



# City of Richmond

## Report to Committee

**To:** General Purposes Committee

**Date:** March 4, 2022

**From:** Milton Chan, P.Eng.  
Director, Engineering

**File:** 10-6060-01/2022-Vol  
01

**Re:** Accelerated Flood Protection Program Update

### Staff Recommendation

That the staff report titled, "Accelerated Flood Protection Program Update", dated March 4, 2022, from the Director, Engineering be received for information.

Milton Chan, P.Eng  
Director, Engineering  
(604-276-4377)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance	<input checked="" type="checkbox"/>	
Law	<input checked="" type="checkbox"/>	
Real Estate Services	<input checked="" type="checkbox"/>	
Roads & Construction	<input checked="" type="checkbox"/>	
Sustainability & District Energy	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b> 	<b>APPROVED BY CAO</b> 

## Staff Report

### Origin

At the April 12, 2021 Regular Council meeting, the following motion was adopted:

- (1) That a target annual revenue level of \$30 million by 2031, for the Drainage and Diking Utility, be endorsed for use in future utility budget planning in order to support Option 1 – 50 Year Implementation Period for an accelerated flood protection program;*
- (2) That new rate classes be introduced for the Drainage and Diking Utility as presented in Table 2 of the report titled “Accelerated Flood Protection Program Concept and Flood Protection Rate Structure Review” dated February 26, 2021 from the Director, Engineering and be incorporated in the preparation of the 2022 utility budget and rates;*
- (3) That a public consultation and communication plan be developed; and*
- (4) That implementation of the new utility rates commence in 2023.*

Subsequently, at the November 29, 2021 General Purposes Committee meeting, the following referral motion was made:

*That staff comment and advise on options to improve and expedite the City’s Dike Improvement Program, and report back.*

This report responds to the above referral. Related to this initiative, at the June 28, 2021 Regular Council meeting, Council endorsed pursuing a Fish Habitat Bank arrangement under the federal Fisheries Act as a means to accrue habitat credits on future City-led habitat projects in order to offset the impacts from diking.

This report supports the following strategies within Council’s Strategic Plan 2018-2022:

#### Strategy #1 A Safe and Resilient City:

*Enhance and protect the safety and well-being of Richmond.*

*1.2 Future-proof and maintain city infrastructure to keep the community safe.*

*1.3 Ensure Richmond is prepared for emergencies, both human-made and natural disasters.*

#### Strategy #5 Sound Financial Management:

*Accountable, transparent, and responsible financial management that supports the needs of the community into the future.*

*5.1 Maintain a strong and robust financial position.*

## **Analysis**

Richmond is a recognized leader in flood protection planning and mitigation, having established one of the most advanced flood protection programs in the region. Key components of the City's success include the Flood Protection Management Strategy and Dike Master Plan, which are the City's guiding framework for continual upgrades and improvements to address climate change induced sea level rise as well as anticipated increase in duration and intensity of storm events.

The Flood Protection Management Strategy identifies strengthening and raising the City's dike to 4.7 metres geodetic as a priority response to sea level rise and an increased variability in freshet flows due to climate change. Staff are continuously monitoring regional and global climate change science to inform the City's flood protection program.

### Accelerated Flood Protection Program Update

The Drainage and Diking Utility was established by Council in 2000 and budgets \$14.6 million in revenue, through fees (Figure 1) annually to maintain and upgrade Richmond's flood protection infrastructure. Through the Drainage and Diking Utility and senior government grant funding, the City has dedicated over \$120 million to completing flood protection projects, including pump station and dike upgrade projects, over the past 10 years.

At the April 12, 2021 Regular Council meeting, three options were presented in the staff report titled "Accelerated Flood Protection Program Concept and Flood Protection Rate Structure Review", dated February 26, 2021 from the Director, Engineering, comparing the high-level costs associated with accelerating the City's flood protection program. Acceleration of the City's dike upgrade program increases flood resilience for the City, should the rate of sea level rise increase from current projections.

