

Engineering



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

Fourth Quarter Report, 2015

Annis Road and Weeden Drive Pump Station Upgrades



The Annis Road Booster Pump Station provides water service to the Falls development in the Eastern Hillside area. Currently, it has reached its capacity due to the on-going development. Major mechanical and electrical upgrades including high capacity pumps are required to facilitate future growth in the area.

The Weeden Drive booster pump station serves a high elevation residential area of Promontory. The pump station requires an upgrade to provide backup fire flow pumping capacity. Major mechanical and electrical upgrades including BC Hydro service connection are required to accommodate the additional fire pump.

Norich Electric Ltd. is proceeding with the construction work of the project while Associated Engineering is providing required engineering services. The project is scheduled to be completed in the spring of 2016.

Camp River Road Water Main Installation

The Camp River Road between Reeves Road and Standeven Road requires road rehabilitation works to improve the condition of the failing roadway. The performance review of the Camp River Road water main revealed that the 60 year old cast iron water main was prone to frequent breakages and should be replaced to avoid road repair work in the future and to improve water quality and reliability of the existing water supply in the local area.

The project consists of approximately 2,780m of water main installation along Camp River Road from Reeves Road to Standeven Road South and approximately 2,750 meters of asphalt level course and full road asphalt overlay to a maximum width attainable within the restrictions of private property, geometry, heritage trees and river bank.

Jakes Construction / ISL Engineering & Land Services Ltd design build team successfully completed the installation of water main portion. The road rehabilitation work could not be successfully completed due to fall and winter weather conditions, final paving will be completed in the spring of 2016.



Wastewater Treatment Plant Inlet Works Upgrade



The existing Wastewater Treatment Plant Inlet Works, originally constructed in 1973, needs expansion to accommodate increase flows due to growth in the City.

The RFEI process is currently underway to select a qualified consultant to complete preliminary design. Following design work, staff will focus on procurement for this important project. The overall completion of this \$5,500,000 project is scheduled at the end of 2017.

Marble Hill Well Source Development

The City of Chilliwack explored groundwater potential in the Marble Hill area on 6950 Marble Hill Road to supplement the current Sardis Vedder Aquifer water source to meet the current & future drinking water supply needs in the Eastern Chilliwack Area.

The hydrogeological investigations were conducted by AMEC Foster Wheeler on 6950 Marble Hill Road confirmed the underline aquifer is capable of sustainably producing 75L/s. AMEC identified several well sites within 6950 Marble Hill Road and two production wells were drilled and connected to the City's existing water distribution system in December 2015 with a capacity of 30 and 35 L/s. The water quality analysis conducted on these wells indicated that groundwater is of excellent quality.



Biological Treatment System Expansion Phase 1



The existing biological treatment system at the Wastewater Treatment Plant (WWTP) required expansion to accommodate increased flows and loads due to growth as well as to meet discharge quality requirements in the future. The objective of this project is to construct a new Bioreactor Tank with associated equipment, a splitter Box and a third Clarifier to increase WWTP capacity and to maintain regulatory effluent quality requirements. NAC Constructors Ltd. / Opus DaytonKnight Ltd. design build team successfully completed the construction work of this \$7.5 million project in December 2015.

Vedder Bridge Replacement



The Request for Proposal documents were released to the three lead proponents:

- Martens Asphalt Ltd. / McElhanney Engineering Ltd.;
- Emil Anderson Construction (EAC) Inc. / Klohn Crippen Berger; and
- Surespan Construction Ltd. / Hatch Mott MacDonald.

These teams will be preparing proposals that include two different bridge design options: Option 1 – Steel Girder

Design and Option 2 – Steel Arch Design. Ongoing site activities have included additional Geotechnical drilling investigations along with Geophysical and Hydrographic survey necessary for the bridge abutment foundation design.

