

Engineering and Public Works

2023 Annual Report



Message from the Director

The Engineering and Public Works Department is proud to make the City of Mission a great place to live, work and raise a family. Our staff take pride in the provision of sound planning, quality infrastructure and efficient services is the backbone of our community.

This report highlights some of the key infrastructure projects that we completed in 2023 along with service statistics. 2023 was a very busy year for us and these are some notable highlights:

- The rural road audit and safety improvements was completed in partnership with ICBC and community stakeholders;
- Completion of Phase I for the Heritage Conservation and Improvements of Mission Museum;
- Completed a Facility Needs Assessment and Expansion Study for major facilities such as Fire Halls, City Hall, and the RCMP Building;
- Initiated the Downtown Parking Study project;
- Negotiated and signed a 10-year contract for the Advertised Transit Shelter and Bench with Partition and initiated first year installations;
- Applied and secured a \$150,000 grant for the design of Lane Creek Pump Station in the waterfront area;



- Installed additional bus shelters and lighting improvements for the 2nd Avenue Bus Exchange and initiated a design project for additional crosswalk improvements;
- Completion of the water pressure zone 2 re-alignment;
- New water quality sampling program initiation; Upgraded the watermain on Henry Avenue;
- Adoption of the new City of Mission Soil Management Bylaw;
- We were able to successfully bring fish salvage and permitting for culvert work in-house;
- The electrification of the leachate seep collection pump at the landfill was completed;
- Our wildlife attractant patrolling program was very effective and zero bears were destroyed in Mission in 2023;
- Completion of Phase 1 of 7th Avenue Greenway and securing of grants to pay for the project;
- Construction of the new Gaudin Creek Detention Pond;
- Received approval to proceed with a voluntary universal water metering program; and
- Initiated an update of the SCADA system with the development of a location plan for existing and future data collection and transmission sites.

**-Tracy Kyle,
Director of Engineering and Public Works**

Engineering

What We Do

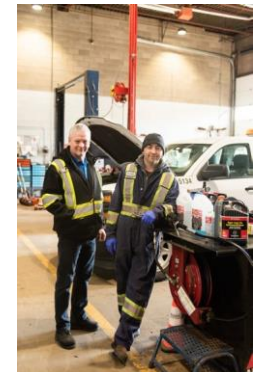
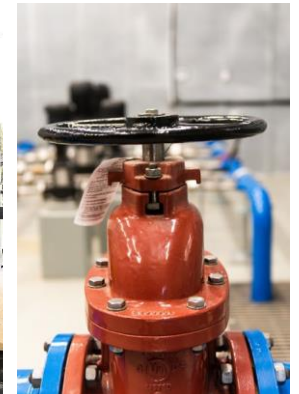
- Infrastructure Planning and Strategies
- Assets Management
- Capital Projects Management
- Geographical Information Services (Webmap)
- Transit Improvements and Bus Shelters
- Infrastructure and Traffic Strategies
- Grant Application
- Environmental Charter
- Community Environmental Initiatives
- Curbside Collection
- Landfill
- Recycling and Composting
- Water Restrictions
- Water Conservation
- Street and Hydrant Permits
- Soil Removal/Deposit Permits
- Public Education and Engagement
- Facility Maintenance
- Service Inspections



Public Works

What We Do

- Water System and Infrastructure Maintenance
- Sanitary Sewer System and Infrastructure Maintenance
- Storm System and Infrastructure Maintenance
- Roads Maintenance, Paving and Patching
- Utility Infrastructure Construction
- Street Light Maintenance
- Drainage Maintenance
- Emergency Water, Sewer, Storm, Roads and Drainage Response
- Fleet and Equipment Maintenance
- Fire Hydrant Maintenance
- Watermain Flushing
- Water Meters
- Water Quality
- Water Fill Stations
- Illegal Dumping and Litter Cleanup
- Snow and Ice Removal
- Roads Cameras
- Sidewalks Stairways, Walkways Maintenance
- Street Sweeping
- Public Response and Education



Public Works



Public Works Front Desk

Public Works staff responded to the following public requests:

- **5,000** (approximately) calls in 2023
- **1656** BC One Call responses processed
- 1252 direct calls requiring action response, excluding after hours issues.
- **50** requests for water shut off
- **2** odor calls
- **42** blocked sanitary services (homeowner side or City side)
- **50** timesheets processed daily, based on shifts



Annual Inspections:

- 347 km of roads
- 106 km of sidewalks
- 18 km of fences and retaining walls
- 13 traffic signals
- 20 km road markings
- 14 drainage ponds
- 8 km of dikes and 2 dike systems

Other Inspections:

All roadways are inspected three times a year for damage and maintenance.

