



Public Works and Transportation Committee

Date: Wednesday, January 23, 2019

Place: Anderson Room
Richmond City Hall

Present: Councillor Chak Au, Chair
Councillor Linda McPhail
Councillor Kelly Greene
Councillor Alexa Loo
Councillor Michael Wolfe

Also Present: Councillor Carol Day
Councillor Harold Steves

Call to Order: The Chair called the meeting to order at 4:00 p.m.

MINUTES

It was moved and seconded

That the minutes of the meeting of the Public Works and Transportation Committee held on December 19, 2018, be adopted as circulated.

CARRIED

NEXT COMMITTEE MEETING DATE

February 21, 2019, (tentative date) at 4:00 p.m. in the Anderson Room

PLANNING AND DEVELOPMENT DIVISION

1. **2019/2020 BIKEBC PROGRAM SUBMISSION**

(File Ref. No. 01-0150-20-THIG1) (REDMS No. 6054370 v. 2)

It was moved and seconded

(1) *That the submission for cost-sharing to the Province of BC 2019/2020 BikeBC Program for the Westminster Highway multi-use pathway, as described in the report, titled "2019/2020 BikeBC Program Submission" dated December 14, 2018, from the Director, Transportation, be endorsed;*

Public Works & Transportation Committee
Wednesday, January 23, 2019

- (2) *That, should the above application be successful, the Chief Administrative Officer and the General Manager, Planning and Development, be authorized to execute the funding agreement; and*
- (3) *That the Consolidated 5 Year Financial Plan (2019-2023) be updated accordingly.*

CARRIED

2. GEORGE MASSEY CROSSING – FINDINGS OF INDEPENDENT TECHNICAL REVIEW

(File Ref. No. 01-0150-20-THIG1) (REDMS No. 5920748 v. 7)

Discussion took place on (i) the potential impact to salmon habitats from any pier installation in the Fraser River, (ii) the potential for Port operations to expand to 24 hours per day and truck traffic through the Tunnel during peak hours be banned, (iii) alternative materials for the surface of the Tunnel's interior walls, such as ceramic tiles, and (iv) the future of light rail transit in the area and potential increase to bus service for routes along Highway 99.

Newspaper articles regarding transit improvements in the lower mainland were distributed on table (attached to and forming part of these minutes as Schedule 1.)

In response to queries from Committee, Lloyd Bie, Director, Transportation, and Donna Chan, Manager, Transportation Planning, provided the following information:

- staff have reported on the findings of the independent review and an opportunity to provide comments to the Ministry will be made available to Council;
- stakeholder and municipal consultation was launched in January and will continue until April 2019;
- the George Massey Tunnel replacement project name is in reference to the previous provincial government's work and the assumption that the Tunnel was being replaced; therefore, staff understand that moving forward, it is to be referenced the George Massey Tunnel enhancement project; and
- the Vancouver Fraser Port Authority has indicated in the past that it can be challenging in increase Port operations to 24 hours for all operations; however, this does not preclude Council from requesting that the Ministry implement traffic restrictions.

Public Works & Transportation Committee

Wednesday, January 23, 2019

Joe Erceg, General Manager, Planning and Development, advised that staff can compile a chronological background of information regarding the George Massey crossing. Mr. Erceg remarked that, in staff's review, many findings in the Independent Technical Review are consistent with Council's previous direction and comments.

Discussion further ensued on requesting increased bus service from TransLink and proposing limitations on Port truck traffic through the Tunnel during peak periods of traffic.

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

It was moved and seconded

That a letter requesting the Ministry of Transportation and Infrastructure:

- (1) pursue short-term strategic improvements to the Steveston Highway interchange and expedite the completion of a business case for Highway 99 crossing improvements, as detailed in the staff report titled "George Massey Crossing – Findings of Independent Technical Review" dated December 21, 2018 from the Director, Transportation;*
- (2) work with the Vancouver Fraser Port Authority to limit port traffic from using the George Massey Tunnel Crossing during peak hours; and*
- (3) request that TransLink review increasing bus capacity for routes along the George Massey Tunnel Crossing;*

be endorsed.

CARRIED

Opposed: Cllr. Loo

Jim Wright, Richmond resident, referenced his speaking notes (attached to and forming part of these minutes as Schedule 2) and spoke on the George Massey crossing.

Discussion then took place on (i) the delegation's comments, (ii) the Independent Technical Report of the George Massey Crossing, (iii) the Province's upcoming public consultation, and the likelihood of a forum for public input.

Public Works & Transportation Committee
Wednesday, January 23, 2019

3. **RICHMOND ACTIVE TRANSPORTATION COMMITTEE – PROPOSED 2019 INITIATIVES**

(File Ref. No. 01-0100-20-RCYCI) (REDMS No. 6042766 v. 3)

In response to questions from Committee, staff advised that (i) information regarding the cost per school for the Bike to School education program can be provided to Council, (ii) physical barriers are provided wherever possible for cyclists, (iii) the proposed No. 6 Road multi-use pathway and Steveston Highway projects will be partially funded by TransLink, and (iv) temporary barriers to separate cyclists from motorists can be examined prior to implementation of the proposed safety enhancements.

Discussion took place on potential expansion of the bike education program, particularly on potential cost sharing opportunities with the Richmond School District, and the No. 6 Road multi-use pathway and Steveston Highway pathway.

