Contracting Ltd./Onsite Engineering Ltd. design-build team was awarded the \$2.8 million project after successful completion of the design-build procurement process and they are currently in the process of completing detailed design work. The following table shows water and sewer infrastructure upgrade projects. The project is scheduled to be completed in October 2019.

Name of Project	Description of Work	Contract Value
Upgrade SPS 5	Complete replacement of Sanitary Pump Station	\$ 744,000
Upgrade SPS 6	Complete replacement of Sanitary Pump Station	\$ 832,000
Upgrade SPS 7	Complete replacement of Sanitary Pump Station	\$ 792,000
Goldspring PRV	Complete replacement of Pressure Reducing Valve Station	\$ 240,000
SPS # 10 2 nd Submersible Pump	Installation of second submersible pump	\$ 176,000



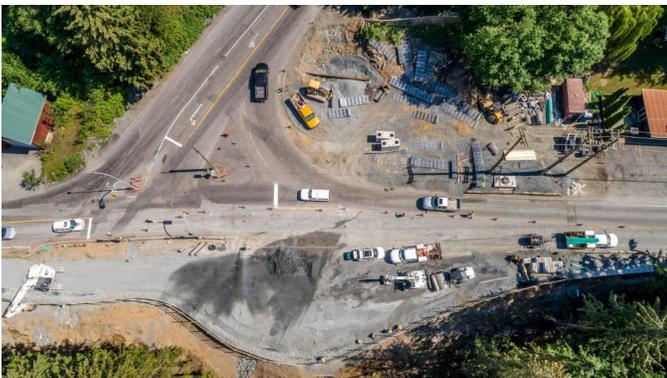
2016 Transportation Design-Build Combination Projects

Valley Rail Trail

- Construction of the Valley Rail Trail between Luckakuck Way and Airport Road began in June.
- Construction completion of trail and bridge works is scheduled for September 2018.



Cultus Lake / Vedder Mountain Roundabout



- Wall construction and road raising for the roundabout were completed.
- Drainage works and base paving were completed prior to site shut down for the summer.
- Construction will restart in September with completion scheduled for November 2018.

Evans and Stevenson Intersection

- Evans Road widening, drainage and curbing were completed in June. Construction will be interrupted in July for BC Hydro conduit installation.
- Construction completion is scheduled for August 2018.



Promontory and Chilliwack River Intersection



- BC Hydro, Telus and Shaw overhead to underground relocations ongoing through the second quarter.
- Roadworks to begin in July.
- Construction completion scheduled for September 2018.
- Project will provide the much needed eastbound left turn lane, and shifted Promontory Lake Estates entrance driveway.

Traffic Count Annual Program



The Annual Traffic Count Program has now completed 100% of the data collection in the City of Chilliwack. The contractor Transtech Data Services, who has been hired by the City to undertake this program, has begun processing the data to produce the final report which is due in August 2018.

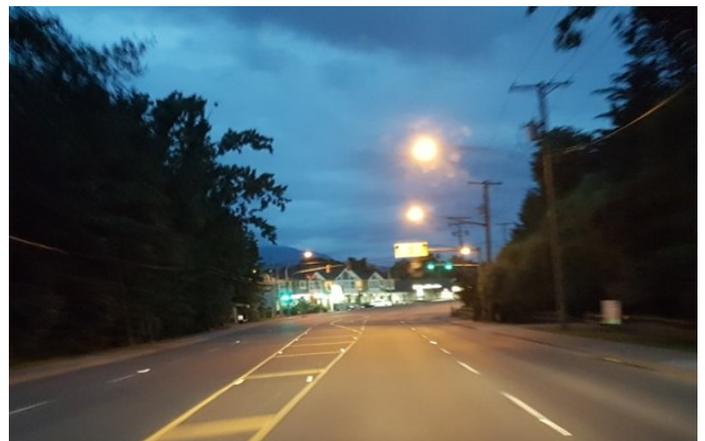
Our annual and historical Traffic Count data can be viewed on our public City Webmap page at <http://maps.chilliwack.com> under the Transportation Section. Traffic Count data is vital for services such as traffic signal timing and evaluation of transportation and

traffic safety improvements. It is also used by real estate and advertising companies.

