

NO: R057

COUNCIL DATE: MARCH 8, 2021

REGULAR COUNCIL

TO: **Mayor & Council**

DATE: **March 4, 2021**

FROM: **General Manager, Engineering**

FILE: **1721-011/01**

SUBJECT: **Award of Preliminary Design: 84 Avenue, King George Boulevard to 140 Street**

RECOMMENDATION

The Engineering Department recommends that Council:

1. Award Consultant Design Agreement No. 1721-011 D1 for the field investigations, preliminary design and public engagement of 84 Avenue between King George Boulevard and 140 Street to Aplin and Martin Consultants Ltd. at an estimated fee limit of \$409,838.10 (including GST);
2. Set the expenditure authorization limit for Consultant Design Agreement No. 1721-011 D1 at \$451,000.00 (including contingency and GST);
3. Authorize the General Manager, Engineering to execute Consultant Design Agreement No. 1721-011 D1; and
4. Authorize the inclusion in the Consultant Design Agreement an option in favour of the City to retain Aplin and Martin Consultants Ltd. to provide engineering services for detailed design and tendering services of the 84 Avenue between King George Boulevard and 140 Street at an estimated fee limit of \$154,000.00 (including contingencies and GST).

INTENT

The intent of this report is to obtain approval to award engineering services for the field investigation, preliminary design and public engagement of 84 Avenue between King George Boulevard and 140 Street, on the south side of the Bear Creek Park Reservation Area, as illustrated on the map attached to this report as Appendix "I".

BACKGROUND

The City has limited east-west arterial roads, particularly in the central portion of the City where there are only two continuous arterial roads, 64 Avenue and 88 Avenue, connecting Newton to Fleetwood and Cloverdale. This represents a crucial gap in the City's transportation network of 3.2km spacing. As illustrated on Appendix "I", other east-west arterial roads, such as 72 Avenue, terminate at the Agricultural Land Reserve boundary or remain unconstructed due to alignments crossing significant environmentally sensitive areas, such as 80 Avenue between 140 Street and 152 Street.

This project is seeking to complete the missing segment between King George Boulevard and 140 Street. The missing segment between 124 Street and 128 Street will be completed through a separate short-term (2021-2023) project.

84 Avenue has been identified as an arterial road on the City's Road Classification Map since 1989. It represents a critical east-west corridor alternative, with the least environmental and property impacts as there are only two segments unconstructed between 120 Street and Fraser Highway. Completion of these two missing road segments, as illustrated on Appendix "I", would provide a significant multi-modal transportation corridor and connectivity for the communities of Newton and Fleetwood.

In 2000, 2007 and 2009, the City considered completing the missing segment of 84 Avenue between King George Boulevard and 140 Street bordering the south side of the Bear Creek Park Reservation Area. This was primarily in response to traffic safety concerns, emergency response reliability, high traffic volumes on 88 Avenue, and delays caused by the lack of connectivity between Fleetwood and Newton.

Since 2009, the City has grown by over 100,000 residents and severity of traffic collisions and congestion is becoming increasingly worse in the area of 88 Avenue and King George Boulevard, further necessitating the need for completing the remaining two segments of 84 Avenue.

Improving Road Safety

The intersection at 88 Avenue and King George Boulevard is the worst rated intersection in Surrey with respect to number and severity of vehicular collisions, and it is rated the third highest intersection collision site in British Columbia.

Over-capacity of 88 Avenue and King George Boulevard is one of the contributing factors related to the number of collisions that are occurring at this intersection. Completion of the 84 Avenue segment between King George Boulevard and 140 Street is expected to help improve traffic safety at the intersection of 88 Avenue and King George Boulevard.

Previous Technical Analysis and Alternatives Explored

Between 2005 to 2009, various options have been explored to improve road safety, traffic congestion and connectivity between Fleetwood and Newton. The five options that were previously evaluated are summarized in the table below:

Description	Estimated Cost (2021)	Property Impact	Bear Creek Park Reservation Area Impact	Enviro. Impact
Six-laning 88 Avenue from Scott Road to Fraser Highway	\$50 million	High	High	Low
Grade separated interchange at 88 Avenue and King George Boulevard	\$30 million	High	High	Medium
Multi-lane roundabout at 88 Avenue and King George Boulevard	\$25 million	Medium	High	Medium / Low
80 Avenue corridor: King George Boulevard to 152 Street	\$50 million	High	Nil	High
84 Avenue corridor: King George Boulevard to 140 Street	\$13 million	Nil	Nil	Medium

Analysis of past evaluations can indicate that comparable alternatives have significant impacts on private properties, the Bear Creek Park Reservation Area and/or the environment. This ultimately led to the conclusion of 84 Avenue being the preferred alternative.

