

# Engineering



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

Fourth Quarter Report, 2019

## Mechanical Systems Replacement Project



The project includes upgrades to four sanitary pump stations (SPS) and one pressure reducing valve (PRV). The tasks were combined to increase scope and economy of scale. The SPS 5, 6 and 7 replacements are to increase pump station capacity to meet future flow conditions. The SPS 10 upgrade is also required to meet future flow conditions and to improve operational reliability. The upgrade to the Goldspring PRV is required to meet current WorkSafeBC confined space regulations efficiently and to replace infrastructure that has reached the end of its serviceable life.

The \$2.8 million project was substantially completed by Timbro Contracting Ltd./Onsite Engineering Ltd. design-build team in November 2019 after completing final restoration work at SPS 7 and Goldspring PRV sites.

The following table summarizes the cost and completion of the work:

Name of Project	Description of Work	Contract Value	Project Status
Upgrade LS 5	Complete replacement of Sanitary Pump Station	\$ 744,000	Completed Jan. 2019
Upgrade LS 6	Complete replacement of Sanitary Pump Station	\$ 832,000	Completed May 2019
Upgrade LS 7	Complete replacement of Sanitary Pump Station	\$ 792,000	Completed Sep. 2019
Goldspring PRV	Complete replacement of Pressure Reducing Station	\$240,000	Completed Oct. 2019
SPS # 10 2 <sup>nd</sup> Submersible Pump	Installation of second submersible pump	\$176,000	Completed Aug. 2019

## 2019 Utilities Upgrade Project

The project includes six water main installations, two sewer main upgrades, one storm sewer main upgrade, one pressure reducing valve (PRV) installation and a landfill gas collection system. These upgrades have been combined to increase scope and economy of scale. The water main installations will increase supply, fire flow capacity and protect the water quality in the existing water system. The sewer main replacements and upgrades will replace aging infrastructure and increase capacity to satisfy increased flow from new developments. The storm sewer main upgrade will replace aging infrastructure and increase capacity to satisfy increased flow from downtown developments. The new Jinkerson PRV station will facilitate current and future development activities in the area by ensuring downstream fire flow demands can be met. The proposed Bailey Landfill gas system will improve landfill gas collection.

The Timbro Contracting Ltd./Onsite Engineering Ltd. design-build team have completed the design and construction of the following upgrades:

- Banford Road watermain;
- South Sumas Road gravity sanitary sewer main;
- Fletcher Street (Reece to Mellard) watermain;
- Mellard Avenue (Reece to Victoria) watermain;
- Cleveland Avenue (Young to Victor) watermain; and
- Lewis Avenue (Young to Williams) watermain with the exception of some minor final paving works.

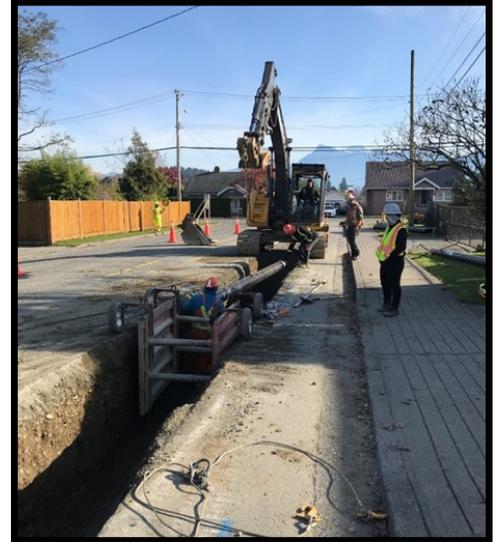
Timbro Contracting/Onsite Engineering are continuing with design and construction for the remaining project areas. Construction of the Leary Crescent and Crestwood Drive watermain replacement will begin in early January 2020. The \$3.85 million project is scheduled to be completed in September 2020.

## Wastewater Treatment Plant Inlet Works Upgrade Project

The existing Wastewater Treatment Plant (WWTP) inlet works, originally constructed in 1973, need investment to replace aging infrastructure and to accommodate increased flows due to growth in the city. The new inlet works will be able to manage flows projected for the next 30 years and beyond. The project includes a new inlet works building to house the new treatment system which includes the following efficient, high-performance processing systems:

- fine screening;
- screenings washing, compaction and conveyance;
- induced vortex grit removal;
- grit washing and dewatering; and
- space for a future trucked septage receiving and screening station.

