

NO: R146

COUNCIL DATE: July 12, 2021

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**REGULAR COUNCIL**

**TO: Mayor & Council**

**DATE: July 8, 2021**

**FROM: General Manager, Engineering**

**FILE: 1721-019/11**

**SUBJECT: Award of Contract No. 1721-019-11  
Road Works on Fraser Highway from 96 Avenue to 148 Street as part of Early  
Works for Surrey-Langley SkyTrain**

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**RECOMMENDATIONS**

The Engineering Department recommends that Council:

1. Award Contract No. 1721-019-11 to B&B Contracting (2012) Ltd. in the amount of \$5,384,600.00 (including GST) for Fraser Highway widening from 96 Avenue to 148 Street;
2. Set the expenditure authorization limit for Contract No. 1721-019-11 at \$5,930,000.00 (including GST and contingency); and
3. Authorize the General Manager, Engineering to execute Contract No.1721-019-11.

**BACKGROUND**

On September 14, 2020, Council approved Corporate Report No. R140; 2020 (attached as Appendix "I") including an optimized four-lane Fraser Highway widening design between 140 Street and 148 Street through Green Timbers. The design establishes two lanes of travel in each direction in one of the most congested corridors in the City and an unfinished central median as Early Works to allow for the establishment of the future Surrey-Langley Skytrain ("SLS") guideway installation.

Between 96 Avenue and 148 Street, the four-lane widening will include associated works such as enhancements to the existing culverts across Fraser Highway to improve fish and/or wildlife passage and construction for these instream works will be completed in August and September to align with lower traffic volumes and the Provincial and Federal restrictions for instream works and bird nesting.

**SCOPE OF WORK**

The construction package related to this contract consists of Fraser Highway widening to four lanes with cycling facilities ahead of, and in conjunction with, the future SLS project. Works consist of road widening, extruded concrete curbs, multi-use paths, street lighting, traffic signals, wildlife culvert, fish passage improvements and in-stream works at the locations listed in the following table, which are also illustrated on the map attached to this report as Appendix "II":

Map Reference Number	Project #	Project Description	Location
1	R-10535	Roadworks	Fraser Highway: 96 Avenue to 148 Street
2	R-19121	Culvert Extension	Fraser Highway at Enver Creek
3	R-19037	Culvert Replacement	Fraser Highway at King Creek
4	R-19035	Culvert Replacement	Fraser Highway: unnamed creek west of 148 Street

The Contract permits construction from 7:00 a.m. to 10:00 p.m., Monday through Friday, in compliance with the *Surrey Noise Control Bylaw, 1982, No. 7044*. In order to safely complete tree removals and installation of fish and wildlife culverts, a full road closure will be required during August and September. The Contract includes an option for contractors to work 24-hours a day, seven days a week during the full road closure from mid-July to October 1, 2021.

Tree Impact

Based on the detailed design, the proposed road and fish and wildlife culverts will require removal of approximately 160 Bylaw size trees (all within road allowance), with 46 being Alder and Cottonwood trees as summarized in the following table. Of the 160 trees, approximately 55 require removal for the expanded road travel lanes while 105 require removal to accommodate the future SLS guideway. No trees are being removed from the Green Timbers Urban Forest.

To offset the trees removed, the City will plant all trees at a 2:1 ratio within the project area which exceeds the *Surrey Tree Protection By-law, 2006 No. 16100*.

Tree Species	Total Removed
<b>Deciduous Trees</b>	
Big-Leaf Maple	3
Birch spp.	50
Bitter Cherry	1
Black Cottonwood	4
Cascara	2
Cherry spp.	2
Norway Maple	1
Poplar spp.	2
Red Alder	42
Scouler's Willow	1
<b>Coniferous Trees</b>	
Douglas-Fir	1
Lawson Cypress	4
Scots Pine	1
Sitka Spruce	2
Western Hemlock	8
<b>Total</b>	160
<b>Total (excl. Alder/Cottonwood)</b>	114
<b>Total Replacement Trees</b>	320

The Contract work is expected to start in August 2021 and be completed by May 2022.

Further tender packages for the remaining sections of Fraser Highway between 138 Street and 96 Avenue are anticipated in late 2021 for construction in 2022. All works will be contained within the road allowance.