The three options presented at the April 12, 2021 Regular Council meeting included a 50 year implementation period program (recommended by staff), and two options to further accelerate to a 40 year implementation period program and a 30 year implementation period program, as shown in Table 1. Council ultimately endorsed a target annual revenue level of \$30 million by 2031 for the Drainage and Diking Utility in order to support a 50 year implementation period, best positioning the City financially, while improving the City's diking infrastructure well in advance of the current anticipated climate change impacts.

In response to the referral from the November 29, 2021 General Purposes Committee meeting, staff have considered an additional option that looks at increasing the rates at the same pace as currently endorsed beyond the year 2032. This option generates a target annual revenue of \$37 million by 2035 in order to support a program that is further accelerated to a 43 year implementation period (Table 1).

Table 1: Accelerated Flood Protection Program Options\*

<b>Implementation Period</b>	<b>50 Years (Current Program)</b>	<b>43 Years</b>	<b>40 Years</b>	<b>30 Years</b>
2032 Target Annual Revenue Required	\$30 million	\$30 million	\$37 million	\$49 million
2035 Target Annual Revenue Required		\$37 million		

\*exclusive of costs for habitat compensation

Staff recommend continued endorsement of the 50 year implementation period to best position the City financially, while improving the City’s diking infrastructure well in advance of the current anticipated climate change impacts. Current sea level rise projections, including the latest report from the Intergovernmental Panel on Climate Change, indicate 1 metre of sea level rise by 2100, and the 50 year implementation program places the City approximately 30 years ahead of these projections. In addition, the 50 year implementation program ensures the City has the capacity and flexibility to further accelerate should the rate of sea level rise increase from current projections.

In addition, by not accelerating more than what is required at this time, the City maximizes the opportunity to acquire senior government funding over a longer term and allows the City to continue to monitor the rate of sea level rise and report back to Council with any recommended adjustments to further accelerate the flood protection program as required.

In order to execute the Council endorsed 50 year implementation period, the total annual revenue for the Drainage and Diking Utility will need to increase from \$14.6 million in 2022 to a minimum of \$30 million (Figure 1) by 2032. This would be achieved by increasing the Flood Protection System fee through the annual utility budget and rates process beginning in 2023 as endorsed by Council at the April 12, 2021 Regular Council meeting, until the target annual revenue is met in 2032 including adjustments for inflation and cost escalation.

