



Public Works and Transportation Committee

Council Chambers, City Hall
6911 No. 3 Road

Tuesday, October 19, 2021
4:00 p.m.

Pg. # ITEM

MINUTES

PWT-5 *Motion to adopt the **minutes** of the meeting of the Public Works and Transportation Committee held on September 21, 2021.*



NEXT COMMITTEE MEETING DATE

November 16, 2021, (tentative date) at 4:00 p.m. in the Council Chambers

DELEGATIONS

PWT-11 1. Daniel Xiao and Martin van den Hemel, KABU-Ride Inc., to present on the recently completed review of **KABU-Ride Inc.** by the Passenger Transportation Board of B.C.

PLANNING AND DEVELOPMENT DIVISION

2. **CYCLING NETWORK PLAN UPDATE – PROPOSED PHASE 2 ENGAGEMENT**

(File Ref. No. 02-0775-50-6708) (REDMS No. 6737359)

PWT-12

See Page PWT-12 for full report

Designated Speaker: Fred Lin

STAFF RECOMMENDATION

That the proposed Phase 2 engagement activities to support the update of the Cycling Network Plan, as described in the report titled “Cycling Network Plan Update - Proposed Phase 2 Engagement,” dated September 2, 2021 from the Director, Transportation, be endorsed for implementation.



3. **RECOMMENDATION TO AWARD CONTRACT 7256P - TRAFFIC SIGNAL SYSTEM MAINTENANCE, UPGRADING AND INSTALLATION**

(File Ref. No. 02-0775-50-7256) (REDMS No. 6738753)

PWT-26

See Page PWT-26 for full report

Designated Speaker: Bill Johal

STAFF RECOMMENDATION

- (1) *That Contract 7256P – “Traffic Signal System Maintenance, Upgrading and Installation” for an initial three year term estimated at \$6,878,728.86 excluding contingency and taxes, with an option to renew for one further two-year term for a maximum of five years, be awarded to Cobra Electric Services Limited. Staff request to award the contract for \$6,878,728.86 and issue change orders up to an additional \$687,873.00 excluding taxes, for a maximum value of \$7,566,601.86 to Cobra Electric Services Limited;*
- (2) *That staff be authorized to extend the contract for the final two years of the five year contract; and*
- (3) *That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.*



ENGINEERING AND PUBLIC WORKS DIVISION

4. **CHANGE ORDER APPROVAL – CONTRACT 6509P – MATTRESS AND UPHOLSTERED FURNITURE RECYCLING SERVICES**

(File Ref. No. 10-6370-04-01) (REDMS No. 6702698)

PWT-29

See Page PWT-29 for full report

Designated Speaker: Suzanne Bycraft

STAFF RECOMMENDATION

- (1) *That staff be authorized to issue a change order to increase the value of the current contract between the City of Richmond and Canadian Mattress Recycling Inc. as detailed in the staff report titled “Change Order Approval – Contract 6509P – Mattress and Upholstered Furniture Recycling Services” dated September 9, 2021, from the Interim Director, Public Works Operation, by \$1,270,815, bringing the new contract value to \$2.3 million over the maximum available term of five years; and*
- (2) *That the Chief Administration Officer and the General Manager, Engineering and Public Works be authorized to execute a contract amendment with Canadian Mattress Recycling Inc. to reflect the increase in predicted usage of services over the five-year term.*



5. **PESTICIDE REDUCTION AND INVASIVE SPECIES MANAGEMENT – 2021 UPDATE**

(File Ref. No. 10-6160-07-01) (REDMS No. 6742142)

PWT-33

See Page PWT-33 for full report

Designated Speaker: Chad Paulin

STAFF RECOMMENDATION

- (1) *That key achievements related to the City’s Enhancement Pesticide Management Program and Invasive Species Action Plan, as outlined in the staff report titled “Pesticide Reduction and Invasive Species Management – 2021 Update” dated September 22, 2021, from the Director of Sustainability and District Energy be received for information; and*

- (2) *That staff be directed to write letters to the federal Minister of Environment and Climate Change and the provincial Ministry of Environment, requesting that a review of the existing policies that allow for the importation and sale of invasive species be conducted.*



6. **GRANT FUNDED FLOOD PROTECTION PROGRAM UPDATE AND 2021 SUBMISSIONS TO THE DISASTER MITIGATION AND ADAPTATION FUND**

(File Ref. No. 10-6060-01) (REDMS No. 6749947)

PWT-54

See Page PWT-54 for full report

Designated Speaker: Jason Ho

STAFF RECOMMENDATION

- (1) *That the submissions of the dike improvement and drainage pump station upgrade projects and the commitment to the funding over the project term to the Disaster Mitigation and Adaptation Fund (DMAF), as outlined in the staff report titled “Grant Funded Flood Protection Program Update and 2021 Submissions to the Disaster Mitigation and Adaptation Fund,” dated September 21, 2021 from the Director, Engineering be endorsed;*
- (2) *That the Chief Administrative Officer and General Manager, Engineering and Public Works be authorized to negotiate, modify and execute the funding agreements with the Government of Canada for the above-mentioned projects should they be approved for funding.*
- (3) *That, should the above mentioned projects be approved for funding by the Government of Canada, the Consolidated 5 Year Financial Plan (2022-2026) be updated accordingly; and*
- (4) *That the construction of the No. 2 Road South Drainage Pump Station project be removed from the work scope of the 2016 Flood Protection Program capital project.*



7. **MANAGER’S REPORT**

ADJOURNMENT





Public Works and Transportation Committee

Date: Tuesday, September 21, 2021

Place: Council Chambers
Richmond City Hall

Present: Councillor Chak Au, Chair
Councillor Alexa Loo, Vice-Chair (by teleconference)
Councillor Andy Hobbs
Councillor Linda McPhail (by teleconference)
Councillor Michael Wolfe (by teleconference)

Also Present: Councillor Carol Day
Councillor Harold Steeves (by teleconference)

Call to Order: The Chair called the meeting to order at 5:13 p.m.

MINUTES

It was moved and seconded

That the minutes of the meeting of the Public Works and Transportation Committee held on July 20, 2021, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

October 19, 2021, (tentative date) at 4:00 p.m. in the Council Chambers

AGENDA ADDITIONS AND DELETIONS

It was moved and seconded

- (1) *That Item 4: Applications to 2021/22 BC Active Transportation Infrastructure Grant Program be removed from the agenda;*
- (2) *That Bike/Car Road Sharing Signage be added to the agenda as Item 6A, and;*
- (3) *That Alderbridge Way Multiuse Path Project be added to the agenda as Item 6B.*

CARRIED

DELEGATION

1. Marko Dekovic, Vice President Public Affairs, GCT Global Container Terminals, to present on the Deltaport Berth Four Expansion Project.

Mr. Dekovic led the review of a presentation titled “Deltaport Expansion Berth Four Project (DP4)” and highlighted:

- The increase in container volumes is expected to continue;
- The project proposal includes an addition of a fourth short sea shipping berth and a Tsawwassen First Nation’s marina;
- Incremental capacity growth is economically and environmentally viable and is required to stay competitive with U.S. Ports;
- Feedback is requested from City of Richmond;
- Terminals are assessed a fee to support investments for road and rail traffic avenues;
- Deltaport does not handle tanker traffic.

In reply to queries from the Committee, Mr. Dekovic advised (i) the presented information is a public report and can be shared, (ii) the Port is currently open 24 hours and night gates are operated to accommodate demand, (iii) statistics around truck movements can be provided, (iv) Fairview Terminal in Prince Rupert has seen larger growth than the Deltaport facility, (v) Prince Rupert is a gateway port, whereas Vancouver has a significant local market, (vi) the project is entering the environmental impact phase, (vii) a short sea shipping berth will provide options for customers, (viii) an incremental approach to development is economical and allows for flexibility, and (ix) costs may be adjusted after the impact assessment.

Public Works & Transportation Committee
Tuesday, September 21, 2021

PLANNING AND DEVELOPMENT DIVISION

2. RECOMMENDATION TO AWARD CONTRACT 7181Q - SUPPLY AND INSTALLATION OF CONDUITS AND WATER SERVICE PIPES USING TRENCHLESS TECHNOLOGY AND OTHER RELATED CIVIL WORKS

(File Ref. No. 02-0775-50-7181) (REDMS NO. 6713641)

In reply to a query from the Committee, staff advised the City does not possess the equipment to perform the proposed contract work.

It was moved and seconded

- (1) That Contract 7181Q – “Supply and Installation of Conduits and Water Service Pipes using Trenchless Technology and Other Related Civil Works” for an initial three year term estimated at \$4,548,000 exclusive of taxes, with an option to renew for one further two-year term for a maximum of five years, be awarded to Ulmer Contracting Limited;*
- (2) That staff be authorized to extend the contract for the final two years of the five year contract; and*
- (3) That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.*

CARRIED

3. E-SCOOTER PILOT PROJECT-RECOMMENDATION TO AWARD CONTRACT FOR SHARED SYSTEM

(File Ref. No. 02-0775-50-7204) (REDMS NO. 6678187)

In reply to queries from the Committee, staff advised (i) staff attend meetings with TransLink and municipalities regarding community emission plans, (ii) e-bicycles are included in the pilot project, (iii) safety concerns have been mitigated by bylaw amendments, (iv) e-bicycles and e-scooters are identifiable and are equipped with geolocators to provide pertinent information in the event of an accident, and (v) staff will provide information regarding accountability in the event of accident or injury.

Public Works & Transportation Committee
Tuesday, September 21, 2021

As a result of the discussion the following *referral motion* was introduced:

It was moved and seconded

That the Richmond Public Works and Transportation Committee write a letter to the Attorney General and Minister Responsible for Housing, requesting a review of the legislation that excludes people under the age of 18 from renting e-scooters and e-bicycles and having access to alternate forms of transportation within the City of Richmond.

CARRIED

Staff advised that (i) the minimum age of 18 to enter a rental agreement for an e-scooter or e-bicycle is consistent across North America, and (ii) the establishment of a minimum age of 18 is a business decision made by the proponent.

It was moved and seconded

- (1) *That Contract 7204P - Provision of Public E-Scooter Share Pilot Project be awarded to Lime Technology, Inc.;*
- (2) *That the City enter into an agreement up to three years in length with Lime Technology, Inc. based on the terms as outlined in the staff report titled "E-Scooter Pilot Project –Recommendation to Award Contract for Shared System" dated July 27, 2021 from the Director, Transportation; and*
- (3) *That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to negotiate and execute the above agreement on behalf of the City.*

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

4. SANITARY SEWER REPAIRS – 8000 BLOCK CAPSTAN WAY
(File Ref. No.) (REDMS No. 6676069)

It was moved and seconded

That funding of \$800,000 from the Sanitary Sewer Reserve Fund for the sanitary sewer repairs in the 8000 Block of Capstan Way be approved and that the Consolidated 5 Year Financial Plan (2021-2025) be amended accordingly.

CARRIED

Public Works & Transportation Committee
Tuesday, September 21, 2021

5. GREEN FLEET ACTION PLAN - 2020 PROGRESS REPORT

(File Ref. No. 01-0340-03-01) (REDMS No. 6710838)

In reply to queries from the Committee, staff advised (i) electric equipment is purchased for use by parks but electric equipment is often unable to cope with commercial use, and (ii) hydrogen vehicles are limited by the lack of infrastructure, but improvements can be addressed through grant funding offered by the provincial and federal governments.

It was moved and seconded

- (1) *That the staff report titled "Green Fleet Action Plan-2020 Progress Report" dated August 19, 2021, from the Interim Director, Public Works Operations, be endorsed; and*
- (2) *That the City join the West Coast Electric Fleets Diamond Lane pledge, thereby allowing application for additional funding opportunities from the Province of British Columbia's Go Electric Fleets program.*

CARRIED

6A. BIKE/CAR ROAD SHARING SIGNAGE

Discussion ensued on (i) the inadequacy of signage for cyclists and drivers in construction areas when cyclists are required to utilize the roadways, (ii) the Province is considering safe passing distance regulations, and (iii) September 27 to October 10, 2021 is Fall Go By Bike Week.

In reply to a query from the Committee, staff reported they will work with the Transportation Department to seek improvements and options from the cyclist's perspective and report back.

6B. ALDERBRIDGE WAY MULTI-USE PATHWAY

Discussion ensued on the requirement to remove 40 trees to construct the Alderbridge Way Multi-Use Pathway.

In reply to queries from the Committee, staff advised (i) the project was approved by Council, and (ii) upgrades such as safety lights and retaining walls require the removal of trees.

Public Works & Transportation Committee
Tuesday, September 21, 2021

6. MANAGER'S REPORT

(i) Applications to 2021/22 BC Active Transportation Infrastructure Grant Program (Item 4)

Staff advised that the funding application for this item was unsuccessful as the program was oversubscribed. The City was invited to reapply next year.

(i) Storm, September 19, 2021

Staff advised that only ten service requests were received.

ADJOURNMENT

It was moved and seconded

That the meeting adjourn (6:23 p.m.).

CARRIED

Certified a true and correct copy of the Minutes of the meeting of the Public Works and Transportation Committee of the Council of the City of Richmond held on Tuesday, September 21, 2021.

Councillor Chak Au
Chair

Debbie Reimer
Legislative Services Associate

Subject:

FW: Request to make presentation to Public Works and Transportation Committee of Richmond City Council

To the City of Richmond Clerk,

KABU-Ride Inc. would like to make an in-person presentation at the next possible meeting of Richmond City Council's Public Works and Transportation Committee.

KABU would like to update the City of Richmond and members of council, regarding the recently completed review of KABU-Ride Inc. by the Passenger Transportation Board of B.C.

KABU received its ride-hailing licence to serve all of B.C. in February of 2020, but based on input from the City of Richmond in 2019 that indicated that the city did not feel that KABU was a "fit and proper person", the board placed a provision on KABU's licence, requiring that 18 months after the issuance of the licence, the board would undertake a review of KABU's fitness to operate a ride-hailing company.

That review has now been completed.

As well, KABU would like to update the City of Richmond about the current state of ride-hailing in the community, and specifically reference the flourishing illegal ride-hailing market, which is putting hundreds of customers, and the community at large, in harm's way each and every day.

Pending the city's approval, KABU will be represented at the committee meeting by Daniel Xiao, KABU's director of finance, and Martin van den Hemel, KABU's director of communications.