## TENDER RESULTS

Tender invitations were extended to contractors who were prequalified under the City's Request for Expression of Interest prequalification process. Tenders for the subject contract were opened on July 6, 2021 with the following results:

<i>Contractor</i>	<i>Tendered Amount with GST</i>	<i>Corrected Amount</i>
1. B&B Contracting (2012) Ltd.	\$5,384,600.00	No Change
2. Lafarge Canada Inc.	\$6,490,808.10	No Change
3. Tybo Contracting Ltd.	\$6,977,250.00	No Change
4. Mainland Infrastructure Canada Inc.	\$6,892,383.11	\$7,064,752.08
5. BA Blacktop Ltd.	\$7,123,694.51	No Change
6. Jacob Bros Construction Inc.	\$7,371,630.00	No Change

The Engineer's (Aplin and Martin Consultants Ltd.) pre-tender estimate was \$6.5 million, including GST.

## EVALUATION

The City's consultant reviewed the tender submissions for accuracy and completeness. There was one arithmetic error that had no bearing on the outcome of the tender process. All submissions included the required 10% bid bond, and were signed and sealed on the Tender Form.

The low bidder, B&B Contracting (2012) Ltd., has provided a Consent of Surety for a Performance Bond and a Labour & Materials Bond, and agreed to complete the work within 170 working days, as stipulated in the contract. B&B Contracting (2012) Ltd.'s past performance on similar work has been satisfactory. They have no outstanding legal claims against the City. It is recommended that B&B Contracting (2012) Ltd. be awarded Contract No. 1721-019-11.

## SUSTAINABILITY CONSIDERATIONS

The work of this contract supports the objectives of the City's Sustainability Charter 2.0. In particular, this work relates to the Sustainability Charter 2.0 themes of Infrastructure, and Built Environment and Neighbourhoods. Specifically, this Contract supports the following Desired Outcomes ("DO"):

- All Infrastructure DO1: City facilities and infrastructure systems are well managed, adaptable and long lasting, and are effectively integrated into regional systems;
- Transportation DO14: Goods movement throughout the city is efficient, and minimizes environmental and community impacts; and
- Neighbourhoods and Urban Design DO2: Surrey is well-connected within the city and to the rest of the region by fast and efficient public transit and active all-ages-and-abilities transportation infrastructure.

## FUNDING

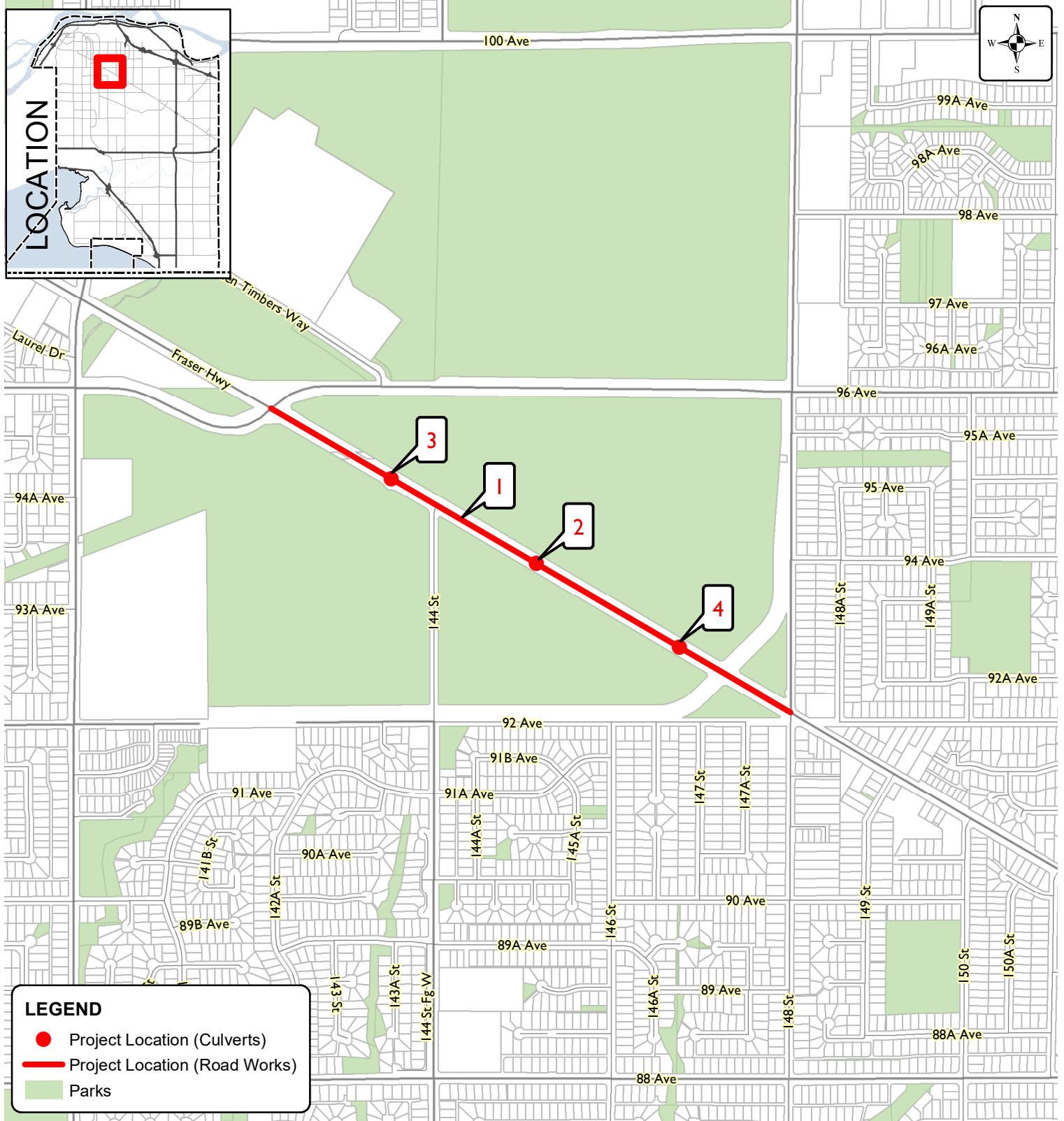
Funding for this Contract is available in the approved 2021 Transportation Budget.