Councillor Greene left the meeting (5:03 p.m.).

It was moved and seconded

- (1) *That the proposed 2019 initiatives of the Richmond Active Transportation Committee, as outlined in the staff report titled “Richmond Active Transportation Committee - Proposed 2019 Initiatives” dated December 13, 2018 from the Director, Transportation, be endorsed; and*
- (2) *That a copy of the report titled “Richmond Active Transportation Committee – Proposed 2019 Initiatives” be forwarded to the Richmond Council-School Board Liaison Committee for information.*

CARRIED

ENGINEERING AND PUBLIC WORKS DIVISION

4. **RECYCLING DEPOT - POTENTIAL ECO CENTRE UPGRADE OPTIONS**

(File Ref. No. 10-6370-04-01) (REDMS No. 5968841 v. 8)

Suzanne Bycraft, Manager, Fleet and Environmental Programs, advised that the estimated capital improvement costs listed in Table 3 of the staff report should be \$1,226,000. She then highlighted that the Recycling Depot has experienced a higher than usual volume of users as a result of the newly expanded scope of materials accepted.

Councillor Greene returned to the meeting (5:05 p.m.).

Public Works & Transportation Committee

Wednesday, January 23, 2019

In response to questions from Committee, Robert Gonzalez, General Manager, Engineering and Public Works, advised that there is an outstanding referral regarding the replacement of the Works Yard; he remarked that it would be premature to consider significant capital upgrades to the Recycling Depot as the facility will be considered in conjunction with a forthcoming staff report on the Works Yard.

In reply to further queries from Committee, staff provided the following information:

- the Recycling Depot may only accept materials permitted by Recycling BC;
- the Recycling Depot could be open 7 days a week, however this would have an impact to the Operating budget;
- future procurement processes for upholstered furniture recycling will seek a reuse component;
- as noted in Option 3, a Reuse Centre would allow for items to be accepted and donated to charities as appropriate; a storefront may not be viable due to liability concerns; and
- any revenues generated as a result of recycling materials such as metal are applied to offset operating costs.

Discussion took place the tent-style structures noted under Option 2, and Mr. Gonzalez remarked that these structures semi-permanent in that they are to replace deteriorating trailers; a more permanent solution for the Recycling Depot and its accessory structures will be examined as part of the broader review of the Works Yard replacement.

It was moved and seconded

- (1) *That Option 2 of the staff reported entitled, “Recycling Depot – Potential Eco Centre Upgrade Options” from the Director, Public Works Operations dated January 16, 2019, be endorsed; and*
- (2) *That the City’s Consolidated 5 Year Financial Plan (2019-2023) be amended to include \$1,226,000 for the Recycling Depot – potential eco centre upgrade as presented under Option 2 of the staff report entitled “Recycling Depot – Potential Eco Centre Upgrade Options”, funded from the Sanitation and Recycling provision.*

CARRIED

Public Works & Transportation Committee
Wednesday, January 23, 2019

5. **FUEL PURCHASES AGREEMENT - SUNCOR ENERGY PRODUCTS PARTNERSHIP**

(File Ref. No. 02-0665-03-01) (REDMS No. 6073610)

It was moved and seconded

- (1) *That the City enter into an agreement, as outlined in the staff report titled "Fuel Purchases Agreement – Suncor Energy Products Partnership" dated January 3, 2019 from the Director, Public Works Operations;*
- (2) *That the Chief Administrative Officer and General Manager, Engineering & Public Works, be authorized to negotiate and execute a fuel supply and delivery contract with Suncor Energy Products Partnership on the contemplated terms and conditions of the fuel consortium contract as outlined in City of Vancouver Request for Proposals No. PS20180305 Supply and Delivery of Fuels; and*
- (3) *That the current fuel purchase contract with Parkland Fuel Corporation under BCPPBG Contract No. PS11122 be extended until such time as the fuel supply and delivery contract with Suncor Energy Products Partnerships is executed and fuel delivery commences under the agreement with Suncor Energy Products Partnerships.*

CARRIED

6. **MANAGER'S REPORT**

2018 Zero Waste Conference Summary

Ms. Bycraft spoke to a staff memorandum previously distributed to Council dated January 22, 2019 (copy on file, City Clerk's Office) regarding the 2018 Zero Waste Conference.

ADJOURNMENT

It was moved and seconded

That the meeting adjourn (5:23 p.m.).

CARRIED

Public Works & Transportation Committee
Wednesday, January 23, 2019

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 Wednesday, January 23, 2019.

Councillor Chak Au
Chair

Amanda Welby
Legislative Services Coordinator

Premier promises

By DIANE STRANDBERG
Richmond will have a new \$500 million rapid transit system in place by 1995, Premier Bill Vander Zalm promised Monday.

But what kind of system it will be and where it will go is still up for grabs.

B.C. Transit will begin detailed planning immediately on a rapid transit system to Richmond, with a possible spur to the International Airport here. The announcement was made Monday at the B.C. Institution of Technology training facility on Sea Island. It was part of a \$1 billion transit package that will see Skytrain and Seabus routes extended and a fleet of new ar-

ticulated buses purchased for use throughout the Greater Vancouver region.

Transit choices include a rail system, using existing rail lines from Vancouver to Richmond, along the Arbutus corridor, an elevated system similar to Skytrain, and express buses on special bus lanes. Mayor Gil Blair said he wouldn't speculate what type of system the planning committee will recommend. But he praised the Premier's transit proposal, particularly his commitment to 100 per cent funding for the project, which relieves local taxpayers of the burden of fully paying for the system.