Previous Public Engagement

Past public engagement efforts regarding connection of 84 Avenue between King George Boulevard and 140 Street undertaken are summarized in the table below:

Year	Community Survey		Public Open House	
	<i>Response</i>	<i>Support</i>	<i>Attendees</i>	<i>Opposition</i>
2000	406	67%	185	90%
2007/2009	600	80%	242	88%

Past community surveys have shown broader community support for 84 Avenue. These surveys were conducted by independent consultants and were considered statistically accurate; however, both times there was significant opposition from local residents. This was due to concerns regarding increased traffic on 84 Avenue and concerns about potential impacts to Bear Creek Park.

In Fall 2020, as part of the City's Surrey Transportation Plan Phase 2 Engagement, a survey was completed by 3,567 respondents. Results from the 2020 survey showed:

1. 90% of residents value road safety as Important-Very Important (#1 Priority);
2. 88% of residents value predictable and direct transportation as Important-Very Important (#2 Priority); and
3. 85% of residents value more transportation options (walking, cycling, transit, etc.) as Important-Very Important (#3 Priority).

Previous Environmental Studies

As part of the previous projects, the City conducted the required environmental investigations for the 84 Avenue alignment related to trees, Bear Creek, King Creek, existing habitat conditions, and wildlife in the area and has a good understanding of the potential issues and requirements to minimize impacts. The following photograph generally illustrates the proposed location of 84 Avenue, looking west.



Bear Creek Park is part of the City's Biodiversity Conservation Strategy Green Infrastructure Network, and this section is considered an important hub, with a wildlife corridor rating as high ecological value with a low risk to development. The functionality of the wildlife corridors across 84 Avenue can be maintained through the installation of bridges and/or wildlife culverts at Bear Creek and King Creek.

Previously, a 2007 study only identified the Great Blue Heron within this area and noted that any other species at risk, if any, would likely be transitory. Other environmental issues that have been identified, including floodplain waterways, trees, land fill contamination, active fish spawning creeks and wildlife corridors. However, as most of the area for the 84 Avenue corridor is mostly under the BC Hydro transmission lines, the fisheries habitat value is less due to the limitations in vegetation underneath the high voltage lines.

Bear Creek Park Reservation Area

Bear Creek Park Reservation Area is bounded by King George Boulevard, 88 Avenue, 140 Street and the unopened 84 Avenue road allowance to the south, as illustrated on Appendix "I". Bear Creek Park is one of the City's key destination parks and attracts residents from all around Surrey and Metro Vancouver to the Surrey Arts Centre, outdoor pools, waterparks, trails, formal gardens, athletics facilities, the Bear Creek Miniature Train, and the annual Bear Creek Park Light Festival.

When Bear Creek Park was created, a Park Protection Bylaw was established to ensure the long-term reservation of the lands for park purposes, with ancillary uses permitted for municipal utilities, trails, pathways, etc. The Bear Creek Park Reservation Area is bound to the area north of the 84 Avenue road allowance and does not extend south, as indicated on the map attached as Appendix "I".

The majority of lands south of 84 Avenue, while often commonly referred to as Bear Creek Park, were acquired after the Park Reservation Area was confirmed. These lands were not part of the original Bear Creek Park and are intended as passive park lands for the protection of the Bear Creek and King Creek riparian areas. The lands are currently encumbered with a BC Hydro utility right-of-way.

DISCUSSION

At the February 22, 2021 Regular Council Meeting, Council approved Corporate Report No. R041; 2021 regarding the 10-Year (2021-2030) Service Plan and 2021 Development Cost Charge Bylaw. During the meeting, Council supported a motion to move project R-7065 - 84 Avenue: King George Boulevard to 140 Street project from Long Term (6-10 Years) to Short Term (1-5 Years) and to investigate moving forward with preliminary designs and public engagement in order to align with the timing of the other planned improvements along the 84 Avenue Corridor.

Planned Improvements on 84 Avenue Corridor

Over the next five years there are a number of transportation improvements planned along the 84 Avenue corridor between 120 Street and 160 Street.