Scott Neuman, P.Eng.  
General Manager, Engineering

Appendix "I" – Map of Locations – Contract No. 1721-019-11

Appendix "II" – Corporate Report No. R140; 2020

<https://surreybc.sharepoint.com/sites/ENG.Administration/WP Docs/2021/Admin/CR/Award of Contract No. 1721-19-11 Fraser Highway Widening 96 Avenue to 148 Street/VL2 Award of Contract 1721-019-11 Fraser Highway Widening 96 Avenue to 148 Street.docx>



## CONTRACT No. 1721-019-11 Fraser Highway Road Widening from 96 Avenue to 148 Street

ENGINEERING  
DEPARTMENT

**CORPORATE REPORT**

NO: R140

COUNCIL DATE: Sept. 14, 2020

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**REGULAR COUNCIL**

TO: Mayor & Council

DATE: September 10, 2020

FROM: General Manager, Engineering

FILE: 8740-40

SUBJECT: Surrey-Langley SkyTrain Design through Green Timbers

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**RECOMMENDATION**

The Engineering Department recommends that:

1. Council receive this report for information;
2. Approve an optimized four-lane Fraser Highway widening design between 140 Street and 148 Street through Green Timbers, as illustrated/documentated in the attached Appendix "I";
3. Authorize staff to work with TransLink to integrate the optimized four-lane design into the Surrey-Langley SkyTrain Project scope;
4. Authorize staff to work with TransLink to develop the necessary Funding Agreement(s) for including the City Enhancement scopes of work into the Surrey-Langley SkyTrain Project; and
5. Authorize staff to forward the resolution related to this Corporate Report to TransLink.

**INTENT**

The purpose of this report is to provide an update on the Surrey-Langley SkyTrain ("SLS") optimized design through Green Timbers Urban Forest ("GTUF") and authorization to work with TransLink to integrate the optimized four-lane widening design with the SLS project ahead of finalizing the reference design by late 2020.

**BACKGROUND**

In 1999, Fraser Highway was added to the region's Major Road Network ("MRN") following it being downloaded from the Province to the City, which supports the safe and efficient movement of people and goods across the region. The City and TransLink have joint responsibility in planning the MRN, and while the road remains within the City's jurisdiction, TransLink provides funding for operation and maintenance activities along MRN roads.