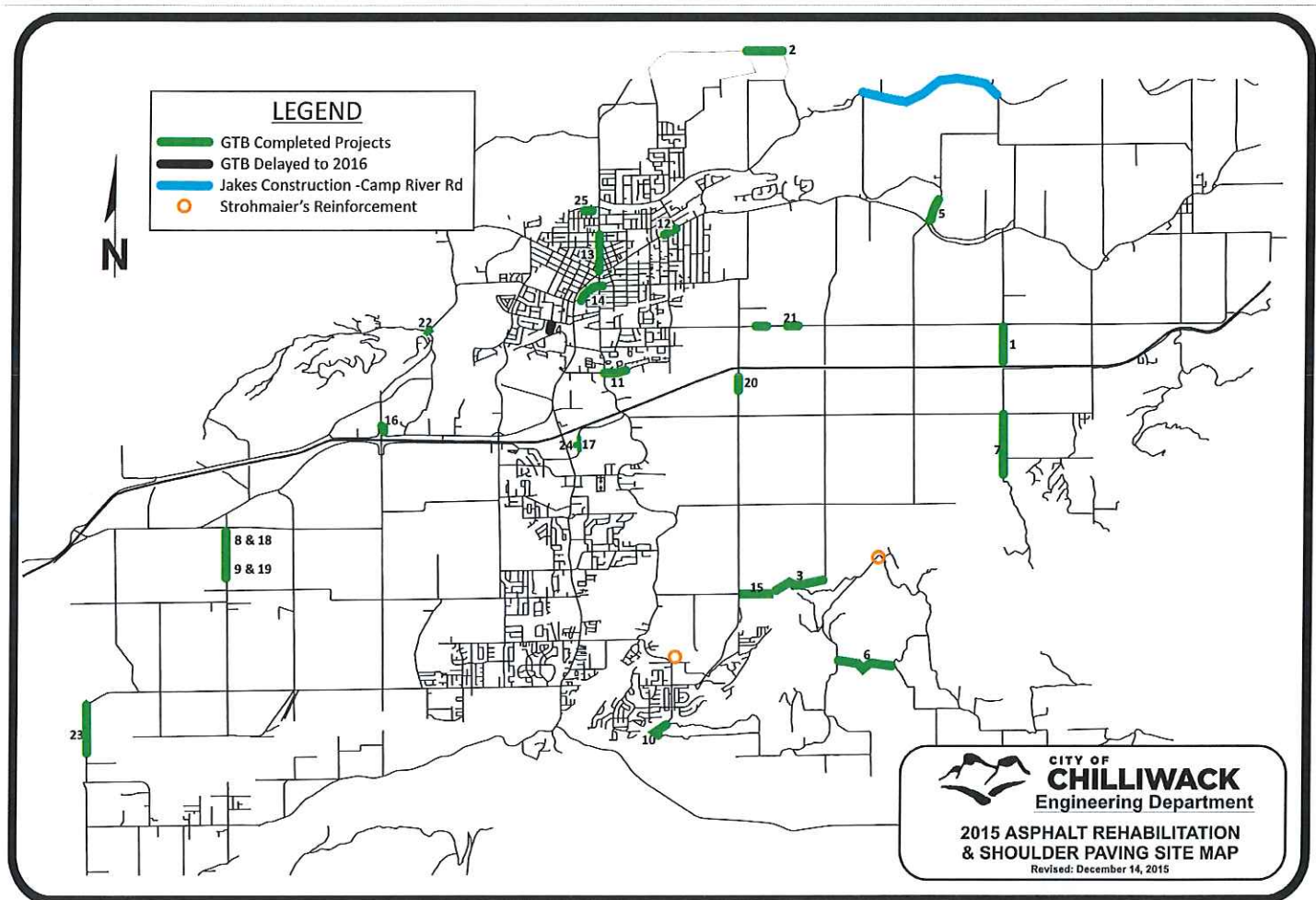
Prest Road Roundabouts

Jakes Construction continued with road base preparation, drainage works and street light base installations at both roundabout locations. Although BC Hydro crews were pulled away to assist with multiple storm outages in the region, progress continued to relocate poles at the Prest Road and Bailey Road roundabout. Telus and Shaw completed their necessary transfers to the new pole line at Prest Road and Prairie Central Road to allow for the removal of old poles and make way for upcoming road works.

