THE CORPORATION OF THE CITY OF COURTENAY

STAFF REPORT

To: Council **File No.:** 5335-20; 5400-02
From: Chief Administrative Officer **Date:** September 16, 2019
Subject: **5th Street Bridge Rehabilitation Project Update**

PURPOSE:
To update the information provided to Council in the Staff Report on the 5th Street Bridge Rehabilitation Project and address the resulting direction provided in Council's Resolution of June 24, 2019:

> Moved by Frisch and seconded by McCollum that based on the June 24th, 2019 staff report "5th Street Bridge Rehabilitation Project" Council approve OPTION 2 that Council direct staff to proceed with the associated next steps to rehabilitate the 5th Street Bridge, including the upgrade of adding cantilevered multi-use pathways plus development of detailed traffic management and public engagement plans, and report back to Council no later than September 16, 2019; and
>
> That staff simultaneously prepare a supporting draft Borrowing Bylaw for Council consideration.
>
> **Carried with Councillors Hillian and Theos opposed**

BACKGROUND
Built in 1957, the 5th Street Bridge acts as a gateway to downtown Courtenay and requires rehabilitation to maintain the level of service for various modes of transportation. Over the years, multiple engineering assessments of the bridge have identified the need for structural repairs and re-coating to slow normal deterioration during service. Routine maintenance and periodic rehabilitation is important to ensure the asset's intended level of service and life-cycle can be achieved.

In 2016, the City engaged Hatch Mott Macdonald (HMM) and Urban Systems to complete a scoping study to determine the rehabilitation requirements. A field investigation and evaluation report recommended that the City repair several structural deficiencies, refurbish the bridge decking and recoat the bridge steel within the next five to seven years. The additional benefits of installing a cathodic protection system were presented and included as part of the cost estimates provided in the June 24 Staff Report.

At its June 24th meeting, Council chose to include a capital upgrade to the project scope by adding cantilevered multi-use pathways to the bridge for an additional cost and lengthened project duration. The detailed scope of work and funding estimates to achieve the planned rehabilitation and upgrade were provided at that time.

Until completion of detailed project design in early 2020, the Class D funding estimates provided in June remain unchanged. These estimates and the intended funding sources identified in the June 24th Staff Report are reiterated below in the body of this report.

CAO RECOMMENDATION:

Receive this report for information.

Respectfully submitted,

David Allen, BES, CLGEM, SCLGM

Chief Administrative Officer

DISCUSSION

The scope of work on the 5th Street Bridge Rehabilitation Project includes re-coating, deck resurfacing including cathodic protection, and minor structural steel repairs, as well as adding new, wider multi-use pathways attached on both sides of the bridge. Construction is proposed to be in 2021.

There are a variety of factors to consider when planning the rehabilitation process. Addressing the corrosion on the bridge will involve blasting of old paint to expose bare metal followed by re-coating. To safely complete the re-coating, the construction will require scaffolding and wrapping in plastic to contain airborne debris: a strict regulatory requirement to protect the surrounding natural environment from construction.

During construction the travelling public will experience delays (vehicular, pedestrian and cycling), loud construction noise, night time lighting of the construction site; and potentially loss of parking in adjacent areas. To minimize these impacts staff will aim to ensure that:

- One lane on the bridge will remain open for alternating vehicular traffic;
- Cycling and pedestrian access is accommodated across the river; and
- There is continual and ongoing community communications and engagement.

Since receiving Council direction on June 24th, a project team has been established which has: developed a project timeline; developed a communications and public engagement strategy; further developed the geometry of the scaffolding required to complete the work and its impacts on all travel modes; and developed the factors that will inform the traffic management plan. Work now underway is represented in the supporting appendices to this report which serve as an update on progress over the past several months.

Many considerations and factors have and will continue to guide the project planning:

- Public and worker safety
- Environmental considerations including protection, mitigation and permitting
- Regulatory requirements
- Communications and public engagement
- Staging: construct in either one phase or multiple
- Sequencing of each of the respective scope elements of the work
- Impacts to traffic, including larger vehicles and emergency vehicles
- Impacts to all forms of transportation
- Minimizing costs
- Schedule implications including phasing, day/night work, and season
- Equipment laydown area

More detailed information on meeting these considerations and factors is provided in the appendices to this report which are organized as follows:

Appendix A, Strategic Communications and Public Engagement Plan

Discusses the key issues for the community as related to this project and presents a plan on how to engage the public to ensure that all issues are considered and communicated with the public.

Appendix B, Traffic Management Strategy and Bridge Connectivity

Discusses factors and local network considerations for dealing with traffic management during construction. To leverage efficiencies and maintain continuity, the Traffic

Management Strategy is prepared by Urban Systems, the same consultant working on the City's Transportation Master Plan.

A more detailed Traffic Management Plan can be prepared only after the community concerns, considerations, and recommendations are more clearly defined following the communications and public engagement process.

Appendix C, Project Scope for bridge rehabilitation, and new cantilevered pathways

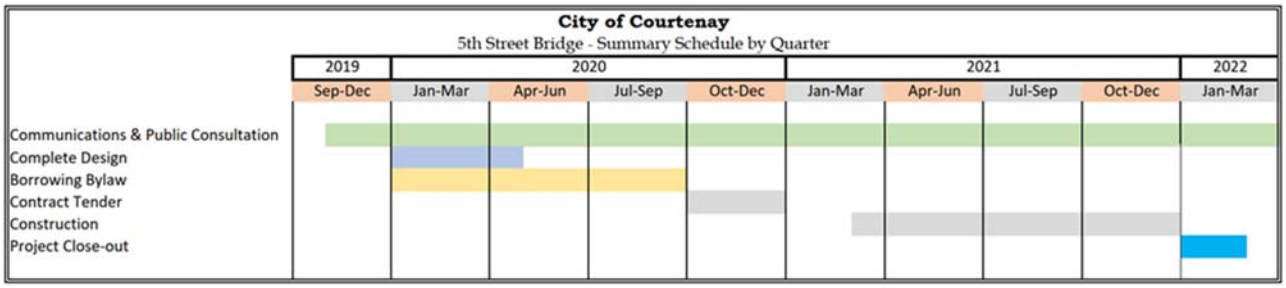
Project Scope for re-coating, minor steel repairs, and deck rehabilitation, including new cantilevered widened multi-use pathways.

Appendix D, Fifth Street Bridge Draft Borrowing Authorization Bylaw

Refined Project Schedule:

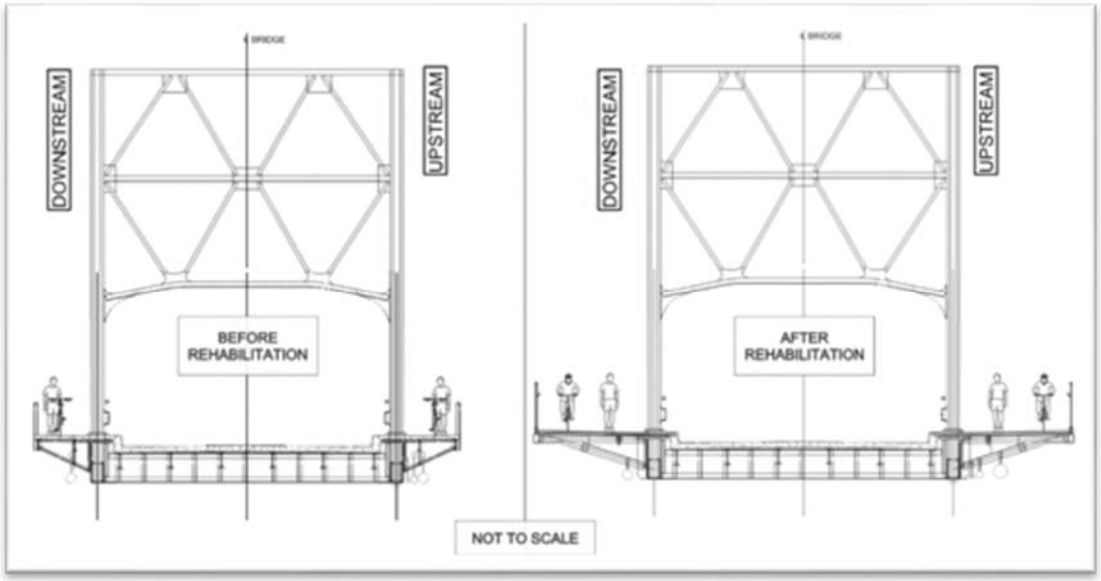
Public and stakeholder consultation is proposed to start in October 2019. The information received from the public consultation will inform the traffic management plan, which will then inform the construction methodology, which will inform future communications efforts. The detailed design will continue to evolve through 2019 and 2020. Construction is expected to begin in early 2021 however, exact details are yet to be determined, but will be accounting for the many considerations and factors listed above. Community consultation and engagement will continue through to the end of construction.