The presentation would include a short Power-Point style presentation to accompany a verbal submission of no more than five minutes. KABU will then make itself available for questions by committee members and city staff.

I look forward to hearing from you.

Sincerely,

MARTIN VAN DEN HEMEL



City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: Lloyd Bie, P.Eng.
Director, Transportation
Date: September 2, 2021
File: 02-0775-50-6708/Vol
01
Re: **Cycling Network Plan Update – Proposed Phase 2 Engagement**

Staff Recommendation

That the proposed Phase 2 engagement activities to support the update of the Cycling Network Plan, as described in the report titled "Cycling Network Plan Update - Proposed Phase 2 Engagement," dated September 2, 2021 from the Director, Transportation, be endorsed for implementation.

Lloyd Bie, P.Eng.
Director, Transportation
(604-276-4131)

Att. 3

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Communications	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Recreation & Sport	<input checked="" type="checkbox"/>	
Engineering	<input checked="" type="checkbox"/>	
Sustainability & District Energy	<input checked="" type="checkbox"/>	
Development Applications	<input checked="" type="checkbox"/>	
Policy Planning	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

At its May 25, 2021 meeting, Council endorsed the Phase 1 engagement activities to support the update of the City's Cycling Network Plan and directed staff to report back on the results. This report presents the results of the Phase 1 engagement activities and the proposed Phase 2 engagement activities, which are intended to gain feedback from the public and stakeholders regarding the prioritization of potential cycling network improvements.

This report supports Council's Strategic Plan 2018-2022 Strategy #4 An Active and Thriving Richmond:

An active and thriving community characterized by diverse social and wellness programs, services and spaces that foster health and well-being for all.

4.2 Ensure infrastructure meets changing community needs, current trends and best practices.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

Leadership in effective and sustainable growth that supports Richmond's physical and social needs.

6.3 Build on transportation and active mobility networks.

Analysis

Phase 1 Engagement Activities

All engagement activities took place on-line during June 1-30, 2021. Public engagement was held via the City's Let's Talk Richmond site, which hosted a survey, mapping tool and ideas board. Public awareness of the engagement process included issuing a news release, promoting on the City's social media channels, inclusion on the City website, posting a notice at transit shelters in the City Centre that have a digital panel, and installation of temporary signage along bike routes across the city. Separate stakeholder sessions were convened with relevant external agencies¹, the Advisory Committee on the Environment (ACE) and the Richmond Active Transportation Committee (RATC).

Phase 1 Engagement Results

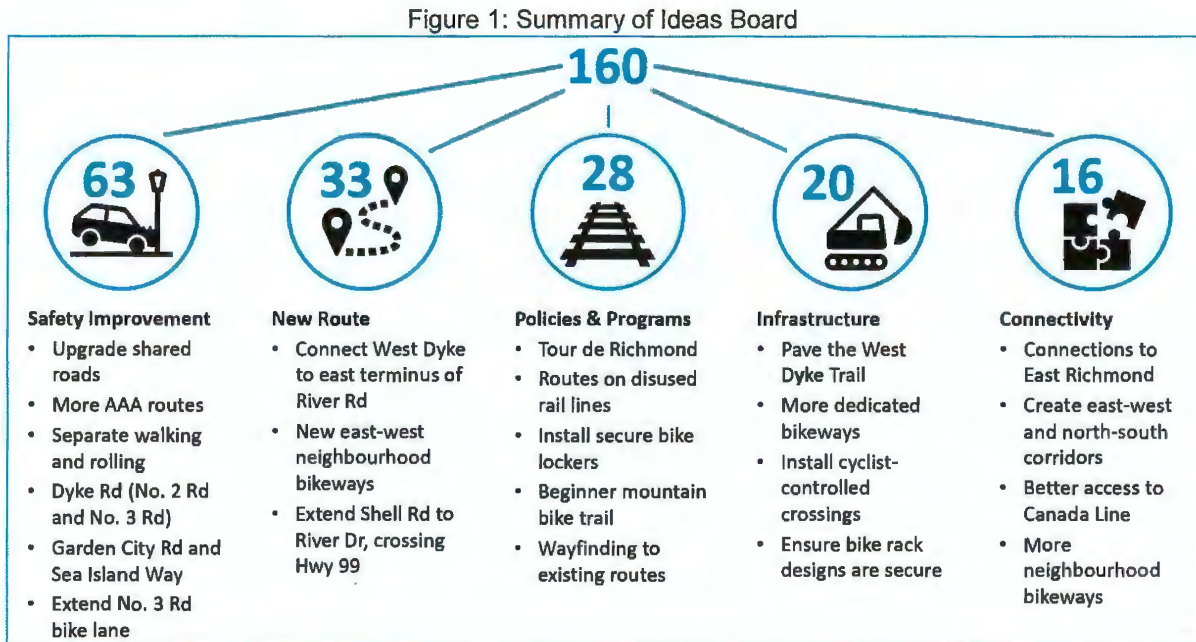
The Let's Talk Richmond site recorded 1,180 visitors who contributed:

- 160 ideas that received a total of 814 "likes"
- 222 map pins
- 604 completed surveys (571 general public and 33 students)

¹ The Ministry of Transportation and Infrastructure, TransLink, Vancouver Airport Authority, Richmond School District, Metro Vancouver, ICBC, HUB Cycling, Richmond RCMP, and Vancouver Coastal Health.

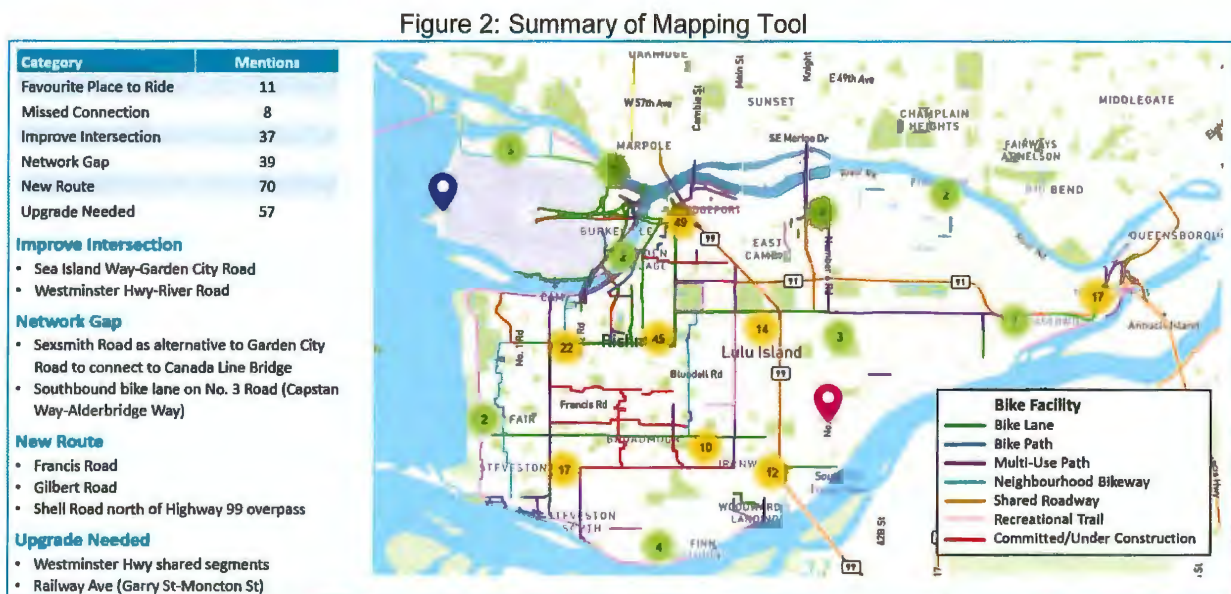
Ideas Board

Figure 1 summarizes the most common ideas generated and the most popular in terms of votes.



Mapping Tool

Figure 2 summarizes the location specific feedback across the categories of pins (see Attachment 1 for more detailed maps by category).



Public Survey

Table 1 and Figure 3 highlight key findings with respect to where residents feel comfortable riding and why they ride based on a weighted average of the ranked responses.

Table 1: Summary of Comfort Level for Riding

Category	Proportion	Level of Comfort
Frequent Cyclist (cycle daily, weekly or monthly)	80%	<ul style="list-style-type: none"> 100% comfortable cycling on trails and off-street paths, in bike lanes with barriers, and in bike lanes without barriers 70% comfortable cycling in mixed traffic on local streets
Infrequent Cyclist (cycle never, rarely, or sometimes)	20%	<ul style="list-style-type: none"> 67% comfortable cycling on trails and off-street paths 58% comfortable cycling in bike lanes with barriers Less than 33% comfortable for all other facility types

Figure 3 Reasons Why Respondents Ride



Student Survey

Of the 33 students that responded, most identified as being in Grades 9 through 12 and most already use active transportation to get to school (Figure 4). The reasons for biking to school are varied (Figure 5). Of the nine respondents who reported they did not bike to school, seven reported walking.

Figure 4: Typical Ways to Get to School

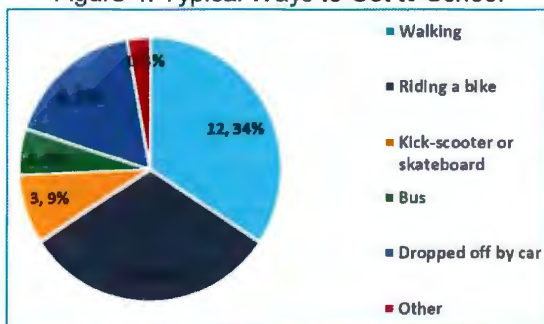
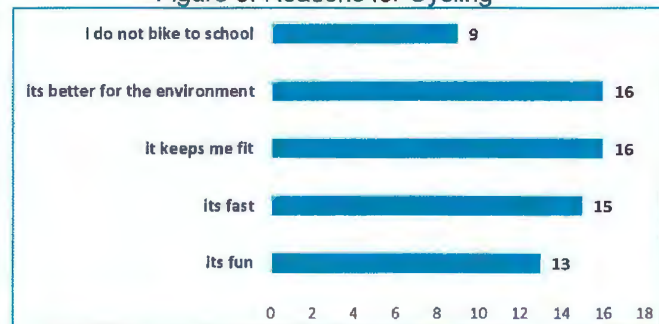


Figure 5: Reasons for Cycling



Stakeholders

Safety and connectivity were common themes identified by stakeholder groups (Table 2).

Table 2: Summary of Stakeholder Feedback

Stakeholder	Key Topics
Advisory Committee on the Environment	<ul style="list-style-type: none"> Enhanced separation on bike routes used by students (e.g., Williams Road, Westminster Highway) Additional major north-south cycling route Connectivity to transit
Richmond Active Transportation Committee	<ul style="list-style-type: none"> Connectivity, safety and wayfinding as priorities Extend east-west routes Upgrade existing routes for continuous facility and complete missed connections
External Agencies	<ul style="list-style-type: none"> Safety, connectivity and education as priorities Lower speed limits on cycling corridors Separated facilities in urban centres Improve intersection design

Cycling Network Evaluation

Based on the Phase 1 public and stakeholder feedback, several key themes emerged to inform an evaluation of cycling routes for an updated network and prioritized implementation strategy:

- **Safety:** Improve cycling comfort and serve all ages and abilities
- **Connectivity:** Add new facilities that connect the existing network, and enhance cycling connections to the wider region and east Richmond
- **Utility and Convenience:** Improve access to transit, schools, and other key destinations
- **Feasibility:** Consider high level costs and constraints, impacts on other modes
- **Network Gaps:** Complete gaps in the existing major network and improve wayfinding
- **Social Equity:** Be aware of accessibility of the network to ensure equity across all groups

For Phase 2, several of these themes were codified into a route level evaluation matrix. This analysis provides an indication of priority areas and routes for including within the core cycling network (Attachment 2). The analysis will be used as the basis for the Phase 2 public and stakeholder engagement, and as a stepping-stone for leading into the implementation strategy.

Proposed Phase 2 Engagement

The proposed Phase 2 consultation will focus on three major objectives (Attachment 3):

- validating the findings from the route level evaluation,
- refining feedback heard during Phase 1 engagement, and
- understanding how stakeholders and the public prioritize between different cycling network improvements and connections at the implementation stage.

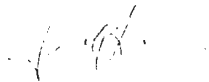
As with Phase 1, all engagement activities will take place on-line with initiation in November pending Council approval. Public engagement will be via the City's Let's Talk Richmond site, which will again host a survey, ideas board and mapping tool. Separate stakeholder sessions will be convened with relevant external agencies, ACE and RATC.

Financial Impact

All activities can be accommodated within the existing approved funding sources.

Conclusion

The Phase 2 engagement activities for the public and stakeholders will inform finalization of an updated cycling network plan and prioritized implementation strategy, which is anticipated to be brought forward for Council approval in spring 2022.