Tritech Group Ltd. / Stantec Consulting Ltd. design-build team is currently proceeding with detailed design work and utility pre-locates. This \$8.11 million design-build project is scheduled to be completed in April 2021.



## Vedder / Promontory / Prest Design-Build Project

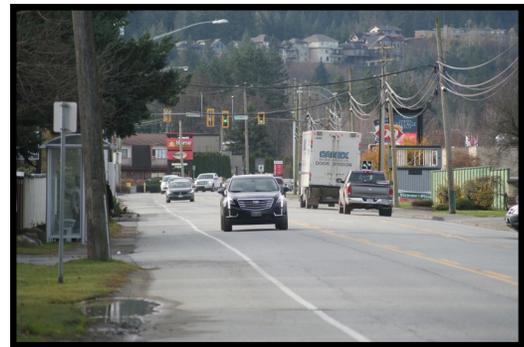
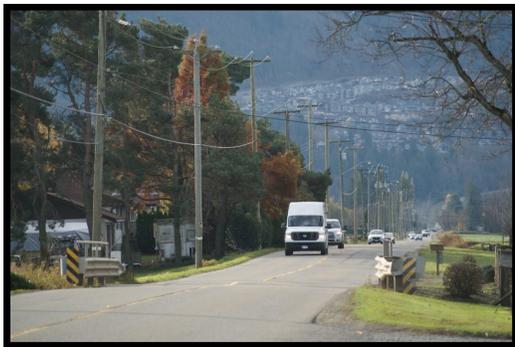
Council awarded the Vedder / Promontory / Prest Design-Build Project to the team of Eurovia BC and McElhanney Consulting. Detailed designs on all three projects have advanced, including designs by BC Hydro/Telus/Shaw to relocate overhead utilities on both the Promontory and Prest projects and the conversion of overhead to underground utilities along the Vedder Road corridor.

The improvements along Vedder Road include road widening to four travel lanes, a centre turning lane, bike lanes, sidewalks and streetlights on both sides of the corridor.

The improvements along Promontory Road include road widening to four travel lanes, a centre turning lane, bike lanes, sidewalks and streetlights on both sides of the corridor.

The improvements along Prest Road include road widening to provide sufficient travel lane width, bike lanes, shoulders and replacement of the Semiault Creek Bridge.

The first phase of construction will begin on the Promontory Road and Prest Road projects in the first quarter of 2020.



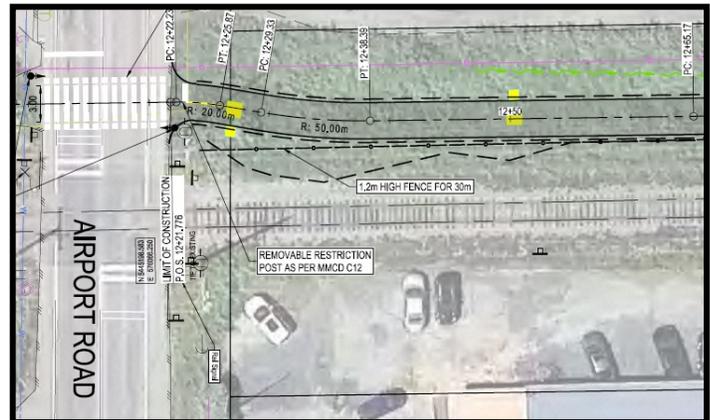
## Hack Brown / Prest / Five Corners Design-Build Project

Detailed designs were advanced on all projects including design coordination with BC Hydro/Telus for pole relocations at the Prest and Chilliwack Central roundabout. The Prest roundabout construction work has already begun and included road widening, culvert and drainage works to date. The Five Corners project is scheduled for start of construction towards the end of the first quarter in 2020, followed by the Hack Brown Road realignment project.