In the early to mid-2000's, the City, with funding support from TransLink, invested in excess of \$80 million to complete four-lane widening of Fraser Highway from east of the GTUF to Langley. At the same time, the City completed various studies and functional designs for the GTUF section. This included numerous meetings with the GTUF Advisory Committee (the "Advisory Committee"). While a final cross-section was not determined, the Advisory Committee at that time affirmed their position of agreeing to four-laning, subject to a number of conditions and that it include allowance for rapid transit.

Between 2012 and 2015, TransLink completed a Rapid Transit Alternative Analysis, establishing Light Rail Transit ("LRT") as the technology choice at that time for Fraser Highway. Through this process, a four-lane plus LRT road design was developed that concluded with a proposed 40m wide cross-section that utilized the entire road allowance; however, no further work proceeded as the focus of LRT was King George Boulevard and 104 Avenue.

Since the early planning studies were completed, the City's population has grown from 400,000 to 540,000 residents. Fraser Highway has become the busiest two-lane road in the City, with over 28,000 cars per day.

In December 2019, TransLink developed a Reference Concept Design and Business Case for the project and confirmed that a SkyTrain extension to Langley can be built for a budget of \$3.1 billion, with very favourable ridership forecasts and a benefit-cost-ratio.

On January 30, 2020, TransLink's SLS Project Business Case Summary was approved by the Mayors' Council and was submitted to both the Provincial and Federal Governments for their respective approvals and confirmation of their funding commitments for Stage 1 to 166 Street in Fleetwood.

## **DISCUSSION**

### **Surrey-Langley SkyTrain Reference Design**

TransLink's current reference design includes 16 kilometres of two-way, elevated guideway between King George Station to Langley Centre. Between 140 Street and 148 Street (the GTUF segment), the guideway is generally centre-median running, transitioning to south side running.

TransLink's current design includes SkyTrain plus two existing travel lanes through GTUF. City staff are proposing to integrate City Enhancement works (utility and roadworks from the City's 10-Year Servicing Plan) into the SLS Project ahead of a potential procurement in early 2021. This approach will enable all infrastructure to be delivered simultaneously in a coordinated effort to reduce capital costs and impact on residents, business, environmental areas and traffic. One of the proposed coordinated road works is completing the four-lane widening of Fraser Highway from Whalley Boulevard to 148 Street.

The City has worked with TransLink to optimize a four-lane design, as explained below, to eliminate impacts to the park and minimize impact to trees in the road allowance in the GTUF segment of Fraser Highway. This optimized design considers concerns raised during stakeholder engagement and aims to reduce the road footprint and protect high-value trees along the north side of Fraser Highway. The design is entirely located within the road allowance and does not impact GTUF property.

## Optimized Four-Lane Design Through Green Timbers

As part of the SLS project, TransLink and City staff have worked collaboratively to develop an optimized road cross-section so that there is no impact on the GTUF property while providing the necessary multi-modal transportation needs to reduce the road footprint. Work focused on making data driven, evidence-based design decisions, and as part the process, staff completed:

1. A tree survey of all trees greater than 300mm diameter at breast height above ground (“Bylaw Trees”), the findings of which identified the north side of Fraser Highway as having more trees which are of “higher value”.
2. A confirmation of 2019 traffic counts and patterns, which confirmed Fraser Highway carries 28,000 vehicles per day through GTUF, with significant traffic movements between 96 Avenue and 144 Street, as illustrated in Appendix “II”.
3. Transportation modelling (2025, 2035 and 2045) which confirmed that, even with SkyTrain, the need for four lanes is required by 2025 due to current volumes, growth and future density along Fraser Highway. There are not other feasible corridors that can accommodate this volume. Four-laning will provide a capacity, which meets the City’s long-term horizon.

Utilizing data driven decisions, staff developed 28 cross-sections and used a multiple point allocation method to determine an optimized four-lane road plus SkyTrain design that minimizes impact. This approach considered: traffic volumes; pedestrian and cyclist volumes; transit needs; environmental impact; tree impact; and capital costs.