Fred Lin, P.Eng., PTOE
Senior Transportation Engineer
(604-247-4627)



Joan Caravan
Transportation Planner
(604-276-4035)

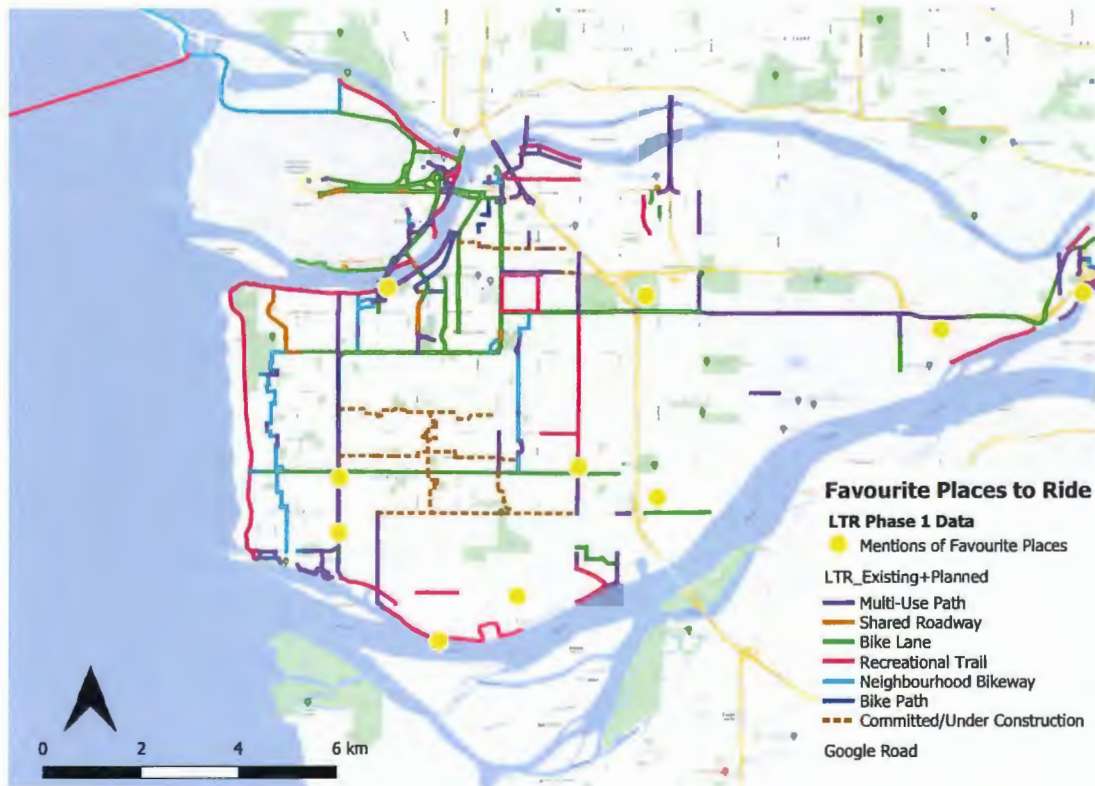
JC:jc

Att. 1: Phase 1 Engagement Results – Mapping Tool Responses by Category

Att. 2: Preliminary Cycling Network Analysis – Priority Routes

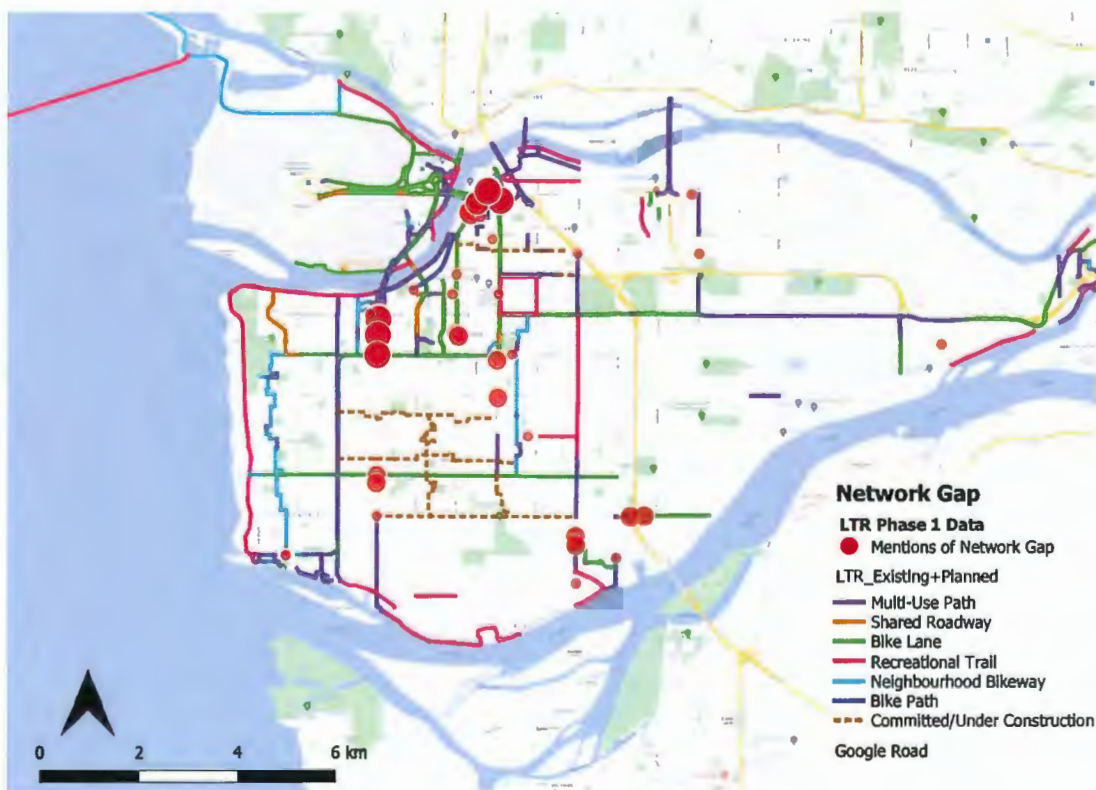
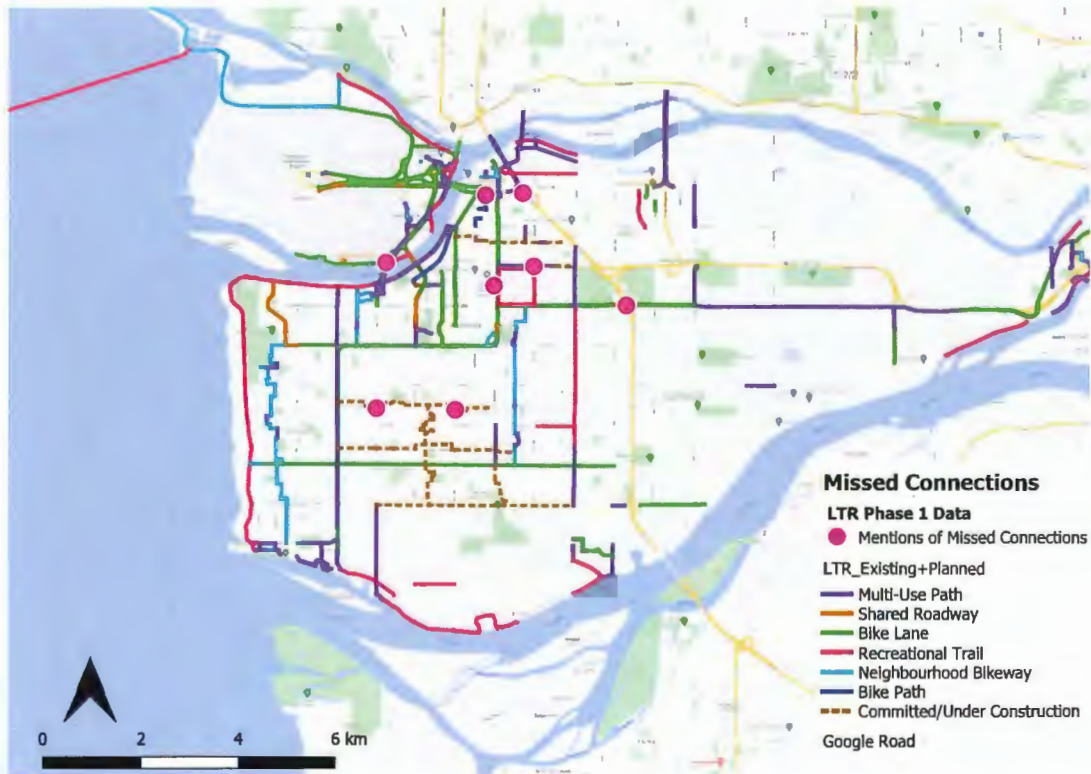
Att. 3: Phase 2 Engagement – Proposed Activities and Questions

Phase 1 Engagement Results – Mapping Tool Responses by Category



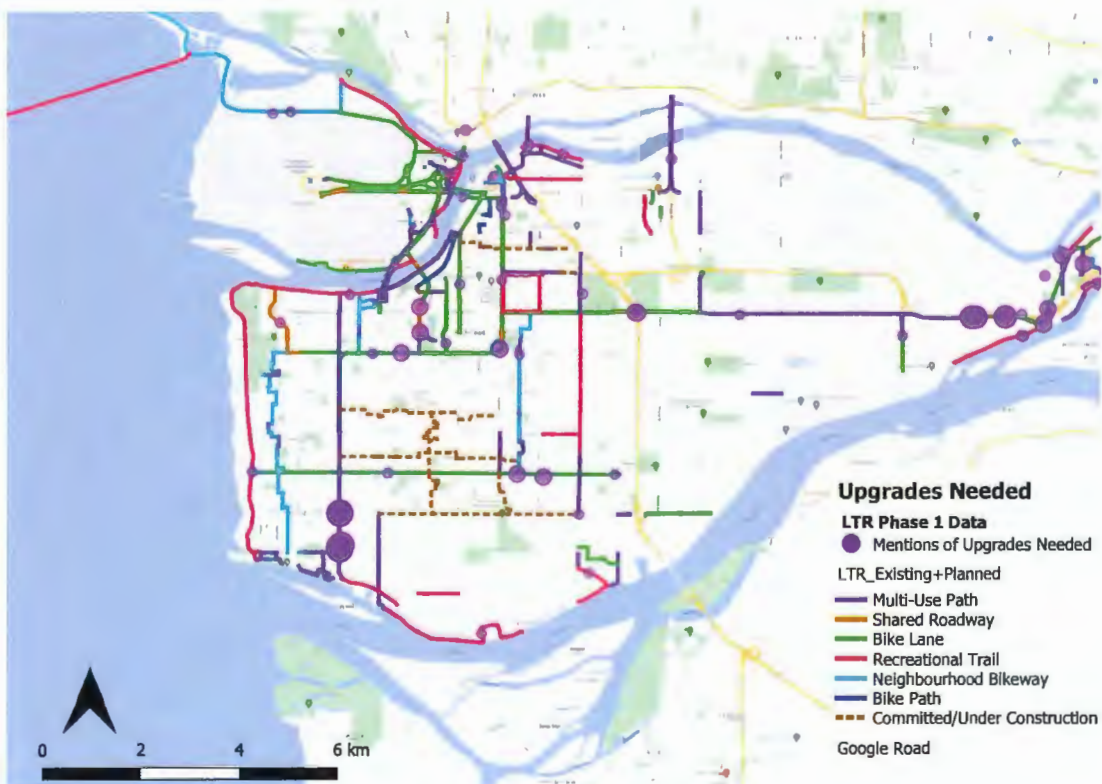
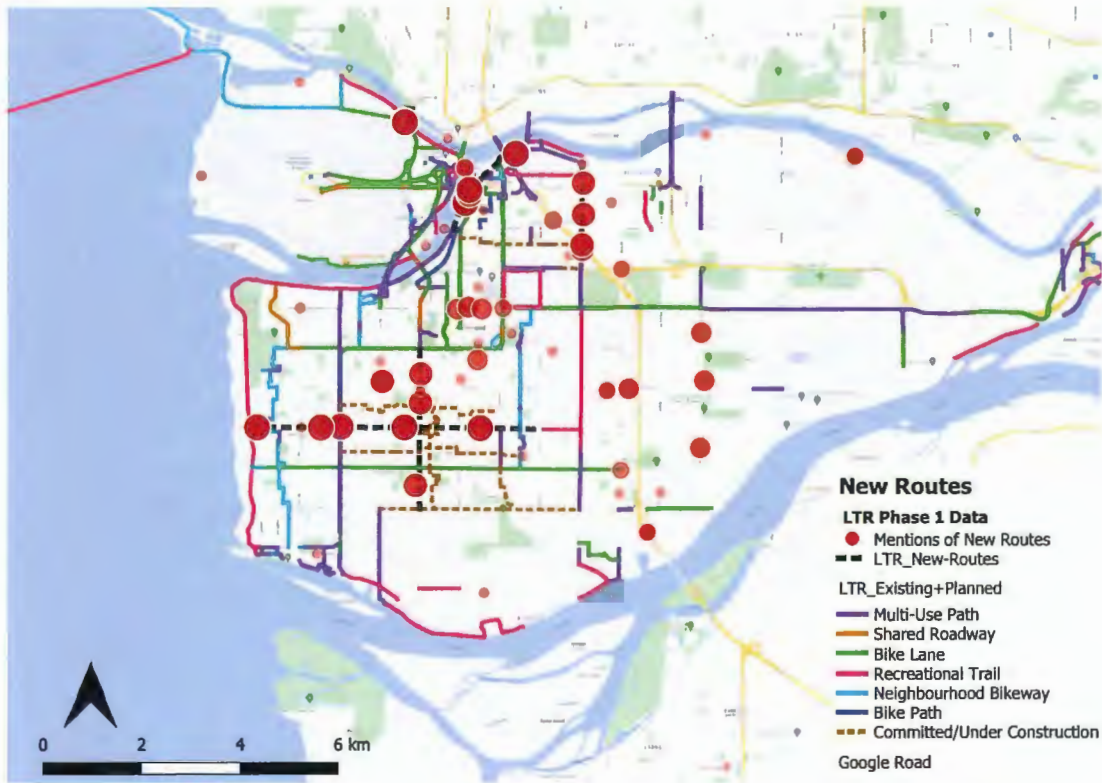
Note: LTR = Let's Talk Richmond

Phase 1 Engagement Results – Mapping Tool Responses by Category



Note: LTR = Let's Talk Richmond

Phase 1 Engagement Results – Mapping Tool Responses by Category



Note: LTR = Let's Talk Richmond

Preliminary Cycling Network Analysis – Priority Routes

Network Evaluation – Utility / Convenience

Discrete Destinations

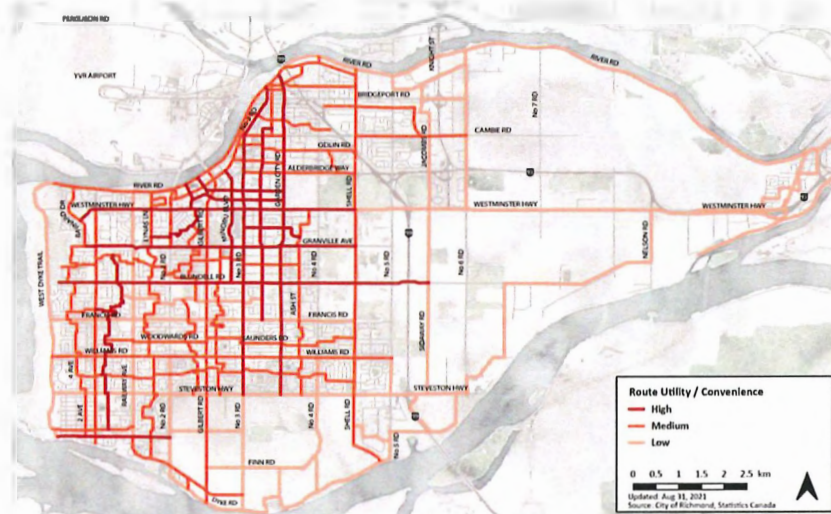
- 200m Buffer around route to count relative number of destinations along route
 - Schools (4-6 High, 3-4 Medium)
 - Points of Interest (4-6 High, 3-4 Medium)
 - Transit Stations (3 High, 1-2 Medium)