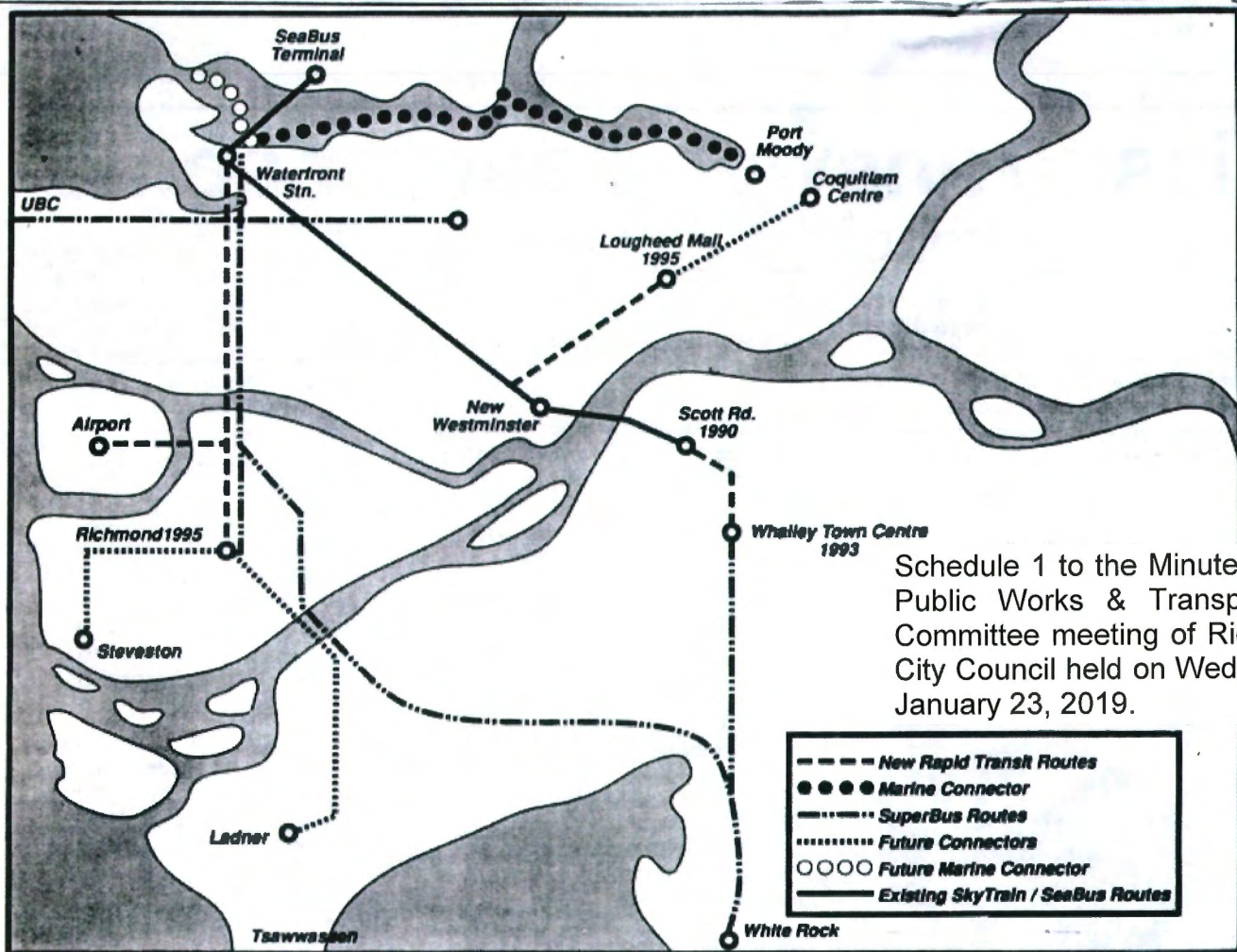
"It's a very significant an-

nouncement. The capital cost of Skytrain was an impossible burden for the (Vancouver Regional) Transit Commission to fund," Blair said.

While Blair wouldn't comment what kind of rapid transit system Richmond needs, his Vancouver counterpart, Mayor Gordon Campbell, has admitted a preference for buses.

In an interview Tuesday, Mayor Campbell said he wouldn't prejudge the transit commission's study of alternative systems. But he expressed his concern that an elevated Skytrain system would create "visual pollution" and a rail system would cause traffic problems and noise.

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Schedule 1 to the Minutes of the Public Works & Transportation Committee meeting of Richmond City Council held on Wednesday, January 23, 2019.

Transit improvements announced

Columbian 23 Dec 72 p 3

Affairs Minister taking a look at Fraser Valley transit plan

Municipal Affairs Minister Jim Lorimer has promised to examine a new public transportation proposal calling for a bus-on-railway-tracks-network.

The scheme, proposed by Richmond Ald. Harold Steeves and Dr. Ray Rodgers of White Rock, was presented to the minister at a meeting Thursday.

Ald. Steeves said Mr. Lorimer will add the suggestion to his study on public transportation now

being made by his department.

According to Ald. Steeves, the bus-on-tracks-transit-network would follow existing rail lines, making a loop through New Westminster, Surrey, Richmond and back to Vancouver.