Table 1.



Upgraded Cross Section

The figure below compares the 5th Street Bridge before and after the cantilever upgrade. The new proposed multi-use pathways increase the widths of available pedestrian and cyclists' area from the existing 1.5 meters to 3.0 metres. See Appendix C for greater detail.



Transportation Master Plan Influences:

The City's Transportation Master Plan (TMP), currently in its final stages of development, has been used to inform the development of a traffic management strategy for the construction phase of the 5th Street Bridge. The TMP identifies future walking, cycling, transit and road network improvements to guide the City toward its stated transportation objectives. These include planned improvements near the 5th Street Bridge that are to be considered for how they connect with the 5th Street Bridge. The overall emphasis on active transportation in the TMP highlights the importance of maintaining active transportation connectivity during construction.

The traffic modelling completed for the TMP is being used as a basis for further traffic analysis as part of the traffic management strategy, including understanding current traffic patterns on and nearby the 5th Street Bridge, forecasting the impact of lane closures on queuing and delay on approach roads, and the potential impacts of traffic that may be redistributed elsewhere in the network. This will prove valuable in developing, for example, traffic control/flagging practices during construction to make best use of available bridge capacity, and understanding and mitigating impacts on roads and intersections elsewhere. All forms of transportation will be considered in the traffic management plan. This information will form part of the messaging to the public of impacts during construction and provide a greater level of certainty than would otherwise be possible in the absence of this information.

In relation to the working draft of the TMP the following transportation vision was stated:

> *The City of Courtenay supports a transportation network that prioritizes connectivity and access to daily destinations and, through a balanced approach to transportation planning, provides all road users safe choices in their mode of transportation.*

The supporting values to achieve the transportation vision include:

Values

- Sustainability, livability & health
- Safety + efficiency
- Economic Prosperity
- Connectivity
- Affordability
- Sustainable Land Use

FINANCIAL IMPLICATIONS:

These have remained unchanged since the last report, and will be updated as the detailed design provides further information in 2020.

Table 2.

Project Element	1) Original Scope - Rehabilitation	2) Rehabilitation + Cantilever Upgrade
Outcome	Rehabilitated crossing with 20-year updated useful service life with full utilization of the grant and cathodic protection versus deck replacement.	A rehabilitated crossing with extended service life that provides improved cycling and walking amenities, with full utilization of the grant.
Duration	See Table 1.	See Table 1.
Bridge Recoating & Deck Renewal	$4.1 million	$4.1 million
Structural and Traffic	$2.2 million	$2.2 million
Cantilever Pathway	n/a	$2 million
Total	$6.3 million	$8.3 million
Reserves	$0.94 million	$0.94 million
City Borrowing Amount	$3.4 million	$5.4 million
Borrowing Costs*	$233,300	$370,550
Tax Impact**	1%	1.6%

ADMINISTRATIVE IMPLICATIONS:

The 5th Street Bridge Rehabilitation Project will be led by the City of Courtenay Engineering department, with support from other departments within the City. Consultants with technical knowledge specific to this work will be utilized to develop and implement designs. Any costs associated with external consultants are included in the project budget.

CITIZEN/PUBLIC ENGAGEMENT:

The potential benefits and impacts of rehabilitating the 5th Street Bridge require a broad public engagement and ongoing communications program to assist in raising awareness of the need and context for the capital project, as well as mitigating impacts wherever possible. A comprehensive public

engagement plan is attached as Appendix A, outlining the engagement objectives and various considerations associated with reaching a diverse group of stakeholders and the travelling public.

The engagement approach will be refined as borrowing processes, construction methodologies and schedules are confirmed, and the procurement process unfolds. Routine updates will be provided to Council and the public throughout the process. The project team will build on previous experience from working on bridge rehabilitation and replacement projects in British Columbia.

This public engagement and communications plan commit to engaging the broad public primarily at the level of "consult", providing information, listening and acknowledging concerns, while seeking feedback on analysis, alternatives and decisions. The project will provide avenues for feedback and hearing concerns and will inform improved communications efforts and mitigation efforts, where possible, as a result of feedback received. Where there are opportunities for the public and stakeholders to provide input on potential decisions, feedback will be sought. City Council retains decision-making authority.

In terms of the Borrowing Authorization Bylaw required to fund the project, the level of engagement falls at "empower", in that the City will borrow funding based on electoral support through a referendum or alternative approval process (AAP).

In addition to the development of a variety of print and digital communications tools, several face-to-face meetings with stakeholders and information sessions for the broad public will be held in October and November 2019 to share information, and to identify interests and needs. This information will inform ongoing engagement and design efforts.

The first phase of engagement will assist in finalizing the construction sequencing and traffic management plan to develop an approach that is as responsive to the community's interests as possible. Appendix A outlines the detailed public engagement approach.

ASSET MANAGEMENT IMPLICATIONS:

The City of Courtenay is committed to proactively planning and investing in natural and built assets. The 5th Street Bridge is one of the City's most valuable assets and critical to connecting the community across the river. The bridge serves as an important transportation connection for personal and commercial transport, and emergency service route for fire, police and ambulance. On-going maintenance and periodic investments are required to maximize the life of the asset, and to minimize disruption and increased investment over the long-term.

The 5th Street Bridge is included in the City's asset management strategy and operations and maintenance costs have been identified in the City's financial plan.

The bridge rehabilitation (re-coating, structural repair, and deck replacement) is a 'capital asset renewal' (or even 'maintenance') and is the impetus of this work.

Construction of the cantilevered widened multi-use pathways is a discretionary 'capital upgrade', that will compete for limited funding with all the remaining capital asset renewals (for example water, sewer, road, buildings, fleet and parks & trails capital renewals).

Longer-term asset management implications are yet to be determined; this will be informed by the finalized design.

STRATEGIC PRIORITIES REFERENCE:

As part of the Strategic Priorities for 2019 – 2022 the following are relevant to the 5th Street Bridge Rehabilitation Project:

We proactively plan and invest in our natural and built environment

- ● Focus on asset management for sustainable service delivery
- ▲ Look for regional infrastructure solutions for shared services
- ●▲ Advocate, collaborate and act to reduce air quality contaminants
- ●▲ Support social, economic and environmental sustainability solutions

We plan and invest in methods of multi-modal transportation

- ● Move forward with implementing the City's Transportation Master Plan
- ▲■ Collaborate with regional and senior government partners to provide cost-effective transportation solutions

● **AREA OF CONTROL:** The policy, works and programming matters that fall within Council's jurisdictional authority to act

▲ **AREA OF INFLUENCE:** Matters that fall within shared or agreed jurisdiction between Council and another government or party

■ **AREA OF CONCERN:** Matters of interest that are outside Council's jurisdictional authority to act

OFFICIAL COMMUNITY PLAN REFERENCE:

Regarding the Official Community Plan for Courtenay, the following goals of Section 5.0 Transportation are relevant:

5.2 Goals

1. Integrate land use changes with transportation planning to coordinate changes and increases to traffic patterns.
2. Development of a transportation system that provides choices for different modes of travel including vehicle, transit, pedestrian, cycling and people with mobility impairments.
3. Protect the integrity of the road classification system to facilitate the purpose and function of the specific road types.
4. Support an integrated transportation system that works towards reducing travel distances and congestion.
5. Support a transportation system that recognizes the importance of the character and overall appearance of the City.
6. Provide an effective transportation system that facilitates the movement of vehicles throughout the community and the Comox Valley to major regional services such as the Little River Ferry System and the Comox Valley Airport.

REGIONAL GROWTH STRATEGY REFERENCE:

The 5th Street Bridge Rehabilitation Project is aligned with the transportation network goal from the Regional Growth Strategy:

Goal 4 - Transportation:

Develop an accessible, efficient and affordable multi-modal transportation network that connects Core Settlement Areas and designated Town Centres and links the Comox Valley to neighbouring communities and regions.

POTENTIAL IMPACTS TO COMMUNITY:

In order to rehabilitate the 5th Street Bridge safely, sustainably and within all environmental and regulatory standards, several impacts need to be considered:

Traffic: Vehicular traffic will likely be reduced to single lane alternating across the bridge for a portion of construction. Duration for this is yet to be determined and will depend on the construction plan.

Noise: In order to remove the lead paint and re-coat the steel structure, high pressure compressors are used. The compressors can produce a great deal of noise. The City will explore the application of noise barriers to reduce the impact.