Population and Employment

- Plotted employment uses in the land-use bylaw
- Plotted population density



- **High** – provides direct access into and within population or employment centres
- **Medium** – provides access to the edges of population or employment centres
- **Low** – does not provide direct connection



Network Evaluation – Connectivity

Regional

- Major Bike Route (TransLink)
- Regional Greenway (Metro Vancouver)
- Entry point for adjacent municipalities

Existing Network

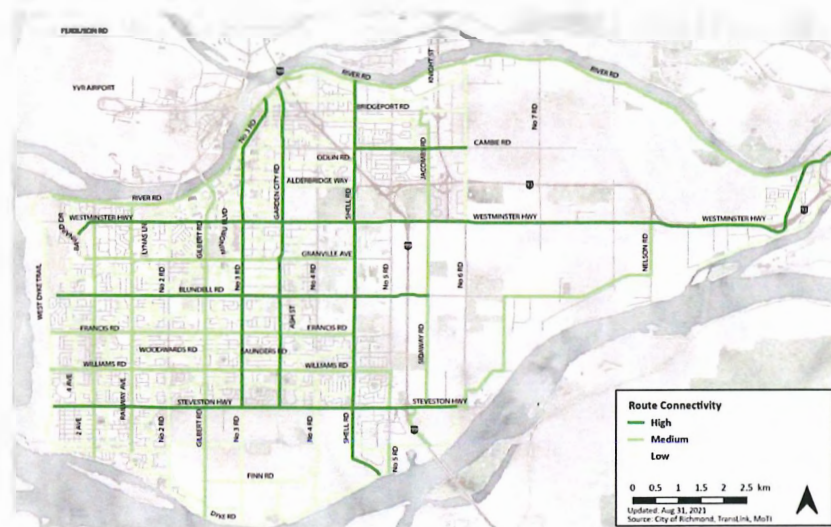
- Directly connects between several routes in the existing network
- Provides additional east-west or north-south corridor

Neighbourhood Centres

- Provides direct connection to at least 1 neighborhood centre in the OCP

East Richmond

- Provides a direct connection between East Richmond and the network



Preliminary Cycling Network Analysis – Priority Routes

Network Evaluation – Community Support

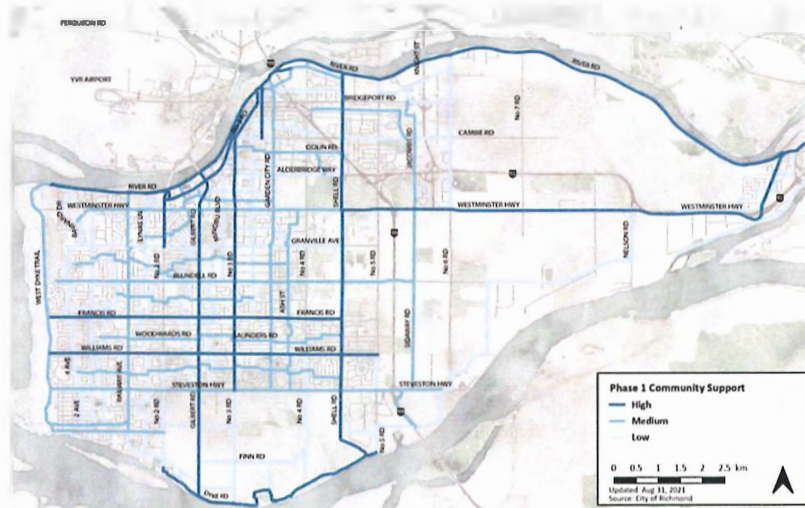
Public/Stakeholder Feedback

High

- Sexsmith Rd to Canada Line Bridge
- No. 3 Rd - Sea Island Way to Granville Ave
- No. 2 Rd - Westminster Hwy to Granville Ave
- Francis Rd - West Dyke Trail to Shell Rd
- Gilbert Rd - continuous north-south route between Ash St and Railway Ave
- Connect North and West Dyke Trails
- Shell Rd - extension to River Rd
- Dyke Rd - No. 2 Rd to No. 3 Rd
- Westminster Hwy – upgrade shared road segments

Medium

- Create east-west and north-south corridors
- New east-west neighbourhood bikeways



Network Evaluation – Social Equity

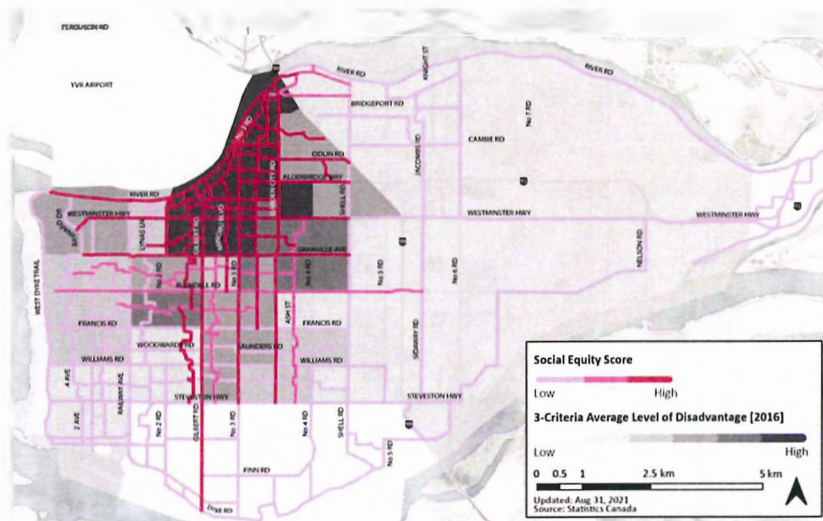
3-Criteria Average

Equal weighting of three indicators of equity deserving groups in the 2016 Census:

- **Unaffordable housing** - households spending 30% or more of income on housing
- Percentage of **low-income** households based on Statistics Canada low income measure (LIM) thresholds
- Percentage of population identifying as **Indigenous**

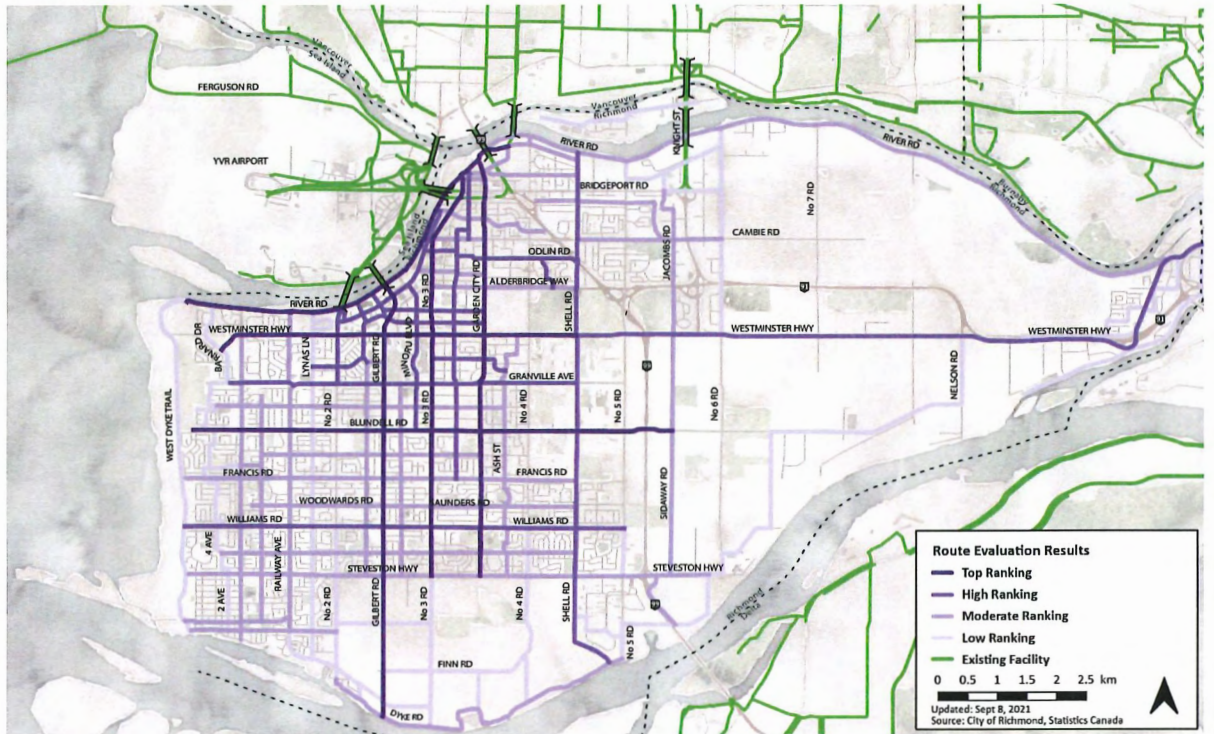
Key Finding

Strong correlation between prioritizing routes for equity seeking groups and prioritizing routes in the downtown.



Preliminary Cycling Network Analysis – Priority Routes

Network Evaluation – Results



Top Routes

- No. 3 Road: Sea Island Way to Steveston Highway
- Garden City Road
- Gilbert Road
- River Road: West Dyke to Canada Line Bridge
- Westminster Highway: No. 1 Road to Shell Road
- Blundell Road: Crabapple Ridge Bike Route to Sidaway Road

Phase 2 Engagement – Proposed Activities and Questions

Phase 2 Engagement – Ideas Board

Sparkling a Discussion

Steer conversations towards key topics where feedback is desired but are not well suited for a survey format such as:

- Open-ended questions, or questions where a long list of options would need to be provided
- Temperature check on different ideas
- Qualitative and experiential data

Examples

- What is your experience using electric mobility devices (e.g., e-scooters, e-bikes, segways, bike share, etc)? For what trip purposes do you usually use your device? Do you feel safe on these devices on roads and bike lanes?
- Richmond recently amended bylaws to establish a 15 km/h speed limit for e-bikes on Multi-use Paths (e.g., Railway Greenway) and trails (e.g., West Dyke trail and Shell Road trail). What are your views on this change? What is your experience on shared paths and trails with people walking, cycling and use electric mobility devices?
- What are your attitudes and suggestions regarding the sharing trails between pedestrians and electric mobility devices?
- In Phase 1, some participants reported being uncomfortable cycling in mixed traffic on local streets. What improvements would like to see on these routes to make them feel safer and more comfortable?
- In Phase 1, we received several requests to establish a Tour de Richmond (defined cycling route around the City of Richmond) via signage, marketing, etc. What do you think of this idea? What destinations (parks, viewpoints, restaurants, cafes, stores, etc.) in Richmond do you like to visit while riding your bike?
- For families with children in Elementary or High School, do your children ride their bikes to school? What is your or your child's experience and what improvements would encourage them to ride to school more often?

Phase 2 Engagement – Mapping Tool



Purpose

Phase 1 Engagement – received feedback on site specific issues.

Network Analysis – identifies routes with high potential to generate cycling benefits.

Proposed Consultation

Based on the results provided and your experience as a cyclist in Richmond, please reflect on the routes considered top or high ranking. **Are there additional routes that you would consider high priority?**

Phase 2 Engagement – Proposed Activities and Questions

Phase 2 Engagement – Survey

Potential Questions

1. If you had \$1 million dollars to invest in cycling infrastructure, would you rather build 10 kilometres of neighbourhood bikeways, 5 kilometres of unprotected bike lanes, 2.5 kilometres of protected bike lanes, or 1 kilometres of multi-use pathways? Please rank in order of importance.
2. How would you allocate funding between new routes, maintenance, adding protection to existing facilities, upgrading existing intersections, completing gaps in the existing network, and bike parking? Participants to allocate percentage of funding.
3. Many routes will likely need to be completed in segments. Different segments may provide greater access to various destinations. Please rank the following destinations from most to least important when deciding which segments to prioritize.

• Schools	• Bus exchanges	• City centre
• Parks	• Commercial areas	• Neighbourhood centres
• Canada Line stations	• Community centres	
4. Please rank the following locations for prioritizing new secure bike parking facilities in Richmond.

• Schools	• Bus exchanges	• City centre
• Parks	• Commercial areas	• Neighbourhood centres
• Canada Line stations	• Community centres	
5. How many minutes of extra travel time on a 20-minute cycling trip would you be willing to incur to remain in a fully protected facility (off street multi-use path or off-street bike lane)? Participants select from 0 to 5+ minutes.
6. We heard in Phase 1 that many residents don't feel comfortable cycling on local roads. Which improvements would increase the level of comfort and have the greatest positive impact on your likelihood to use neighbourhood bikeways? Please rank from greatest to least impact.

• Safer crossings at intersections	• Improved wayfinding
• Reduced speed limits	• Shared lane markings
• Traffic calming measures	• Other
7. Please confirm your level of agreement with the following statements (strongly agree, agree, neither agree nor disagree, disagree, strongly disagree):
 - A. Cyclists should travel at slower speeds when sharing multi-use facilities with pedestrians.
 - B. The City of Richmond should expand slow-speed signage programs on multi-use pathways and trails.
 - C. Separated facilities should be prioritized in high-traffic and high-density areas (e.g., City Centre, arterials, major streets).



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** September 13, 2021
From: Lloyd Bie, P. Eng.
Director, Transportation **File:** 02-0775-50-7256/Vol
01
Re: **Recommendation to Award Contract 7256P - Traffic Signal System
Maintenance, Upgrading and Installation**

Staff Recommendation

1. That Contract 7256P – “Traffic Signal System Maintenance, Upgrading and Installation” for an initial three year term estimated at \$6,878,728.86 excluding contingency and taxes, with an option to renew for one further two-year term for a maximum of five years, be awarded to Cobra Electric Services Limited. Staff request to award the contract for \$6,878,728.86 and issue change orders up to an additional \$687,873.00 excluding taxes, for a maximum value of \$7,566,601.86 to Cobra Electric Services Limited;
2. That staff be authorized to extend the contract for the final two years of the five year contract; and
3. That the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.