1379 cross culverts inspected on a 3-year rotating schedule.

Roads crews collected 9.5 metric tonnes (21,000lbs) of roadside litter.

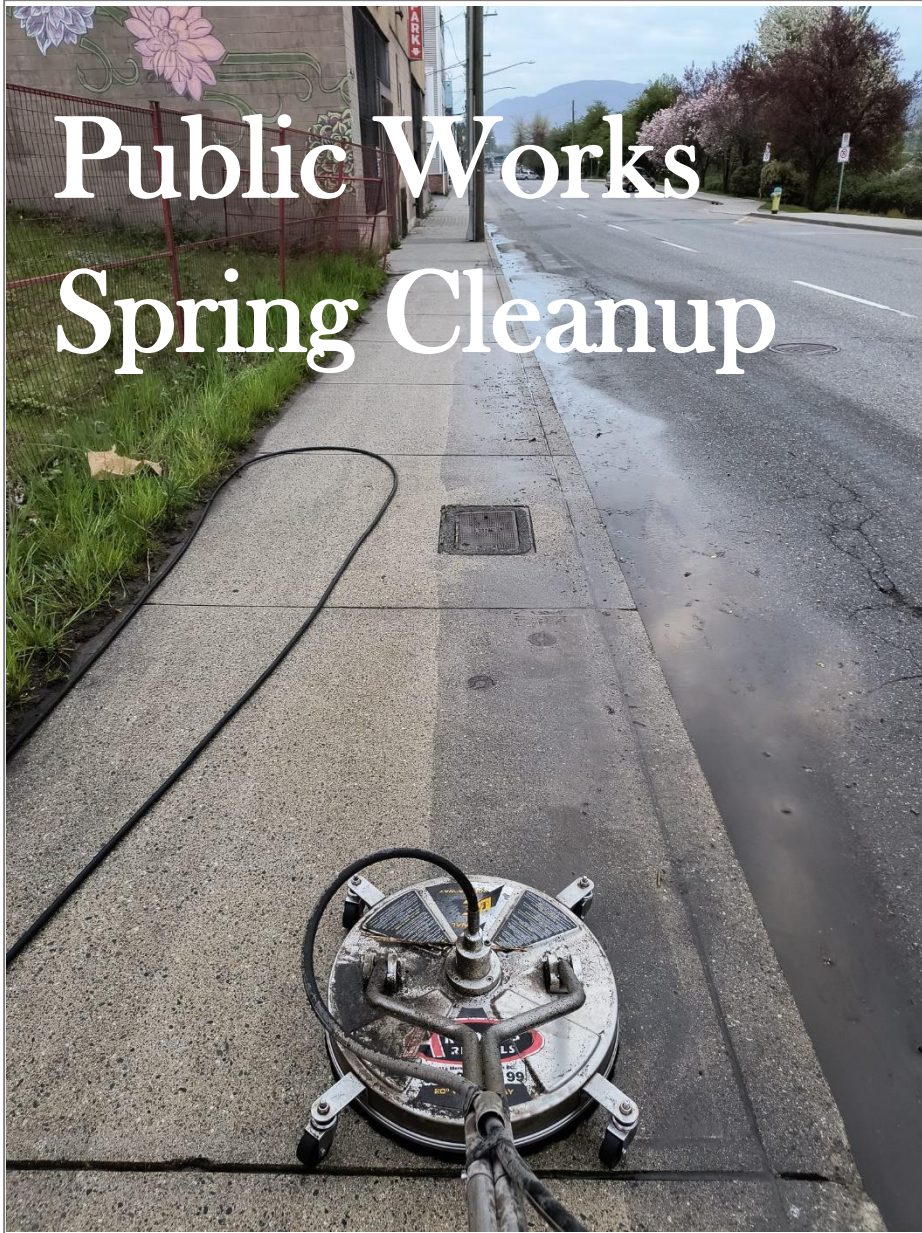


Roads & Drainage Maintenance

\$1.4 Million spent on
capital paving

\$276,000 spent on
asphalt repairs

In 2023, **\$140,000** was
spent on cross culvert
replacements



Our **Public Works** crews maintained many areas throughout the **2023 spring cleanup** program, including:

- Garbage pick up** across the city
- Cleaned** intersection medians
- Pressure washed** sidewalks and the pedestrian overpass
- Washed** away the winter sand from sidewalks
- Edged** sod overgrowth and cleared weeds from retaining walls
- Cleaned** all walkways and stairs

Machell Street Bioswale

A ditch between the road and residential properties on Machell Street was regraded, the catch basins were reset, and grass was planted to improve surface water collected and enhance access to residents.

Snow Removal

The start of **2023** brought unseasonably cold and snowy conditions, and a milder December than the previous two years. Mission saw approximately **40 cm of total annual snowfall** and a temperature in December of **4 degrees Celsius**.

Sidewalk Clearing Program

Total cost for 2023: **\$42,000**

The City expanded the sidewalk clearing areas to include 7th Avenue in 2023.

Salt Storage and Supply

2023 the City purchased **\$196,868** of salt for the 2023-2024 winter season.



Snow Removal

Budget: **\$675, 361**

Actual: **\$734,370**
(8% over budget)

Utility Operations

In 2023, our operations crew installed the following:

- 16 new fire hydrants installed
- 6 new storm service connections
- 8 new sanitary connections
- 32 new water service connections

Utility crew emergency responses:

- 4 water main breaks
- 50 water shut offs
- 42 sewer blockages

In January 2023, a public awareness campaign followed the discovery of a pair of **sweatpants** in the **sewer system**.

A series of articles, a news report and social media posts provided residents the opportunity to become sewer savvy, impressing utility crews who saw a significant reduction in non-flushable materials in our sewer system.



Electrical Team Updates

Our crew installed **4 new road cameras** in **2023**:

- Nelson Street
- Draper Street
- Cedar Valley Connector
- Public Works Building

These four new cameras were in addition to the 3 installed in 2022, and 5 in previous years.

Unfortunately, both the Nelson Street and Draper Street cameras were stolen.

Our **electrical team** responded to:

- 10+ wire theft incidents
- 179 repair requests





Water Meters

In 2023, the City of Mission's residential **metered water** consumption was **676,367 cubic meters**.

137 new residential meter and **22** new industrial, commercial or institutional meter accounts (ICI) were activated.

The total amount of residential water billed by meter: **\$892,597**

The total amount of ICI water billed by meter: **\$906,972**

Staff investigated **40** possible residential, commercial, industrial or institutional water leaks.

Of these, only **18** required billing adjustments.

In 2023, Council approved Automated Metering Infrastructure (AMI), which will allow residents to view usage in real time.