Light: Should work be completed during evening hours, construction lighting may be used.

Lay-down area: The contractor will require a large area beside the bridge for storage of equipment, supplies, vehicles and construction trailer.

Cost: Final cost estimates will continue to be refined through the design phase. Regardless, it is anticipated that some form of borrowing will be needed.

Chris Davidson

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Attachments 4:

1. *Appendix A, Strategic Communications and Public Engagement Plan*
2. *Appendix B, Traffic Management Strategy and Bridge Connectivity*
3. *Appendix C, Project Scope for bridge rehabilitation, and new cantilevered pathways*
4. *Appendix D, Fifth Street Bridge Draft Borrowing Authorization Bylaw*

CITY OF COURTENAY
REHABILITATION/UPGRADE OF FIFTH STREET BRIDGE
PURPOSE OF COMMUNICATIONS PLAN

The purpose of this communications plan is to support effective public information sharing and describe activities throughout rehabilitation of the Fifth Street Bridge. There are proactive and reactive strategies to keep the community informed about the process, progress to date, and opportunities to provide input throughout construction.

OVERVIEW

Originally constructed in 1957 and located in the heart of downtown Courtenay, the Fifth Street Bridge is an important piece of infrastructure spanning the Courtenay River. Although the bridge has had regular maintenance over the past decade, the coating system and bridge deck are now due for replacement. The City of Courtenay was successful in receiving approximately $2 million in grant funding from the Government of Canada and Province of BC's Small Communities program.

The proposed project includes bridge deck replacement, steel repairs to the deck beams, new handrails, recoating of the steel structure, new road markings, and the addition of new three meter cantilevered multi-use pathways on both sides of the bridge.

The improved pedestrian and cycling paths have the potential to significantly improve the travelling experience for those who walk, cycle, use scooters, wheelchairs or strollers. Recent consultation efforts related to transportation in Courtenay highlighted a desire amongst Courtenay residents to see improved infrastructure and investment in these modes.

Construction would likely start in 2021 and must be complete by March 2022. Construction impacts are expected to be moderate/high including; single lane traffic during construction, and intermittent scheduled closures for mobilization etc.

Construction has the potential to significantly impact the travelling public, as well as a variety of stakeholders and residents both immediately adjacent to the bridge, and along the detour routes. Proactive communications will be an important mitigation effort to assist in minimizing impacts to the travelling public and residents living in, or travelling through, the area. While this project has the potential to significantly extend the lifespan of the bridge and will include additional assets that improve community connectivity (specifically for people who bike, walk and use mobility aids), future rehabilitation efforts will still be required approximately every 20 years.

Communications will occur through all stages of planning and construction.

Tavola Strategy Group Ltd. is providing communications and strategy support to the project.

PROMISE TO THE PUBLIC

This communications plan commits to engaging the broad public primarily at the level of "consult" providing information, listening and acknowledging concerns, while seeking feedback on analysis, alternatives and decisions. The project will provide avenues for feedback and to hear concerns which will inform improved communications efforts and mitigation efforts, where possible. Where there are opportunities for the public to provide input on potential decisions, feedback will be sought. City Council retains decision-making authority.

In terms of the borrowing bylaw required to fund the project, the level of engagement falls at "empower", in that the City will borrow funding based on electoral support through a referendum or alternative approval process (AAP).

	INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public participation goal	To provide the public with balanced and objective information to assist them in understanding the problem, alternatives, opportunities and/or solutions.	To obtain public feedback on analysis, alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision including the development of alternatives and the identification of the preferred solution.	To place final decision making in the hands of the public.
Promise to the public	We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and aspirations, and provide feedback on how public input influenced the decision. We will seek your feedback on drafts and proposals.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will work together with you to formulate solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.
INCREASING IMPACT OF THE DECISION →					

COMMUNICATIONS OBJECTIVES

Throughout construction, proactive, accurate and effective communications efforts will be undertaken to keep the public informed and to appropriately anticipate and respond to unplanned issues.

1. Increase awareness and understanding of the benefits and value of the Fifth Street Bridge in the regional transportation context and highlight the new amenities and long-term maintenance required to protect the asset and mitigate costs and impacts. Ensure information is easily accessible and distributed through a variety of methods.
2. Mitigate impacts to the travelling public through effective, proactive two-way engagement efforts.
3. Demonstrate a commitment to proactive communications and responsiveness to public concerns throughout the project.
4. Continue to maintain and build positive two-way relationships with the downtown business community, transportation groups, First Nations, other government agencies, neighbouring communities, and other identified stakeholders. As well as seek to understand their needs and interests throughout the project.
5. Establish and support relationships with key stakeholders affected by construction.
6. Meet communications obligations within federal funding agreements. Obligations are outlined in Schedule H: https://www2.gov.bc.ca/assets/gov/driving-and-transportation/funding-engagement-permits/grants-funding/building-canada/pdf/150312_nbcf-scf_signedagreement.pdf

OPPORTUNITIES AND RISKS

The following opportunities and risks associated with communications and public information have been identified.

Opportunity	Description	Mitigation

Opportunity	Description	Mitigation
Educate about the investment in infrastructure, or innovative methods being utilized.	There is potential to highlight construction methodology, innovation and value for investment as construction progresses.	• Incorporate information about benefits and value in all proactive communications. • Demonstrate progress at key junctures. • Consider establishing relationships with post-secondary institutions, schools, and offering community site visits or tours. • Presence at community events/markets in area
Educate about historical approach to bridge maintenance and bridge role in community	Provide regional context for this critical component of regional infrastructure.	• Identify strategic opportunities to educate about role of the bridge, and the value it delivers. • Include photos and history of bridge, highlighting evolving transportation needs.
Demonstrate responsiveness to what has been heard from community and commitment to delivering on Council strategic goals and OCP	Highlight what the community has indicated is important to them when it comes to transportation infrastructure (re: OCP, TMP, Strategic priorities)	• Key messaging about new amenities on bridge and benefits of such (shift in mode share, greenhouse gas emissions, less congestion, planning for the future, sustainability.)

Risk	Description	Mitigation
Lack of awareness about construction impacts and timing	Although many residents are familiar with the need to "fix" or invest in the bridge, they may be less familiar with the construction impacts and timelines.	• Anticipate the information needs of residents in area and stakeholders affected by construction. • Early stakeholder outreach at start of project and on-going updates throughout construction. • Booth at community events/markets in area. • Communicate directly and routinely with those most affected and the other neighbourhoods more broadly. • Use multiple communications channels, plain language and engaging visuals. • Proactive media and social outreach and use of video
Public frustration as a result of	It is expected that some members	• Robust web presence, media

impacted traffic routes, noise, or parking	of the public will be frustrated with traffic detours and delays and the aesthetic of construction activities	outreach and outreach to residents and travelling public • Communicating established phone and email channels for questions and concerns • Establish point person for citizen/media enquiries and concerns • Maintain register of concerns raised and report routinely to project team and contractor to further mitigate issues • Communicate alternate routes and parking spaces to access downtown core
Public concern or disagreement with construction approach or timing	It is expected that some will disagree with the rehabilitation approach, or feel the methodology could be different, faster or less impact (e.g. night work, not during winter holidays or summer etc.)	• Strong messaging and rationale for why rehabilitation is recommended and benefits of construction schedule and methodology. • Early communication of approach, potential impacts and on-going approach to bridge maintenance
Tendency for residents to focus on costs and impacts vs. safety, investments in new amenities, and asset management	Without additional information and context, residents will tend to focus on the costs and impacts of construction.	• Key messaging about value of bridge, asset management, long-term investment, and benefits of recommended approach • Develop social media and media tips about bridge maintenance, asset management, fiscal perspective, etc. • Utilize video to help educate and make the information more tangible
Other construction projects during same period may compound impacts	Other projects may impact travelling public during same period, compounding congestion and frustration.	• Establish clear points of contact for project updates and information. • Coordinate information and communications with other agencies (MoTI, other City projects, CVRD etc.) to mitigate where possible.
Unexpected issues may arise	There is low potential for archeological finds, environmental impacts, accidents or emergencies.	• Develop issue-specific communications protocols. • Develop messaging and FAQs specific to various topics or

		issues • Work closely with City of Courtenay to anticipate and respond appropriately. • On-going monitoring of comments and questions, media coverage.
Sixth Street Pedestrian Bridge	Some feel a Sixth Street dedicated pedestrian/multi-use bridge should be added. Council has directed staff to review the long-term feasibility, however it will be considered as part of the 2020 budget process.	• Provide updates as Council considers information related to Sixth Street
Investment in Courtenay Bridge crossings in general	Some may feel investment is better made in another or new crossing	
Replace the bridge	Some may feel the bridge should be replaced instead of rehabilitated.	
Rehabilitate but not improve the bridge	Some may feel that the bridge should be rehabilitated but that no additional amenities should be added.	
Other financial borrowing or capital projects	Some may feel the borrowing overall is "unaffordable" or "too much"	• Quality information to inform borrowing bylaw process and need for rehabilitation of bridge in terms of safety, long-term investments, etc. • Coordination of timing and understanding of the other capital projects and borrowing needs