These improvements will provide an improved, and alternate, multi-modal east-west corridor between Newton and Fleetwood. The improvements will include road safety measures, access and circulation in the neighbourhoods, separated cycling facilities, sidewalks and street lighting.

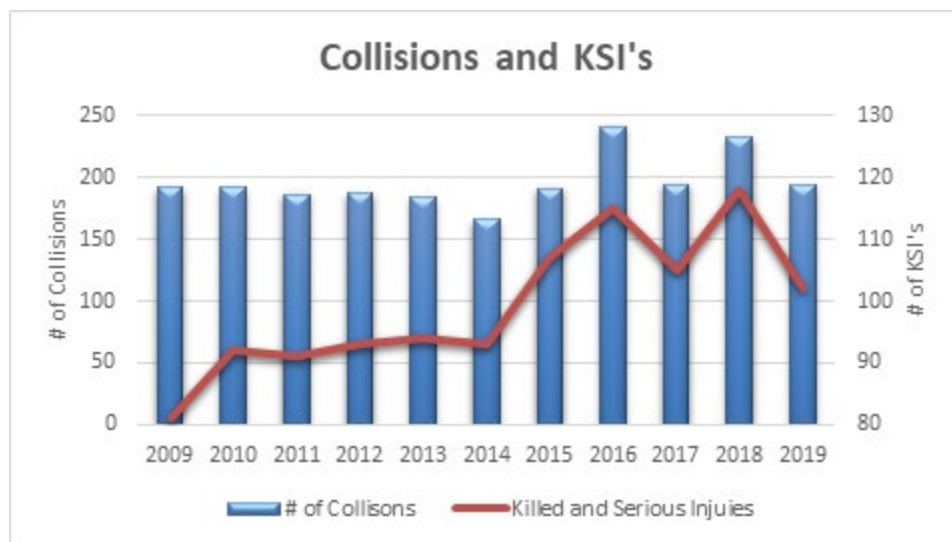
The broader 84 Avenue corridor improvements will also integrate with existing higher order transit service with the R1 RapidBus along King George Boulevard, the upcoming R6 RapidBus on Scott Road and Surrey-Langley Skytrain along Fraser Highway.

84 Avenue Corridor: King George Boulevard to 140 Street

The project rationale for 84 Avenue remains consistent with the need to improve road safety and increase neighbourhood connectivity and transportation options. In addition, an opportunity is presented to align with planned enhancements at Bear Creek Park and align with some of the Surrey Transportation Plan's engagement outcomes for providing more direct, convenient, safe, and reliable transportation options.

Complimenting Road Safety Improvements

With the City's Vision Zero Safety Mobility Plan, which prioritizes road safety throughout the City, staff have undertaken a data-driven approach by looking at the number of people killed and seriously injured ("KSI") in traffic collisions at the 88 Avenue and King George Boulevard intersection, which is illustrated below.



Between 2009 and 2019, there has been 2,158 collisions, with an average of 216 collisions a year at a rate of more than one every two days. A total of 1,091 of these collisions have resulted in people being killed or seriously injured. This equates to an average rate of one collision every two days and one KSI every four days.

Based on the analysis there has been a 20% increase in the rate of people killed or seriously injured, per collision, over the past 10 years.