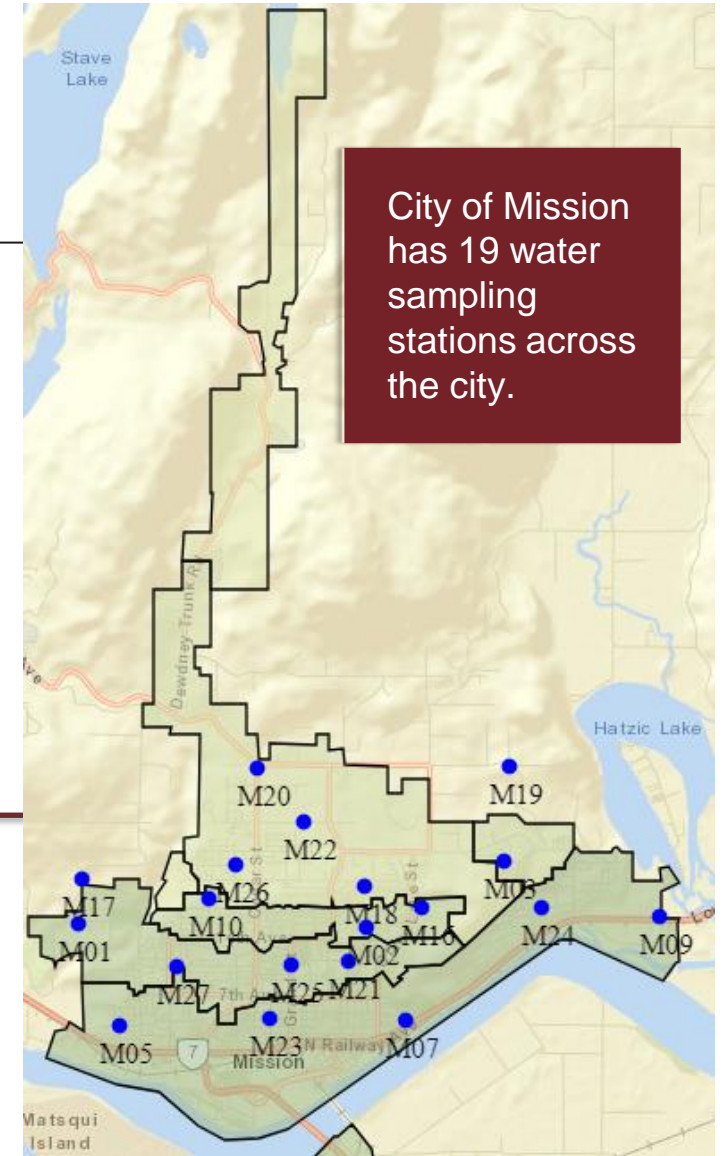


Water Quality

In 2023, the City of Mission collected 751 water samples for quality testing.

Mission's "Zone 2" which is approximately 42km of pipe was flushed from February to April.

Staff investigated **39** water quality complaints.



Water Consumption & Conservation

Mission 5-Year Water Consumption

Year	Litres
2019	6,193,000,000
2020	6,000,000,000
2021	6,274,000,000
2022	5,982,000,000
2023	5,873,000,000



Our Water Matters held the 2nd Annual “Go for Gold” contest. The contest celebrates dormant lawns and draught landscaping, with a focus on water conservation.

FLEET AND MECHANIC SHOP

The City of Mission Fleet:

- **47** heavy duty trucks
- **50** light duty trucks
- **2** electric cars
- **12** trailers
- **2** Zambonis
- **1** mobile trailer

Mission Fire Rescue Service Fleet:

- **5** pumpers
- **1** ladder truck
- **3** tenders
- **1** training pumper
- **1** 4x4 bush truck
- **5** light duty vehicles

Mission RCMP Fleet:

- 28 trucks/cars/SUV's
- 2 quads



New in 2023:

- **1** Medic Truck
- **1** Fire Suppression Trailer
- **1** Electric Bucket Truck
- **1** AWD Transit Van
- **2** Excavators
- **4** Pickup Trucks

Our fleet includes **175 small equipment pieces** like blowers, trimmers, etc.



FLEET ASSETS

NEW TO US

In 2023, the City of Mission added previously owned vehicles to our fleet. Supply chain delays are still causing some longer than usual waits for new vehicles. We have had good success with the lease return vehicles purchased over the past couple of years. Vehicles come almost completely outfitted and at a much lower cost than new plus outfitting. Probably the largest benefit next to the cost savings is the ability to put the units into service almost immediately upon receiving them.

Vehicle	Budget	Actual	Savings
2022 Chevrolet Colorado 4x4	\$75,000	\$43,120	\$31,880
2018 Ford F150 4X4	\$90,000	\$33,488	\$56,512
2021 Ford F550 Bucket Truck	\$275,000	\$142,800	\$132,200
Total Savings			\$220,592



FLEET AND MECHANIC SHOP

Fuel and Maintenance Costs:

- Total Fuel Cost: \$922, 513
- Unleaded 195,721 litres
- Diesel 356, 818 litres

2023 Total Maintenance and Repairs:
\$4,173,136

Repair Orders Completed:
1105



Early in 2023, the City Fleet passed the maintenance of RCMP vehicles over to the RCMP National Repair Program .



Engineering Highlights & Stats



Engineering Front Desk

- 5900 (approximately) incoming calls
- 12,000 (approximately) responses to various emails
- 227 Street Use Permits
- 17 Hydrant Use Permits
- 17 Soil Removal/Deposit Permits
- 112 Engineering Services Permits (Building and Demolition)
- 25 Water Sprinkling Permits Issued





Curbside Collection

In 2023, the average curbside diversion rate was **67%** and with zero service cancellations, there was **252 days** of curbside collection service.