KEY INFORMATIONAL TOPICS

Topic
Fifth Street Rehabilitation Project • Age and current condition • Value and benefits of upgrades • Overall timeline and milestones in project • Asset management approach • Budget and financing model

Topic
Construction Schedule and Milestones • Timeline • Why this timeline? (Time of year, season, weather etc.) • Components: • structural rehabilitation (2) deck repair (3) recoating of the bridge (4) cantilevers • Construction impacts and mitigation efforts in area and detour areas • Rationale for construction methodology and approach • Contract award
Construction impacts • Traffic • Noise • Aesthetics • Construction parking • Equipment storage • Special events (routes, schedules etc.) • Parking loss (if any)
Parking impacts – temporary and permanent • Parking loss during construction • Alternative routes and parking to access downtown core
Updates from the Transportation Master Plan • Importance of crossings • Increased investment in cycling and pedestrian infrastructure • Accessibility
Emergency Protocols • Public safety issues/incident • Construction accident • Emergency vehicle access during construction
Cantilevered Multi-Use Pathway • Specifications – width, length, approaches, protection, bicycle network • Comparison between current and future • Benefits – people who walk, cycle, accessibility, environmental, mode shift, sustainability, access to downtown • What we heard from the community during Transportation Management Plan
Evolution of transportation system • Historical context of bridge • Number of trips now versus then • Growing community • Desire to see investment in green, active modes • Context within larger transportation plan • Archival photos – upgrades through the years, 1960, pre-1960
Where to learn more • Website • Phone • Email • Open House/community events • Media • Social media • Stakeholder meetings

POTENTIAL ENGAGEMENT TOPICS

Borrowing Bylaw

- Project information/need/benefits
- Amount of borrowing
- Ways to provide input

Traffic Management Plan

1. **Construction Traffic Control**
   Establish single lane alternating traffic control practices to maximize available capacity.

2. **Bridge Closures**
   Ensure any required full bridge closures are scheduled to occur during periods when travel demand is lowest to minimize impact.

3. **Intersection Traffic Control**
   Optimize nearby intersection signal timings to reflect altered traffic conditions and minimize delay.

4. **Traffic Detour Route(s)**
   Identify detour routes that minimize negative impacts elsewhere in the network and offer comfort/certainty to motorists seeking alternatives to the Fifth Street Bridge.

5. **Time-of-day Travel**
   Promote / encourage off-peak travel to reduce congestion during peak periods.

6. **Alternative Travel Modes**

Information needs and preferred ways to keep you informed

- What tools
- What information
- Questions?

Beautification / Public Realm

- Landscaping Approaches
- Surfacing
- Signage
- Colour

STRATEGIC CONSIDERATIONS/APPROACH

1. **Early engagement of key stakeholders is important.** Outreach to regional stakeholders indicating that discussions will be commencing about rehabilitation of the Fifth Street bridge and their engagement on this issue will be important going forward. The more engaged stakeholders are in the process, the more likely they are to provide context, bring early concerns forward and support the investments. A very condensed and preliminary list of stakeholders includes but is not limited to: Ministry of Transportation and Infrastructure, Comox Valley Regional District, Town of Comox, RCMP, Ambulance and Fire, Comox Valley School District, Downtown Courtenay Business Improvement Association, Cycling, Accessibility, First Nations, and BC Transit.

2. **"Seeing is believing"**: A walk-about of the bridge with key stakeholders, including City Councilors, is an important educational opportunity for the need and opportunity the rehabilitation work and

improved amenities address. It aids in increasing understanding and building awareness of the technical issues at play and the corresponding mitigation efforts. It is also an effective strategy for building relationships and demonstrating commitment to transparency and awareness. The use of video will also assist in this regard.

3. The role of the Fifth Street Bridge in Courtenay, and the region, cannot be underestimated. The costs of rehabilitation and the recommended improvements to accessibility, cycling and walking experience should be presented as investments. The timing of the work considering the rising construction market and the grant timing demonstrates the City's commitment to fiscal responsibility and long-term asset management.

4. The need to rehabilitate the bridge and to complete the work now is a community need and anticipated impacts of this rehabilitation shouldn't be minimized and should be realistically communicated. Alleviating the impacts of congestion and back up may require some detours, travel planning and behaviour change among all transportation modes.

5. Those affected by the bridge rehabilitation will not be limited to those in close vicinity of the bridge. Planned detours will mean increased traffic and congestion in other areas. It is important we are anticipating and mitigating impacts to those areas in the same way we support downtown.

6. Establishing a strong context of the need to rehabilitate and the benefits of the recommended approach is critical to community and stakeholder understanding and support. When the need and opportunity are understood, the impacts of construction become more amenable.

7. It is important to demonstrate the responsiveness of the City to what has been heard within recent public engagement efforts and the need to plan for the long term. The community understands that Courtenay is growing and has highlighted the importance of the crossings, and the need for improved cycling, walking and accessibility infrastructure.

8. The impacts of the rehabilitation work will be more significant than contemplated in 2012, both in terms of lane closures, detours and congestion, as well as costs. However, one key difference is that the 2012 work initially included full bridge closure; this project will provide accommodation for single lane alternating traffic. Early and ample information months prior to, in the leadup, and during construction will be necessary to help residents and businesses prepare for the construction impacts and mitigate unexpected frustration. The need and benefits of this work must continue to be communicated throughout.

STAGES OF COMMUNICATIONS

Process map visual

To be created based on key phases of project. Will demonstrate how decisions and communications and input relate through process, along with an associated timeline.

KEY PROJECT PHASES	INFORMATION ACTIVITIES	TIMELINE	STATUS
Conceptual Design and Costing	• Updated Bridge Inspections • Options Evaluation • Preliminary Costing Options • Reporting	2017/2018	COMPLETE
Design Confirmation	• Direction to design team on final scope of project (e.g. amenities)	Sept – December	IN PROGRESS

	• Initiate traffic management planning • Initiate public engagement planning • Initiate public engagement efforts	2019	
Borrowing Bylaw	• Seek electoral approval for purpose and amount of borrowing required	2020	**NEXT KEY STEP**
Notice of Project or Pre-qualification Process	• Notice of project or similar process to provide contractors information on the impending project in 2019. This will work to garner interest in the project.	TBD	
Design Phase	• Preparation of Detailed Design for chosen improvements • Preparation of Tender Package • Community education and communications regarding potential impacts to the public and various accommodations by the project toward important local events e.g. Canada Day • Meet with key stakeholders to identify early concerns and refine engagement approach to meet community needs	TBD	
Tendering	• Tender issued for construction drawing package and contract specifications • Detailed communications plan to support project to completion • Contract award	TBD	
Active construction and on-going project communications	• Pre-construction communications related to timelines, budget, impacts, alternate routes • Construction of bridge upgrades • Ongoing project communication and engagement	TBD	
Project completion		TBD – Prior to March 31, 2022	

COMMUNICATIONS TOOLS

Materials	Description
City of Courtenay Website	• Central point for all information regarding rehabilitation of Fifth Street Bridge
Project updates	• Project updates at regular intervals for project team and broader distribution as determined • Include maps and visuals, highlight progress to date, and changing elements of projects • Can be used to inform updates to stakeholders as required
Construction Bulletins	• Proactive, routine updates to describe construction updates and impacts
Fact sheets and FAQs	• Project overview and information for commonly asked questions and topics • Can be used as a handout or distributed by email
Community presentations	• Host open house/bridge tours at start of construction

	• Attend community meetings as requested to provide updates or answer questions • Community booths at events (e.g. Farmers Market) or in high traffic areas to reach people where they are • Stakeholder meetings
Display Boards	• To support neighbourhood meetings or open houses
Social media	• Proactive information about overall project including benefits and context, as well as construction updates
Project E-news	• Email updates sent regularly to forecast construction impacts and progress being made
Earned Media	• Media advisories and releases • Key messaging to respond to media enquiries
Site tours/visits	• Residents, local Council, or educational opportunities provided by site tour or walkabout
Project signage	• Signage in neighbourhood and community facilities to communicate traffic impacts
Door-to-door outreach	• Face-to-face engagement supported by handouts to leave with residents
Enquiry response program	• Track and respond to public enquiries by email, phone and social media.
Video	• Utilizing video in social media will assist in communicating progress and impacts • Developing video updates at key milestones in the project will help frame what will occur next

EVALUATION: MEASURES OF PROCESS AND SUCCESS

Communications efforts should be measured and evaluated continually through the process and reported on upon conclusion of the process. These measures will help determine and demonstrate the breadth of communications and inform on-going efforts.