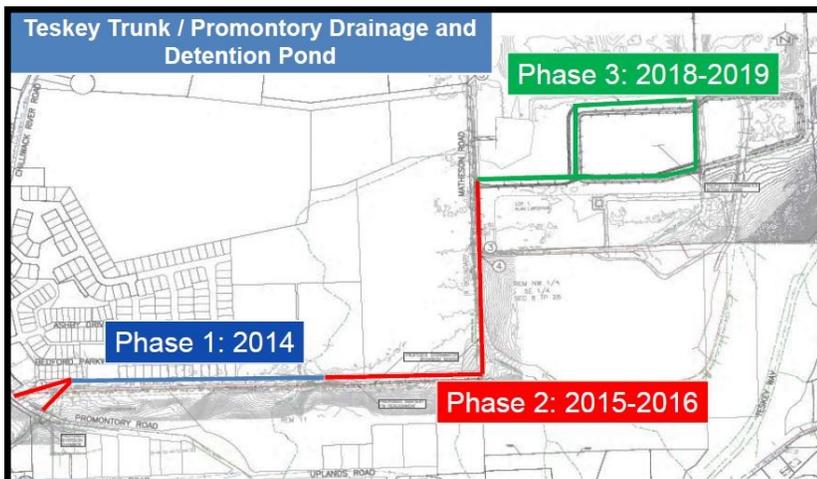
## Valley Rail Trail North Extension

Civil, electrical and Southern Railway signal crossing designs were completed during the fourth quarter. Construction is scheduled for the first quarter of 2020.



## Teskey Creek Diversion / Bailey Detention Pond

In accordance with the Promontory Drainage and Detention Preliminary Engineering Report (November 2013), Eurovia BC completed the final phase of in-stream culvert works. Flow has been introduced into the storm diversion pipe and into the new detention pond at the Bailey Landfill before flowing back into the downstream Bailey Ditch. This will reduce flows into Teskey Creek that pass through Tzeachten lands west of Matheson Road.



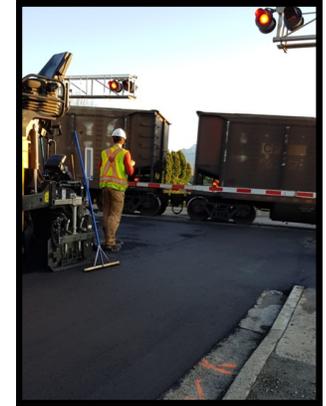
## Asphalt Rehabilitation

The 2019 Asphalt Rehabilitation program is progressing with All Roads Construction. Roads that have reached substantial completion are:

- Banford Road – CN Railway to Yale Road
- Extrom Road – Sherlaw Road to Ryder Lake Road
- Old Orchard Road – 260m north of Industrial Way
- Matheson Road – Bailey Road south to the landfill’s weigh scale entrance
- Elk View Road – Geotechnical reinforcement and paving south of Wincott Road
- Castleman Road – Chapman Road to McGrath Road



Progress Way



Broadway at CNR



Old Orchard Road

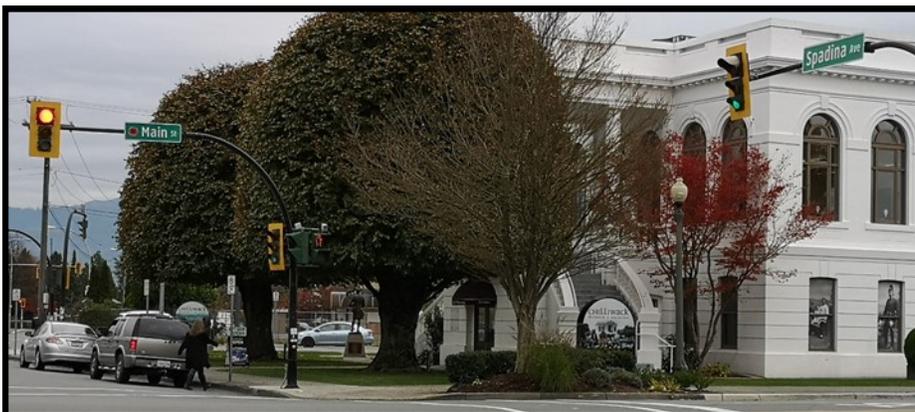
Roads currently in progress are as follows:

- Progress Way – Industrial Way to Lickman Road
- Broadway – Airport Road to First Avenue
- Sumas Prairie Road – Adams Road to Yale Road
- Nevin Road and Patterson Road – patch repairs

## Poppy Street Name Signs

New Main Street signs to honour local veterans were unveiled in October leading up to Remembrance Day. These signs included a new sign design with white text on a green background to provide improved visibility; all Main Street signs had a poppy image added.