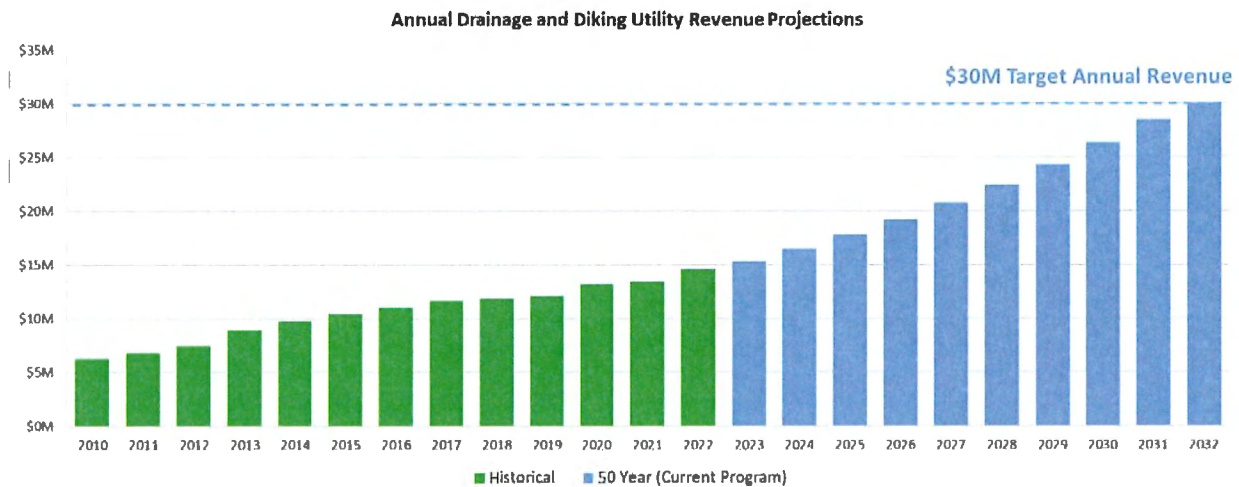


Figure 1: Annual Drainage and Diking Utility Revenue Projections

The total cost to complete the dike upgrades is currently estimated at \$1 billion, which includes costs associated with land acquisition, design and construction, and restoration along the perimeter dike. This estimated value should be used as an order of magnitude reference, considering highly variable factors such as construction and real estate costs, superdikes and regulatory requirements. Staff will be able to further refine these cost estimates as the program develops and more projects are completed.

In addition, funding beyond the target annual revenue will be required for habitat enhancement. This has not been included in the estimated costs at this point due to on-going staff investigation and site-specific requirements. As the scope of habitat enhancement, including requirements set by the Department of Fisheries and Oceans to establish a Fish Habitat Bank, becomes better defined, the target funding will be adjusted accordingly and brought forward for Council’s consideration as part of a future report.

Next Steps

*Public Engagement*

At the April 12, 2021 Regular Council Meeting, Council endorsed that a public consultation and communication plan be developed to support the implementation of the accelerated flood protection program. Staff have engaged a consultant to support engagement on this topic, as well as Dike Master Plan Phase 4 and the City’s habitat enhancement initiatives, including formalizing a fish habitat bank. Feedback will be utilized and incorporated into the annual utility budget and rates process, finalizing of Dike Master Plan Phase 4 and formalizing a fish habitat bank agreement with the Department of Fisheries and Oceans Canada. These reports will be presented to Council separately for consideration.

*2023 Utility Budget and Rates Planning*

As identified in the staff report titled “Accelerated Flood Protection Program Concept and Flood Protection Rate Structure Review”, dated February 26, 2021 from the Director, Engineering, an additional five regular full-time staff from various departments and five temporary full-time construction staff were estimated to be required to support the 50 year implementation period accelerated program. These positions will be fully funded from the Drainage and Diking Utility and are captured within the \$30 million target annual revenue for the 50 year implementation period.

As endorsed by Council at the April 12, 2021 Regular Council meeting, staff will prepare the 2023 utility budget and rates accordingly, including the budgeted expenditures for additional staffing, maintenance of the flood protection works, and operational resources for Council’s consideration as part of the annual budget process.

*Continuing Implementation of the City’s Flood Protection Program*

Staff will continue dike upgrades in priority areas according to the City’s Dike Master Plan and bring forward accelerated projects as a part of the annual Capital Program for Council consideration. Provincial and international studies on climate change will continue to be monitored and reviewed, and any significant changes will be assessed and incorporated into future iterations of the City’s Flood Protection Management Strategy and Dike Master Plan.

Completion of the perimeter dike upgrades will require substantial amounts of material for dike fill. Staff will continue to explore strategies to source materials within Richmond to the greatest extent possible in support of the City’s circular economy and sustainability objectives, as this would be efficient and effective for managing costs.

*Senior Government Funding*

The City’s Flood Protection Management Strategy aims to acquire senior government funding for a wide range of flood prevention and protection research, monitoring, studies, planning and improvements. The City has been successful in obtaining grant funding from the Provincial and Federal governments in the past and will continue to seek opportunities to secure additional grant funding. However, the City would be in a better position to accelerate the flood protection program with a dedicated funding source from senior governments. Dedicated funding would decrease the burden on Richmond’s utility ratepayers, and allow for more certainty in budgeting and planning for future flood protection upgrades.