Curbside Collection	2022	2023
<u>Material</u>	<u>Weight (MT)*</u>	<u>Weight (MT)*</u>
Garbage	3010	2913
Compostable	3670	3581
Recycling and Glass	1791	1751

***a metric tonnes is 2,200 lbs.**

In 2023, The City of Mission created a Contamination Remediation Plan (CRP) with a goal to reduce contamination rates in the curbside and multi-family recycling program by 25%. The campaign included **29 social media posts** and **4 direct messages** through the Recycle Coach App, resulting in a **13%** increase in app users and a **42%** increase in the “What Goes Where” search function. The educational campaign helped decrease contamination by **23.4% in 2023** and has been extended through 2024.

Landfill

Underground **3-phase power** was installed, eliminating a generator and providing permanent power to a leachate pump.

A **new aerial survey** was completed in 2023 evaluating height, contours, surface area and settlement of the landfill.

Both landfill **scales** were **recalibrated and recertified** in 2023

Did you know: Free salvage permits are available for anyone to pick up items from the woodpile for any projects they may have?

2023 Landfill Stats

57,073 metric tonnes moved across the landfill scales in **2023**.

22 metric tonnes of garbage were brought to the landfill by community clean up groups.

12,820 MT of garbage.

4381 MT food & yard waste and 1437 green waste were composted.

346 MT were Recycled*

Residents picked up 261 MT of free compost

*weight does not account for materials collected that were not recyclable



Environmental Services

The 2023 Annual Household Hazardous Waste Collection Event held in May of 2023 was attended by over **117** residents.

The event provided safe disposal of household hazardous waste.