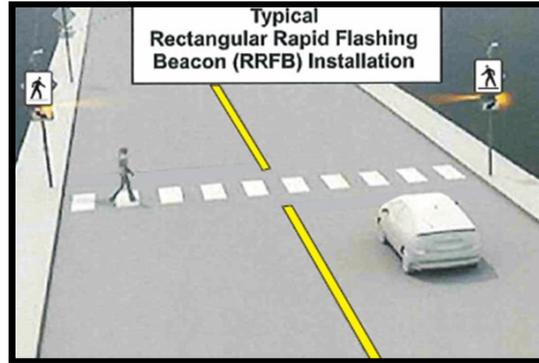
There will be more improved street name blade signs installed in 2020 with the completion of capital improvements, development projects and maintenance.



## Traffic Signal Improvements

Council has awarded the 2019 Traffic Signal Improvements Tender to Fraser City Installations (1989) Ltd. This contract includes the installation of Rapid Rectangular Flashing Beacon crossings at the following locations:

- Keith Wilson Road at Lindys Drive
- Keith Wilson Road at Janis Street
- Bernard Avenue at Crescent Drive
- Menzies Street at Portage Avenue



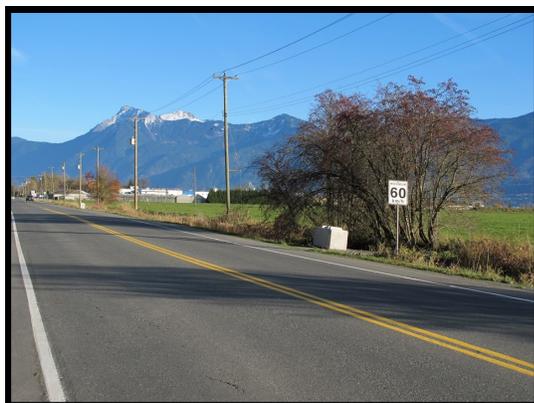
Audible pedestrian signals which assist the visually impaired will be installed at:

- Ashwell Road at Hodgins Avenue/Wolfe Road
- Knight Road at Topaz Drive

An Uninterrupted Power Supply system (UPS) at the intersection of Promontory Road and Teskey Way will be installed. Completion of work is anticipated in the spring of 2020.

## Pavement Markings

90% of the long line pavement markings and approximately 40% of the thermoplastic pavement markings including stop bars, railroad crossings and directional arrows were completed in the fourth quarter. Completion of the work is anticipated in the spring of 2020.



Yale Road and Prest Road



Young Road and Railway Avenue

## Traffic Safety Improvements

New delineator installs and required repairs to existing installations were completed in the last quarter. Locations included:

- Watson Elementary
- Promontory Road at Uplands Road
- Vedder Road and Keith Wilson Road
- Hope River Road and McSween Road
- Young Road at City Hall
- Young Road and Southlands Drive
- Sunrise Drive
- Spadina Avenue and Ashwell Road



**Watson Elementary**



**Hope River Road and McSween Road**

Intersections at Cumberland Avenue and Canterbury Drive, Cumberland Avenue and Carter Road, and Monte Vista Drive and Canterbury Drive were converted from two-way stop control to four-way stop control with painted crosswalks and centerline markings on approach to stop bars to improve pedestrian safety in the neighbourhood.



**Cumberland Avenue and Canterbury Drive**



**Canterbury Drive and Monte Vista Drive**

## Remembrance Day

Remembrance Day services were held at both Veterans Memorial Park in Chilliwack Proper and All Sappers Memorial Park in Sardis. Coordination and advance planning by City Operations, Administration, Recreation & Culture and the Engineering Department along with RCMP, BC Transit, First Transit Canada, Streetwise Traffic Control and members of Legions Branch 4 and Branch 280 ensured safe and well attended services.



## Christmas Parade



The annual Rotary Christmas Parade was held on December 9 in Downtown Chilliwack. The City of Chilliwack's Fire Department, Recreation & Culture Department and the Engineering Department coordinated with BC Transit, First Transit Canada, BC Ambulance Service, Streetwise Traffic Control and the Rotary Christmas Parade Planning Committee to make sure that the thousands of children and adults lining the downtown streets had a safe and fun time.