The proposal calls for a light, rapid-transit system using silent operating equipment.

Mr. Steeves suggested the route could follow a path through the Arbutus corridor,

cross Richmond, reach past Delta as far as White Rock with a return through Surrey and New Westminster to Burnaby-Kingsway and downtown.

In addition, Dr. Rodgers has proposed a spur line that would extend the service through Crescent Beach to White Rock. The line would end just short of the beaches near Duprez St.

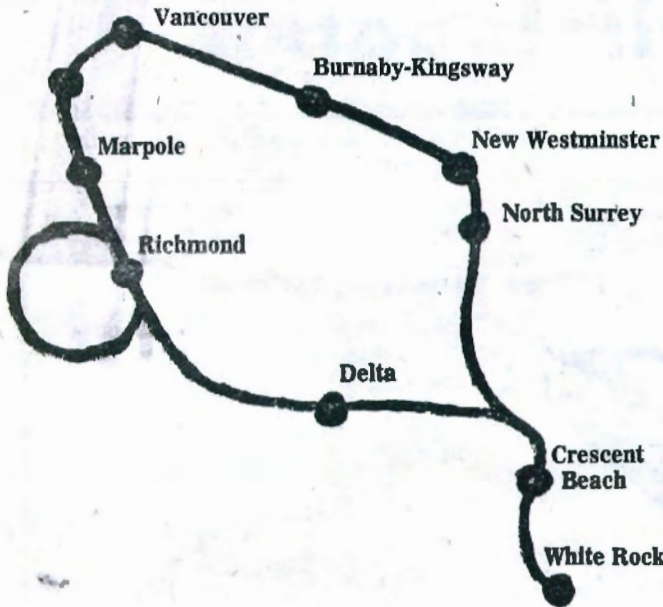
Mr. Steeves also suggested that if the CPR and CN rail lines could be connected in Richmond a secondary loop could be constructed to service the entire municipality.

"In effect you could serve every home in Richmond within a half mile of the line," he said.

Mr. Steeves said the scheme requires the co-operation of the CPR, CN, Burlington Northern and B.C. Hydro lines. He said one stumbling block could be the crossing of the Fraser River near the Deas Tunnel.

But he noted, previous rapid transit proposals have been of a radial type, with downtown Vancouver at the centre of the spokes, and with a further assumption of heavy equipment in most cases. The Steeves-Rodgers emphasis is for a loop with light equipment.

Mr. Rodgers said a White Rock spur using existing Burlington Northern Railway lines would provide commuter service for the South Surrey region and make it possible for weekend beach trippers to come from all parts of the region.



White Rock-Vancouver rail loop to get study

Jim Wright on Massey Crossing, Public Works & Transportation, Jan 23, 2019

Thank you, Councillor Au.
Councillors:

I'm speaking as Acting Chair of the Fraser Voices Association and also for the Garden City Conservation Society—for President Sharon MacGougan, who can't be here.

First, let me share an epiphany. I reviewed Richmond staff's excellent July 2017 Massey Crossing report from Victor Wei (today), and I found it was really by *Joan Caravan*—who is still here. So the excellence can go on!

I should also mention that I'm connected to this issue back to mid-1955. This [showing the four volumes] is the very first and most independent Massey Crossing report, and my father was a partner in the authors, Crippen Wright Engineering Ltd. Also, I've been studying the issue for six years, with many blog articles, along with a number of columns in three newspapers.

I'm involved in the City of Richmond aspect because Victor Wei invited me in July 2017, with this letter [showing the letter]. I provided set of inputs [showing the 8-page report], and this is a November 2018 update. I'll include it with my speaking notes for the minutes. It addresses five factors, with insights you won't see elsewhere. If the province's old Massey Replacement team had dared to think this way, they might have been banished as heretics.

Back at [Joan Caravan's 2017 report](#), it suggested two options, each including an upgrade to the existing tunnel:

Option 1: Add 4 lanes in the form of
(a) a lane each way for bus/HOV and
(b) a lane each way for traffic between the Steveston and 17A interchanges.

Option 2: Upgrade existing tunnel and add a lane of bus/HOV each way.

The 2017 report options both include provisions such as a means for walking and cycling. I see that as a short outer lane each way, perhaps from Rice Mill Rd to Delta's River Rd. The report also includes "Complementary Measures." In essence, it was all well done, and that is now more evident, since the Cowdell Report confirms we were right all along. So, I hope the City will build on both reports and provide staff like Joan Caravan with time and support.

Let me add five quick insights that fit with the Cowdell and Caravan reports.

One. Rule out the bridge options. If the tunnel is removed, the Vancouver Fraser Port Authority will dredge the ship channel two metres deeper after the Roberts Bank Terminal 2 issue is resolved. The effects will be ecological disaster plus harm to our dikes, irrigation water, safety and quality of life.

Two. Rule out counterflow. Cowdell says *addressing reliability in the off-peak direction is the primary need for adding capacity to the Crossing*. Addressing that will *not* increase congestion, but adding a counterflow in the *peak* direction **would**.

Three. Add a new tube on each side of the existing tunnel. That's one tube each way, enabling the pedestrian/cyclist lanes and possible Steveston-to-17A lanes to be done right. *Most important, it is crucial for safety, especially for seismic safety equal to bridge seismic safety.* The Cowdell report agrees with my input to Victor Wei on that—an insight I've never seen anywhere else.