Roadway Reflectors

Sealtec Industries Ltd. has completed the Annual Roadway Reflector Program for 2018. This program saw the installation of over 2,500 raised roadway reflectors in April. The installations occurred on the following roadways:

Vedder Road, Yale Road, Vedder Mountain Road, Promontory Road, Chilliwack Mountain Road, Grandview Drive, Bracken Drive, Old Orchard Road, Elkview Road, Ryder Lake Road, Extrom Road, Ballam Road, Prest Road, Chilliwack River Road, Camp River Road, and Luckakuck Way.



2018 Asphalt Rehabilitation

Repaving work started significantly earlier than usual this year with All Roads Construction Ltd. completing the following sites:

- Young Road from Airport Road to Hocking Avenue
- Hocking Avenue from Young Road to Yale Road
- Yale Road from Hodgins Avenue to Main Street
- Corbould Street from Spadina Avenue to Wellington Avenue
- Majuba Hill Road from Robinson Road to Abbotsford Boundary



Road Base Reinforcement

Base reinforcement has been completed on Old Orchard Road just west of Copper Ridge Drive by TerraCana Foundation Solutions Inc. and the repaving will be completed shortly.



Old Orchard Road—Micropile Drilling



Old Orchard Road—Before Reinforcement



Old Orchard Road Grade Beam

Video Detection – First Avenue at Broadway



Pavement deterioration on all approaches led to traffic detection loop wire failures so a new video detection system has been installed. Video detection provides for continuous service even when asphalt is removed or damaged, it eliminates the need for loop wire cuts in the asphalt which accelerate deterioration and it is capable of detecting bicycles and small vehicles that loops typically miss.

Left-Turn Signal – Vedder Road at Manuel Road

A southbound left-turn signal phase was added and two existing street lights were upgraded to LED. LEDs reduce energy consumption by about 50% and are maintenance free for up to 20 years, compared to five years for a Metal Halide or High Pressure Sodium light.



Roadway Markings



The annual roadway marking program is underway. Each spring staff conduct a thorough evaluation of the current roadway markings and create a work list of items that require reinstallation. Road markings in poor condition are selected for reinstallation.

The thermoplastic crews will be reinstalling stop bars, crosswalks, “X” stencils, intersection guiding lines and arrows. The paint crew will be installing yellow centerline, white lane lines and bike lanes, median hatching areas, parking stall and bicycle stencils and more. All roadway markings include glass beading to help improve night time reflectivity of the markings.

Aardvark Pavement Marking Services will be working from 7pm to 7am most evenings throughout Chilliwack over the next few months. The crews will work the night shift to be least disruptive to motorists and reduce the chances of vehicles tracking the wet paint. They will be marking over 450 km of roadway.

Public Engagement



The Engineering Department and BC Transit hosted open houses at two locations in April. The focus of the open houses was to gain insight from residents on the proposed transit extension on Route 4. Staff received feedback from residents while at Jinkerson Park (location #1) and at Save-On-Foods (location #2) on the plans for extending Route 4 service in a clock-wise loop direction on Teskey Way, Jinkerson Road, Skyline Drive and Sylvan Drive. The expansion plan is set to launch in September 2018, and was based on requests received in recent years from neighbourhood residents and feedback from the public who attended the open houses in April.

Safer City was invited to participate at the annual Jump Start event at Canadian Tire and the RCMP Open House during the second quarter. Both events provided the opportunity for staff to speak with the public regarding their road

safety concerns, questions and comments.

Safer City Projects

Hey Neighbour, Slow Down Program: Residents from Lickman Road (south) participated in the “Hey Neighbour, Slow Down” program in the second quarter. This neighbourhood traffic safety campaign is a neighbourhood participation program. Residents in a neighbourhood agree to post lawn signs calling for motorists to slow down. In order to achieve a strong neighbourhood impact, it is recommended that the signs be placed on every second property within a block for a period of one or two weeks. The copious number of signs and the short period in which the signs are installed maximizes the impact.

Seniors Driver Licensing Information Session: Safer City, in partnership with ICBC, hosted an information session for senior drivers. City Hall Council Chambers was full of residents interested in learning more about driving today, self-assessments, assessing medical fitness, the Enhanced Road Assessment (ERA), pedestrian safety, distracted driving, staying mobile and tips for seniors with refreshers on rules of the road. Presenters included two speakers from ICBC; the RCMP and Safer City assisted with questions pertaining to their area of expertise during the two hour session. Visitors expressed their appreciation and encouraged similar types of sessions in the future.