## Filming

2019 was a busy year for filming in Chilliwack. Major companies like Disney, CBS, Hallmark and Chronicle Mysteries chose downtown Chilliwack as a backdrop for their productions.

These productions bring business to Chilliwack by booking our hotels, purchasing items at food and beverage shops, hardware stores and more. The City of Chilliwack works closely with the production companies and the Chilliwack Filming Commission to minimize impact to residents and businesses as much as possible.



## Safer City Projects

### Chilliwack Safety Fair

The Chilliwack Safety Fair, co-hosted by Safer City and the Chilliwack Fire Department, was held on October 5. The event was held in the parking lot at Home Depot with the Yarrow Fire Hall also hosting their annual Open House on the same day. Multiple vendors provided booths to showcase their safety expertise all in an effort to expand public safety knowledge throughout the community. The team looks forward to expanding the Safety Fair next year to include more vendors and more opportunities for the public to be engaged one-on-one with local experts on a variety of safety topics.

Vendors included:

- Fire Department
- Operations Department
- Safer City
- RCMP
- CN Police
- Bylaw Enforcement
- Speed Watch
- Safety Alliance of BC
- Fraser Valley Brain Injury
- School District No. 33
- First Canada (Transit)
- St. John Ambulance
- Commercial Vehicle Safety Enforcement (CVSE)
- Home Depot (wood craft)
- Combined Workplace Health & Safety



### Commercial Vehicle Inspection Project



On October 16, Safer City hosted its annual fall Commercial Vehicle Inspection Project. There were 196 vehicle inspections throughout the day with representatives from the Ministry of Transportation and Infrastructure’s Commercial Vehicle Safety and Enforcement Branch (CVSE) and Chilliwack RCMP for a one-day road safety project. A variety of commercial and passenger vehicles were inspected to confirm their compliancy with applicable safety legislation.

## Public Engagement

Safer City hosted a booth at the Chilliwack Crime Prevention Fair on November 2. This second annual event featured a number of vendors all showcasing public safety interests. Safer City shared road safety tips with many families throughout the day and showcased the team effort for improving local road safety.



Safer City participated in the annual RCMP Open House on November 5. The outdoor event provided the opportunity to speak with the public regarding their road safety concerns and questions. This year the amount of school age children participating in the event greatly increased and many eagerly waited in line to participate in the interactive road safety trivia game.

### Roundabout Education



This drop-in style session is held twice a year, once in the spring and once again in the fall. The purpose of the education session is to broaden the knowledge of using a roundabout while in a vehicle, bicycle or as a pedestrian. The rules of the road are discussed with visitors through one-on-one discussions with Engineering staff or the RCMP; printed materials, display boards and drone footage are utilized to aid in education efforts.

### Drainage Rehabilitation Program

The 2019 Culvert Rehabilitation Program consisted of the following sites:

- Ashwell Road – Waterlily Slough
- Spruce Drive – Luckakuck Creek
- Rose Road – Camp Slough



ISL Engineering and Land Services Ltd. completed the engineering design work in early 2019. The construction portion was tendered through public procurement in June 2019. Five (5) bids were received and Walters Bulldozing 1994 Ltd. was awarded the contract. Construction work was substantially completed during the summer environmental work window of August through September, with the final contract value in the amount of \$637,000. This project involved culvert replacements, curb, gutter and sidewalk construction, barrier and pedestrian railing installation, asphalt paving replacement, widening and other improvements.

### Fisheries Offsetting Compensation



Offsetting compensation works were required as a condition of the 2019 Drainage Rehabilitation in-stream work permits. Engineering collaborated with Environmental Services staff to identify a nearby critical habitat area for enhancement and restoration. Enhancement works comprised of a 50m long x 1m deep pool for the benefit of Salish Sucker habitat on Luckakuck Creek. In addition, seven large trees and 100 shrubs were planted to create 150m<sup>2</sup> of riparian habitat.

## Waste Reduction Month

Every year in October, the City hosts Household Hazardous Waste Day and other environmental events as part of Waste Reduction Month.

### Household Hazardous Waste Day

Household Hazardous Waste Day was held on Saturday, October 5, at a new location: the parking lot of the City’s Operations Centre on Luckakuck Way.