Four: Read the Cowdell Report. Skim and slow down for key parts for a couple of revealing hours. As an example, you'll find (on pages 103–106, among others) that, in comparison to a new bridge, a new tunnel would cause less construction congestion delays, have minimal impact on agricultural lands and less environmental impact, and be better for pedestrians and cyclists.

Fifth, so any bridge die-hards can move on in peace: Notice in the Recommendations (Pages 118–130), that bridge components would probably have to be fabricated outside Canada, whereas the tunnel segments would be fabricated locally. So the tunnel is better for the economy too.

If it's okay with council and staff, I suggest that staff and council continue to work with me on the Massey Crossing Project, in my roles with local societies. The City and community can build on each other's insights and credibility for results. For benefits, one plus one may then equal *three* — or even *infinity* because it will make the difference between non-success and success.

A point that came up: Stan Cowdell has used the appropriate “George Massey Crossing” name, so that is the current name. Coun. Carol Day's “George Massey Tunnel Enhancement” or “George Massey Tunnel Renewal” would be a good name for Richmond to use to frame the project from a Richmond perspective. It is crucial for Richmond to take action now to establish the best crossing and naming.



Fraser Voices Association, Fraser Estuary, BC

Speak out for the Estuary!

November 2018

Dear People Who Care,

Massey Crossing decisions are near. Together with professional advice, informed community input adds relevant perspectives, preludes to success. We're happy to help. Please do our appetizer self-test or just skip to the insights.

With best wishes,

A handwritten signature in blue ink that reads "Jim Wright".

Jim Wright

Acting Chair, Fraser Voices, FraserVoicesAssoc@gmail.com

Appetizer self-test *If you qualify, please turn to the next page.*

As Fraser Voices idealists, we remain grounded in reality*, and great success *is* possible. Please read our "Five Factors . . . Massey" if you agree with some or all of this:

1. People very much want a good experience on trips that include the Massey Crossing.
2. That means comfortable, efficient and safe/secure trips at reliable and convenient times—and not necessarily by driving.
3. It also entails co-existent commercial use that respects their daily aspirations for their family/work lives and natural world.
4. It involves government/transit planning to meet volume needs while empowering each person to get happily between start and end points across the Crossing.
5. A Massey Crossing project with an empathic quality would be unlike the mega-bridge ex-project, with its vision of an immense trophy bestriding the Crossing.
6. In essence, not necessarily in working title or name, people who care look forward to a Massey Crossing Renewal Project and, all going well, a Massey Thruway Project.
7. In contrast to the mega-bridge ex-project, it is an ideal project for federal funding.

* We have been immersed in the Massey Crossing for six years but involved for six decades. My dad, Harry Wright, showed me the tunnel as it neared completion, of interest because of his role as a partner in Crippen Wright Engineering Ltd., the initial engineering consultants, and I still have their beautifully bound multi-volume 1955 report, *Fraser River Highway Crossing at Deas Island*. Dedicated Fraser Voices member Douglas Massey goes back even further, thanks to *his* dad, MLA George Massey.

Five factors to respect in the Massey Crossing Renewal

Fraser Voices to the Governments of British Columbia and Estuary Municipalities, November 2018.

Immersed in Massey Crossing Renewal, we* offer community insights—here & in “Inputs,” next pages.

The factor	The details
<p>A. Since the role of Supplementary Tube(s) in enabling Legacy Tube renewal is practically essential, getting them into service ASAP is more vital than the populace realizes. See Input 1.</p>	<p>Fast-tracking a new tube to take Legacy Tube traffic (a pair of lanes at a time) would make the seismic upgrade and Legacy Tube refurbishing fast and safe, giving tunnel users what they deserve.</p>
<p>B. The most needed paradigm shift is <i>away from</i> increases in highway capacity (bringing more vehicles quickly to congestion points) <i>toward</i> increased thruway capacity (bringing more people from place to place in reliable, comfortable, convenient, safe/secure ways).</p>	<p>See Input 2. Although the Amtrak <i>Thruway</i> with a rail core is different from the Massey <i>Thruway</i> with a tunnel core, the commitment to enabling personal translocation with mass translocation effect is a thruway aspect they would share. With vision, it could start here in early ways soon.</p>
<p>C. If one puts preconceptions about cost on hold, it may be optimal to add a Supplementary Tube on each side of the Legacy Tube. The new tubes could be spaced as shown in Input 3 <i>or</i> close to the Legacy Tube with the kind of cutoff walls between tubes shown by the Massey ex-Project).</p>	<p>The cancelled ex-Project also showed an approach of using two tubes to equal one larger one, and the benefits stated in Input 3 could outweigh an increase in dredging cost. Supplementary Tubes would each have one or two lanes and a multi-use path (cycling, walking, wheelchair, responder, etc.).</p>
<p>D. <i>A caution:</i> Although having a set of four tunnel lanes in each direction has significant <i>safety benefits</i> (see Input 4), that eight-lane option is also a concern unless there is reliable resolve to avoid the “counterflow” temptation that would lead to five lanes in one direction.</p>	<p>The concern: An added counterflow lane would enable single-occupancy-vehicle (SOV) use to increase, working against the paradigm shift. The Massey Renewal must help all users, but the trick is to empower more-deprived kinds of users in preference to pampering SOV drivers.</p>
<p>E. It is crucial that the Massey Crossing Renewal be designed to protect the Fraser River Estuary from the much deeper ship channel dredging—still blocked by the tunnel—that the Vancouver Fraser Port Authority (VFPA) has long sought to enable much port expansion east of the tunnel.</p>	<p>After the current CEAA environmental assessment of the proposed Roberts Bank Terminal 2, it will become opportune for the VFPA to again pursue its dream of deeper dredging, which threatens the estuary ecosystem—if tunnel removal permits. It is essential to preempt deeper dredging.</p>

On the next pages, we’ve filled out this table with “Inputs” for decision makers. The aim is to better the life of the Fraser Estuary and the lives of everyone affected. Let’s succeed together!