Lloyd Bie, P. Eng.
Director, Transportation
(604-276-4131)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Finance Department Engineering	✓ ✓	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

Contract 7256P (*Traffic Signal System Maintenance, Upgrading and Installation*) allows the City to retain a contractor to provide 24-hour traffic signal maintenance, upgrading and installation works at approximately 422 signalized traffic devices. The existing contract between the City and Cobra Electric Services Limited expires on October 24, 2021 and is currently being extended on a month-to-month basis.

Following the completion of a Request for Proposal process to identify a qualified traffic signal maintenance contractor, staff recommend that Cobra Electric Services Limited be awarded the new contract.

This report supports Council's Strategic Plan 2018-2022 Strategy #1 A Safe and Resilient City:

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

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

5.3 Decision-making focuses on sustainability and considers circular economic principles.

This report supports Council's Strategic Plan 2018-2022 Strategy #6 Strategic and Well-Planned Growth:

6.3 Build on transportation and active mobility networks.

Analysis

The scope of work includes the maintenance, upgrading and installation of traffic signals, traffic cameras, pedestrian signals, special crosswalks, fire signals, warning signals, directional and lane use signs, driver feedback signs, and count sensors, and the maintenance of the existing communications network.

Procurement Process

A competitive procurement process was undertaken to identify the most qualified and experienced contractor to maintain, upgrade and install the City's traffic signal system. The contract term will be for three years with the option to renew for an additional two years to a maximum of five years total.

A Request for Proposal (RFP) was posted on BC Bid by the City on August 4, 2021. One submission was received from Cobra Electric Services Limited.

Transportation staff have evaluated the submission and have determined Cobra Electric Services offers good value and has the experience and equipment required to meet the needs of the City.

The proposed rates for the new contract have increased by 3% compared to the previous five year contract and represents the first price increase since 2017. Pricing for the initial three year term of the new contract will remain unchanged. Any proposed changes to the rates for the optional fourth and fifth year will be communicated by the contractor to the City for consideration. Pricing adjustments beyond the initial term of the contract will require justification and be supported by cost data based on industry price indices.

Financial Impact

The proposed contract will be funded from Capital and Operating Budgets approved by Council under the Consolidated 5 Year Financial Plan (2021-2025). The amount of \$2,522,200.62 is an estimate for Year 1 or \$7,566,601.86 for the initial three year term. The actual work will be defined and issued on an "as required" basis.

Conclusion

Cobra Electric Services Limited has been the City's traffic signal contractor since 1985 and have continuously provided a good level of technical expertise, dependability and cost-effective services over this period of time. Staff recommend that Contract 7256P be awarded to Cobra Electric Services Limited and that staff be authorized to extend the contract for the final two years of the five year contract. Staff further recommend that the Chief Administrative Officer and General Manager, Planning and Development, be authorized to execute the above contract.



Bill Johal
Supervisor-Traffic Signal Systems
(604-276-4298)

BJ:bj



City of Richmond

Report to Committee

To: Public Works and Transportation Committee
From: Suzanne Bycraft
Interim Director, Public Works Operations
Date: September 9, 2021
File: 10-6370-04-01/2021-
Vol 01
Re: **Change Order Approval – Contract 6509P – Mattress and Upholstered
Furniture Recycling Services**

Staff Recommendation

1. That staff be authorized to issue a change order to increase the value of the current contract between the City of Richmond and Canadian Mattress Recycling Inc. as detailed in the staff report titled "Change Order Approval – Contract 6509P – Mattress and Upholstered Furniture Recycling Services" dated September 9, 2021, from the Interim Director, Public Works Operation, by \$1,270,815, bringing the new contract value to \$2.3 million over the maximum available term of five years; and
2. That the Chief Administration Officer and the General Manager, Engineering and Public Works be authorized to execute a contract amendment with Canadian Mattress Recycling Inc. to reflect the increase in predicted usage of services over the five-year term.

Suzanne Bycraft
Interim Director, Public Works Operations
(604-233-3338)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Purchasing	<input checked="" type="checkbox"/>	
Finance	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

At their October 28, 2019 meeting, Council approved the award of contract 6509P – Mattress and Upholstered Furniture Recycling services as follows:

That Contract 6509P – Mattress and Upholstered Furniture Recycling Services be awarded to Canadian Mattress Recycling Inc. at an estimated total contract value of \$1,029,185 over a maximum five-year term and the Chief Administrative Officer and General Manager, Engineering & Public Works be authorized to negotiate and execute a service contract with Canadian Mattress Recycling Inc. incorporating the key terms outlined in the staff report dated September 24, 2019.

The initial value of this contract over the full five-year term was estimated at \$1,029,185, based on best available information on program quantities at that time. However, the success of the City's recycling programs (Recycling Depot drop-off and Large Item Pick Up) has been greater than anticipated resulting in increased quantities of mattresses and upholstered furniture being received.

This report provides further details and seeks to increase the contract value by \$1,270,815, for a total of \$2.3 million over the maximum five-year term.

This report supports Council's Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

2.1 Continued leadership in addressing climate change and promoting circular economic principles.

2.2 Policies and practices support Richmond's sustainability goals.

This report supports Council's Strategic Plan 2018-2022 Strategy #5 Sound Financial Management:

5.3 Decision-making focuses on sustainability and considers circular economic principles.

Analysis

Background

Canadian Mattress Recycling Inc. was selected through competitive tendering process 6509P – Mattress and Upholstered Furniture Recycling Services issued to the marketplace on May 21, 2019. Canadian Mattress Recycling Inc. offered overall best value as well as their commitment to maximize reuse and recycling and incorporate circular economy principles. A summary of Canadian Mattress Recycling Inc.'s recycling practices include:

- Separating recyclable components for processing, including metal, foam, quilting, plastic, cardboard, wood, pocket coil inners and cotton;
- Sharing components of disassembled mattresses and furniture with the public for reuse or up-cycling, such as wood from box springs, coir/coconut fibre mats, polyester filling, leather, cushion covers and furniture legs;
- Donating reusable furniture legs to Value Village and Habitat for Humanity;
- Laundering and stuffing couch seat cushion covers with poly-fill for animal rescues or donations to charity thrift stores such as Ridge Meadows Hospice Society;
- Donating throw cushions to local organizations;
- Donating upholstered chairs and shipping them to El Salvador as part of the flood relief effort in 2020; and
- Partnering with a volunteer group called Fabric Bag Solutions who make cloth grocery bags from salvaged cushion covers and donate them to food banks.

Volumes

The program for recycling mattresses and upholstered furniture from the Large Item Pick Up program and drop-off at the Recycling Depot has proven to be popular with residents, with an average annual increase of 32% from 2019 quantities as shown in Table 1.

Table 1: Quantities of Mattress and Upholstered Furniture Collected

Date	Mattress Quantity	Upholstered Furniture Quantity	Total Items Collected	Percent Change
2019	3,876	8,873	12,749	
2020	4,889	12,187	17,076	33.9%
Projection for 2021	5,273	17,046	22,319	30.7%
Average annual increase				32.3%

When the contract value was estimated, there was only four months of program data available, resulting in an estimated value of \$1,029,185. Costs are based on a per-unit amount as tendered for the recycling of mattresses and upholstered furniture. As a result, the contract value will vary based on the total number of items collected and received through the City's recycling programs. Due to the overwhelming success of the programs and unanticipated growth in quantities received, the total approved contract value will exceed original estimates.

Annual tonnage is projected to increase by 20%, or from 433 tonnes in 2020 to 520 tonnes for 2021. This initiative contributes to the City's overall waste diversion, currently 79.3% (2020 data).

Based on current patterns and estimates, it is projected that additional funds amounting to \$1,270,815 will be required, bringing the total contract value to \$2.3 million through October 31, 2024 (five-year term). This estimate includes annual increases to projected quantities over the remainder of the term.

Alternatives

There are two facilities in the region that accept mattresses and upholstered furniture for recycling. They are Canadian Mattress Recycling Inc. located on Annacis Island in Delta and Pacific Mattress Recycling Inc. located in Hope. Both organizations responded to the City's initial call for proposals. As outlined in the staff report titled "Award of Contract 6509P – Mattress and Upholstered Furniture Recycling Services" dated September 24, 2019, the submission by Canadian Mattress Recycling Inc. represented overall best value and more broadly met the City's circular economy objectives through their significantly higher degree of reuse and recycling approaches.

Financial Impact

Funding is provided in the annual Sanitation and Recycling utility budget to support mattress and upholstered furniture recycling services. The Sanitation and Recycling utility budget is adjusted annually to account for projected fluctuation in quantities of materials received.

Conclusion

The success of the City's recycling programs has exceeded expectations, resulting in the estimated original value of contract 6509P – Mattress and Upholstered Furniture Recycling Services being exceeded. This report seeks approval for a change order to increase the value of the contract to \$2.3 million over the five-year contract term (through October 31, 2024) to more closely reflect actual updated quantity projections.

Canadian Mattress Recycling Inc. is the City's current vendor and continues to represent best value for these services, therefore is recommended for this change order approval.



Laurie Ackerman
Waste Reduction and Recycling Coordinator
(604-233-3338)

LA:la



City of Richmond

Report to Committee

To: Public Works and Transportation Committee **Date:** September 22, 2021
From: Peter Russell, MCIP, RPP **File:** 10-6160-07-01/2021-Vol 01
Director, Sustainability and District Energy
Re: Pesticide Reduction and Invasive Species Management – 2021 Update

Staff Recommendation

1. That key achievements related to the City's Enhancement Pesticide Management Program and Invasive Species Action Plan, as outlined in the staff report titled "Pesticide Reduction and Invasive Species Management – 2021 Update" dated September 22, 2021, from the Director of Sustainability and District Energy be received for information; and
2. That staff be directed to write letters to the federal Minister of Environment and Climate Change and the provincial Ministry of Environment, requesting that a review of the existing policies that allow for the importation and sale of invasive species be conducted.

Peter Russell MCIP RPP
Director, Sustainability and District Energy
(604-276-4130)

Att. 1

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Engineering	<input checked="" type="checkbox"/>	
Parks Services	<input checked="" type="checkbox"/>	
Sewerage & Drainage	<input checked="" type="checkbox"/>	
SENIOR STAFF REPORT REVIEW	INITIALS: 	APPROVED BY CAO

Staff Report

Origin

Council adopted the Enhanced Pesticide Management Program and the *Pesticide Use Control Bylaw No. 8514* in 2009 to reduce the public's reliance on pesticides for cosmetic purposes. Council later adopted the City's Invasive Species Action Plan in 2015, which outlines a risk-based, integrated pest management approach to managing invasive species in the community. This report highlights key achievements of the Enhanced Pesticide Management Program and the Invasive Species Action Plan from 2018 – 2021. The report also recommends that staff be directed to prepare letters to the provincial and federal governments, requesting a review of the existing policies that allow for the distribution and retail of invasive species.

Both programs, and this report support Council's Strategic Plan 2018-2022 Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.2 Policies and practices support Richmond's sustainability goals.

2.3 Increase emphasis on local food systems, urban agriculture and organic farming.

2.4 Increase opportunities that encourage daily access to nature and open spaces and that allow the community to make more sustainable choices.

Analysis

Enhanced Pesticide Management Program

Pesticides are a broad group of chemical products used to control the spread of invasive pests such as the Norway rat, and noxious plants such as knotweed. Pesticides have a wide range of societal applications including for the cosmetic control of weeds on private property. Concerns regarding society's reliance on pesticides and their effects on local ecology and human health supported the adoption of the City's Enhanced Pesticide Management Program (EPMP) and *Pesticide Use Control Bylaw No. 8514* in 2009. The City's program was recognized, at that time, for its integrated management approach, which includes educational programming and outreach initiatives that are designed to empower residents with information related to the effects of pesticides and potential alternatives. In the time since its inception, many local municipalities have also adopted similar bylaws and holistic programs that restrict the cosmetic use of pesticides and encourage non-pesticide methods for property maintenance.

The EPMP continues to be highly regarded in Richmond and regional working groups. Community feedback continues to demonstrate an ardent awareness of the bylaw and a willingness for voluntary compliance, validated with a consistently low rate of suspected pesticide infractions annually. Of the limited infractions suspected, resolution is often achieved by staff through education and outreach on the matter.

Richmond's EPMP initiatives, including participating in Invasive Species Action Month (typically each May) generate positive interest from various local media outlets. The City's ongoing field trials such as the Brazilian elodea management generates attention from regional working groups and have been highlighted in technical publications, and regional and provincial workshops. This ongoing consideration emphasizes the value of Richmond's EPMP and Invasive Species Action Plan, and underlines the importance of continuing to implement and improve an integrated pest management approach in the community.

Invasive Species Action Plan

Invasive species are plants and animals that occur outside their natural range. Because these species are not endemic to an area such as Richmond, most lack ecological controls to limit population growth. Noxious plants (or weeds) are harmful to agricultural crops, natural ecosystems, and humans. The City has a regulatory responsibility to manage noxious weeds under the provincial *Weed Control Act* and the *Integrated Pest Management Act*. The provincial *Weed Control Act* and federal *Plant Protection Act* are pieces of legislation related to the distribution and retail of invasive species, such as Brazilian elodea, that pose a threat to Richmond if released.

The City's Invasive Species Action Plan (ISAP), adopted in 2015, outlines strategic goals and objectives to prioritize managing invasive species that pose threats to community safety, civil infrastructure, and the local ecosystem. This integrated pest management approach is consistent with provincial and federal pest management frameworks and is supported by funding through the Council approved Capital and Operating Budgets. There are over two dozen invasive species known to occur in Richmond, and all of these species have the potential to cause varying degrees of harmful ecological impacts (e.g. out-competing native species, reducing habitat value etc.). Eight of these species have the added potential to pose other serious impacts to infrastructure and/or human health. These species, including giant hogweed, are considered high risk to the City and are listed in the ISAP as priority species for management when identified in the community.