Equipment



Safer City has been utilizing new in-house traffic data collection devices on numerous roadways throughout the community. The benefit of the devices is their ability to provide valuable data back to the Safer City team regarding speed and volumes on specific roadways. This provides the team with insight into specific times of the day when speeding is occurring, which enables effective educational tools and enforcement efforts for deployment. In the second quarter, fourteen locations were utilized for data collection with future one week deployments currently standing by awaiting collection at numerous locations.

Earth Month



Activities focused on waste reduction and environmental conservation were once again well received by the community during our annual Earth Month events in April.

1) Roadside Clean-Ups:

Non-profit groups collected garbage, recyclables and green waste along the sides of City roads. A total of 1.1 tonnes of material were collected between all of the organizations. Many roadsides throughout the community are also routinely cleaned up by over 70 volunteer groups participating in the City's Adopt a Road program.

2) Residential Pick-Ups:

For those in our community who do not have the means to load or transport bulky waste, three volunteer groups

arranged to collect the items by donation. The groups collected 7.7 tonnes of material, which were responsibly recycled, composted or disposed of.

3) Adopt a River Event:

Over 230 volunteers from the community and the adopting groups spread out along the banks of the Vedder/Chilliwack River on April 21 to help clean up litter and illegally dumped items left behind by others. Coordinated by the Chilliwack-Vedder River Cleanup Society, the volunteers collected 3.5 tonnes of waste during this year's first of two Adopt a River clean-ups. Various materials including clean wood and metal were diverted for recycling before the remainder of the material was responsibly disposed of at the Bailey Landfill.

4) Scrap Metal Recycling: 75.3 tonnes of metal diverted

Scrap metal was received for free at the Bailey Landfill during the month of April. The metal was removed offsite by a contractor for recycling. In total, 821 loads were received, totaling 75.3 tonnes. This is an increase of approximately 10 tonnes over last year!



5) Semi-Annual City-Wide Garage Sale

Over 220 residences registered for the popular spring City-Wide Garage Sale this year. Residents were given the option of registering their home or housing complex online to have their address listed both on the City website and in the local paper. A summary of the types of items available for sale at each participating location was also made available to the public. In addition, the City website directs participants to a list of organizations to which they can take their leftover useable clothing and household items after the sale. This semi-annual initiative supports our reuse and recycle goals at little cost to the public.

Green Commuter Challenge



The City's annual Green Commuter Challenge is designed to encourage residents to leave their cars at home and use a more sustainable form of transportation for their commute.

During the 2018 challenge, the City received hundreds of ballot entries from residents who biked, walked, bused, carpoled, etc. for their commute from May 28 to June 10. This year's prize bike was an Asama folding bike with a helmet and lock valued at \$460, which were kindly donated by PedalSport with a contribution from the City of Chilliwack.

This year's winner of the Green Commuter Challenge was Dave Finley, who usually rides his bike or walks to work!

Shred-A-Thon and Food Drive

The June 2 Shred-A-Thon & Food Drive was another huge success, collecting \$4,350 in cash and 2,000 pounds of food for the Salvation Army from residents taking advantage of the free document shredding service. The successful event was hosted by Shred-it, Emterra and Cottonwood Mall. Emterra generously contributed an additional \$2,000 to the Salvation Army, bringing the total cash donation to \$6,350! The next Shred-A-Thon and Food Drive will be held on December 1 of this year.



Habitat Enhancement



For Earth Month, the City and students from Yarrow Elementary planted over 200 trees and shrubs along Stewart Creek to improve salmon habitat. Support was generously provided by Ice River Springs, Birch Grove Nursery, and the Fraser Valley Watersheds Coalition.

Japanese Knotweed Management



The City's annual Japanese Knotweed treatment program recommenced this spring, with approximately 100 knotweed patches on public land being treated by a contractor, Morrow BioScience. Patches are mapped and prioritized for treatment based on potential impact to public infrastructure such as dykes, roads, or utilities.