* We are the Fraser Voices Association, led on this issue by Jim Wright, Acting Chair, who has written numerous newspaper columns and blog articles on the issue since 2012. Jim even has a personal interest, as his father was a partner in Crippen Wright Engineering Ltd., which did the extensive initial study, *Fraser River Highway Crossing at Deas Island, 1955*, and he often refers to it, along with Fraser Voices research, among other sources.

This report builds on an earlier report by Jim Wright on behalf of the Garden City Conservation Society in 2017.

Input 1. Massey Crossing rationale

Aim: The Massey Crossing will enable reliable, efficient, comfortable, convenient, safe/secure transportation of people and goods between its served areas while conserving in a range of ways.

What's known: The bridge options were, in effect, self-eliminated by their proponents' failure to make a credible case in years of trying. Also, from a conservation standpoint, leaders of all three of the broad conservation groups in Delta/Richmond determined that the tunnel options were better.

Basic best: From the GMTR Project's five scenarios ([Phase 2 Guide, 2013](#)), the simple tunnel option in [Scenario 4 \(p. 12\)](#) could meet the needs with:

- 1) completion of the seismic upgrades for the tunnel and its approaches,
- 2) refurbishing of the tunnel systems—ventilation, lighting, safety, etc.,
- 3) new **2+ lane tube for transit*** + multi-use path, in Massey Corridor,
- 4) retrofit/replacement of related Hwy 99 bridges/interchanges, and
- 5) further Hwy 99 corridor improvements—Bridgeport to USA border.

Our graphic at right shows the traditionally best spacing of new tube ("Green Tube" = ecologically best) from current tunnel ("Legacy Tube").

*While the Green Tube would **enable** two transit lanes, it might do so **indirectly** (e.g., if Legacy lanes are better positioned for Rapid Bus use).



Quality: Since this saves a hefty chunk of \$12 billion, doing things well should be feasible. Examples:

- 1) State-of-the-art seismic upgrade for the Legacy Tube and approaches. Methods have improved in the decade of delay, and there must also be new site-specific knowledge from the bridge studies.
- 2) Lining of the tunnel walls/ceiling with reflective, easy-to-clean ceramic tile (early intended, never done).
- 3) Green Tube: Improved ceiling height and lane width. Designed to easily adapt for (possible) rail.
- 4) At the new Steveston Interchange, faster and safer entry and exit, as planned a quarter century ago.
- 5) Facilities for additional efficient Hwy 99 bus entry/exit ramps, sheltered pullouts, easy transfers, etc.

Buses and trucks: Steps to enable (a) early congestion relief, beginning ASAP, and (b) lessons for the future:

- The early need is for the long-overdue influx of energy-efficient Rapid Buses that are reliable (on time, with passenger space), convenient (with Rapid Bus routes or feeder routes reaching people's start/end points) and comfortable (user-friendly throughout trips). High expectations must be set and exceeded.
- Truck traffic to and from the Delta port terminals will need to be spread over far more hours a day, with large trucks banned from the tunnel during the times when they would cause congestion (e.g., rush hour).

Steps: Ideally, the current government's experts will quickly determine how to implement the scenario in seismically sound and practical ways. Action will depend on their advice. For example, re the Green Tube:

- With its current technology to disrupt destructive seismic waves before they reach it, the Green Tube might protect the Legacy Tube. If that applies, it might be placed on the west side of the Massey Corridor.
- The Green Tube, shown above and in Scenario 4, could alternatively be separated from the tunnel by a cutoff wall. Also alternatively, it could be a new tunnel further east, presumably connecting the South Fraser Perimeter Rd (with roughly a 76 St route) to Westminster Hwy and Hwy 91, via Nelson Rd.
- In any case, fast-tracking the Green Tube will allow it to take traffic from the Legacy Tube (usually a pair of lanes of traffic at a time) to enable efficient seismic upgrading and refurbishing of the Legacy Tube.

Note: The scenario in this input is not intended to preclude a second Green Tube (Supplementary Tube).

Input 2. “Massey Thruway Renewal Project”

This page of input builds on “1. Massey Crossing Rationale.”

With the power of naming, the name for a replacement project could remove an impediment to success, the term “Tunnel Replacement Project” that dismissed retention and renewal. One obvious option for a working title is “Massey Crossing Renewal Project.” We’ll start by explicating it.

“**Massey**”: It could honour George Massey without the “George,” and “Massey” could also include son Douglas Massey, 85, a tireless campaigner for an ecologically sound crossing (not the bridge).