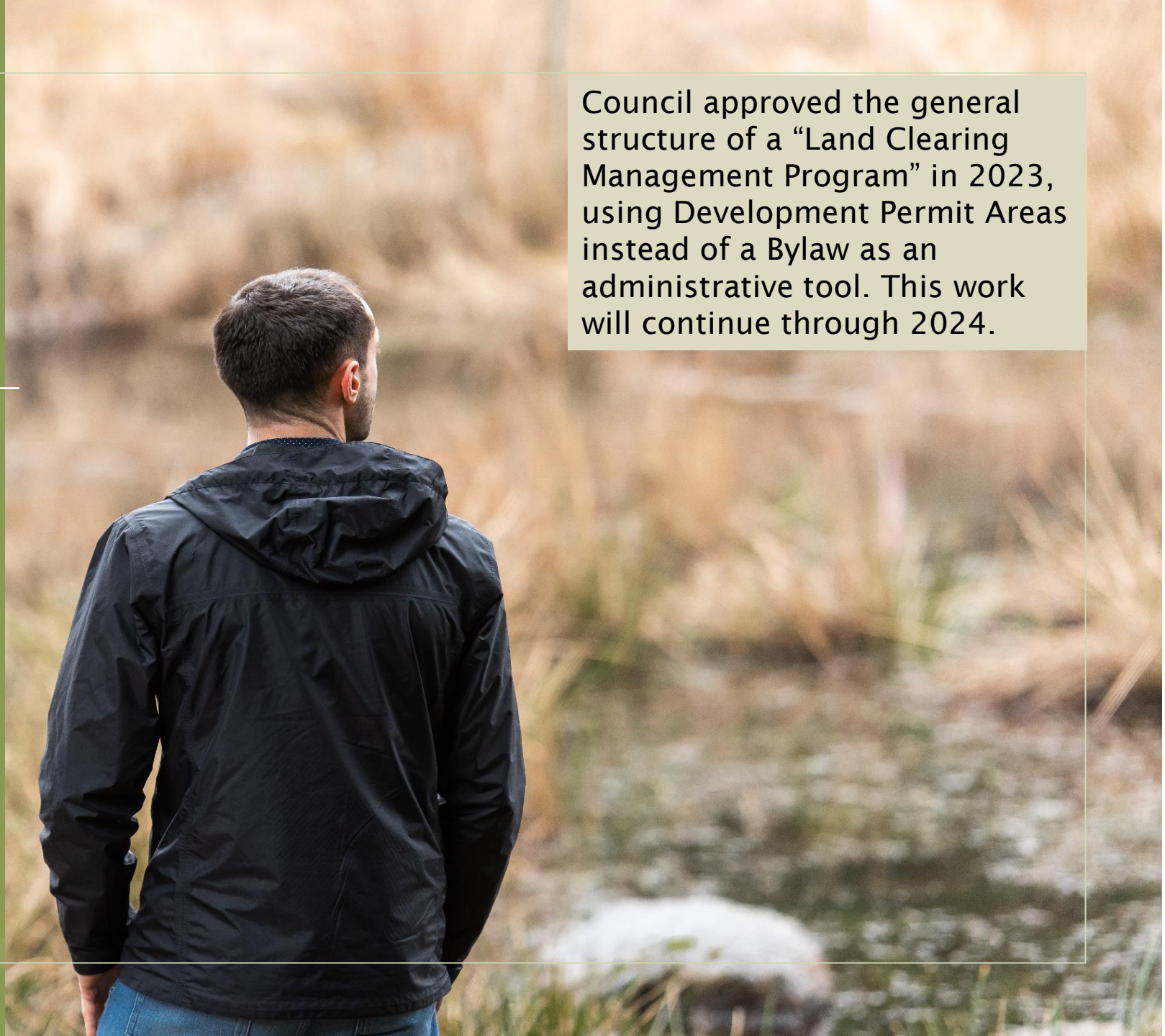
Environmental Charter Committee

The Environmental Charter Committee was formed in 2023.

The committee is a Council appointed advisory body consisting of community members and subject matter experts providing recommendations to Council on the implementation, review and improvement of the Environmental Charter.

The committee reviewed and optimized the Environmental Charter's Key Performance Indicators at their first meeting in November of 2023.

Council approved the general structure of a "Land Clearing Management Program" in 2023, using Development Permit Areas instead of a Bylaw as an administrative tool. This work will continue through 2024.



Protected Nests and an Eagle Camera

The City of Mission partnered with the Hancock Wildlife Foundation (HWF) to identify, record, and document all nests protected under Section 34 of the Wildlife Act. This includes species such as:

- Great Blue Herons
- Ospreys
- Bald Eagles

These nests have been added to our City WebMap and this layer assessable to the public. This will ensure that nests are protected from future development or otherwise assist with regulatory compliance.



Our partnership with the HWF also extended to the erection of a nest platform at the Mission waterfront. This platform was installed to replace a bald eagle nest which was removed to facilitate the construction of the Fraser River Force Main Project. The platform is equipped with two cameras with a live feed video stream, ready and waiting for an eagle family to call it home.



Wildlife Crossing

To avoid wildlife collisions in rural road corridors, a resident suggested the adoption of unique signage such as those used in North Vancouver. The concept is intended to combat sign fatigue by attracting the attention of motorists with exotic imagery. The City of Mission selected dinosaurs for this signage which proved to be popular with residents.



Capital Projects



Substantially Completed in 2023:

Project:	Budget:
Gaudin Creek Wetlands Community Detention Pond	\$1,902,317
7 th Avenue Greenway (Phase1)	\$3,111,826

Active and Initiated Projects in 2023:

Project:	Budget:
Penitentiary Pump Station Upgrade	\$3,535,000
14 th Avenue Roads Utilities Upgrade (Phase 2) Construction	\$6,844,802
14 th Avenue Roads and Utilities Upgrades (Phase 3) Design	\$400,000
Vishloff Culvert Upgrade Design	\$50,000
Wren Street Bridge Investigation	\$105,121
Crosswalk and Sidewalk Designs	\$200,000
Glasgow Avenue/Horne Street Water and Sewer Upgrades (Part of the MOTI Highway 7 & 11 Mission Truck Rerouting)	\$470,000

Development Engineering



In 2023, the Development Engineering team received and responded to **172 Development Referrals**.

The team also issued **5 Certificates of Completion**. These projects were the primary source of the City's collection of over **26 million dollars worth of Developer Contributions in-kind capital**, 6 Million dollars more than in 2022.

The Development Engineering team developed and enacted a new **Soil Management Bylaw**.

The City received \$26 million of Developer Contributions in-kind capital in 2023.