Bat Box Installation

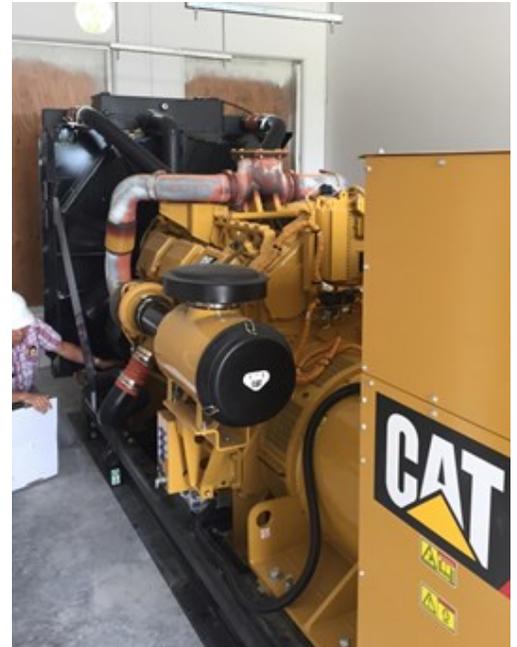
Students from Strathcona Elementary and Vedder Middle School collaborated to build eight bat boxes to provide roosting sites for local bats. The City helped install the boxes around Fairfield Park and talked to the students about the role bats play in our ecosystem.



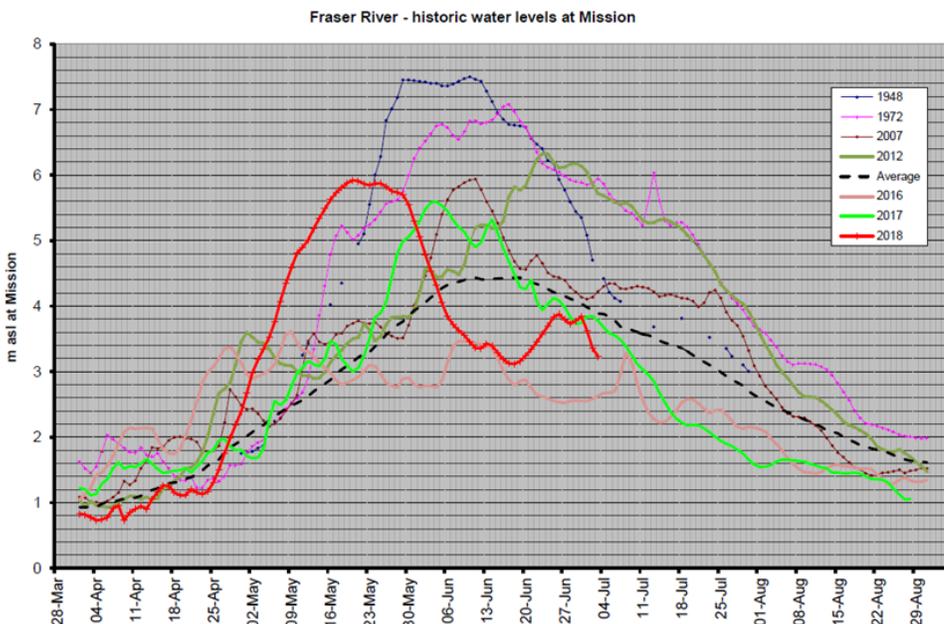
McGillivray Pump Station Upgrade

Construction is under way by the design-build team of Gerry Enns Contracting Ltd. / Urban Systems Ltd. in the contract amount of \$4,522,052.

Construction of the new electrical building is nearing completion and the standby generator has been installed. Instream works to upgrade the pump intake structure, discharge piping and floodbox will begin next month. The project is being funded by the Province of BC and substantial project completion is scheduled for the end of 2018.