“**Thruway**”: The renewal would ideally feature a transportation **thruway**, like a river (Hwy 99) with its tributaries (and distributaries). With enhanced transit (starting soon), the thruway will get people, etc., all the way from Point A to Point B (such as home to workplace) on both sides of the South Arm of the Fraser in reliable, convenient, efficient comfortable, safe/secure ways. (But “Crossing” is a good word too.)

Conceptually, it is fairly like an [Amtrak Thruway](#) in intent (despite many differences). That proven thruway features coach buses, and the choice of bus options for the Massey Freeway will be critical, but **an early step would be a healthy dose of any kind of Rapid Buses** to alleviate congestion.

“**Renewal**”: An updated project name such as “Massey Thruway Renewal Project” would assert the *renewal aspect that* Richmond has long supported, in harmony with Metro Vancouver and—except in recent years—the BC government. **We suggest this be done soon. The help and goodwill will matter.**

Determinant of wellbeing: The Massey Thruway can and should be a social determinant of wellbeing as an enabler of access to employment, food, health care, education and social support, with tributaries/distributarues into/from Hwy 99. Quality of life matters!

Congestion: Richmond has had to deal with a campaign by another local government that (despite no ill intent toward Richmond) would flush traffic congestion north into Richmond, which does not welcome it and aims to *not* dump it on neighbouring cities. Now, we hope that Richmond will share (and even promote!) its big-picture vision, which is driven by higher values.

Value per dollar: An independent analysis will likely find that the Massey Thruway Renewal will provide more value at less cost than the current project plan. Some of the most valuable benefits have been downplayed, so **we suggest bringing those values to attention**. For instance, the *Renewal* can:

- **End the immense ecological threat to the Fraser Estuary—and the whole Fraser River and Salish Sea—from deeper dredging of the ship channel.** (It is a bad time for it, but the intent will persist if it can.)
- Minimize the biggest threat to safety. The incidence of LNG carrier explosion may seem low, but it would leave a swath of devastation—probably worse than the Halifax Explosion of 1917. (For instance, it might only take only one terrorist throwing a well-suited bomb from the bridge.)
- **Be a model for the world**, with values for the BC economy and the future of life on Earth.

Richmond’s two options: Richmond’s Transportation Department refined two renewal options that embody the tunnel expansion intent, which goes back to the initial engineering consultants’ thorough report, *Fraser River Highway Crossing at Deas Island, 1955*. We commend them. Our third set of input in this series will share suggestions for making the options like those even better.

Input 3. Why use *two 2-lane tubes* to add four lanes?

We have suggested that the Massey Thruway Renewal Project consider **adding a 2-lane tube on each side of the Legacy Tube** *if it the project opts to add four lanes*. This fills out the values of that approach:



1. Having tubes just over half as wide as 4-lane ones would make each segment much smaller, making construction in a shipyard or purpose-built drydock more feasible. (The purpose-built drydock where the Legacy Tube was fabricated is now the BC Ferries cove in the top-left corner of the graphic—not available.)
2. Each of the two 2-lane tubes could have its path for walking, cycling and rolling (and emergency use) on the outer side of the expanded tunnel, with *user movement in the same direction as traffic movement*. That is ideal for path users, who would have their first entry to the path beyond the last vehicle entrance and their last exit before the first vehicle exit. Southbound, for example, the path entry could be beyond (south of) Rice Mill Road, and the path exits could be before (north of) the vehicle exit for Delta's River Road. **This approach says a lot: it treats vehicle-less users as important.**
3. If there is thought of encouraging buses and/or large trucks to use the four added lanes—with their more generous width and height, that can only be done for both directions if there is a new tube on each side of the expanded tunnel.
4. Having two new lanes on each side of the expanded tunnel enables easy continuity with the existing highway lanes leading into/from the tunnel. (Simple is good, and there is no loss to Deas Island Regional Park or the somewhat natural area on the Richmond side.)
5. All these values add to the basic value of improved safety of the Legacy Tube in an earthquake (subject to an expert study confirming that theory). Furthermore, along with the boost to safety, any damage would be more likely to be repairable, saving money and enabling reliable service.

With all those values, a large financial cost might be reasonable, but it might not even occur. After all, when the existing tunnel was built, the meticulously quoted amount for a tunnel with *two 2-lane tubes* seems to have been far lower than its eventual cost as *a single 4-lane tube* with far less included.* For instance, the originally planned ceramic tile (reflective and easily cleaned) and raised walkway beside each pair of lanes were included and would, in effect, have added significant safety benefits.)

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- According to “[British Columbia’s Massey Tunnel was a cutting-edge endeavour](#)” in the *Journal of Commerce* (Sep 7, 2009), the 4-lane tube cost \$29 million. So much more that as listed in the very thorough 1955 report *Fraser River Highway Crossing at Deas Island*, by Crippen Wright Engineering Ltd.) was not included in the eventual George Massey tunnel that it is hard to be precise about the cost difference, but the eventual tunnel seems to have increased the cost by about a third.
 - The Crippen Wright report is available on short-term loan from the Fraser Voices Association.

Input 4. Safety benefits of the renewed tunnel

Naturally, the principal structure in the Massey Thruway Renewal Project is the South Arm crossing structure—either the upgraded and expanded tunnel or the bridge that the previous BC government preferred. One point of agreement: **everyone wants to use it with due confidence it is safe.**

Best for safety: From that safety perspective, we suggest it is optimal to add four lanes (Richmond’s Option 1) as a pair of 2-lane tunnel tubes—a new tube on each side of the Legacy Tube. (That should also be cost-friendly, user-friendly, timeline-friendly, etc., but the focus here is on assurance of safety.)