- Attendance at face-to-face events
- Responses to enquiries
- Response targets met
- Number of stakeholder meetings and presentations
- Level of engagement of stakeholders
- Anecdotal stakeholder feedback
- Media coverage – volume and accuracy
- Social media engagement
- Volume of correspondence and enquiries

APPENDIX A: KEY TASKS Stage 2 September to December 2019

KEY ENGAGEMENT AND COMMUNICATIONS TASKS INCLUDE:
• Develop detailed communications and engagement plan including workplan and schedule to support construction schedule and anticipated impacts. Refine and expand communications plan to include key messaging, schedule and actions.
• Develop detailed communications calendar
• Build detailed stakeholder contact database with key contact information
• Determine which organizations or individuals may require meetings or presentations
• Develop roles and responsibilities matrix for communications tasks
AWARENESS-RAISING ACTIVITIES:
• Develop information and materials for website and print distribution
• Develop visual identity for various tools including advertising, fact sheets, and bulletins
• Social media strategy – content and calendar
• Project video
• Project newsletter template
• Advertising plan and newspaper advertising design
• Media release post Council meeting(s)
• Door-to-door business community – hand-out information – establish project contact
• Digital signage
• Posters in key locations across City buildings and community
• Postcard/flyer/fact sheet
• Project email distribution list
• City of Courtenay staff update – bridge project (borrowing, timeline, amenities, impacts, etc.)
• Communicate Council decision(s) - letter to stakeholders, media release, website
• Continually update Frequently Asked Questions
• Routine updates to Council
ENGAGEMENT ACTIVITIES:
• Contact key stakeholders to arrange meetings
• Council site tour of bridge
• Stakeholder meetings
• Schedule and host public session(s) – various locations, times of day
• Open Houses
• Site tours
• Community Pop-ups
• Online survey/feedback loop

Future stages

STAKEHOLDER OUTREACH AND PRE-CONSTRUCTION COMMUNICATIONS - TO BE INFORMED BY FIRST STAGE OF ENGAGEMENT

Direct and proactive outreach to stakeholders and residents about what to expect during overall construction.

- Update website
- Door-to-door delivery of information
- Distribute media and social media content
- Information packages and offer of presentation to key stakeholders
- Advertise community opportunities to learn more

- Attend/host community events (i.e. project open house, farmers markets, mall events, etc.) to provide proactive information and answer any questions
- Host site visit/walkabout prior to construction
- Communicate contract award and updated information related to construction launch
- Project signage and signage noting upcoming work

ON-GOING COMMUNICATIONS DURING CONSTRUCTION - TO BE INFORMED BY FIRST STAGE OF ENGAGEMENT

- On-going updates to project team, broad community, stakeholders and media about construction progress, impacts and any changes. Also includes emergency and issues management support as required.
- Update website
- Direct outreach to stakeholder groups
- Attend community meetings as required to provide updates
- Monitor all questions and comments related to options to continually inform communications activities.
- Media relations

MEMORANDUM

Date:	September 9, 2019
To:	Chris Davidson, City of Courtenay
From:	Dan Casey, Matthew Sallee
File:	3222.0045.02
Subject:	Preliminary Scoping | Fifth Street Bridge Traffic Management + Connectivity

Two specific transportation issues related to the Fifth Street Bridge renewal project are addressed in this memorandum, as follows:

1. The first section is a preliminary traffic management strategy that identifies opportunities to management traffic interruptions during the construction period; and
2. The second section identifies walking and cycling connectivity options for the Fifth Street Bridge with reference to the draft Transportation Master Plan (TMP).

PART 1. TRAFFIC MANAGEMENT STRATEGY

A renewal of the Fifth Street Bridge is planned that will include bridge deck replacement, steel repairs to the deck beams, new hand rails, recoating of the steel structure, new road markings, and the addition of cantilevered multi-use pathways. Construction will be over an approximately seven- to eight-month timeframe that is currently forecast for 2021 and is expected to significantly impact traffic patterns, particularly in the north end of downtown Courtenay.

A traffic management strategy is required to identify opportunities to manage interruptions and minimize impacts during the construction period. The traffic management strategy is to be developed during public consultation and will evolve throughout the project. The City intends to complete significant public outreach to inform the technical development of traffic management approaches that best minimize impacts and to ensure solutions are supported.

The intent of this memorandum is identify the process to be undertaken in developing the traffic management strategy, to articulate the principles for traffic management during the construction period (i.e., what are we trying to achieve?), and to preliminarily identify and describe traffic management approaches that may be given further consideration as part of the fulsome traffic management strategy (i.e., how will we achieve it?).

Process

The traffic management strategy is proposed to be developed in three phases:

1. Clarify the intent of the traffic management strategy (i.e., what are we trying to achieve?) and preliminary identification of management options (this memorandum).

2. Undertake study to determine changes in traffic conditions during bridge construction and review each of the preliminarily identified traffic management options to confirm they are achievable, will have positive impact, and are supported by the public.

3. Develop the requisite plans for each management approach that is to be pursued. This will include on-going communication as part of the broader communication approach related to the bridge works, as well as technical analysis and planning for construction phasing and traffic control practices, detour routes, signal analysis, and transportation demand management (TDM) planning.

Traffic Management Framework

A clearly articulated framework will give structure to the traffic management approach, inform key messaging for communications tasks, and articulate the intent of this work with the community to create transparency. The following is proposed as the framework for traffic management associated with the Fifth Street Bridge construction.

Objective: Minimize the interruptions and inconvenience experienced by the community during Fifth Street Bridge construction.

Principles:

1. Communicate broadly and pro-actively
2. Manage traffic interruptions
3. Maximize infrastructure capacity
4. Identify alternative travel options and communicate with user groups and the public

Traffic Management Approaches

The following approaches are recommended to be pursued in more detail to determine each can be achieved and has value in managing travel interruptions related to Fifth Street Bridge construction:

1. Capacity Reductions

Dictate the timing and length of reductions in bridge capacity (i.e., lane or sidewalk closures) to occur as possible during periods when travel demand is lowest to minimize interruptions. Once construction staging has been determined in detail, the optimal allocation of bridge space will be determined and implications on travel interruptions will be more clear. Items to be clarified may include:

- The number of vehicle travel lanes available
- Cyclist accommodation, with possible options including a multi-use facility, dedicated cycling facilities, integrated with vehicle traffic or accommodated elsewhere on pre-existing or a new temporary structure
- Pedestrian accommodation, including specific consideration of accessibility
- Public transit accommodation
- Any limitations on certain vehicle types / sizes due to construction activities

2. Construction Traffic Control

Manage traffic control practices on and adjacent to the Fifth Street Bridge to maximize the available capacity on the bridge and on bridge approaches. This work is to include consideration of hourly, daily, and seasonal variations in traffic conditions so that traffic control practices are established that make best use of available bridge capacity and minimize interruptions, and so that construction is scheduled to avoid peak periods as possible. This work should include traffic conditions (queuing, delay) on alternative routes and seek to establish traffic control procedures that result in balanced conditions. Consideration is also to be given to traffic control practices that favour buses, pedestrians and/or cyclists.

3. Intersection Traffic Control

Study and optimize nearby intersection signal parameters to reflect changes in traffic conditions and minimize delay. This will include reviewing adjacent signal infrastructure ability for customization and identifying opportunities for temporary changes in signal timing.

4. Traffic Detour Route(s)

Identify detour routes that minimize negative impacts elsewhere in the network and offer comfort/certainty to motorists seeking alternatives to the Fifth Street Bridge. This work is to include the following activities for identified detour route(s):

- Intersection traffic analysis at key intersections along identified routes to ensure adequate resulting intersection performance
- Forecast the increase in traffic volumes on identified detour routes so that changes can be pro-actively communicated to affected property owners
- Identify the more detailed requirements of detour route planning to include route signage / message boards and public notification

5. Time-of-Day Travel

Promote / encourage off-peak travel to reduce congestion during peak periods. This may be achieved through a combination of strategies that include targeted traffic control practices on the bridge that discourage peak period travel in certain directions, incentives for off-peak travel and changes in programmed activities (where possible) at key destinations. Opportunities to eliminate commute trips altogether may also be identified.