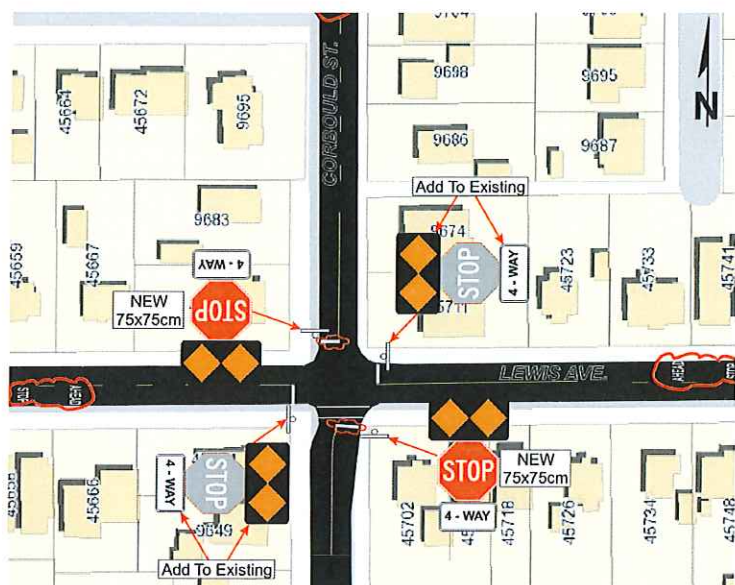


Asphalt Rehabilitation and Shoulder Paving

The 2015 Asphalt Rehabilitation and Shoulder Paving projects are now complete at sites shown on the site map below. A total of 12 km of road was repaved and 2.5 km of bicycle lanes were added to our existing 180 km of bike lane.



Corbould at Lewis – Multi-Way Stop Installation



Concerns about recurring crash incidents raised by area residents prompted a review of the safety performance of this intersection. An increase in the number of “failure to stop” crashes which is disproportionate to the traffic volume resulted in a decision to install a multi-way stop. The sketch shows the proposed configuration which is scheduled for implementation in early 2016.

Traffic Management

Each year improvements are made to our traffic signal systems, in 2015 the following upgrades were completed:

| Location | Feature Added |
|---------------------|-----------------------------|
| Young at Cheam | Audible Pedestrian Signals |
| Yale at Hocking | Audible Pedestrian Signals |
| Yale at Airport | Audible Pedestrian Signals |
| Vedder at Knight | UPS |
| Yale at Broadway | Pedestrian Countdown Timers |
| Vedder at Stevenson | Pedestrian Countdown Timers |



The recent power outage caused by a windstorm demonstrated the value of UPS systems by allowing traffic signals equipped with them to continue to operate for up to 12 hours until power was restored. A new UPS system was installed at the intersection of Vedder and Knight as shown in the photo.

School Zone and Playground Zone Reflective Panels

During the fourth quarter the Safer City reflective panel project saw the installation completed for a total of 33 school and playground zones across the community. The first phase of this project was accomplished through ICBC's Road Improvement Program funding and the dedicated efforts of the City Public Works' sign crew. A total of 96 panels across the 33 locations now enhance the specific signs and remind drivers to adhere to the zone restrictions. Safer City will monitor the project to determine restrictions and successes for future installations phases within this new local standard of sign enhancement.

There are three styles of panels that have been installed; the first is the "School Zone" fluorescent yellow-green reflective panel with "school zone" written in black lettering; these panels are installed under school zones that have regulatory tabs advising motorists that the speed limit is reduced to 30 km/h from 7:30 a.m. to 5 p.m. on school days. The second style is a "blank" fluorescent yellow-green reflective panel that brings attention to drivers that there is a school nearby and school children may be present near or on the roadway. The third style of panel is a fluorescent yellow reflective panel with "playground" written in black lettering; these signs have been installed in some playground zones that have a reduced speed limit of 30 km/h which is in effect from dawn to dusk seven day a week.

Feedback received on the project so far has been quick and positive. The following locations currently have panels installed: Bernard Elementary; Central Elementary; Cheam Elementary; East Chilliwack Elementary; Ecole La Verendrye; Evans Elementary; Greendale Elementary; F.G. Leary; Unity Christian School; John Calvin School; Little Mountain Elementary; McCammon Elementary; Lower Landing School Zone; Mount Cheam Christian School; Promontory Heights Community School; Robertson Elementary; Rosedale Traditional School; Sardis Elementary; St. Mary's School; Strathcona Elementary; Timothy Christian School; Tyson Elementary; Unsworth Elementary; Vedder Elementary; Vedder Middle School; Watson Elementary School; Yarrow Elementary School; Stewart Park; Portage Park; Sardis Park; Jinkerson Park; Promontory West Park; and Fairfield Park.