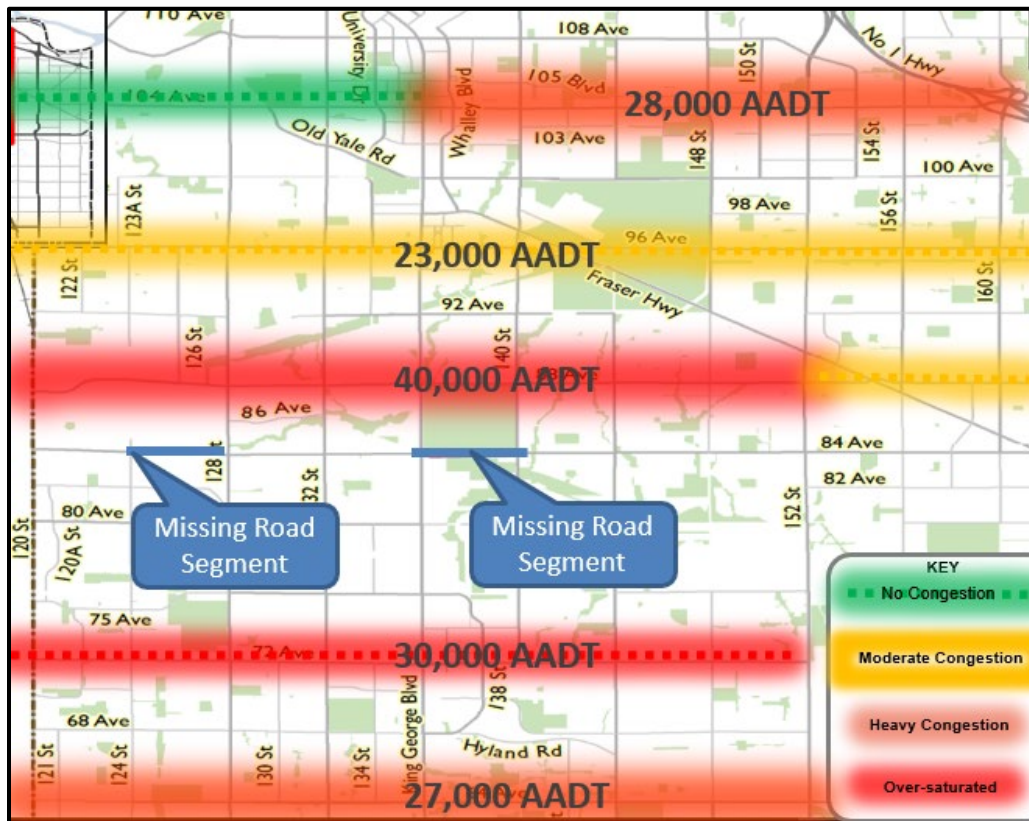
High traffic volumes and turning movement volumes are key contributing factors related to the number of collisions that are occurring at this intersection. Due to these high traffic volumes and turning movements, implementing targeted safety improvements (e.g., fully protected left turns) at 88 Avenue and King George Boulevard is challenging as it is predicted to result in consequential traffic congestion and left-turn vehicle queuing in thru-traffic lanes, which poses a higher probability of increased rear-end collisions.

The 84 Avenue connection is expected to reduce traffic volumes and turning movements at 88 Avenue and King George Boulevard, which would then enable the City to work with ICBC on implementing road safety improvements at the intersection to further reduce the number of KSIs.

Increasing Network Connectivity and Access

Transportation network redundancy provides routes choices, options and connectivity that ultimately result in a more balanced distribution of trips in the network. Completion of 84 Avenue between King George Boulevard and 140 Street has been identified as having significant value as it would provide an alternative connection for residents in Fleetwood and Newton.

This lack of connectivity between these communities has many impacts. 88 Avenue is currently the only continuous east-west route across the City between the 64 Avenue and 96 Avenue road corridors. It is Surrey's busiest east-west corridor, with a volume of 40,000 vehicles a day (referred to as "AADT"), as illustrated in the following graphic. Because of the lack of connectivity between Fleetwood and Newton traffic is forced to use the regional corridor due to the lack of a reasonable alternative.



Furthermore, there is a strong desire from residents for more walking, cycling and access to transit routes in the City. Currently, there is a lack of cycling connections between Newton and Fleetwood with over a 5.6 km gap in continuous east-west cycling corridor between 92 Avenue and 64 Avenue, as illustrated in Appendix "II". Combined with other planned improvements on 84 Avenue, the connection between King George Boulevard and 140 Street will provide a more direct route with safe separated walking and cycling facilities between residential and business areas between Newton and Fleetwood. These safe, separated walking and cycling improvements will ultimately connect to planned improvements on 84 Avenue from 120 Street to 128 Street and 152 Street to Fraser Highway, enabling a multi-modal east-west corridor.

The broader 84 Avenue corridor improvements will also integrate with existing higher order transit service with the R1 RapidBus along King George Boulevard, the upcoming R6 RapidBus on Scott Road and Surrey-Langley Skytrain along Fraser Highway. Over a longer-range horizon, a continuous 84 Avenue would then provide potential for TransLink to reassess bus routes and increase transit service on 84 Avenue to connect to these Rapid Transit corridors.