6. Alternative Travel Modes

Promote / encourage non-vehicular travel modes where capacity is less impacted so as to reduce vehicular traffic. This may include facilitating travel by walking, cycling, public transit or rideshare. Bridge construction phasing and bridge function may dictate which modes can be encouraged.

Examples of demand management approaches that could be pursued include financial incentives to use transit or carpool and targeted infrastructure that favours walking or cycling.

Next Steps

The next step is to study the impact of bridge construction on the transportation network, including refining queue length and travel time impacts, and review each of the identified traffic management opportunities to assess their value / impact to confirm which options are recommended to be advanced to more detailed planning / technical stages.

PART 2. BRIDGE CONNECTIVITY

As part of the Transportation Master Plan (TMP) that is currently underway, it was identified that widening the sidewalks on both the north and south side of the Fifth Street Bridge would have significant connectivity and safety impacts across the Courtenay River for all active modes of transportation. This lack of connectivity was a key constraint brought forward in the TMP.

The City of Courtenay is considering the replacement of existing cantilever pedestrian sidewalks on the bridge as part of the maintenance work in order to utilize the expected closures during the construction period. The current bridge provides narrow sidewalks on either side of the bridge and does not provide a safe connection for cyclists as they are expected to merge with traffic in a single file manner across the bridge. The City hopes that the wider cantilevers would improve the walking and cycling conditions across the bridge from a safety, connectivity, and comfort standpoint and would tie into the proposed networks on either side of the bridge as developed as part of the Connecting Courtenay plan and the Parks and Recreational Master plan.

Widening the cantilevers on the bridge will result in the need to identify and improve the access and connectivity to the bridge for all active transportation users. This memo intends to identify some of the connectivity considerations and key constraints that need to be considered moving forward.

Connectivity Considerations & Approaches

Connectivity options will need to be developed and reviewed against various criteria to analyze which option would be the best for the City to pursue. The criteria set out is primarily focused on active transportation users while also considering other impacts. The criteria are as follows:

- Pedestrian Safety
- Cyclist Safety
- Pedestrian Connectivity to existing networks
- Cyclist Connectivity to existing networks
- Pedestrian Comfort/Experience
- Cyclist Comfort/Experience
- Vehicle Impact
- Integration into existing and future park infrastructure
- Value

The goal of the connections is to increase the safety, comfort and experience for pedestrians and cyclists. The proposed cantilevers inherently provide a better experience than the current condition because they provide a wider pathway and are further separated from cars. They also allow for cyclists to avoid having to share the roadway with vehicles and provide more space for all active users. Beyond the bridge it will be important that this comfort is extended to the various connections to existing and future networks.

Key Constraints for Consideration

1. The Bridge Building

The deconstruction of the Bridge building at the southwest corner of the Fifth Street Bridge will be discussed as part of the 2020 budget deliberations. If this building were to be demolished within the near future the site could be considered for opportunities to enhance connectivity to the bridge, along with other areas nearby the bridge.

2. River Flood Levels

The current underpasses on the east and west end of the bridge are susceptible to localized flooding during high river and high tide events. If they are to be utilized for connectivity, improvements will need to be considered or a reduced level of service could be accepted during high river events.

3. Impacts to Vehicle Movements

While the connectivity is primarily focused on active transportation users it is important that the impact to traffic is understood and such will be a consideration for options to be reviewed.

4. Value

We understand that the limits of this project will need to be set to the immediate area around the Fifth Street Bridge. The costs of each option will be considered along with how each option ties into the overall existing and future network.

Transportation Master Plan Network Connections

The Transportation Master Plan (TMP) outlines the proposed cycling and pedestrian networks for the City. On the west side of the bridge, Anderton Avenue and Sixth Street are identified as the preferred cycling connections on the west side of the bridge. For the east side of the bridge, the TMP calls for a multi-use path along the north side of Fifth Street/Old Island Highway connecting to the Lewis Centre and east Courtenay. The TMP also designates bike paths through Lewis Park and Simms Millennium Park.

These future connections will be reviewed and considered during the development of the connectivity options to the new cantilevers on the Fifth Street Bridge.

Next Steps

The next step is to develop, evaluate, and refine the connectivity options based on the criteria to confirm which options are recommended to be advanced to more detailed planning / technical stages.

Memorandum: Project Scope for bridge rehabilitation, and new cantilevered pathways

Prepared for:

City of Courtenay
830 Cliffe Avenue
Courtenay, BC
V9N 2J7

August 30, 2019

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H356896-BR-230-SO-05 Rev A

Document Number	H356896-BR-230-SO-0005	

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1 INTRODUCTION

Hatch has been requested by Urban Systems Ltd. ("USL"), on behalf of the City of Courtenay (the "City"), to undertake a rehabilitation design of the existing Fifth Street Bridge in Courtenay, BC. A detailed bridge rehabilitation plan had been submitted to City of Courtenay in June 2018 which includes steel recoating, and concrete bridge deck rehabilitation and protection. Additional to the original rehabilitation scope, a new widened multi-use cantilevered pathway on both sides of the bridge was also later included by the City.

According to the Fifth Street Bridge Rehabilitation Project Staff Report on June 24th, 2019, three rehabilitation components were approved by the Council:

- Bridge Steel Recoating
- Bridge Deck Rehabilitation
- New Cantilevered Widened Multi-Use Pathways

This memorandum presents the scope of rehabilitation works and identifies the considerations in developing the rehabilitation designs and the staging of the rehabilitation works.

2 SCOPE OF WORK

The rehabilitation works for Fifth Street Bridge can be broken down into three major components: 1) bridge steel recoating; 2) bridge deck rehabilitation; and 3) installation of new widened multi-use pathways on both sides of the bridge. The present scope of work for each of the rehabilitation components is listed below:

Bridge Steel Recoating

- Mobilization / demobilization
- Scaffolding and containment
- Environmental mitigation - containment SSPC- Guide 6 Class 1A
- Quality management – third party NACE Level 2 coating inspection
- Structural steel cleaning (SS216.09.02) – wash to remove non-visible contaminants and another contaminant using SSPC-SP WJ-4/NACE WJ-4. Then clean to SSPC SP-6 with a sharp profile of 50 to 75 microns (2-3 mils).
- Recoating with Steel Field System SF2 – organic zinc primer, epoxy intermediate coat and stripe coat, polyurethane topcoat from the current edition of Ministries recognized product list.
- Traffic control
- Site cleanup and restoration

Bridge Deck Rehabilitation

- Mobilization / demobilization
- Scaffolding and enclosure
- Scarification and hydro-demolition to remove topping
- Sandblasting to roughen the exposed concrete surface

- Installation of sheet anode
- Sandblasting to expose coarse aggregate on the underside of concrete adjacent to I-Beams by others.
- Installation cathodic protection system – installation of half cells by coring and patching into the concrete at 20 locations.
- Hand application of mortar adjacent to I-Beams and installation of ribbon anodes
- Installation of rectifier to power grid
- Installation of new concrete topping
- Commissioning of the cathodic protection system
- Verification of performance
- Traffic control
- Site cleanup and restoration

New Cantilevered Widened Multi-Use Pathways

- Mobilization / demobilization
- Remove existing walkway deck
- Install temporary utility support
- Remove existing railing and walkway steel components
- Install new walkway cantilever brackets
- Re-hang existing utilities to new brackets and remove temporary utility supports
- Install new 1400 mm high railings
- Install new walkway decking and concrete topping
- Traffic control
- Site cleanup and restoration

3 REHABILITATION DESIGN AND STAGING CONSIDERATIONS

The objective of the rehabilitation is to extend the service life and function of Fifth Street Bridge. A parallel goal is to minimize the interruptions and inconvenience experienced by the community during the rehabilitation works. Table 3-1 presents the considerations in developing the rehabilitation design and the staging of the construction works.