Of the eight priority species listed in the City ISAP, two persistent aquatic species (Parrot's feather and Brazilian elodea) are readily available for purchase through aquarium supply stores. Staff understand that regulating the distribution and sale of invasive species is complex. It is recommended that staff be directed to issue letters to appropriate federal and provincial regulators, requesting that a wholesome review of the existing policies related to invasive species distribution and retail be conducted, and improved as necessary, to limit the introduction of invasive species to local ecosystems.

EPMP and ISAP Key Achievements (2018 – 2021)

City Council continues to demonstrate strong leadership by supporting invasive species management in the community through ongoing capital and operational funding. Provisions under these funds support many EPMP and ISAP initiatives in the community including education, outreach, public notification, and vegetation management and monitoring.

Funding obtained through the Council approved Capital and Operating Budgets from 2018 to 2021, has secured approximately \$725,000 for the inventory and management of priority species threatening City infrastructure. A portion of these funds were offset in 2018, when the City was awarded \$225,000 in provincial funding for the management of Brazilian elodea under the *BC Early Detection, Rapid Response* program.

A detailed list of key achievements from 2018 to 2021 is provided in Attachment 1. A summary of these achievements include:

- **Technical contributions and partnerships** – Staff contributed to the development of Metro Vancouver’s document series *Metro Vancouver Invasive Species Best Management Practice* with technical input related to best management practices. The document series currently consists of 17 technical documents and fact sheets that provide public education on invasive species.
- **Media coverage** – The City of Richmond has been featured a number of times since 2018, on local news channels, in recognition of its innovation and successes in invasive species management and education. Global TV aired a morning segment during Invasive Species Action Month in 2019, which highlighted the City’s ongoing efforts to empower the public with informative material.
- **Richmond Nectar Trail** – Launched in 2020 in partnership with Border Free Bees, the ongoing Nectar Trail initiative intends to activate the community and improve habitat connectivity for native pollinators in the urban environment. The City has achieved a total of 67 sites that include private properties, city facilities, schools, and parks; all committing to maintaining pesticide-free habitat to benefit local pollinators since the beginning.
- **Environmental workshops** – The City delivered 72 free public workshops, engaging 1084 Richmond residents between 2018 and 2021. Topics included pesticide-free gardening and pest management, chafer beetle lawn control, wild foraging, and backyard beekeeping.
- **Partners for Beautification** – Between 2018 and 2021, the Partners for Beautification Program distributed \$50,000 in grant and in-kind funding, and hosted 48,000 volunteer hours of community stewardship events such as community weed pulls and restoration planting.
- **Public accessibility to information** – Staff maintain dedicated email and phone lines and encourage the public to contact staff with any inquiries related to pesticides and invasive species. Approximately 3750 educational brochures were delivered to the public by staff and from public brochure racks located throughout the City.
- **Social media** – Social media platforms such as Twitter and Instagram have been utilized to communicate topics related to invasive species. Events such as Invasive Species Action Month, and occurrences of new potential invaders such as the Asian beetle, the Asian giant hornet and the zebra mussel have effectively notified residents and continue to receive positive feedback when issued.
- **Brazilian elodea management** – The City continues to work with the province on a pesticide-free trial that is currently reporting a 100% decrease in Brazilian elodea since activities began in 2018. The program will enter a one-year monitoring phase in 2021 to assess future re-growth.
- **Chafer beetle education** – An interactive video series highlighting the Chafer beetle’s biology, management, and control was commissioned in 2018, and is hosted on the City’s

website. Staff continue to receive positive feedback and the videos remain an effective tool that staff can use to communicate the complexities of Chafer beetle management.

- **Chafer beetle management** – In addition to extensive public engagement, the City currently manages and monitors approximately 3 hectares of city-owned turf with pesticide alternatives and biocontrol products such as nematodes.
- **Demonstration lawns** – Traditional grass lawns are susceptible to Chafer beetle infestation, drought, and offer lower habitat benefits. The City has installed four demonstration plots at Terra Nova Park to display practical alternatives to traditional grass lawns. Unlike conventional grasses, the alternatives presented at Terra Nova can reduce the reliance on pesticides, are drought tolerant, and are aesthetically pleasing.
- **Improved public notification** – To address some community concerns related to the City's knotweed treatment program, staff improved the public notification process in 2017. The improved process now notifies residents near treatment sites, through letters, of upcoming treatment activities. Approximately 2100 letters have been sent to date and staff have seen a consistent decrease with community complaints following implementation of this process.
- **Technical Training** – Staff delivered annual internal, operational training sessions to promote awareness and build internal capacity related to invasive species management.

Financial Impact

None. Funding received through annual capital or operating budgets augment the capacity for staff to manage and deliver invasive species initiatives. Any additional funding needs (capital and/or operating) will be brought forward in the future for Council consideration as needed.

Conclusion

The City's Enhanced Pesticide Management Program and Invasive Species Action Plan are innovative and forward-thinking initiatives that allow the City to respond to threats incurred by invasive species within our jurisdiction. Staff recommend that letters be issued to the federal and provincial governments to review their legislation related to the distribution and sale of invasive species in BC, to reduce the cost for municipalities and protect local ecosystems.



Chad Paulin, M.Sc., P.Ag.
Manager, Environment
(604-247-4672)

Att. 1: Pesticide Reduction and Invasive Species Management – 2021 Update

City of Richmond

Pesticide Reduction & Invasive Species Management – 2021 Update

Enhanced Pesticide Management Program & Invasive Species Action Plan





Richmond City Council adopted the Enhanced Pesticide Management Program (EPMP) and the *Pesticide Use Control Bylaw No. 8514* in 2009 with the objective of reducing the use of traditional pesticides, based on a level of risk and benefit. The City's program was recognized, at that time, for its integrated management approach, which includes educational programming and outreach initiatives that are designed to empower residents with information related to the effects of pesticides and potential alternatives.

Subsequently, the Invasive Species Action Plan (ISAP) was adopted under the EPMP in 2015, which has allowed for a strategic, risk-based approach to prioritize the management of invasive species that pose an immediate threat to civil infrastructure and human health. As Richmond experiences climate change and associated ecological shifts that influence the proliferation of invasive species, the ISAP enables Richmond to adapt and respond to these shifts, as well as to changing senior and local government priorities.

Richmond's EPMP and ISAP include detailed strategies and actions organized around the following four pillars to achieve City initiatives:

- **Leadership & Innovation**
- **Partnership**
- **Public Outreach & Engagement**
- **Invasive Species Treatment**

This document follows an update issued in 2017, and summarizes achievements between 2018 and 2021 in implementing the EPMP and ISAP, and highlights future actions.

Whereas from launch, the EPMP and ISAP have taken actions in reaction to new invaders and priorities; the City's path moving beyond 2021 will take a more preventative approach to integrated pest management, as well as considering potential impacts from forecasted changes in climate and local ecology. The City is committed to identifying invasion pathways to prevent further introduction and establishment of new invaders.



Custom suction dredge machine utilized to manage Brazilian elodea in partnership with the Province of British Columbia

LEADERSHIP & INNOVATION

INITIATIVES

1. Implement research control trials for aquatic invasive species such as parrot's feather and Brazilian elodea
2. Integrate proactive invasive species management into major capital projects
3. Develop an enhanced notification process for the treatment of invasive species

KEY ACHIEVEMENTS

Innovation: The City utilized a novel suction dredge technology to manage Brazilian elodea in a water feature in Richmond. The technology is a custom, water-based water craft that is able to extract and filter aquatic threats such as Brazilian elodea through a specialized suction technology. The application of this method, assisted with dewatering and soil manipulation, has resulted in a 100% reduction in elodea since 2017 and has received the attention of local and regional technical committees.

Technical contributions and partnerships: Staff contributed to the development of Metro Vancouver's document series *Metro Vancouver Invasive Species Best Management Practices*¹, with technical input related to best management practices. The document series currently consists of 17 technical documents and fact sheets that provide public education on invasive species.

100%
reduction in Brazilian
elodea biomass

17
technical Best
Management Practice
documents published

¹ <http://www.metrovancouver.org/services/regional-planning/conserving-connecting/invasive-species/Pages/default.aspx>

Parrot's feather presentation: As part of a roundtable discussion on parrot's feather management, the City regularly presents its trials and findings on parrot's feather management to a group of local land managers who are involved in management, or currently have parrot's feather on their properties.

Brazilian elodea presentation: The City of Richmond conducted information sessions on the methods employed to manage Brazilian elodea at the Invasive Species Council of British Columbia's annual Invasive Species Public Forum in 2019.

European chafer beetle management trials: Effective management of European chafer beetle requires an integrated approach including, biocontrol products, cultural control techniques, and utilizing alternative lawn species composition. As new biocontrol products become available – new nematode species, and a bacterial biocontrol option – the City has integrated these products into their management to achieve even higher levels of success at local fields and boulevards.

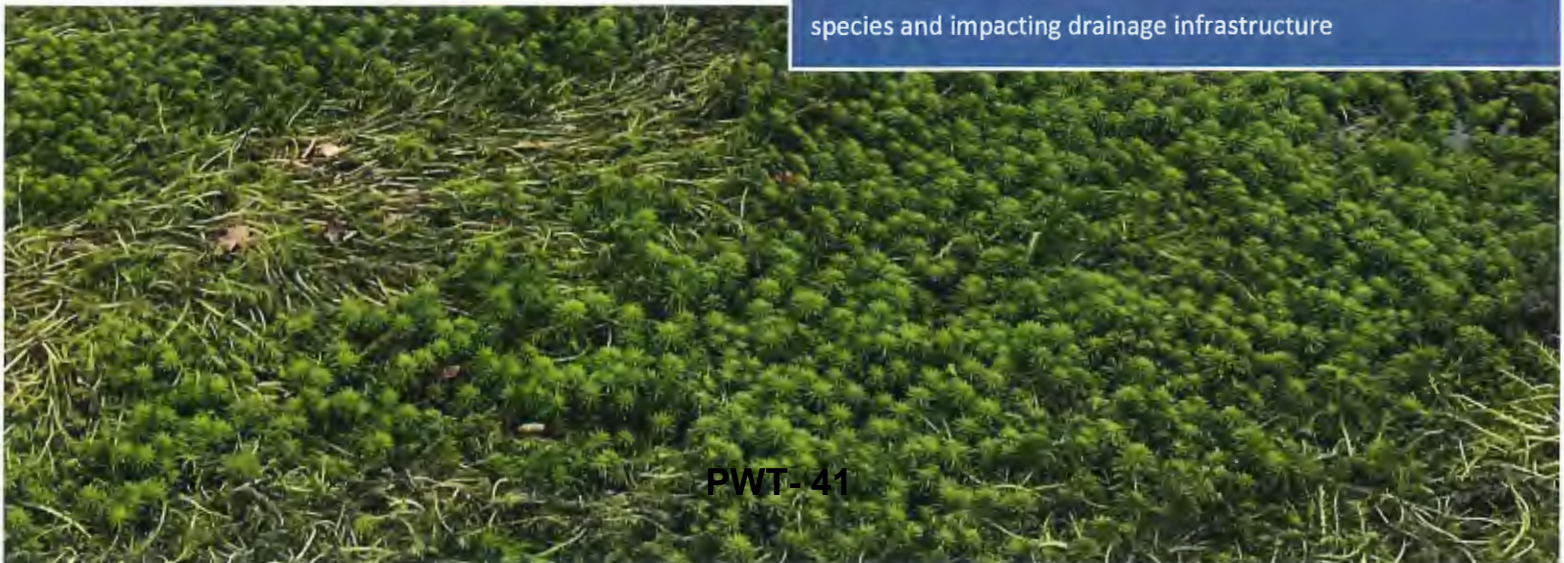
Bat-Friendly Community Program: The City of Richmond became one of the first municipalities in BC to be designated a Bat Friendly community by the Community Bat Programs of BC in 2020. The program aims to protect bats and bat habitat through environmental stewardship, policy development, and development standards.

Improved public notification: To address some community concerns related to the City's knotweed treatment program, staff improved the public notification process in 2017. The improved process now notifies residents near treatment sites, through letters, of upcoming treatment activities. Approximately 2100 letters have been sent to date and staff have seen a consistent decrease with community complaints following implementation of this process.

Addition of **2**
biocontrol options for
chafer beetle control

2100
public notification
letters sent through
knotweed management
program

Parrot's feather forms a dense monoculture, displacing native species and impacting drainage infrastructure





Knotweed is an aggressive invader, growing through infrastructure such as asphalt and dikes

FUTURE ACTIONS

Continued support to academic institutions: Risk assessments for new invaders, and shifting best practices due to changes associated with climate change will be essential to effective management in future years. The City will continue to explore opportunities for partnerships with academic institutions such as University of British Columbia and Kwantlen Polytechnic University, for research on invasive species ecology and best management practices.

Pesticide Use Permit for noxious species in exclusion zones: The City has achieved great success managing noxious weeds in terrestrial environments. Noxious weed treatment, including knotweed, is restricted through provincial legislation at the high water mark of watercourses. This restriction presents a significant limitation to managing noxious weeds in Richmond. Staff are conducting an environmental risk review associated to managing weeds in this area including obtaining a provincial permit to safely begin treating noxious weeds in these areas throughout the City.

Pesticide Use Control Bylaw update / Invasive Species Bylaw: The City continuously reviews and evaluates the effectiveness of the City's Enhanced Pesticide Management Program, including the City's *Pesticide Use Control Bylaw No. 8415*. Consideration will be given to possible updates and the introduction of an Invasive Species Bylaw, which would include provisions for residents to control invasive species responsibly on private property.

PARTNERSHIPS

INITIATIVES

1. Continue industry collaboration to stay informed on the latest scientific research and best management practices.
2. Develop new partnerships with other jurisdictions across North America to fill gaps in local knowledge.

KEY ACHIEVEMENTS

Province of British Columbia: The City worked closely with the Province of BC to develop and maintain standards for Early Detection and Rapid Response, a “proactive approach to managing new invasive species to BC that prevents establishment and subsequent impacts through targeted species risk assessment, verification, containment, and eradication”. This partnership is maintained yearly through grant funding for education and awareness within the City, as well as a standing objective to collaborate on any new species that present themselves in City limits.

Brazilian elodea management: The City continues to work with the province on a pesticide-free trial that is currently reporting a 100% decrease in Brazilian elodea since activities began in 2018. The program will enter a one-year monitoring phase in 2021 to assess future re-growth.