Aligning with Planned Enhancements in Bear Creek Park

The completion of 84 Avenue between King George Boulevard and 140 Street aligns with the improvements planned for Bear Creek Park Athletics Centre that will upgrade the running track, field events areas, sportsfield and stadium facilities in the park. The Athletics Centre project will expand seating capacity from 800 existing to 2,200 seats, improve changeroom facilities for athletes and officials, improve washroom and concession facilities for the public, and provide world class track and field facilities capable of hosting international level events. During the COVID-19 pandemic, and generally as the City continues to grow, there has been a significant increase in demand for more and better access to parks, including more trails and paths for walking and cycling. Through the completion of the 84 Avenue connection, an increase in connectivity will be provided to Bear Creek Park through trail and path connections and improved parking availability.

Potential Improvements over Previous Projects

Based on previous engagement efforts and studies completed, staff will investigate options to undertake project designs that make a substantial improvement over previous projects. Specifically, the design will commit to undertake the following approach:

- Road will not go through the Bear Creek Park Reservation Area.
- Utilize the existing 84 Avenue road allowance.
 - Maximizing existing 84 Avenue road corridor allowance and existing right-of-way.
 - Utilizing existing areas that have been paved.
- Remain under the BC Hydro Corridor.
 - Targeting remaining 60% underneath the BC Hydro right-of-way.
- Provide one travel lane in each direction.
 - Road is a community connection, designed for one travel lane in each direction.
- Improve access to Bear Creek Park.
 - Providing additional parking, cycling and pedestrian facilities.
- Minimize environmental impacts.
 - Minimize impact on tree loss (expected to be minimal) and replant at 3:1 ratio.
 - Avoid the historical Bear Creek landfill that was decommissioned in the 1970's.
 - Achieve no net loss of aquatic habitat by providing compensation as required.
 - Clear-span bridge over Bear Creek, and large wildlife culvert over King Creek.
- Provide a safe road design.
 - Including an external road safety audit.

The proposed road alignment is illustrated in Appendix "III".

Public Engagement

Staff will undertake a public engagement effort to allow for both local and broader community interests to be consulted and considered as part of the design of 84 Avenue. In-person and online group meetings will be organized including residents and businesses that are more directly being impacted by the project. As well, stakeholders such as Surrey Environmental Partners, HUB Cycling, and ICBC will be consulted along with the broader community and users of the road network. Staff will seek input and engage the community by using online and in-person surveys, City project webpage with links to public engagement materials, social media campaign, local mail-outs, and media promotions.

Staff will seek feedback on road design, multi-modal options, improvements for park access and parking, and environmental enhancement opportunities.

Furthermore, staff will be able to establish more accurately the actual environmental impacts and mitigation options. As well, all regulatory environmental impacts will be fully mitigated to the satisfaction of the related regulatory agencies.

Scope of Work for Preliminary Design Contract

Work within the Design Contract will involve engineering services for the design of the 84 Avenue corridor between King George Boulevard and 140 Street. Specifically, the Design Contract will include services for the following:

- Preliminary design development for 84 Avenue between King George Boulevard and 140 Street, including associated park improvements;
- Design options and engagement materials to support the public engagement; and
- Comprehensive field investigations such as environmental and geotechnical investigations.

At this time, a Design Contract will be awarded for the preliminary design, design options development, and field investigation services only, with the option to award detail design and construction services upon successful completion of the preliminary design and outcomes of the public engagement efforts.

The City invited three pre-qualified engineering consultants to respond to a Request for Proposals:

- Aplin and Martin Consultants Ltd.
- R.F. Binnie & Associated Ltd.; and
- SNC-Lavalin Inc.

The proposals were evaluated using the following criteria:

- Understanding of assignment;
- Experience relative to assignment;
- Strength of project manager and project team;
- Work plan and schedule; and
- Financial considerations.

All three submissions were carefully reviewed for accuracy and completeness by a panel of three staff members, following a structured and standard evaluation process.

Aplin and Martin Consultants Ltd.'s proposal demonstrated a thorough understanding of the scope of work and a strong proposed work plan. Furthermore, Aplin and Martin Consultants Ltd. have put forth a diverse team with specialized sub-consultants for the environmental, geotechnical and hydrogeological aspects, all of whom have considerable experience related to similar work. Their design fee is also the most competitive and is considered reasonable for this type of engineering assignment. Staff therefore recommend that this assignment be awarded to Aplin and Martin Consultants Ltd.

SUSTAINABILITY CONSIDERATIONS

The work of this Design Contract supports the objectives of the City's Sustainability Charter 2.0. In particular, this project supports the Sustainability Charter 2.0 themes of Built Environment and Neighbourhoods, and Infrastructure. Specifically, this project 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.