Basically, there would be four lanes heading in each direction (two in a new tube, two in the Legacy Tube).

As shown, each new tube is about 50 metres from the Legacy Tube, essentially within the Hwy 99 tunnel corridor. On the northwest side, access is between the Canfisco dock/plant to the east and the BC Ferries maintenance dock/facility. On the southeast side, access is via Deas Island Regional Park.

The BC Ferries cove (shown here with one ferry docked) was the low-lying site of the single-use dry dock where the six segments of the tunnel were fabricated in the late 1950s. It was then flooded so they could be floated (sealed at the ends) into position.



Traffic safety: We are impressed with the Richmond concept of an additional outer lane through the tunnel in each direction—between the closest interchanges. At last, it would enable **safe merging/diverging where it is has been unsafe.** For instance, where traffic from Steveston Hwy merges into the tunnel-bound traffic, statistical evidence indicates many crashes there, year after year. As well, anecdotal evidence indicates that the related fear prompts people to avoid driving through the tunnel.

The effect of this approach is roughly a one-third boost in tunnel-exiting capacity, so the earthquake warning system will more certainly get everyone out. As well, perhaps, a lower speed limit could be applied to those user-empathic segments of outer lane, among the ways to tailor the feature for a calmly safe experience.

The simplicity of the tunnel is in contrast to the complexity of the proposed bridge. For instance, the tunnel project would include a simple two-level Steveston Interchange, not the proposed bridge’s famous faux Los Angeles interchange, with its many ways for drivers to err and crash.

Seismic safety: With this design, two tubes out of the three would theoretically sustain no damage at all in the worst earthquake in 475 years and only repairable damage in the worst quake in 2,450 years.

Furthermore, bringing the new tubes into use before doing the external seismic upgrade of the Legacy Tube would make that upgrade safer, especially since the current level of Legacy Tube traffic could be diverted entirely to the new tubes. (The temporary closure of the Legacy Tube would also enable the extensive *internal* renewal work to take place efficiently in the Legacy Tube.)

Along with the obvious benefits for seismic safety stated so far, there is an intriguing possibility that the new tubes could make the Legacy Tube seismically safer than ever thought possible.

This builds on the fact that studies like the [2002 Seismic Retrofits by Rensselaer Polytechnic](#) simulation show that lateral movement of the tunnel, which the external upgrade must address well, is an effect of seismic waves in the *upper 10 metres* of adjacent soil. Remediation* to that depth can be very effective.

The new tunnel tubes, with nearby state-of-the-art remediation, would normally not be damaged by even a fairly high-magnitude earthquake.

With new tubes to dissipate seismic waves and arrest ground movement, **one would expect the Legacy Tube—between them and no more than about 50 metres from them—to be further protected as a result.**

Is there an independent expert who could confirm this?



Extreme-weather safety: The tunnel is well suited to the increasing incidence of extreme weather. Unlike a bridge, the tunnel would not typically be dangerous in storm winds, ice, blizzards, torrential rain or thick fog. It would therefore be one of the most reliable lifeline corridors—for emergency response in calamities when a bridge might sometimes even make the situation worse.

* **Note:** A [2016 report for the previous government](#) included concerning comments that make the remediation seem risky, but the report made suspect use of sources. For example, when it referred to a [2007 seismic densification value engineering study's](#) examination of ways to limit the *risk of cost overruns* in the external seismic upgrade, the 2016 report treated the financial risks as *safety risks*. Also, [provincial records](#) have revealed that the parent company of the report writers, which makes large donations to the BC Liberals, received a \$24,250,000 contract in 2013 to be the "George Massey Bridge Project Owner's Engineer" (the government's *bridge engineer*). That makes them less credible when critiquing the *competing tunnel* option. There are real seismic safety concerns, but the appearance of skewing by consultants with possible conflict of interest means that independent analysis is needed.

Safety from LNG explosions: When the Tilbury LNG plant (with much increased capacity) exports LNG, the carriers will pass through the Massey Crossing. A bridge there might enable a terrorist to drop a bomb on one. That seems as likely as a major earthquake. To add to the following background from the Fraser Voices' [Let the Fraser Live](#), read Kevin Washbrook's thorough [Sailing Into Unknown Waters](#).

The BC Wilderness Committee has created a colour-coded risk map of the area on the basis of a US Coast Guard document that outlines "zones of concern" in the event of an LNG tanker accident:

Zone 1 is where an LNG spill could pose severe public safety and property hazard.	Zone 2 would be "less severe" in a wider hazard zone—up to 1.6 kilometres away.	Zone 3 would spread further into Ladner and Richmond. It is considered the maximum distance a cloud of escaped LNG vapour could drift without dispersing. If ignited, the cloud could burn back to the tanker and result in a "pool fire."
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LNG Hazard Zones—"Zones of Concern"

Zone 1: 500 metres Zone 2: 1.6 kilometres Zone 3: 3.5 kilometres



First responding: In either of the new tubes, responders could reach crashes via a pathway (perhaps primarily provided for cyclists in one and for pedestrians and mobility-aid users such as wheelchair users in the other or perhaps multi-use in each direction). However, since the whole renewed tunnel will take every opportunity to provide and encourage safety, the need for first responders will be significantly reduced in the best possible way.