Canada Food Inspection Agency (CFIA): The City makes available to CFIA life wood samples and the installation of traps at various sites in search of a variety of invasive insects that are a threat to the region, notably the presence of Japanese beetle since 2018.

Invasive Species Council of Metro Vancouver / British Columbia: The Invasive Species Councils of Metro Vancouver and British Columbia provide assistance in research, confirmation of invasive species, educational materials, and public engagement. The City participates in regional programs hosted by the Invasive Species Councils, such as Don’t Let it Loose, Clean Drain Dry, and Plantwise – programs designed to encourage proper management of invasive species and native planting.



Provincial partnership for Brazilian elodea management



Monitoring traps for Japanese beetle have been placed throughout the City – to date no beetles have been detected within City limits.



Don't Let it Loose encourages pet owners to responsibly surrender unwanted pets, particularly if they have the potential to become invasive

Ducks Unlimited Canada: City staff are active participants in Metro Vancouver's invasive cordgrass working group, which include monitoring sites on Sturgeon Bank since 2003. The City also supported a regional Pesticide Use Permit renewal for the project in 2019. To date, only one seedling has been detected on Roberts Bank, and the individual was removed by hand in the field by program consultants.

Rabbitats Rescue Society: The City has been successfully collaborating with Rabbitats on the rescue and control of rabbits on public spaces since 2019, and are in the process of reviewing management plans and practices of feral rabbits within the City.

Participation in regional management groups: The City participates in both the Regional Planning Advisory Committee – Invasive Species Subcommittee, and the Soil and Invasive Species Working Group. The groups are both tasked with increasing working regional knowledge of invasive species management best practices, and identifying gaps in knowledge as well as supporting research and novel management techniques.

Academic / research institutions: City staff maintain working relationships with academic institutions, to bolster capacity for correct identification of invasive organisms to the species level. The UBC Herbarium Thompson Rivers University assists in confirming the identification of a suspected invasive species such as azolla bloom in Terra Nova, and fire ant nests suspected in the City.

Chafer-resistance lawn alternatives have been installed at Terra Nova Park.



FUTURE ACTIONS

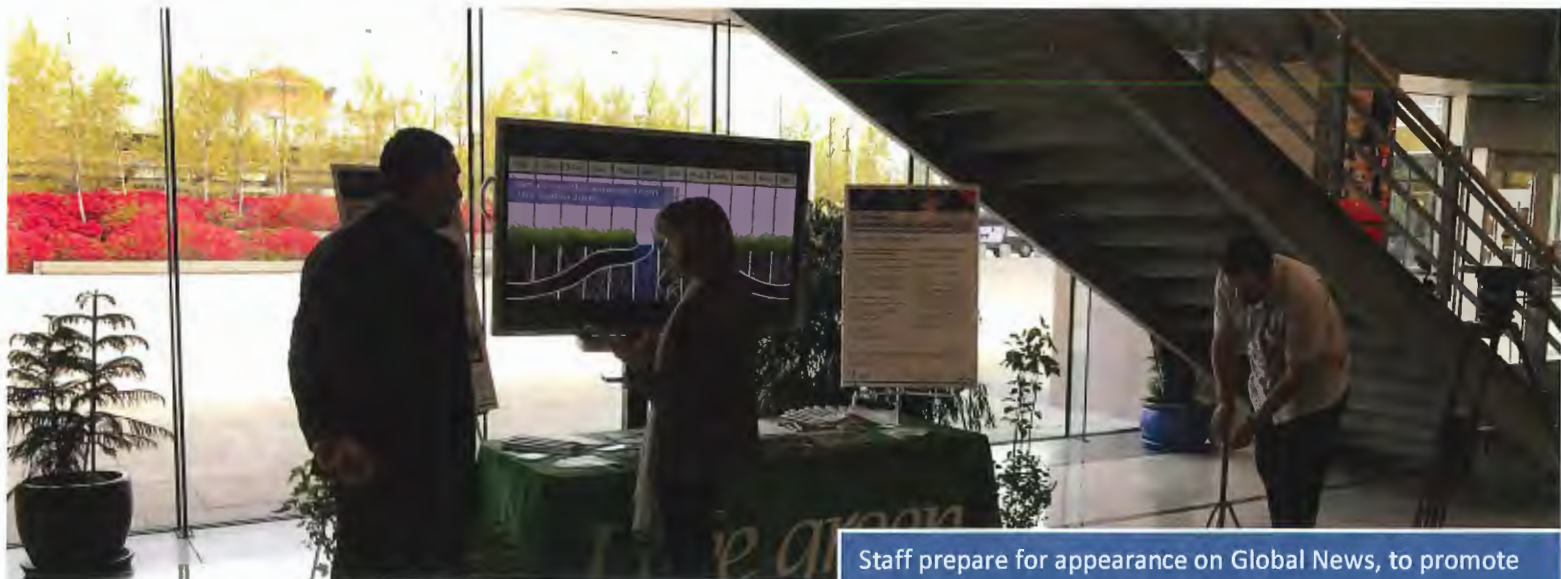
Invasive species treatment calendar: Staff will develop an internal management calendar for invasive species, as timing of management activities differ from species to species. The calendar will allow the city to strategically schedule regular maintenance activities, increasing efficacy of the current management program.

Infested soil treatment feasibility study: In response to a growing need for invasive-infested soil reclamation, staff will investigate the feasibility of novel treatment techniques, in partnership with treatment facilities and local consultants.

Research support: City staff will explore opportunities to partner with, or support, academic research into the ecology, prevention, and management of priority and novel invasive species in the region.

Richmond has trialled novel management techniques in partnership with the Province; pictured is a manipulated body of water to expose plant fragments to freezing temperatures.





Staff prepare for appearance on Global News, to promote Invasive Species Action Month in 2019

PUBLIC OUTREACH & ENGAGEMENT

INITIATIVES

1. Encourage public awareness around Richmond's invasive species and pesticide use
2. Encourage the public to choose native plant species to support pollinators
3. Support Richmond residents with free educational events and workshops

1084

residents engaged in environmental workshops

KEY ACHIEVEMENTS

Richmond Nectar Trail: Launched in 2020 in partnership with Border Free Bees, the ongoing Nectar Trail initiative intends to activate the community and improve habitat connectivity for native pollinators in the urban environment. The City has achieved a total of 67 sites that include private properties, city facilities, schools, and parks all committing to maintaining pesticide-free habitat to benefit local pollinators since beginning.

Environmental workshops: The City delivered 72 free public workshops, engaging 1084 Richmond residents between 2018 and 2021. Topics included pesticide-free gardening and pest management, chafer beetle lawn control, wild foraging, and backyard beekeeping.

Media coverage: The City of Richmond has been featured a number of times since 2018 on local news channels, in recognition of its innovation and successes in invasive species management and education. Global TV aired a morning segment during Invasive Species Action Month in 2019, which highlighted the City's ongoing efforts to empower the public with informative material.



Asian giant hornet is a new invader not yet found in Richmond. Social media has been utilized to inform residents of new invaders

Public accessibility to information: Staff maintain dedicated email and phone lines and encourage the public to contact staff with any inquiries related to pesticides and invasive species. Approximately 3750 educational brochures were delivered to the public by staff and from public brochure racks located throughout the City.

Ongoing partnership with local pesticide retailers: Ongoing support is given to local pesticide retailers to assure compliance with changing provincial legislation, and the City's *Pesticide Use Control Bylaw No. 8514*.

Bath Slough Revitalization project: The Bath Slough Revitalization Initiative involves the restoration of functional riparian habitat along the Bath slough corridor from Cambie Road to the Fraser River. The initiative also includes opportunities for community outreach and involvement with the process of restoration and invasive species management.

Partners for Beautification: Between 2018 and 2021, the Partners for Beautification Program distributed \$50,000 in grant and in-kind funding, and hosted 48,000 volunteer hours of community stewardship events such as community weed pulls and restoration planting.

Invasive species action month: The City participates in the provincially-recognized Invasive Species Action Month to raise community related in invasive species in Richmond. Weekly themed displays have been featured in the City Hall Galleria, as well as participation in community events during the month to speak to the public directly. During the COVID-19 pandemic, staff pivoted the program to an online format, providing educational material through social media and print media.

Demonstration lawns: Traditional grass lawns are susceptible to Chafer beetle infestation, drought, and offer lower habitat benefits. The City has installed four demonstration plots at Terra Nova Park to display practical alternatives to traditional grass lawns. Unlike conventional grasses, the alternatives presented at Terra Nova can reduce the reliance on pesticides, are drought tolerant, and are aesthetically pleasing.



Richmond residents were alerted to the possibility of zebra mussels infesting aquarium plants through twitter

48,000
volunteer hours through
the Partners for
Beautification Program

Sustainability workshop on pesticide-free gardening, held in Council chambers in 2019



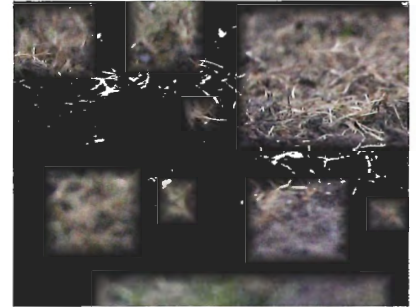
Chafer beetle education: An interactive video series highlighting the Chafer beetle's biology, management, and control was commissioned in 2018, and is hosted on the City's website. Staff continue to receive positive feedback and the videos remain an effective tool that staff can use to communicate the complexities of Chafer beetle management.

City Nature Challenge 2021: The City Nature Challenge was a month-long event in which residents were encouraged to document Richmond's biodiversity through the iNaturalist application on mobile devices. In addition to native flora and faunal, residents were encouraged to identify and report invasive species they may have come across. Reports that came through during the challenge include Himalayan blackberry, knotweed species, and Canada thistle.

REaDY Summit: The Richmond Earth Day Youth (REaDY) Summit is an annual youth-led event that provides Richmond students the opportunity to learn, lead, and connect as they actively engage in environmental stewardship. Richmond students have explored a variety of topics including pesticide free gardening and environmental restoration. Due to COVID-19 restrictions, the 2020 REaDY Summit was postponed, and the 2021 REaDY Summit was adapted to comply with physical distancing requirements. Students participated by showcasing their ideas about Richmond's biodiversity in colourful and creative ways through the REaDY Colouring Initiative.

Social media: The City's social media platforms such as Twitter, Instagram, and Facebook have been utilized to communicate topics related to invasive species. Events such as Invasive Species Action Month, and occurrences of new potential invaders such as the Asian beetle, the Asian giant hornet and the zebra mussel have effectively notified residents and continue to receive positive feedback when issued.

Letters to residents: During the course of regular field work, if staff identify invasive species on or near private land, owners will be notified via letters informing them of risks, best management practices, and offering city staff assistance in steps to take. A farming community was notified about a large infestation of Canada thistle in their vicinity, and many letters have been sent to residents notifying them of knotweed on their property.



Screenshot from an instructional European chafer beetle management video, produced by the City



A post from the City's Instagram account, promoting the Richmond Nectar Trail

FUTURE ACTIONS

Integration and support of invasive species management into school curriculum:

Creation of workshops for school aged kids in Richmond, keeping in line with educational requirements set by the Richmond School Board. Introduction of topics such as natural gardening and invasive species in a fun interactive manner to get conversations around these important topics started at an early age. This will also serve as another mechanism to engage and communicate with Richmond residents through their children.

Development of additional public guidance material: As the City's invasive species management program expands, staff will look to develop communication material to reflect new species, management objectives, and emerging threats, to increase public engagement and education.

Sustainability workshops: The City is looking to reinvigorate the already successful Environmental Sustainability Workshop Program to bring in new branding, topics, and workshop instructors. New topics under exploration include rodent management, novel invasive species management techniques, and landscaping for climate change. This will draw additional people into the program, while maintaining the current attendees.

Stewardship opportunities: Staff will continue to provide opportunities for Richmond residents to participate in environmental management, through programs such as the Bath Slough Revitalization Project, Partners for Beautification, and the Richmond Nectar Trail.



INVASIVE SPECIES TREATMENT

INITIATIVES

1. Knotweed control on priority sites with herbicide
2. Chafer beetle control for infested City turf sites
3. Mechanical control of parrot's feather
4. Increase / fill gaps in city base inventory of priority invasive species

40%

reduction in knotweed by
area

KEY ACHIEVEMENTS

The City continues to proactively manage the spread of priority invasive species and noxious weeds that pose a risk to public health, safety, and City infrastructure. Recent project highlights from 2018-2021 include:

1.26_{ha}

parrot's feather removed
from City drainage

Ongoing knotweed treatment program: Knotweed species pose a significant risk to City infrastructure, as their extensive root system increases erosion potential and can grow through concrete and asphalt. From 2018-2021, the City has reduced the management area of knotweed from 2.5 hectares to 1.5 hectares. Priority areas include those that pose risk to civil infrastructure, such as those along dikes and near pump stations.

2.93_{ha}

turf managed for
European chafer beetle

Parrot's feather management: The City actively manages 1.26 hectares of parrot's feather in city-owned watercourses, often in partnership with the drainage department.

Chafer beetle management: 2.93 hectares of City-owned turf is actively managed and monitored for European chafer beetles by the City Parks department. Techniques utilize biocontrol options such as nematodes and *Bacillus thuringiensis Israelis*, and adopt new options as they become available for commercial use.

