



ABBOTSFORD

# FLOOD RECOVERY

CITY OF ABBOTSFORD



# 2022



## MESSAGE FROM THE MAYOR



It is hard to believe that it has already been one full year since the flooding event devastated Sumas Prairie and impacted our entire community. The resilience of our farmers and our residents was tested through those weeks and months,

and yet it was inspiring to witness everyone coming together to support each other. Though the damage was widespread and the loss was tremendous, I am truly proud of how the people of Abbotsford helped one another through the emergency and through the subsequent recovery from this disaster.

I know the devastation for some in our community did not leave with the floodwaters,

and the ongoing challenges with land and operations remain top of mind for me while taking the oath of office and starting my time as your Mayor.

The City of Abbotsford has been working steadily over the past year repairing close to 300 city-owned sites damaged by the floods. As I write this message, we progressed through nearly 200 of these sites, with remediation plans in place for the remaining larger projects.

As the inclement weather continues to return over the coming months, all of us on Abbotsford City Council know that with it comes some nervousness and worry about a repeat event, especially since the experiences of the floods are still fresh in the minds of many.

I understand those worries. I would like to reassure all of our residents that our City is better positioned today than we were a year ago to respond to climate related events, and we are

as prepared as we can be for another season of atmospheric rivers.

Over the past year the City also developed a comprehensive long-term flood mitigation plan that was submitted to the Province of BC for funding. Our previous Council has been advocating to senior levels of government for the funding and support needed for the required critical infrastructure since June of 2022. As your new Mayor and Council, we are committed to continuing with that work, and to ensuring our City receives the funding it requires to build additional infrastructure to fully protect our community.

Ross Siemens  
Mayor

## INFRASTRUCTURE RECOVERY: COMPLETED REPAIRS

### DYKES & FLOOD MITIGATION



#### REPAIRS / RAISING

The City previously repaired 9 sites along the Sumas Dyke and the majority of the 17 kilometre-stretch between Barrowtown Pump Station and Vye Rd was raised up to 0.5 metres



#### SUMAS DYKE

Work to install a 150m long concrete/bentonite vertical panel wall in the centre of the dyke started in late October with completion mid to late November



#### BARROWTOWN PUMP STATION

Main pumps at Barrowtown Pump Station inspected  
Rehabilitation of Barrowtown Pump Station's office space from sewage and water damage completed

### DID YOU KNOW

We are required to inspect the dykes once a year and report the findings to the Province by the end of October each year; however, City staff trained in Flood Protection Works Inspections by the Province generally undertake two inspections per year to ensure dyke integrity- one pre-freshet and one post-freshet. These inspections look at the overall condition of the dyke including: the accesses, dyke crest, slope, fill, bank and erosion protection, appurtenant works and vegetation management.

These inspections have now been completed and the findings reported back to the Province.

### ROADS/BRIDGES



- 93 roadway inspections and repairs completed. Final paving will be completed when weather permits
- Clayburn Village gravel shoulder repairs completed



- Temporary replacement bridge installed on Lakemount Rd
- Structural and geotechnical designs of 8 remaining bridges on roadways have been completed with environmental applications underway

### PARKS



- Repairs completed at 6 parks (Hougen, Delair, Ellwood, Matsqui, Upper Sumas, MacDonald)
- Repairs and cleaning completed on the Discovery Trail boardwalk



- Bank stabilization and ground cleanup at Mt. Lehman Cemetery
- Design is under way for the Stoney Creek Bridges. The City is still working through insurance funding and will require environmental approvals

ROAD REPAIR: **NORRISH CREEK FOREST SERVICE ROAD**



BEFORE



AFTER

PLAYGROUND REPAIR: **DELAIR PARK**



BEFORE



AFTER

## INFRASTRUCTURE RECOVERY: **COMPLETED REPAIRS CONTINUED**

### OTHER

#### LANDSLIDES:

Repairs completed on 9 landslide sites

Remaining 8 locations are at various stages of geotechnical design, environmental assessment, and funding approval

#### WATER:

Installation completed on 1,100m of damaged water main

## INFRASTRUCTURE RECOVERY: **DEBRIS & CLEANUP**

### DRAINAGE WORKS



- Pump seal replacements at Matsqui Pump Stations
- Ditch bank stabilization completed in Sumas Prairie in various locations
- Ditch cleaning and sediment removal completed in approximately 15 kilometres of ditches in Sumas Prairie



- Culvert cleaning completed at No. 4 Rd and North Parallel
- Gravel and debris removal from McKee Road detention pond and Clayburn Village detention tank completed
- 11 irrigation pump stations were cleaned and repaired
- 2 irrigation control valve gates repaired