Style 1: School Zone



Style 2: School Warning

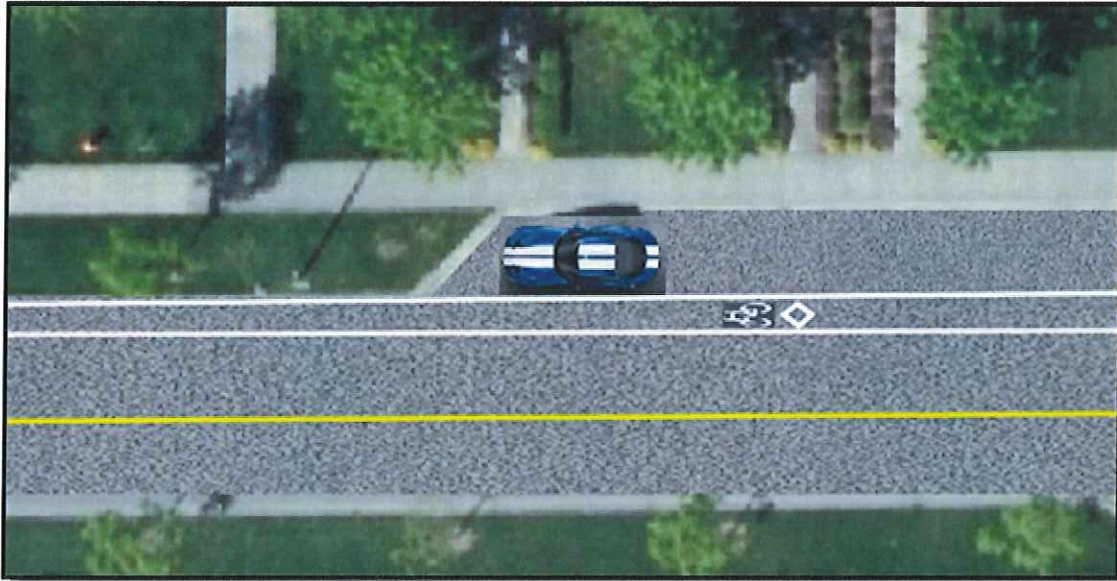


Style 3: Playground Zone

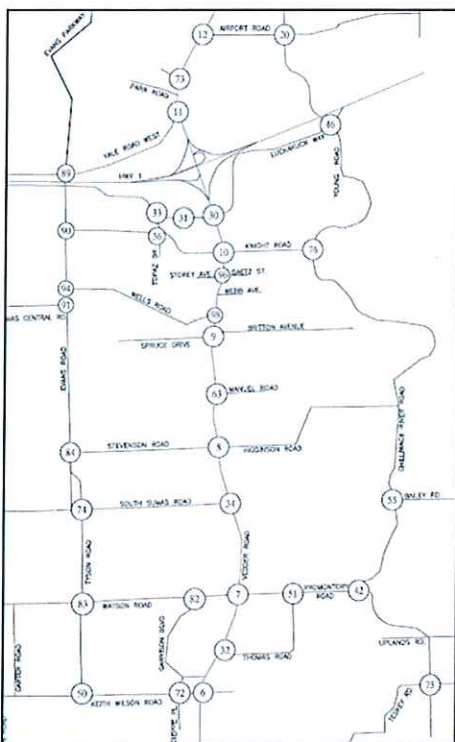


Concrete Works Design

Wedler Engineering Ltd. has been working on providing the City with civil design drawings for the construction of a much needed sidewalk and street lighting for Strathcona Elementary School. The sidewalk would extend from Crystal Drive to Oval Drive along the north side of Strathcona Road and would include provisions for on-street parking while retaining the continuous bike lane. We anticipate completed drawings to be available in February this year which will be used in the construction tender document to be released in early 2016.