Staff will continue to communicate with other Diking Authorities, regional bodies, provincial and federal agencies to seek dedicated senior government funding for all diking authorities.

*Environmental Considerations*

In many locations throughout the City, the dikes are adjacent to or overlap with significant environmental assets including the City’s Riparian Management Areas (RMA). The City’s RMA Network is a system of channelized watercourses that function, in part, as habitat corridors within Richmond’s Ecological Network to facilitate the movement of nutrients to the Fraser

River. Staff acknowledge that the proposed diking improvements often requires the removal of existing environmental assets. A key objective of all work is to design new, enhanced habitat that compliment the City's flood management and environmental objectives.

Raising the City's dikes requires an expanded footprint. The proposed dike footprint identified in the City's Dike Master Plan has been conceptually designed to avoid high-value fish habitat along the Fraser River. Where it cannot be avoided, a loss of existing riparian and freshwater aquatic habitat in the City's RMA is anticipated through the infill of channelized watercourses adjacent to the City's dikes. In addition, provincial guidelines discourage significant watercourses near the inland dike toe, as such watercourses can be problematic for static and seismic stability, seepage and piping, and can limit access for operation and maintenance. In certain areas of the City, these requirements will have significant impacts to the City's RMA Network. This presents an opportunity to explore potential habitat enhancement projects that would create higher value habitat on the river side of the dike when possible. Where this is not feasible due to site specific scour velocities and maintenance requirements, habitat compensation will be developed and appropriately designed in other areas of the City in accordance with the City's Ecological Network, Public Tree Management Strategy 2045, and the Community Energy and Emissions Plan 2050.


At the June 28, 2021 Regular Council meeting, Council endorsed pursuing a Fish Habitat Bank arrangement under the federal Fisheries Act. A future arrangement will allow the City to accrue habitat credits from future, City-led habitat projects to offset the impacts from diking and enhance the Ecological Network. Although a final Habitat Bank arrangement will take years to establish, staff anticipate that the City's habitat banking program will be functioning and there will be habitat credits available by the time it is needed to support Richmond's future permitting requirements.

### **Financial Impact**

None at this time. Staff will incorporate recommendations endorsed at the April 12, 2021 Regular Council meeting into the public engagement process, as well as subsequent future utility budgets and capital plans for Council's consideration.

### **Conclusion**

Staff are continuously monitoring regional and global climate change science to inform the City's flood protection program. Acceleration of the City's dike upgrade program provides additional flood resilience for the City over the 50 year implementation period. Should the rate of sea level rise increase from current projections, staff will report back to Council with any recommended adjustments to further accelerate the flood protection program as required.



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# City of Richmond

## Report to Committee

**To:** General Purposes Committee

**Date:** March 16, 2022

**From:** Claudia Jesson  
Director, City Clerk's Office

**File:** 12-8125-80-14-05/Vol 01

**Re:** Amendments to the Council Procedure Bylaw – Remote Public Participation

### Staff Recommendation

That Council Procedure Bylaw No. 7560, Amendment Bylaw No. 10373, which introduces amendments relating to the requirement for pre-registration for participation by means of electronic or other communication facilities, be introduced and given first, second and third readings.

Claudia Jesson  
Director, City Clerk's Office  
(604-276-4006)

<b>REPORT CONCURRENCE</b>	
<b>CONCURRENCE OF GENERAL MANAGER</b>  	
<b>SENIOR STAFF REPORT REVIEW</b>	<b>INITIALS:</b>  <i>N/A</i>
<b>APPROVED BY CAO</b>  	



## Staff Report

### Origin

Since April 2020, the public has had the opportunity to participate remotely in Regular Council, Regular Council for Public Hearing or a Standing Committee meeting. To enable remote public participation, a pre-registration requirement was implemented requiring prospective remote public participants to pre-register in advance. The requirement for pre-registration is not referenced in the Council Procedure Bylaw No. 7560.

