
MEETING TYPE: Regular Council Meeting
MEETING DATE: August 20, 2024
AUTHOR: Scott Unser, Public Works Manager
DEPARTMENT: Infrastructure & Development Engineering
ITEM TITLE: Stormwater Management Policy and Regulation
DESCRIPTION: Consideration of a Middle Vernon Creek Flood Hazard Risk Assessment Report, Integrated Stormwater Management Plan and Subdivision and Development Servicing Amendment Bylaw (Schedule M) 1241, 2024

RECOMMENDATION

THAT the Middle Vernon Creek Flood Hazard Risk Assessment dated May 30, 2023 prepared by Urban Systems and attached to the Report to Council dated August 20, 2024 be adopted;
AND THAT the Subdivision and Development Servicing Amendment (Schedule M) Bylaw 1241, 2024 be read a first, second and third time;
AND FURTHER THAT Integrated Stormwater Management Plan (ISMP) Phase 1 dated November 2023 prepared by Urban Systems and attached to the Report to Council dated August 20, 2024, be adopted.

Middle Vernon Creek Flood Hazard Risk Assessment

BACKGROUND

A significant history of flooding and freshet events have been noted for the section of Middle Vernon Creek running through Lake Country, in particular, during the 2017 runoff. Anecdotal information, along with previous other agency studies in 2016 and 2020 supported a need for more comprehensive and current hazard assessments.

The District engaged Urban Systems to undertake a complete assessment of flood hazard risks on Middle Vernon Creek, within the District's boundaries, from Beaver Lake Road to Wood Lake. This Flood Hazard Risk Assessment (FHRA) was 100% funded through the Community Emergency Preparedness Fund program administered by the Union of BC Municipalities. The overall objective of creating thorough base lines and scientific knowledge is to establish forward steps in creating community resiliency and protection of valuable community assets.

DISCUSSION (what we did)

Finalization of Middle Vernon Creek FHRA incorporated several components in the process, including:

- Developing an understanding of the flood hazards in the study area
- Understanding the impacts to people, infrastructure, economy, culture, and environment
- Evaluating the severity of consequences on the impacts
- Considering the likelihood of flood hazards

Combining the information gathered results in an overall evaluation of the flood hazards, and specifically acknowledges the conditions in the study area. Middle Vernon Creek flows through highly developed areas with park, school, residential and agricultural land uses adjacent to the creek channel.

Community resiliency and asset protection approaches are categorized in the FHRA as non-structural or structural mitigation opportunities (see Table 10.5, p. 57). Several strategies are identified and are options that are commonly used in British Columbia in flood risk reduction planning.

Non-structural mitigation options include:

- Hazard and risk assessment
- Defining roles and responsibilities with other levels of government
- Land use planning
- Public awareness and education
- Emergency routing and safe zone delineation
- Emergency preparation and planning
- Monitoring and warning systems
- Maintenance

Structural mitigation options involve functional changes to how the water channel operates and can address the risks associated to how water flows during high water events. The District has been mitigating risks through the replacement of culverts at locations where Middle Vernon Creek crosses District road and utility infrastructure, with positive effect on the hydraulic capacity of the channel. Items like dikes, flood gates and dredging are considerations. Continued efforts to minimize debris build-up by improving flow are part of the structural mitigation opportunities.

NEXT STEPS:

Both the structural and non-structural actions identified in the FHRA form the basis of next steps, to be endorsed in principle, and that will guide management of flood risks on the sections of Middle Vernon Creek the District can influence. Staff will share this report with our regional and First Nation partners. Staff will engage senior levels of Government to resolve questions of authority and responsibility.

Subdivision and Development Servicing Bylaw (SDDS) Bylaw Schedule ‘M’

BACKGROUND

Managing stormwater effectively is extremely important within Lake Country due to the environmental implications, topography, proximity to water sources and courses, building locations and susceptibility of the soils to erosion and transfer. The design and construction of stormwater management systems that are triggered by either Building Permit or Subdivision applications are contained in Schedule M of the Subdivision and Development Servicing Bylaw 1221. Schedule M was last reviewed thoroughly in 2016, consequently, there are parts of Schedule M that are outdated and do not reflect current data or best practices. The current version of Schedule M also does not adequately address potential climate change and its implications on stormwater drainage systems. Historically, a challenging part of development approvals has been ensuring stormwater management is adequately addressed, and there have been instances where works constructed through development have proved inadequate over time. This has resulted in costs, to the District, to mitigate and correct these deficiencies. The proposed changes to Schedule M in the SDDS are intended to:

- Safeguard the public and infrastructure
- Mitigate risk
- Protect the environment
- Ensure that the works taken over by the District are fit for purpose.
- Provided consistent and clear design criteria for professional designing stormwater system within Lake Country

CHANGES (What we did)

Schedule M has been rewritten in its entirety by our stormwater management team, which included staff and our consultant, Urban Systems. The wholesale changes remove much of the ambiguity that is in the current bylaw, and separates the design specifications from the technical guidance. The technical guidance documents will be removed from the bylaw and included in an administrative policy. This will allow for more flexibility if changes are needed as industry standards and best practices change. In addition, climate-based science is incorporated into the stormwater guidelines to encourage the resiliency of the District's systems. Overall, the changes are intended to allow a focus on risk management rather than minimal performance.