Annual Traffic Count Program



The Request for Quotation for the Annual Traffic Count Program has been released and closes on January 27, 2016. This program sees the annual count of approximate 86 two way traffic volume counts and 77 manual intersection counts. These counts assist the City, developers, engineers and local businesses with data we have been collecting since the 1990s. The City utilizes this information to assist with traffic signal timing, coordination of construction projects, and transportation infrastructure review. The Annual Traffic Count Summary can be found on our website at <http://www.chilliwack.ca/main/page.cfm?id=26>.

YEARLY COMPARISON OF BIDIRECTIONAL TRAFFIC VOLUMES

SORTED BY STATION NUMBER

| # | ROAD NAME | REFERENCE | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|---|----------------|--------------------------|------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|
| 1 | Young Road | South of Hope River Road | 8834 | 7684 | 8490 | 8532 | 7809 | 7213 | 8412 | 8518 | 8691 | 8781 | 8352 | 10505 | 9591 | 8097 |
| 2 | Menzies Street | South of Hope Slough | 9052 | 8189 | 7842 | 8160 | 7863 | 6977 | 7692 | 7950 | 8042 | 7759 | 7108 | 8285 | 8047 | 7012 |
| 3 | Yale Road | West of Broadway | 9567 | 9593 | 10078 | 11918 | 10778 | 9333 | 10300 | 10977 | 12613 | 10153 | 10043 | 14397 | 13740 | 9676 |

Sample Area of Manual
Intersection Counts for 2014



Household Hazardous Waste Day



Household Hazardous Waste Day was held on Saturday, October 3, 2015 at the Public Works Yard. This is the first year that the event was opened up to residents from six surrounding communities and electoral areas through a cost-sharing arrangement with the Fraser Valley Regional District (FVRD). This popular annual event is an opportunity for residents to drop off their household hazardous waste materials for proper disposal or recycling free of charge.

Terrapure Environmental Solutions was the prime contractor for the event and collected over 10 metric tonnes of hazardous waste ranging from fire extinguishers to adhesives. Staff from the Chilliwack Bottle Depot also attended the event on behalf of ReGeneration (operated by

Product Care), which is a non-profit organization that manages product stewardship programs for household hazardous and special waste across Canada. They collected a large volume of dry cell batteries, paint products, aerosols, and pesticides.

The total vehicle count for the event was 291, which is about a 40% increase from last year. The increase was mostly due to more Chilliwack residents participating in the event, while about 6% of the vehicles came from surrounding FVRD areas.

New this year, the Chilliwack Salvation Army was also on site to collect food and cash donations from residents dropping off items at the event. Approximately \$1,000 and 400 items of food were collected.

Waste Reduction Month

In addition to Household Hazardous Waste Day, the City organized other environmental related events throughout the month of October to further instill the values of waste reduction. These programs included:

Elementary School Presentations – This fall 317 students from 11 different elementary schools engaged in discussions about garbage, recycling, and compost with the City's Environmental Services Staff.

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 35 tonnes of scrap metal from 398 loads was brought in for recycling.

Consumer Tips – 25 local businesses provided waste reduction tips during the month of October by placing shelf cards throughout their retail stores. The cards identified environmentally-friendly product options and indicated where consumers were able to recycle the products once they had been used or no longer needed.



Reduce Your Waste!

A helpful tip:

Buying a new car battery? Don't forget to recycle your old one!

Lead-acid batteries can be returned to the Chilliwack & Sardis Bottle Depots or the Recycling Depot at the Bailey Landfill.



For more information on reducing household waste
call Environmental Services at 604.793.2907
or visit our website: www.chilliwack.com/environment



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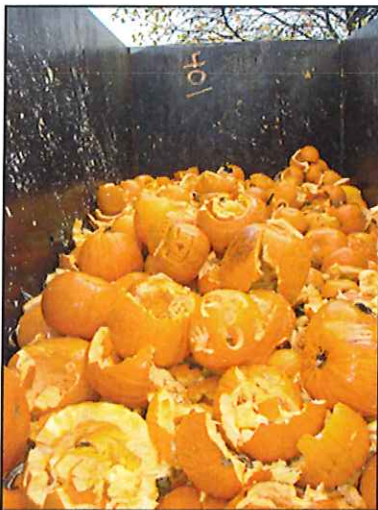
Shred-a-Thon



The Shred-a-Thon event on December 5, 2015 was another huge success! Together, Chilliwack residents donated food items valued at \$1,500 as well as \$2,800 in cash to the Salvation Army Food Bank.