Residents from Chilliwack and six surrounding communities and electoral areas participate in this annual event through a cost-sharing arrangement with the Fraser Valley Regional District. This popular event is an opportunity for residents to drop off their household hazardous waste materials for proper disposal or recycling free of charge (donations to the Salvation Army were welcomed). Common items that were dropped off included paints, adhesives, fire extinguishers, waste oil and household cleaners.

Event summary:

- Customer count: 464 (95% from Chilliwack, 5% from surrounding areas)
- Contractors: Terrapure Environmental Solutions, Product Care Recycling (Chilliwack Bottle Depot), and Schnitzer Steel (Viper Fuels)
- Donations to Salvation Army Food Bank: Approximately \$1,800 and 4,300 food items
- Amount of hazardous waste collected: 9.7 metric tonnes plus 15,500 litres



### Free Scrap Metal Recycling



Residents were permitted to drop off scrap metal at the Bailey Landfill free of charge throughout the entire month of October. A total of 58 metric tonnes of scrap metal from 661 loads was collected. All of the scrap metal is transported to a processing facility owned by Schnitzer Steel and is ultimately shipped to end markets to be recycled into new products.

### Pumpkin Composting



Residents brought 100 Halloween pumpkins to the Parr Road Green Depot in 2019, in addition to those placed in Green Carts as part of the City’s compostables collection program. The pumpkin composting initiative reminds and encourages residents to divert their green waste from the landfill.

## Illegal Dumping Cleanups

Southside Church engaged 20 volunteers to perform a cleanup of known illegal dumping spots on November 30. Environmental Services staff coordinated the cleanup locations, material collection by Operations, and provided free landfill disposal for the event.

## Illegal Dumping Campaign

Throughout November, Environmental Services and Communications ran a social media and print ad campaign highlighting the average disposal costs of common items found illegally dumped. The posts and information were well received and helped residents realize it is often cheaper than anticipated to responsibly dispose of items.



## Bailey Landfill Cost Estimator

A screenshot of a web-based cost estimator tool. It has three numbered steps: 1. Choose Your Waste Type: A dropdown menu is set to "Household Garbage". 2. Choose Your Units: A dropdown menu is set to "Kilograms". 3. Enter Your Estimated Weight of the Item or Materials: A text input field contains "100" and a button labeled "Estimate Cost". Below the input fields, the text "Estimated Cost" is followed by a green box containing "\$9.30".

Environmental Services staff conceptualized and worked with IT to create a web-based tool to help residents estimate the cost of disposing their items at the Bailey Landfill. The tool also helps staff respond to resident enquiries about disposal. Helping residents realize it is often cheaper than expected to responsibly dispose of items is anticipated to reduce illegal dumping.

The tool can be found at [chilliwack.com/stopdumping](http://chilliwack.com/stopdumping) and [chilliwack.com/landfill](http://chilliwack.com/landfill).

## Habitat Enhancement

### Coho Overwintering Pond Planting

Yarrow Elementary participated in a school-wide field trip of 300 students to the new overwintering pond created for Coho salmon in Wilson Park in Yarrow. The students planted hundreds of trees, shrubs and emergent vegetation to enhance the new habitat. Environmental Services staff and members of the Fraser Valley Watersheds Coalition were onsite to facilitate.



## School-Wide Field Trip



400 students from Vedder Elementary experienced a day in nature during a school-wide all-day field trip facilitated by Environmental Services staff and Fraser Valley Watersheds Coalition. Classes rotated through six stations from tree planting to aquatic invertebrate surveys. The event was held at the newly created salmon rearing pond near the Hooge Road Rotary Trail parking lot.

## Luckakuck Creek Naturalization

City staff supported a local environmental non-governmental organization, the Fraser Valley Conservancy (FVC), to restore riparian habitat along the salmon-bearing Luckakuck Creek. The group had volunteers remove invasive species and plant natural shrubs. Environmental Services supplied large trees and coordinated with Parks staff to plant them with their arboriculture crew. Collaboration between residents, the City and the FVC culminated in a significant aesthetic and ecological difference to the area.