2023 Operating Budget

Division	2023 Budget Amount	Division	2023 Budget Amount
Engineering	\$3,612,832	Water	\$7,947,933
Municipal Buildings	\$1,340,055	Sewer	\$7,162,122
Public Works	\$3,619,397	Drainage	\$3,431,507
		Solid Waste	\$7,428,233

Total Budget \$34,542,079

Water Meter Business Case



In 2023, a business case analysis was conducted of various water metering scenarios that includes incentives and funding options. A consultant was hired to assess and **compare water metering options** incorporating social, environmental, and financial criterion. Options evaluated included:

- maintaining existing requirements;
- requiring meters where new meter boxes have been or are installed;
- a mandatory metering program;
- and a voluntary program with different funding splits between customers and the utility.

In **August 2023**, Council approved the implementation of a **voluntary application driven metering program**. The program requires the applicant to pay for the meter box and associated piping, with the utility providing the meter and transmitter, an option for applicants to finance the installation by borrowing from the utility with an attractive interest rate, a leak rebate program, a lower first-year price guarantee. The City is in the process of implementing the Water Meter program in 2024.



Facility Needs & Expansion Study

The 2018 **Facilities Master Plan** identified a need to accommodate the City's growth over the **next 30 years**.

The Engineering Division executed a study in 2023 to analyze the function and space needs for many facilities, including:

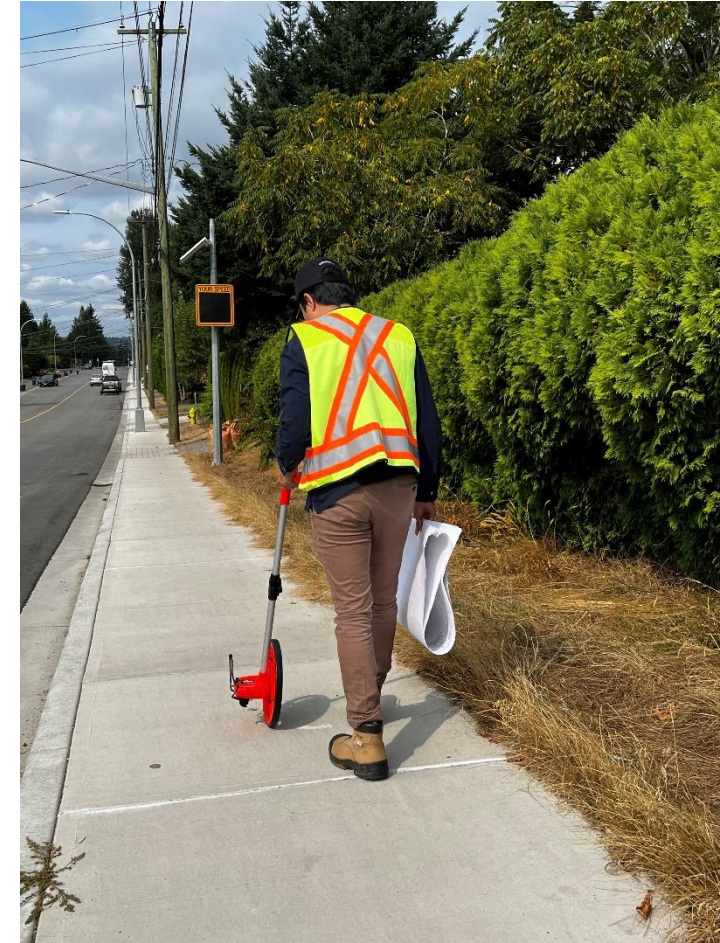
- RCMP building
- City Hall
- Public Works
- Search and Rescue
- Silverdale Recreation Centre
- Fire Stations #4 and #5

The study was completed in the **Fall of 2023** and the results were presented to Council. Staff continue to analyze development priorities and develop both financial and capital plans to implement priority projects, such as the new Fire Station.

Engineering Initiatives

Completed in 2023

- Water Meter Business Case
- Facilities Needs Expansion Study
- Public Works Electrical Upgrades – Initial Work Completed
- Renewal/Upgrade of Advertised Transit Shelters and Benches in Mission
- Rural Roads Improvement Project in 2023
- Supervisory Control and Data Acquisition (SCADA) Upgrade Project (Path Study Completed)



Transit Shelter and Bench Program



In 2023, Engineering Division entered into an agreement with the Pattison Group whereby they installed transit shelters and benches at various bus stops across the City.

Through this program, transit riders receive bus stop amenities at no cost to the City, and the City also receives some revenue through the Pattison Group's advertising program.