This report recommends an amendment to the Council Procedure Bylaw No. 7560 that will stipulate that a person or organization wishing to address council by electronic means or other communication facilities will be required to pre-register with the City Clerk by 1:00 p.m. of the day of the meeting.

This report supports Council's Strategic Plan 2018-2022 Strategy #8 An Engaged and Informed Community:

*Ensure that the citizenry of Richmond is well-informed and engaged about City business and decision-making.*

### Analysis

Due to the pandemic, there have been a number of changes and adjustments made to ensure that the public is informed and has the opportunity to engage in the Council meeting process. Since April 2020, the public has had the ability to participate remotely and delegate on agenda items via electronic means. To enable a person or organization to participate remotely in order to delegate on an agenda item, a pre-registration process was implemented by the City Clerk's Office.

Members of the public wishing to delegate remotely have been required to register in advance with the City Clerk's Office by 1:00 p.m. of the day of the meeting. Once registered, the registrants would receive email communication from the City Clerk's Office containing detailed instructions pertaining to joining the respective meeting. While this process has worked well to date, the current Council Procedure Bylaw is silent on this requirement and as such the public may not be aware of this specific requirement. In order to ensure there is clarity regarding the rules of delegating remotely, staff propose that the requirement for pre-registration be specified in the Council Procedure Bylaw. In addition, the section of the bylaw outlining the general rules for delegations has a proposed language addition to clarify that section 13.8.3 does not refer to remote participation.

When the Provincial State of Emergency expired on September 28, 2021, Regular Council, Standing Committee, Special Council and Regular Council for Public Hearing meetings have been open for the public to attend in person. With the recent opening of City Hall to the public and the relaxation of covid related protocols, it should be noted that no pre-registration requirement will be applied for a person or organization wishing to delegate in person on an agenda item. The pre-pandemic process for public delegations will resume where members of the public in attendance will be able to delegate without pre-registering, if they wish to do so.


It should be noted that pre-registered speakers for any meeting will be afforded the opportunity to speak first, followed by members of the public who wish to delegate in person and have not pre-registered.

**Financial Impact**

None.

**Conclusion**

Staff recommends that Council Procedure Bylaw No. 7560, Amendment Bylaw No. 10373, that introduces amendments relating to the requirement for pre-registration for participation by means of electronic or other communication facilities, be introduced and given first, second and third readings.



Claudia Jesson  
Director, City Clerk's Office  
(604-276-4006)



**Council Procedure Bylaw No. 7560, Amendment Bylaw No. 10373**

The Council of the City of Richmond enacts as follows:

1. "Council Procedure Bylaw No. 7560", as amended, is further amended as follows:

a) Delete Section 1.4.2 and insert new Section 1.4.2 as follows:

"1.4.2 A person or organization wishing to address a Special Council Meeting, a Regular Council Meeting, a Regular Council Meeting for Public Hearings or a Standing Committee Meeting as a delegation may be offered the option to be heard at that meeting by means of electronic or other communication facilities, provided the communication facilities are available and operational, and a resolution of Council authorizing communication in this manner is in effect and the person or organization pre-registers in advance with the City Clerk by 1:00 p.m. on the day of the meeting."

b) Delete Section 13.8.3 and insert new Section 13.8.3 as follows:

"13.8.3 A delegation intending to use audio and audio-visual equipment or both in Council Chambers, for the purposes of making a submission to council, must advise the City Clerk prior to the council meeting of the intent to use such equipment, on the understanding that the City will assist with, but not be responsible for, the provision of the necessary equipment."

2. This Bylaw is cited as "Council Procedure Bylaw No. 7560, Amendment Bylaw No. 10373"

FIRST READING

SECOND READING

THIRD READING

ADOPTED

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CITY OF RICHMOND
APPROVED for content by originating dept <i>CS</i>
APPROVED for legality by Solicitor <i>JA</i>

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MAYOR

\_\_\_\_\_  
CORPORATE OFFICER