TABLE 3-1 REHABILITATION DESIGN CONSIDERATIONS

CONSIDERATIONS	DISCUSSION
Staging of Rehabilitation Components	• Refers to the analysis around combining different components of the work, versus doing them individually. • Each of the three rehabilitation components (bridge rehabilitation, deck rehabilitation, and new cantilevered walkways) could occur as separate individual projects – the construction time required would be the sum of time required by each component. • Total required construction time of all the rehabilitation components can be optimized (minimized) if-for example-deck rehabilitation was to occur simultaneously within the time of steel truss recoating. • Combining two, or all three, rehabilitation components into one construction phase may reduce costs associated with mobilization, tendering, and contract administration.
Construction Sequencing	• Refers to the order in which the different components of the work are completed. • The main objectives in sequencing construction are to minimize interruptions and inconvenience to the bridge users. • The existing walkway may be too narrow to accommodate both the scaffolding required for coating and pedestrian traffic – pedestrian traffic may need to be detoured on to the bridge deck (resulting in single lane alternating vehicle traffic (SLAT)) or to an adjacent temporary pedestrian crossing. • Installing the new widened multi-use pathways as the first stage of construction may allow pedestrians access along the bridge during the remainder of the rehabilitation works. • Consideration is being given to rehabilitating the upstream half first, while leaving the downstream side of the bridge accessible to the public. Rehabilitation then switches to the downstream side. The scaffolding design for this arrangement would be significantly more complex than other staging options.

CONSIDERATIONS	DISCUSSION
Accommodation of Vehicle Traffic	• The existing bridge vertical clearance is 4.6 m. • Fifth Street Bridge is a designated truck route and is required to accommodate trucks of 4.15 m height - the scaffolding required to facilitate recoating could potentially reduce vertical clearance to below 4.15 m. • The minimum design lane width that must be maintained during construction is 3.0 m. • Single-lane alternating vehicle traffic (SLAT) will likely be required during the construction period. • The duration of SLAT can likely be reduced if a separate temporary pedestrian bridge is constructed.
Accommodation of Active Transportation	• Pedestrian traffic can likely be accommodated on the existing (unwidened) walkways only by sequencing the rehabilitation works in an upstream/downstream side methodology. • Pedestrian traffic can likely be accommodated on the new widened multi-use walkways, only if the walkways are constructed prior to the rest of the rehabilitation works. • If recoating and deck rehabilitation were to occur prior to new widened cantilevered pathway installation, pedestrian traffic during rehabilitation would likely need to be accommodated either on the bridge deck (shared with vehicular traffic) or on a separate temporary pedestrian bridge.
Cost Implications	• Combining two, or all three, rehabilitation components into one construction phase could reduce total project costs associated with mobilization, tendering, and contract administration. • Construction of a temporary pedestrian (active transportation) bridge, would likely add significantly to the project costs.
Schedule Implications	• Total required construction time of all the rehabilitation components can be optimized (minimized) if deck rehabilitation is undertaken simultaneously within the time of bridge steel recoating. • Sequencing the rehabilitation in an upstream/downstream side methodology would require more time than rehabilitating the full bridge width at once.
Environmental Considerations	• The coating containment (bridge wrapping) protects the environment from waste and emissions caused by cleaning debris, blast cleaning materials, dirt, dust, equipment oils, solvent, acids, burning matter, paint drifts, drops, or spray and spatter. • The coating containment/scaffolding design for the staged upstream/downstream scheme would be more complex than that required if the bridge were to be rehabilitated full width, putting more reliance on the coating contractor, and potentially increasing environmental risks during construction. Works will be closely monitored for compliance with all guidelines and regulatory requirements.

CONSIDERATIONS	DISCUSSION
Public Safety	• Accommodating pedestrians on a separate temporary bridge would generally be the safest for all bridge users during construction. • Accommodating pedestrians on the bridge deck can be done safely, however would likely increase risks. • Traffic safety during construction will be considered and managed accordingly.
Worker Safety	• Worker safety (of the contractors) will be closely monitored for compliance with WorksafeBC Regulations.
Construction Season	• Execution of the work in the winter months would increase costs for the project due to increased fuel demand for relative humidity and temperature control within the work enclosure. • Rehabilitation should ideally occur in the dry season, starting in May or June after most of the snowmelt has completed and the water level in the river below has dropped.

4 SAMPLE CROSS-SECTIONS

Figure 4.1 compares the Fifth Street Bridge before and after the rehabilitation. The proposed new walkways have increased widths from the existing 1.5 m to 3.0 m.

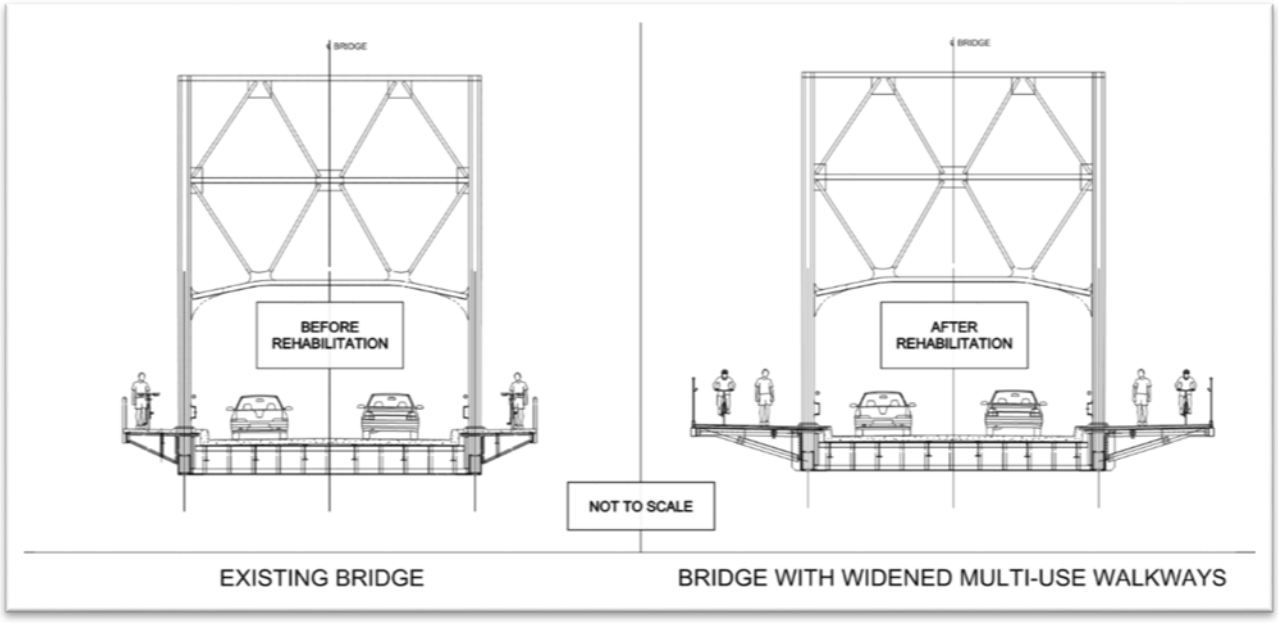

FIGURE 4.1 CROSS SECTION OF BRIDGE BEFORE (LEFT) AND AFTER (RIGHT) REHABILITATION

Figure 4.2 shows a sample concept schematic cross-section of the Fifth Street Bridge during rehabilitation where pedestrians (active transportation) are accommodated on the new widened cantilevered pathways. This arrangement can be achieved only if the new widened cantilevered pathways were to be installed prior to the rest of the rehabilitation works.