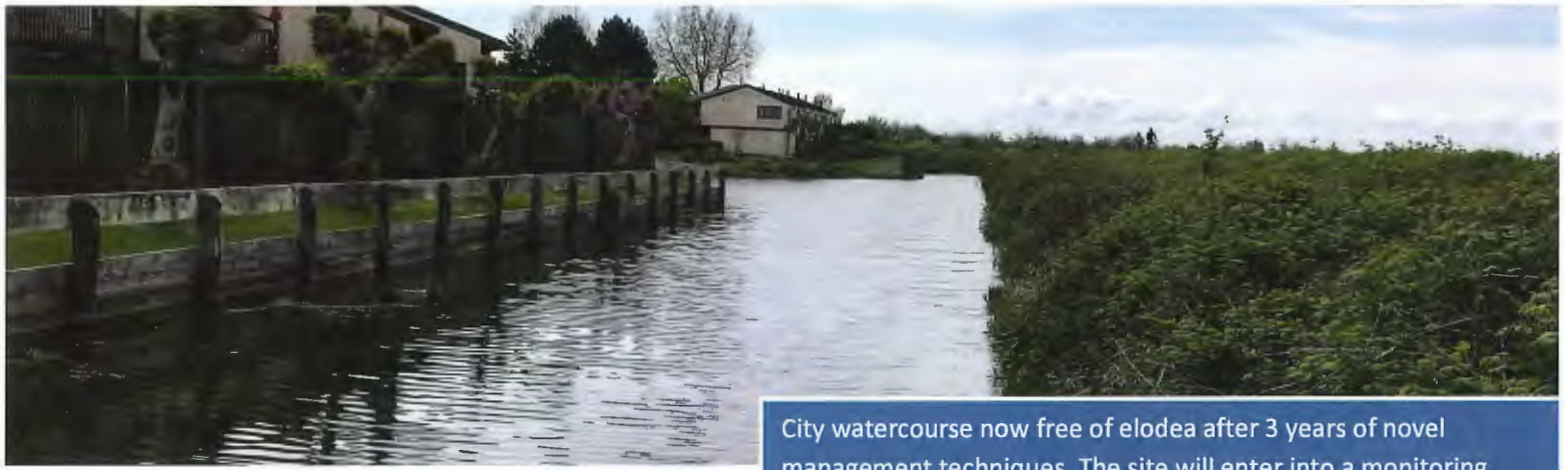
Fire ants assessments: Staff have performed identification and site assessments for European and impressive fire ants throughout the city, when sites are suspected by field crews. Assistance from Thompson Rivers University, and internal assessments, have determined that none of the reported fire ants sites are positive.

Technical training: Staff delivered annual internal, operational training sessions to promote awareness and build internal capacity related to invasive species management.

10.8_{ha}
inventoried for priority
invasive species

Knotweed site delineated, signed, and prepared for treatment.





City watercourse now free of elodea after 3 years of novel management techniques. The site will enter into a monitoring period in 2022.

FUTURE ACTIONS

Brazilian elodea monitoring: The three year, pesticide free management program for Brazilian elodea concluded in the summer of 2021. In 2022, the site will enter into a monitoring phase, to ensure that no remaining Brazilian elodea biomass persists or resurges.

Treatment of noxious weeds in exclusion zones: The city will explore opportunities for managing noxious weeds within the pesticide free zone (PFZ), such as a Pesticide Use Permit. The pesticide free zone is from provincial legislation, and restricts the general use of pesticides from 0-1 meter from high water marks, resulting in areas of infestation that must be left untreated. Options for treatment within the PFZ will increase the efficacy and success of treatment programs throughout the city.

Continued adaptation of mobile data collection: Staff will implement new program practices with respect to data collection, to allow a live, real-time view of management activities by contractors through ArcGIS applications on both desktop and mobile devices



City of Richmond

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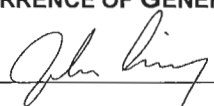

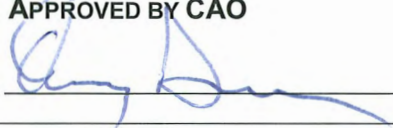


To:	Public Works and Transportation Committee	Date:	September 21, 2021
From:	Milton Chan, P.Eng. Director, Engineering	File:	10-6060-01/2021-Vol 01
Re:	Grant Funded Flood Protection Program Update and 2021 Submissions to the Disaster Mitigation and Adaptation Fund		

Staff Recommendation

1. That the submissions of the dike improvement and drainage pump station upgrade projects and the commitment to the funding over the project term to the Disaster Mitigation and Adaptation Fund (DMAF), as outlined in the staff report titled "Grant Funded Flood Protection Program Update and 2021 Submissions to the Disaster Mitigation and Adaptation Fund," dated September 21, 2021 from the Director, Engineering be endorsed;
2. That the Chief Administrative Officer and General Manager, Engineering and Public Works be authorized to negotiate, modify and execute the funding agreements with the Government of Canada for the above-mentioned projects should they be approved for funding.
3. That, should the above mentioned projects be approved for funding by the Government of Canada, the Consolidated 5 Year Financial Plan (2022-2026) be updated accordingly; and
4. That the construction of the No. 2 Road South Drainage Pump Station project be removed from the work scope of the 2016 Flood Protection Program capital project.

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

REPORT CONCURRENCE		
ROUTED TO: Finance Department Sewerage & Drainage Intergovernmental Relations Roads & Construction	CONCURRENCE <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	CONCURRENCE OF GENERAL MANAGER 
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

In 2018, the Government of Canada launched the Disaster Mitigation and Adaptation Fund (DMAF), committing \$2 billion over 10 years to invest in structural and natural infrastructure projects to increase the resilience of communities that are impacted by natural disasters triggered by climate change. In 2021, an additional \$1.375 billion in federal funding over 12 years was announced to renew the DMAF program.

This report responds to this announcement and provides an update on the construction projects included in the Emergency Management BC Flood Protection Grant Program and the National Disaster Mitigation Program.

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

Strategy #1 A Safe and Resilient City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative sustainable practices and supports the City's unique biodiversity and island ecology.

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

Strategy #2 A Sustainable and Environmentally Conscious City:

Environmentally conscious decision-making that demonstrates leadership in implementing innovative, sustainable practices and supports the City's unique biodiversity and island ecology.

2.1 Continued leadership in addressing climate change and promoting circular economy principles.

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.

5.4 Work cooperatively and respectfully with all levels of government and stakeholders while advocating for the best interests of Richmond.

Analysis

As detailed in the City's Flood Protection Management Strategy, Richmond is situated approximately 1.0 meter above sea level and flood protection is integral to protecting the health, safety and economic viability of the City. Richmond is protected from flooding by 49 kilometres

of dikes, 585 kilometres of drainage pipes, 61 kilometres of culverts, 165 kilometres of watercourses and 39 drainage pump stations.

The City's Flood Protection Management Strategy and Dike Master Plans are the guiding framework for continual upgrades and improvements to address climate change induced sea level rise. In addition, the Flood Protection Management Strategy identifies senior government funding partnerships as a top priority.

Emergency Management BC Flood Protection Program (2016) Update

In 2016, the City received a funding commitment from the Province for \$16.63 million to upgrade sections of the City's perimeter dike and rebuild four drainage pump stations, including Shell Road North, Horseshoe Slough, No. 7 Road South, and No. 2 Road South. The provincial funding was based on a 2/3 to 1/3 provincial to municipal share of eligible costs. These projects are part of the amended Consolidated 5 Year Financial Plan. Table 1 outlines the status of these projects.

Table 1 - Current Status of Emergency Management BC Flood Protection Program Projects

Project	Current Status
Shell Road North Drainage Pump Station	Construction complete
Horseshoe Slough Drainage Pump Station	Construction complete
South Dike Upgrade – Gilbert Road to No. 3 Road	Construction complete
No. 7 Road South Drainage Pump Station	Construction substantially complete
No. 2 Road South Drainage Pump Station	Recommend deferring construction

Council endorsed the initial design concept for the No. 2 Road South Drainage Pump Station in June 2017 and an updated design concept in January 2018. Following Council's endorsement, the detailed design and permitting process was completed.

Subsequently, it became evident that the construction costs for this pump station would exceed the original budget due to escalating construction costs and physical site conditions that were not anticipated at the time the initial estimates were prepared. The City issued a Request for Proposals for the procurement of construction services for the No. 2 Road South Drainage Pump Station in March 2021. The bids received were approximately \$4 million over the available project budget.

Staff recommend that the No. 2 Road South Drainage Pump Station project be deferred as the escalated project cost does not represent good value for the City.

The existing No. 2 Road South Drainage Pump Station is in fair condition and is able to meet the anticipated stormwater pumping demands of the near future. Deferring the project also provides the City an opportunity to revisit this project in conjunction with the Steveston Island Dike and Sea Gate project and associated work plan, as the station drains into the area protected by the

proposed sea gate. An updated capital submission will be brought forward for Council's consideration as part of the annual budget process.

Staff were able to pre-purchase some equipment under the existing terms of the provincial grant with Emergency Management BC. The pre-purchased equipment is common and will be utilized in future pump station upgrades throughout the City. Should the construction of the No. 2 Road South Drainage Pump Station be removed from the work scope of the 2016 Flood Protection Program capital project, any remaining funding from the 2016 Flood Protection Program capital project will be returned to the original funding sources upon project completion.

The City will receive the full provincial grant funding amount of \$16.63 million as the scope of work in the agreement with the Province has been amended to only include the design and pre-purchased equipment for the No. 2 Road South Drainage Pump Station.

Disaster Mitigation and Adaptation Fund (2018) Update

In May 2018, Infrastructure Canada announced the DMAF, which is a national, competitive, and merit-based contribution program intended to support infrastructure projects designed to mitigate current and future climate-related risks and disasters triggered by natural hazards.

A funding commitment from Infrastructure Canada for \$13,780,000 (40% of the total project cost) was received in January 2020 for approximately 2.6 kilometers of dike improvements and five drainage pump station upgrades, to be completed by December 2028. Table 2 outlines the status of these projects.

Table 2 - Current Status of 2018 DMAF Program Projects

Project	Current Status
Steveston Highway at Gilbert Road Drainage Pump Station	Construction underway
South dike upgrade between No. 3 Road and 400 metres west of No. 4 Road	Construction underway
South dike upgrade between 200 metres west of No. 9 Road and the Ewen Road Pump Station	Award process underway
No. 6 Road South Drainage Pump Station	Preliminary investigation
No. 9 Road at Westminster Highway (Dog Kennels) Drainage Pump Station	Preliminary investigation
Ewen Road Drainage Pump Station	Preliminary investigation
McCallan Road Drainage Pump Station	Preliminary investigation

National Disaster Mitigation Program (2019) Update

In 2019, the City received \$1 million in funding commitment from the Province to build the Steveston Highway and No. 3 Road Drainage Pump Station, which was approved by Council as a part of the 2019 Capital Program. The construction of the project is currently underway and is expected to be complete in spring 2022.

Disaster Mitigation and Adaptation Fund (2021) Submission

As part of the 2021 Federal Budget, an additional \$1.375 billion in federal funding over a 12-year period was committed to renew the DMAF.

In July 2021, Infrastructure Canada launched a call for applications for the renewed DMAF, with the funding being split between large-scale projects and small-scale projects. Large-scale projects, defined as projects with over \$20 million in eligible costs, have an application deadline of October 15, 2021. Small-scale projects, defined as projects between \$1 million and \$20 million in eligible costs, have an application deadline of November 15, 2021. Each project is eligible to receive up to 40% of eligible project costs and must be completed by December 2032.

Staff have identified a number of flood protection projects that would be ideal for submission to the renewed DMAF. These projects are listed in Table 3 below.

Table 3 – Proposed Projects for 2021 DMAF Application

Project	Proposed Project Stream
South dike upgrade between Queens Road and 285 metres east of Graybar Road	Large-scale
South dike upgrade between 6080 Dyke Road and Gilbert Road Drainage Pump Station	Small-scale
West dike upgrade between west property line of 2411 River Road and east property line of 3011 River Road	Small-scale
South dike upgrade at 14831 Steveston Highway (Riverport Way Park)	Small-scale
No. 3 Road South Drainage Pump Station	Small-scale
Queens Road North Drainage Pump Station	Small-scale
Nelson Road South Drainage Pump Station	Small-scale

No. 3 Road South Drainage Pump Station and Queens Road North Drainage Pump Station were part of the Consolidated 5 Year Financial Plan (2021-2025). The remaining projects will be presented for Council's consideration as part of the annual budget process should Council endorse their submission to DMAF. Additionally, the project list may be optimized as guided by DMAF in order to maximize the grant funding. Any updates to the project list will be captured in future annual budget processes for Council's consideration.

Staff are requesting Council's endorsement of the submissions of the above proposed projects and the commitment to the funding over the project term for up to 40% of the total estimated cost of approximately \$38,720,000. The total cost of the City's share is estimated to be \$58,080,000 (60% of the project cost), which will be presented for Council's consideration through the annual budget process. The recommended projects represent key priorities identified for the capital program over the next 10 years. The total amount of expenditure is consistent with the Council endorsed objective of reaching \$30 million annual capital expenditure from the Drainage and Diking Utility by 2031. Should Council choose not to endorse these submissions to DMAF, staff will withdraw any proposals already submitted by the October 15, 2021 deadline for the large-scale project stream.

Each year, staff review drainage and diking projects and recommend improvement strategies due to ageing infrastructure, growth, and climate change. To accommodate the projects submitted to the DMAF as well as other drainage and diking upgrades, staff will optimize future capital submissions to manage drawdowns of the Drainage Improvement Reserve and to maintain an adequate reserve balance to address any emergencies or take advantage of future grant funding opportunities. If necessary, funding from the Water Utility and Sewer Utility Reserves may be borrowed with interest to fund drainage and diking projects, and this would be brought forward for Council's consideration.

Should the grant applications be successful, the funding sources of the existing approved projects and future years' capital submissions will be adjusted in order to utilize the grant funding and reduce contributions from the Drainage Improvement Reserve.

As discussed in the report titled "Accelerated Flood Protection Program Concept and Flood Protection Rate Structure Review," which was endorsed by Council at the April 12, 2021 Regular Council Meeting, in order to execute Council's direction to accelerate the implementation of dike improvements, an estimated five additional regular full-time and five temporary full-time staff from Engineering, Public Works, Sustainability, Real Estate Services and Law would be required. These resources will be brought forward for Council's consideration as part of the 2022 and future budget processes.

Financial Impact

Should the City be successful with the DMAF grant application, the proposed projects will be presented for Council's consideration as part of the annual budget process. The City's share of funding for these projects will be from the Drainage and Diking Utility.

Removal of the construction of the No. 2 Road South Drainage Pump Station from the work scope of the 2016 Flood Protection Program capital project will prompt the return of any

remaining funds from the 2016 Flood Protection Program capital project to the original funding sources upon project completion.

Conclusion

Staff are seeking Council's endorsement on the submission to the DMAF for various dike improvement and drainage pump station upgrade projects, which total \$38,720,000 in grant contribution (40% of the total estimated project costs).

Staff are also recommending that the construction of the No. 2 Road South Drainage Pump Station be removed from the work scope of the 2016 Flood Protection Program capital project.



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