### OTHER

#### SEDIMENT REMOVAL:

Ditch and storm sediment removal along Clayburn Creek

Sediment removal and culvert replacements at Kilgard Creek

Sediment removal and reestablishment of slopes at McKay Creek

#### FLOOD & DEBRIS CLEANUP:

Sumas Prairie roadways and ditches cleared of wood debris, garbage, and hay bales

3,280 loads of waste and debris were received to the City's Temporary Transfer Stations over the 293 days the program was in service amounting to a total of 2,672 tonnes collected

## STILL TO COME

We knew the road to recovery would be long and it would take years for all repair works to be completed. Repair work started immediately and has been ongoing, with priority going to safety-critical matters and major flood-prevention infrastructure (ie: fixing roads, dyke repairs, landslides affecting infrastructure, etc.). The City is now working on repairs with larger scope on longer-term projects. These remaining recovery projects vary in size and often involve studies, technical assessments and approvals from government ministries.

LANDSLIDE ROAD REPAIR: **SUMAS MOUNTAIN ROAD**



BEFORE



DURING



AFTER

BRIDGE REPAIR: **LAKEMOUNT ROAD**



BEFORE



AFTER



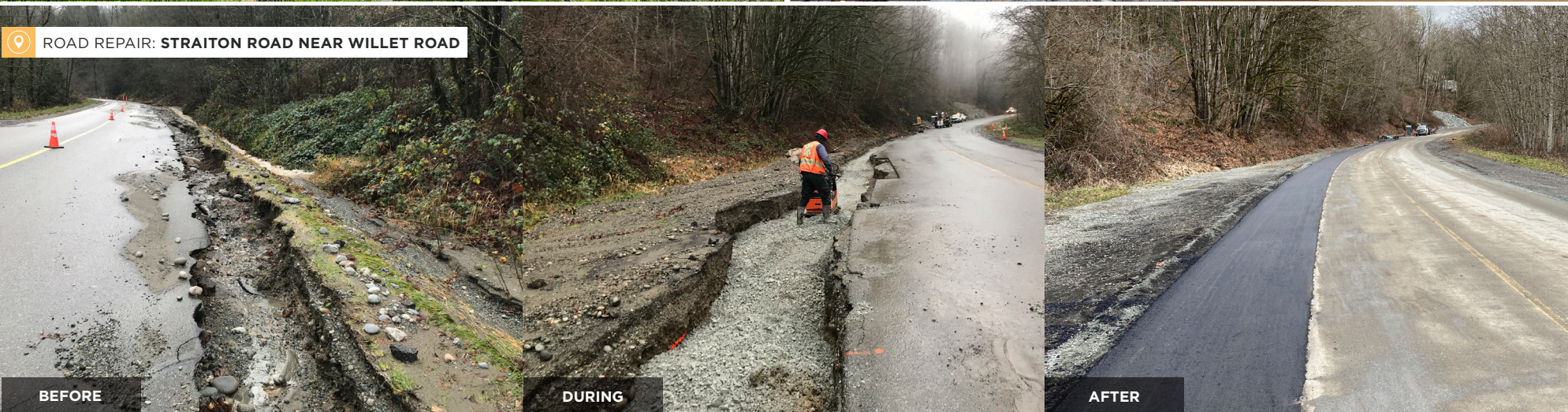
ELECTRICAL WORK: BARROWTOWN PUMP STATION



BANK STABILIZATION: NO. 4 ROAD AT SUMAS CANAL BRIDGE



TEMPORARY LANDSLIDE REPAIR: CRANBERRY COURT



ROAD REPAIR: STRAITON ROAD NEAR WILLET ROAD



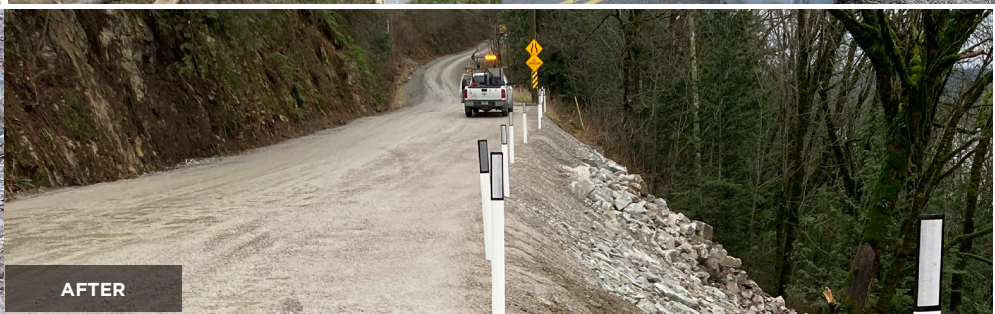
DITCH DEBRIS REMOVAL: NO. 4 ROAD, WEST OF NORTH PARALLEL ROAD