Results from the multiple point allocation converged an optimized four-lane plus SkyTrain cross-section with a width varying from 22.5m (mid-block) to 27.5m, subject to intersection widening for left-turn lanes including provisions for safer, grade-separated pedestrian and cycling. This cross-section is significantly less than the 40m width originally proposed by LRT. The optimized cross-section is shifted along the south side of the road between 96 Avenue and the 14600 Block, protecting the large number of high-value trees along the north side. Appendix “I” attached to this report illustrates the optimized SkyTrain design that incorporates the optimized four-lane cross-section at three locations:

1. 140 Street to 96 Avenue (14200 Block);
2. 96 Avenue intersection; and
3. 144 Street to 148 Street (14600 Block)

The optimized 22.5m four-lane design only slightly impacts additional Bylaw Trees, relative to TransLink’ base two-lane design, requiring tree removal to accommodate SkyTrain. All of these trees are within the existing road allowance, and there are **no trees within GTUF being impacted by the optimized design**. Furthermore, staff’s optimized design is a significant improvement from the original 40m wide, four-lane LRT design, as it prevents approximately 300-350 Bylaw Trees from being removed within the road allowance.

As part of the transportation modelling, staff have validated that the proposal to widen Fraser Highway from two lanes to four lanes will alleviate significant congestion for over 28,000 vehicles per day. Modelling and analysis have quantified that this congestion and anti-idling reduction equates to an annual reduction of 106 tonnes of greenhouse gases (“GHG’s”), which further aligns with the City’s climate action initiatives. Based on research from Cornell University, the reduction of 106 tonnes of GHG’s equates to the impact of adding 8 acres of mature forest.



## **Consultation with Green Timbers Heritage Society and Stakeholders**

As referenced earlier, stakeholders have been engaged throughout this project by TransLink and the City. In December 2019, staff engaged the Green Timbers Heritage Society (the “Society”) to provide a project update and particularly to seek their input and discuss work on the optimized four-lane cross-sections developed to minimize forest impacts. As a response, the Society has offered their response to the City’s optimized four lane design, as provided in Appendix “III”.

The Society and other stakeholders understand the broader view of the SkyTrain project and the needs of a rapidly growing community to improve transportation. The Society acknowledges the City’s efforts to optimize and narrow the road widening, and to incorporate the works within the SLS, so as to not disturb the forest on multiple occasions. The Society and other stakeholders have expressed further opportunities for enhancing the SLS project such that it incorporates the heritage of the forest, wildlife crossings and noise and light mitigation measures; staff and TransLink will continue to work with the Society in exploring these opportunities.

### **Next Steps**

Staff are seeking to integrate the optimized design into the TransLink SLS Project and negotiate the terms and conditions of a Funding Agreement with TransLink on City-driven project enhancements, in particular the four-lane widening, with realised financial savings to the City. Based on initial discussions, staff and TransLink anticipate the incremental cost to complete the four lanes between 140 Street and 148 Street is \$5.5 to \$6.0 million.

In light of current challenges due to the COVID-19 pandemic, TransLink is commencing online SkyTrain Phase 3 Public Engagement September 18, 2020, at which time the updated project design, including the widening through Green Timbers, will be presented to the public.

## **SUSTAINABILITY CONSIDERATIONS**

The approval of an optimized four-lane design through Green Timbers supports the objectives of the City’s Sustainability Charter 2.0. In particular, this project relates to the Sustainability Charter 2.0 themes of Built Environment and Neighbourhoods, and Infrastructure. Specifically, the road widening supports the following Desired Outcomes (“DO”):

- Neighbourhoods and Urban Design DO2: Surrey is well-connected within the City and to the rest of the region by fast and efficient public transit and active all-ages-and-abilities transportation infrastructure; and
- Transportation DO11: An integrated and multi-modal transportation network offers affordable, convenient, accessible and safe transportation choices within the community and to regional destinations.

## CONCLUSION

The SLS Project has reached a major milestone with the Mayors' Council approving the Business Case on January 30, 2020. Staff have worked with TransLink to optimize the project design, including the ability to complete SkyTrain plus four-lane widening using an approximate 27.5m optimized cross-section through GTUF entirely within the road allowance, with no impact to GTUF and only an incremental increase in tree loss compared to TransLink's original two-lane design.



Scott Neuman, P.Eng.  
General Manager, Engineering

SBN/MD/cc

Appendix "I" - Green Timbers Cross-Sections

Appendix "II" - 2019 Traffic Counts on Fraser Highway

Appendix "III" - Green Timbers Heritage Society Response to Project Update

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**Note: Appendices available upon request**