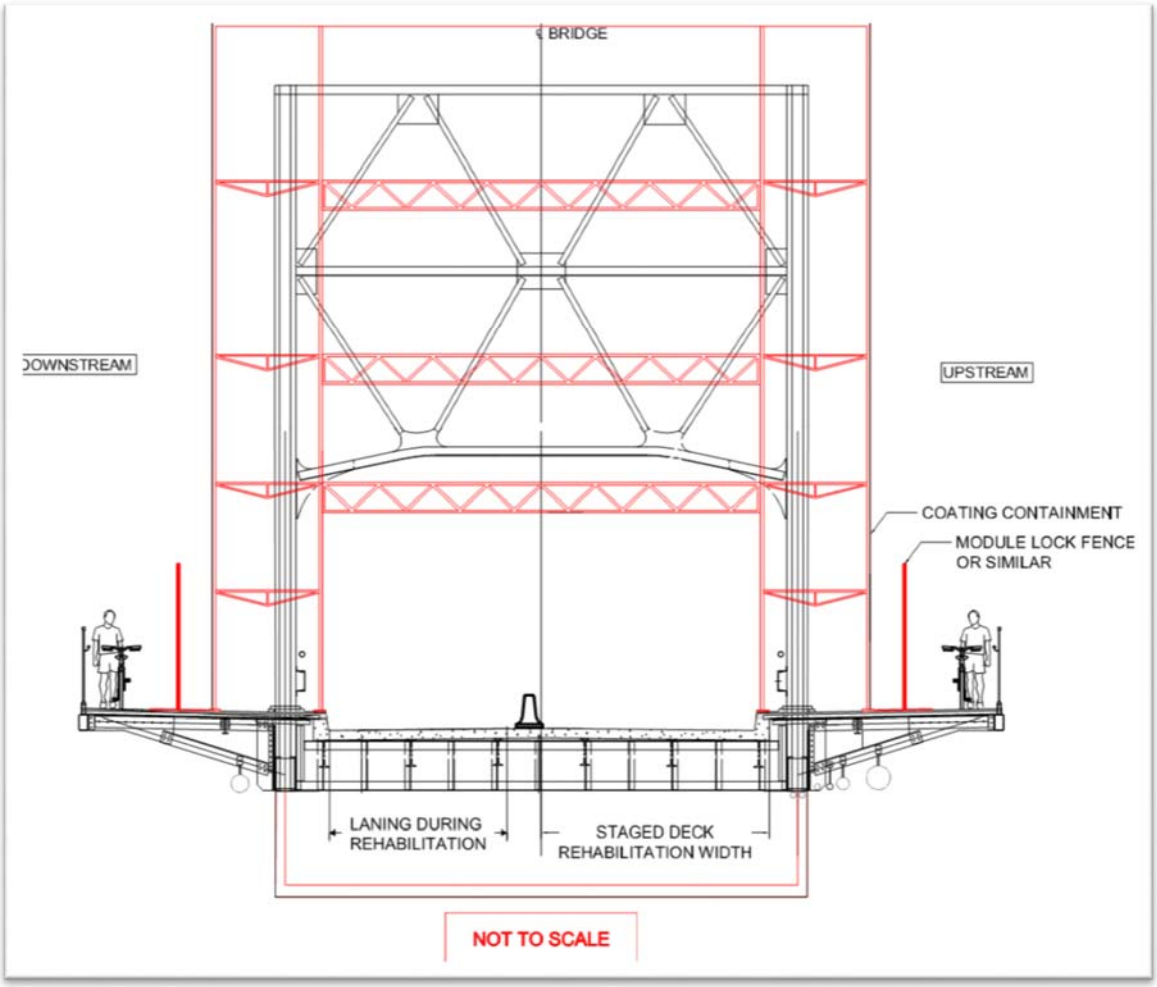

FIGURE 4.2 SAMPLE BRIDGE CROSS-SECTION DURING REHABILITATION WITH PEDESTRIANS AND CYCLISTS ACCOMMODATED ON NEW WIDENED WALKWAYS

Figure 4.3 shows a sample concept schematic cross-section of Fifth Street Bridge during rehabilitation, where pedestrians and cyclists are accommodated on the bridge deck, shared with single lane vehicle traffic. This arrangement would likely be required if pedestrians are not accommodated elsewhere, either on new widened cantilevered pathways, or on a separate temporary pedestrian bridge.

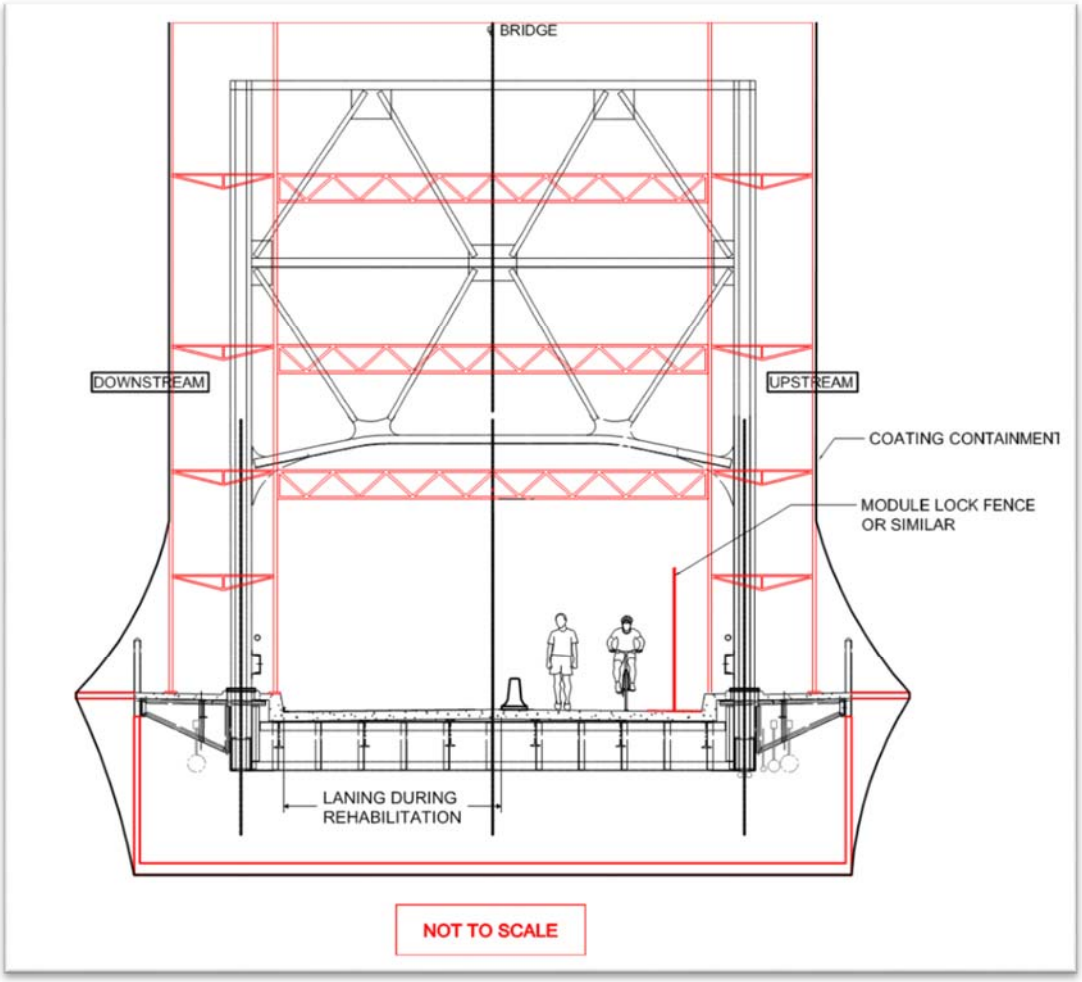

FIGURE 4.3 SAMPLE CONCEPT BRIDGE CROSS-SECTION DURING REHABILITATION WITH PEDESTRIANS, CYCLISTS AND SINGLE LANE ALTERNATING VEHICLE TRAFFIC ACCOMMODATED ON DECK

5 CONCLUSION

Detailed design continues to be refined and will be largely informed by the communications and public engagement plan. There are many different factors that must be considered and evaluated, before designs can be finalized.

THE CORPORATION OF THE CITY OF COURTENAY

BYLAW NO. 2978

A bylaw to authorize the borrowing of the estimated cost of rehabilitation and constructing cantilevers on the Fifth Street Bridge.

WHEREAS it is deemed desirable and expedient to rehabilitate and construct cantilevers on the Fifth Street Bridge.

AND WHEREAS the estimated cost of rehabilitating and constructing cantilevers on the Fifth Street Bridge including expenses incidental thereto is the sum of $8,300,000 of which the sum of $5,400,000 is the amount of debt intended to be borrowed by this bylaw;

NOW THEREFORE, the Council of the Corporation of the City of Courtenay in open meeting assembled, enacts as follows:

1. The Council is hereby empowered and authorized to undertake and carry out or cause to be carried out the rehabilitation and construction of cantilevers to the Fifth Street Bridge generally in accordance with general plans on file in the municipal office and to do all things necessary in connection therewith and without limiting the generality of the foregoing:

   a) To borrow upon the credit of the Municipality a sum not exceeding $5,400,000.

   b) To acquire all such real property, easements, rights-of-way, licenses, rights or authorities as may be requisite or desirable for or in connection with the rehabilitation and construction of the said cantilevers to the Fifth Street Bridge.

2. The maximum term for which debentures may be issued to secure the debt created by this bylaw is twenty years.

3. This bylaw may be cited as **"Fifth Street Bridge Rehabilitation and Cantilever Loan Authorization Bylaw No. 2978**".

Read a first time this day of , 20 .

Read a second time this day of , 20 .

Read a third time this day of , 20 .

Received the approval of the Inspector of Municipalities this day of , 20 .

Received the approval of the electors of City of Courtenay on the day of , 20 .

Reconsidered and finally passed and adopted this day of , 20 .

_____ _____

Mayor Corporate Officer

Certified a true copy of Bylaw No. 2978 as at third reading.

_____

Corporate Officer

Certified a true copy of Bylaw No. 2978 as adopted.

_____

Corporate Officer