DEBRIS CLEANUP: SUMAS PRAIRIE



LANDSLIDE REPAIR: SUMAS MOUNTAIN ROAD AT COX QUARRY



AFTER

# Long-term Flood Mitigation Options

In spring 2022, four comprehensive long-term flood mitigation options were presented to Council and introduced to the residents of Abbotsford. Over the next two months, public engagement sessions and surveys were hosted to provide residents the opportunity to learn more about each option, ask questions and give feedback. Following feedback from Abbotsford residents, farmers and business owners, and after additional technical analysis, a new hybrid option was developed, combining key elements of three of the original draft options. This new option not only meets flood protection guidelines in B.C., but also maximizes agricultural land and food security and minimizes the number of impacted properties.

In June, Council approved recommendations to move forward with this preferred option for long-term flood mitigation and shared it with the BC Government for consideration, advocating the multi-phased option start with building a Sumas River Pump Station. A new Sumas River Pump Station will address impacts in the event the City is unable to open the flood boxes, which is what occurred in November 2021 and also occurs during spring Freshet. Abbotsford City Council continues to strongly advocate for this important investment for the community so that we don't see the same devastation again.

## PREFERRED OPTION: Hybrid concept combining key elements of Options 2, 3 and 4

### Summary

Based on the key priorities identified through our public engagement sessions and additional technical analysis, this new Preferred Option is a hybrid of some of the key infrastructure enhancements and flood-mitigation concepts originally identified in Options 2, 3 and 4. Implementing this new hybrid option would enhance the City's existing flood protection system while maximizing agricultural land and food security, and minimizing the number of impacted properties. New dykes would be constructed through Sumas Prairie West, extending along the border, with Marshall Creek being separated from Nooksack overflow and Arnold area being protected. In the event of a Nooksack overflow, if this option is implemented, water is anticipated to be spread out through Sumas Prairie West, which is then moved through a narrow designated floodway to the Sumas and Fraser Rivers, via a new Sumas River Pump Station. Additional water storage and a new environmental area will be created by relocating the dyke along the north side of Highway 1. In addition to a new Sumas River Pump Station, the preferred option also includes the construction of three pump stations in Sumas Prairie West, resiliency improvements to Barrowtown Pump Station and replacing temporary works with permanent works along Sumas Dyke. The intent of this option is to preserve agricultural land and minimize impacts on properties by spreading out water.

This option would meet minimum flood protection guidelines in B.C. and incorporate enhancements such as dyke setbacks and floodway creation and provides a high level of overall protection. The level of protection offered by this option to Sumas Prairie Lake Bottom is up to a one in 200-year event (with climate change considerations).

### DYKES

- Permanently repair parts of Sumas Dyke (make temporary repairs from November 2021 permanent only)
- Modify parts of existing Sumas Dyke
- Reinforce and raise parts of existing Vedder Dyke
- Relocate parts of Sumas Dyke and setback to allow for flood overflow channel
- **New** relocated dyke along north side of Hwy 1 from Atkinson Road to floodboxes
- **New** dykes through Sumas Prairie West (West of Sumas River and East of Saar Creek), extending along the border and to protect Huntingdon area and Arnold area
- **New** dyke around Sumas First Nation Reserve

### PUMP STATIONS

- Upgrade resiliency of Barrowtown Pump Station
- **New** Sumas River pump station
- **New** pump stations in Sumas Prairie West, at Marshall Creek (two locations) and Saar Creek

### UNPROTECTED FLOODPLAIN

- Sumas Prairie West (private mitigation only)

### SUPPORTING INFRASTRUCTURE

- Hwy 1 to be raised from east of Sumas First Nation Reserve to Atkinson Road (by Province)

### DESIGNATED FLOODWAYS/ CONTROLLED OVERFLOW

- Create Lake Bottom designated temporary storage area
- Create smaller Sumas Prairie West floodway
- Create Sumas Prairie North floodway and storage area (from Atkinson Road to Barrowtown Pump Station floodboxes north of Hwy 1)
- Create controlled overflow to Lake Bottom via a flood overflow pathway
- Create controlled flows at border to Arnold Slough
- Create flood overflow route around the Angus Campbell Road area

### COST (ESTIMATIONS)

• Nooksack/Sumas Prairie Mitigation	TBD
• Clayburn Village Enhancements	\$32M
• Matsqui Dyke Resiliency	\$388M

**TOTAL ESTIMATED COST:**

**TBD**