## Long-Term Stewardship

Students from Mt. Cheam Christian School recently began water quality monitoring, tree planting and other activities as part of their long-term nature stewardship efforts. City staff were on hand to facilitate while support was generously provided by Ice River Springs.

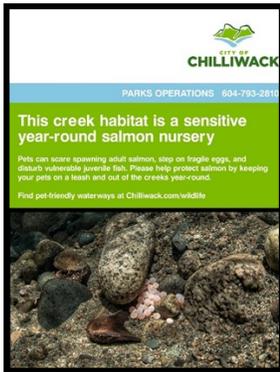


## Three-Part Species at Risk Project



Students from Unity Christian School recently constructed 11 nest boxes for Barn Owls, a local Species at Risk. Next, students will help install a nest box in a local barn. When occupied, the students will return for the third component of banding the babies for research.

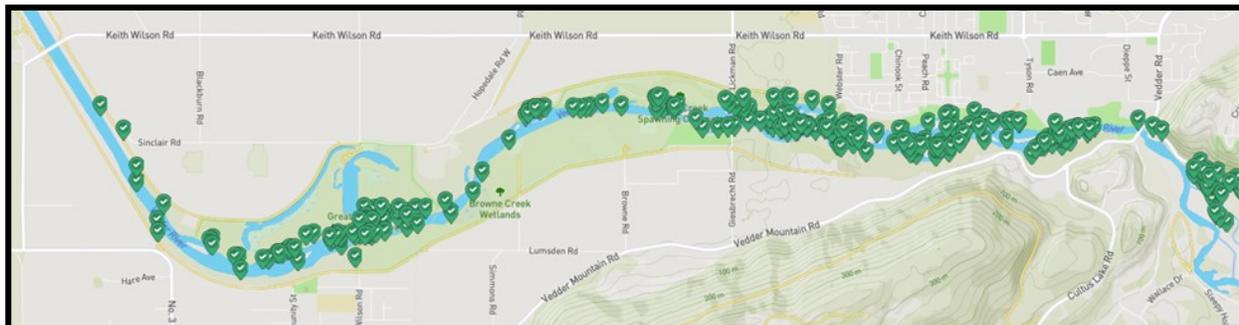
**Pet Impact Education**



Environmental Services collaborated with Parks staff to create signs discussing the impacts pets can have on sensitive fish habitat. Ten signs have been installed in key areas as a pilot. Accompanying information for residents has also been posted to [chilliwack.com/wildlife](http://chilliwack.com/wildlife).

**Vedder River Instream Japanese Knotweed Survey**

City staff collaborated with FLNRORD, MOTI, FVRD, Fraser Valley Invasive Species Society, and a contractor to map the locations of Japanese Knotweed within the banks of the Vedder/Chilliwack River. The data compiled is being used by the Province to consider sponsoring consultations for a Pesticide Use Permit to manage the invasive species in this sensitive habitat.



**Shred-a-Thon**



The latest Shred-a-Thon event was held on December 7. Together, Chilliwack residents donated 1,550 pounds of food as well as \$4,706.70 in cash to the Salvation Army Food Bank while participating in the document shredding event.

Enterra Environmental matched the community cash donations for a combined event total of \$9,413.40. The event was made possible through generous contributions from Shred-It, Cottonwood Mall, Enterra Environmental and Chilliwack residents.

## Green Christmas

Every Christmas new gifts replace older versions of common electronics. In anticipation of residents clearing out the old items, free depot recycling options for the most common gift categories were promoted over social media, as well as at City Hall with a display in the front reception area. The City also promoted zero-waste gift ideas for the holiday season.



## Single-Use Item Consultation

Single-use items are a growing concern in many municipalities across Canada. Single-use, disposable items, including plastic bags and paper coffee cups, are meant for one-time usage before being thrown in the garbage. Some single-use items can be recycled, while others must be disposed of.

Public consultation on single-use items occurred in December. An online survey garnered 1,019 responses and staff conducted three pop-up booths in order to provide residents with the opportunity to talk to staff directly. Two pop-up booths were held at Cottonwood Mall on December 12 and 14, with an additional booth held at the Sardis Sports Complex during the Santa Toonie Skate on December 14. In total, 194 people approached the booths or were provided with information directing them to the webpage and survey.

Consultation with businesses will be occurring in January with a final report summarizing the consultation process to be prepared by the end of February.