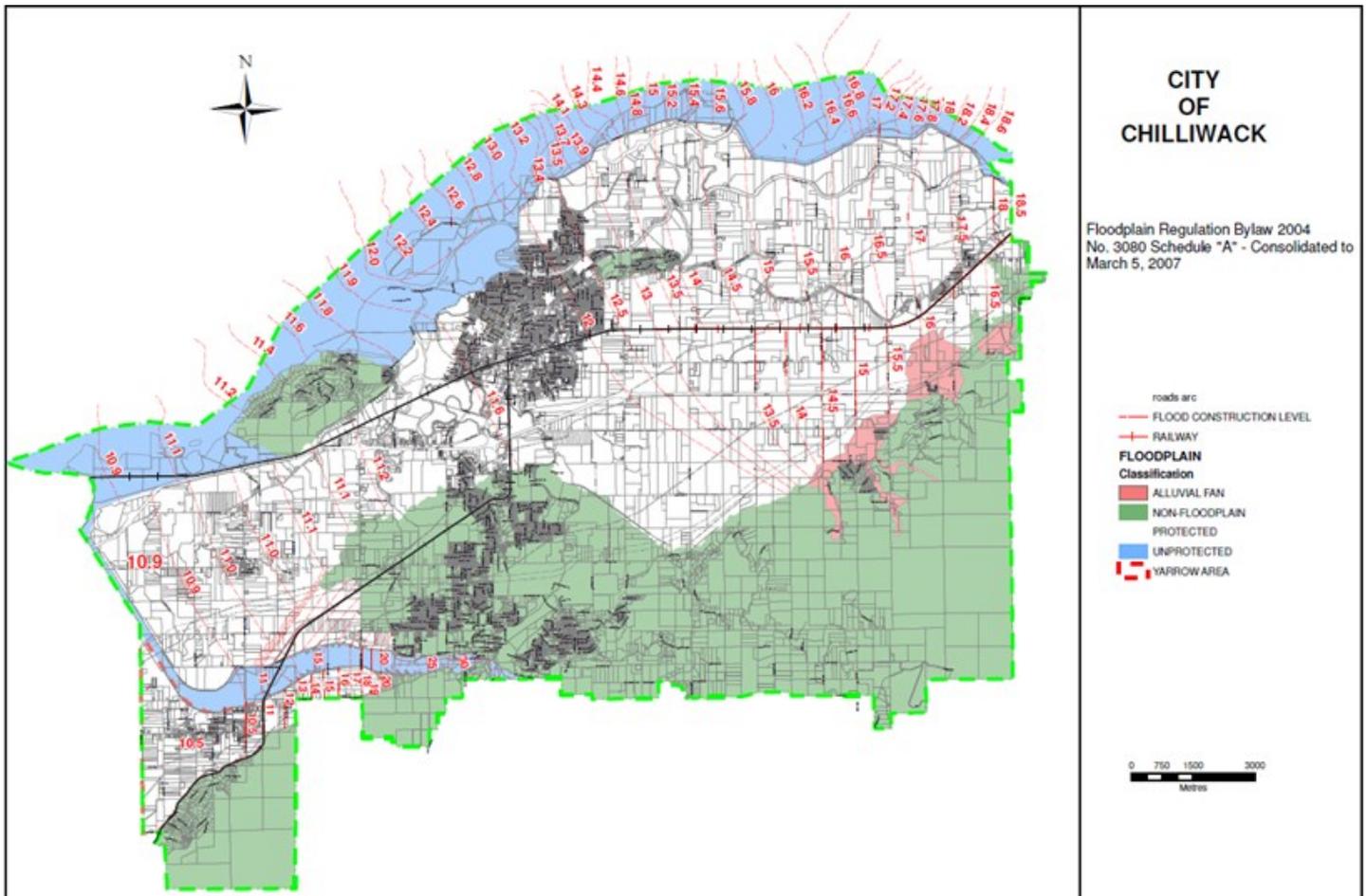
2018 Freshet



The 2018 Freshet high water level on the Fraser River occurred on May 20 and was recorded as being just under 6.0m at the Mission gauge.

Although the spring snowpack for the entire Fraser River basin was only slightly above normal (108% April 1), the hot temperatures in early May caused an unprecedented snow melt which resulted in river levels rising much earlier than normal. The graph on the left shows the 2018 river levels in comparison with the average and some of the other significant event years. As of July 3, 2018 the level is tracking below the long-term average.

Floodplain Mapping



The City of Chilliwack Floodplain Mapping Update project is underway by the consulting engineering firm of Northwest Hydraulic Consultants. Funding for this project is provided by the National Disaster Mitigation Program (NDMP). A funding agreement is in place with Emergency Management BC and Public Safety Canada whereby each will contribute 50% of the \$318,000 project cost.

The project will provide updated floodplain mapping that informs the community on the flood inundation zone and maximum flood depths and also:

- provide updated flood construction levels (FCLs) that can be used to update the Floodplain Regulation Bylaw and guide development activities in the community;
- identify flood hazard parameters, including evacuation requirements, flood depth and flow velocity which will help the community makes appropriate decisions on mitigation planning; and
- prioritize flood hazard areas for appropriate land use planning.

Substantial completion is scheduled for March 2019.