Integration

The proposed Schedule M has been produced in conjunction with the Integrated Stormwater Management Plan (ISMP), which was also created by our consultant, Urban Systems. The aim is to create a suite of policy documents that work in harmoniously together to guide and manage stormwater holistically.

Consultation

The draft of the Schedule M has been shared with industry stakeholders such as CHBA-O and UDI-CO, at present no feedback has been received. We have also been beta testing the new Schedule M with the engineering team of one of our larger developers and have made improvements based on these 'real world' experiences and applications.

NEXT STEPS:

If Council adopts the amendment bylaw, the new version of Schedule M will be included in the SDDS. There will be another round of consultation with the development industry to update them on the changes in the bylaw and provide further opportunity for feedback. Additionally, the changes will be incorporated into the information provided to applicants through the pre-application process. Communication of the changes will be key to early identification of the expectations.

Integrated Stormwater Management Plan (ISMP)

The Integrated Stormwater Management Plan is being produced in two phases and will ultimately provide guidance related to land use, the environment, climate change, finance, and governance as well as project cost estimates for capital planning and strategies to manage drainage resources. The District's existing policy documents such as the OCP, Subdivision and Development Servicing Bylaw, the Highways Bylaw and the Stormwater Management Bylaw will be Integrated into the ISMP.

What we did

Phase 1 of the ISMP provides the context and framework for the ISMP. The information gathered and prepared is applicable to the entire District. It details what the District has (existing conditions) and summarizes the current understanding of what might be (future conditions). It also presents the District's philosophy for stormwater management within the broader context of community vision and goals.

Part of understanding both existing and future conditions is identifying, assessing, and prioritizing existing and potential stormwater management challenges. Existing challenges are caused by conditions that already exist – lack of infrastructure, undersized or degraded infrastructure, or on-going damage to natural resources for example. Potential stormwater management challenges are those which are likely to occur during or after future land use and/or climate changes. In both cases, Phase 1 identifies these challenges, assesses risk associated with each, and prioritizes them for further work in Phase 2. The ISMP dashboard was created as part of the phase 1 works as a GIS based repository for stormwater studies, data and operational information. Staff are expecting this to go live to the public later this year.

NEXT STEPS:

Work on phase 2 of the ISMP is underway after 2024 budget approval was granted. The Risk Assessment completed in Phase 1 of the ISMP identifies surface flow paths which, if activated during a rainfall event, represent a risk to the District. Each of these were assessed a risk rating ranging from 1 to 15 representing Low, Moderate, Moderate-

High-, and High-risk categories. Flow paths assessed a risk rating of 10 and higher (Moderate-High and High) are considered issues that should be addressed. Those with a risk rating lower than 10 are worth knowing about but are considered relatively benign and do not warrant specific effort to address them without further evidence of an on-going issue. There are also special cases where likelihoods are high, but consequences are low and vice versa – these should be assessed further to determine a more reliable risk rating. The primary objective for Phase 2, therefore, is to develop an Inspection and Maintenance Program with associated works to address each of the higher-risk issues.

The main Phase 2 scope of works includes:

- Confirm Stormwater Management Strategies
- Detailed Analysis and Assessment
- Cost Estimates
- Capital Renewal and Improvement Project Program Development, this output will also inform a future Development Cost Charge Bylaw update
- Inspection and Maintenance Program creation
- Reporting

FINANCIAL IMPLICATIONS

None Budget Previously Approved Other (see below)

Respectfully Submitted,
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Steven Gubbels, Manager of Development Engineering

Report Approval Details

Document Title:	Stormwater Management Policy and Regulation.docx
Attachments:	<ul style="list-style-type: none"> - Attachment A-Stormwater Management-MVC Flood Hazard Risk Assessment.pdf - Attachment B-Stormwater Management-Bylaw 1241, 2024 (Schedule M).pdf - Attachment C-Stormwater Management-DRAFT Policy 208, 2024.pdf - Attachment D-Stormwater Management-Schedule M Changes Summary.pdf - Attachment E-Stormwater Management-ISMP Phase 1 Report.pdf
Final Approval Date:	Aug 14, 2024

This report and all of its attachments were approved and signed as outlined below:

Matthew Salmon, Infrastructure & Development Engineering Director - Aug 14, 2024 - 11:39 AM

Reyna Seabrook, Director of Corporate Services - Aug 14, 2024 - 12:13 PM

Paul Gipps, Chief Administrative Officer - Aug 14, 2024 - 12:56 PM