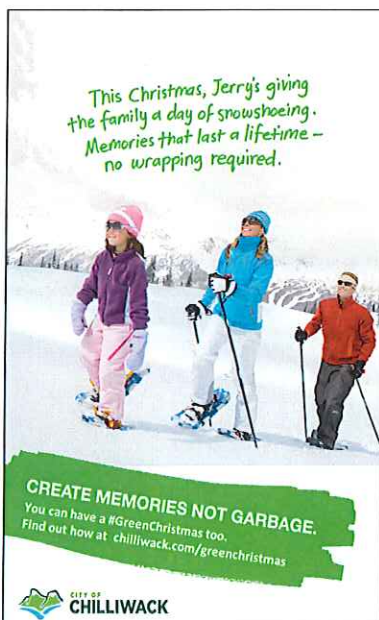
A special thank you to Emterra for matching the first \$2,000 of community cash donations for a combined event total of \$6,300! The event was made possible through generous contributions from Shred-It, Cottonwood Mall, Emterra Environmental, and Chilliwack residents.

Pumpkin Composting



480 Halloween pumpkins were brought to the Parr Road Green Depot for composting by BioCentral. Residents dropped off up to six pumpkins per family for free as a way to encourage composting and divert organics from the landfill. Curbside residents could also place pumpkins with their Yard Trimmings for free collection.

Green Christmas



For the second year in a row, Environmental Services ran an ad campaign focused on "Creating Memories, Not Garbage" over the holiday season. The five unique ads coincide with a City webpage that lists 23 suggestions for residents to have a "Green Christmas." By Christmas, the page had received 1,266 hits.

Residential Curbside Organic Waste Program

In September and October 2015, Environmental Services staff carried out a two-month outreach program to engage residents about planned changes to the City's Curbside Collection Program to include the collection of separated organic waste for composting.



In order to encourage participation in the survey, the City gave the opportunity for residents to win an iPad through a raffle. A total of 640 survey entries were submitted and on November 18, 2015 Mayor Sharon Gaetz awarded the winner of the raffle with the iPad. A report summarising the results of the survey can be found at www.chilliwack.com/organics.

Environmental Services is commencing the procurement processes for various contracts affiliated with the organic waste diversion program. When proposals are sought from curbside collection contractors in early 2016, pricing will be requested for a variety of program options to allow the City to conduct a comprehensive review. Once the cost of the different aspects of the program is weighed against technical considerations and community feedback, the City will be able to finalize the program design and conduct further education in the community.

Collinson Pump Station Upgrade Project

The Collinson Pump Station upgrades were recommended in the Greendale Drainage Study after extensive flooding occurred during the January 2009 flood event. The project objective was to increase the capacity of the pump station to reduce or eliminate flooding caused by a 1:100 year return period rainfall event.

Construction by Gerry Enns Contracting Ltd. is substantially complete as of mid-December 2015 with:

- New electrical building including MCC and HVAC equipment;
- 2 new 450HP pump/motor assemblies;
- New standby generator;
- Underground 600V BC Hydro service to replace the 450V pole line; and
- New intake screens, automated screen cleaner and conveyor.

The project has doubled the pumping capacity of this station, which serves the Greendale area. This \$2,500,000 project will receive 1/3 Federal and 1/3 Provincial grant funding in the amount of \$1,666,666 under the Building Canada Fund for Flood Protection.



East Dyke (Young Road) Upgrade Project



East Dyke, east of McSween Road

The East Dyke (Young Road) Upgrade Project has a budget of \$2.34 million, with a 1/3 cost sharing arrangement among the City and Provincial and Federal governments. Construction by the design build team of Martens Asphalt/McElhanney Engineering began mid-March 2015 with substantial completion for the Young Road portion achieved as of mid-September 2015. In addition to the Young Road portion, approximately 500m of East Dyke east of McSween Road received surface gravel to meet the current Provincial flood design elevation. This portion of work reached substantial completion as of mid-November 2015.



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