Transportation

Downtown Parking Study

In 2023, the Engineering Division initiated the **downtown parking study**, with Urban Systems as the consultant. The goal of the study was to establish an understanding of how vehicle parking is currently used in downtown Mission and to develop a parking management strategy to support future growth and development.

The results of the parking study were presented to **Council in late 2023**, and the study will be finalized in early 2024.

Ellen Croy joined the Engineering and Public Works Department as the **Manager of Transportation**, as of December 4, 2023.



Ellen graduated from UBC's Okanagan Campus with a Bachelor's and Master's of Applied Science with a focus on transportation engineering and is registered with EGBC as a Professional Engineer (P.Eng.). She has over ten years of experience working in transportation engineering and planning, most recently as the Manager of Transportation at the City of Vernon.

Public Engagement

Engineering & Public Works Engagement

Our **Second Annual Public Works Open House** was held on May 27, 2023. More than 300 people attended this free, family friendly event.

The Annual Public Works Open House event is all about highlighting the important work done by public works, inviting residents to get up close and personal with the staff, equipment and services that keep our city running. At the event, various community organizations also get a chance to display their services and offer public education.



Aqualibrium

Engineering staff, along with the City of Abbotsford, were invited to be honorary judges at Heritage Park Middle School on May 11th, 2023. The students were tasked with constructing a water distribution system with straw type pipes and water reservoirs. The project, called Aqualibrium, was timed to celebrate **Drinking Water Week** and the students did a fantastic job.

2023 Grants

Electric Body Dump Truck - \$48,000 – Purchase of an electric fleet vehicle

Disaster Risk Reduction - \$150,000 - Detailed design of Lane Creek Drainage Pump Station Replacement

ICBC Road improvements - \$35,000 – Traffic Safety installation of RRFB's and intersection improvements

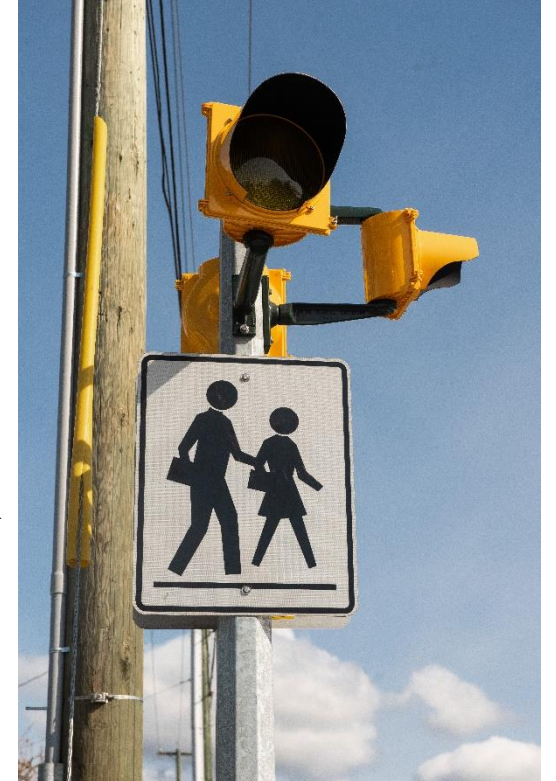
ICBC Road Improvement - \$6,000 - Traffic Safety installation of sidewalk on Silverdale Avenue at Wren Street

ICBC Road Improvement - \$14,000 – Sidewalk Installation for Wren Street

ICBC Road Improvement - \$79,000 – Rural Road Safety Upgrades Implementation for Dewdney Trunk Road, Keystone Avenue and Hayward Street

ICBC Road Improvement - \$36,500 – 14th Avenue Improvements, Hurd Street to Tanager Street

Mission Museum - \$38,920



FACILITIES

Our Facilities Division Maintains:

- Welton Common
- Municipal Hall
- Public Works
- RCMP building
- Community Policing Building
- Library and Archives
- Museum Building
- Visitor Information Center
- Firehall #1
- Firehall #2
- Firehall #3
- Horne Street Building
- Lawn Bowling Facility
- Utilities Trailer
- Mershon Street Storage
- Fraser House Building

Public Works Electrical Upgrades

Engineering and Public Works staff implemented electrical design and upgrades at the Public Works building to address safety concerns and expand electrical capacity for future operations.