FUNDING

Funding for this Consultant Design Agreement No. 1721-011 D1 is approved in the 2021 Transportation Budget.

CONCLUSION

There is an increasing severity rate of collisions at 88 Avenue and King George Boulevard and an increasing need for an east-west multi-modal corridor with improved transportation connectivity and options for the City's communities. Proceeding with developing an updated design of 84 Avenue between King George Boulevard and 140 Street that minimizes impacts on Bear Creek Park and subsequent public engagement will allow staff to determine the next steps for the 84 Avenue corridor.

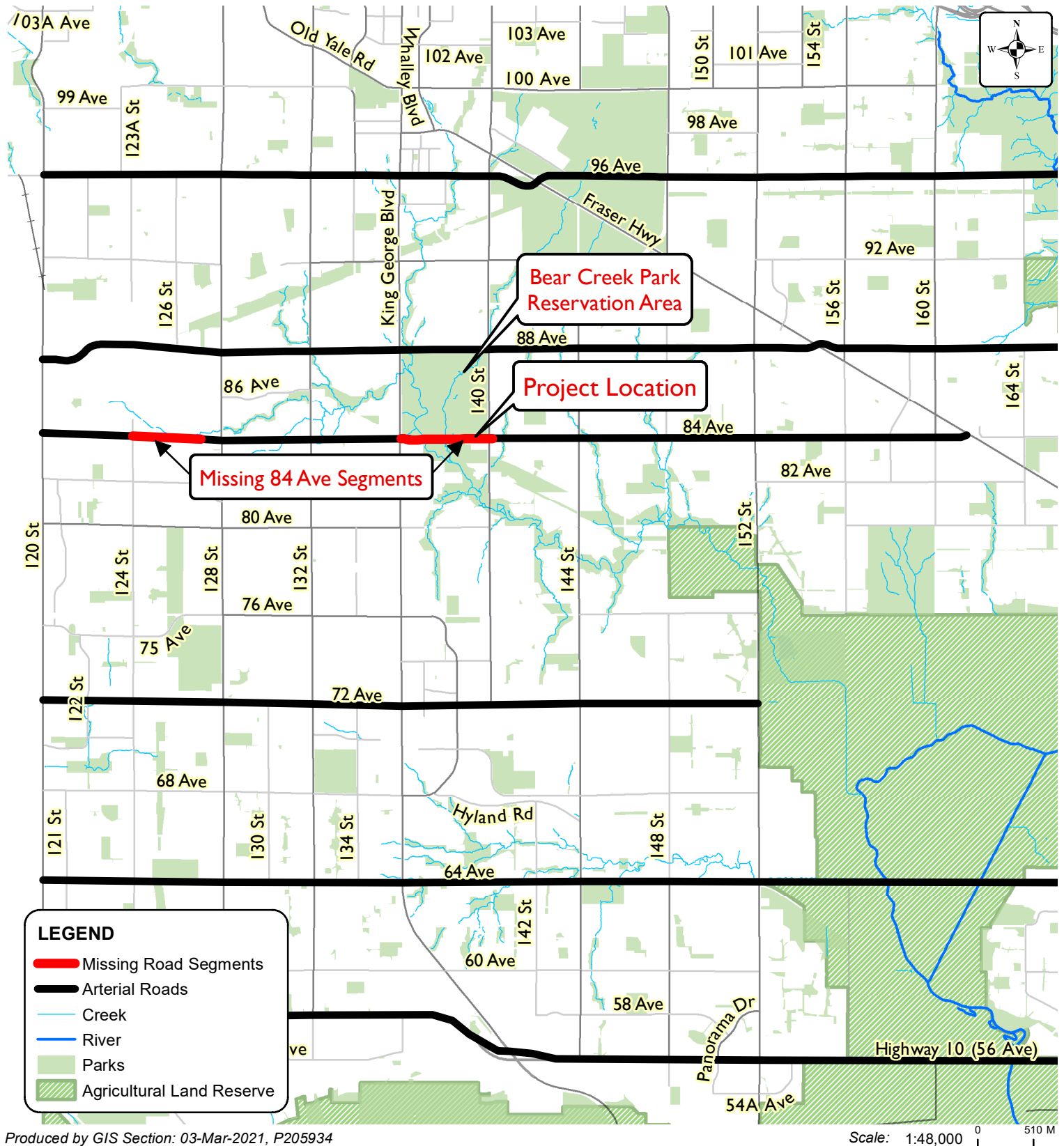


Scott Neuman, P.Eng.
General Manager, Engineering

SN/JC/VJ/cc

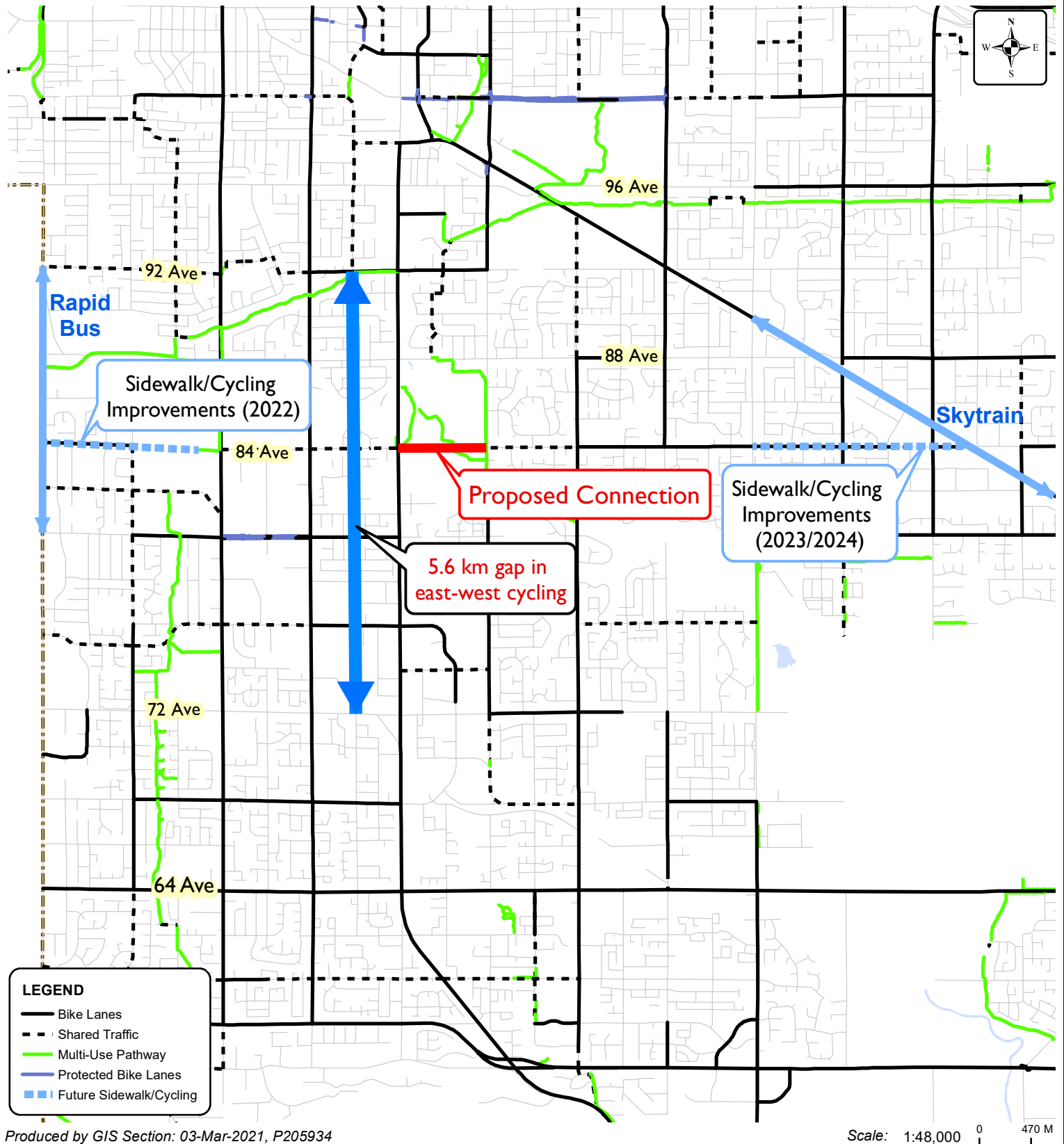
Appendix "I" – Road Network and Project Location
Appendix "II" – East-West Walking and Cycling Gap
Appendix "III" – 84 Avenue Corridor Alignment

APPENDIX "I"



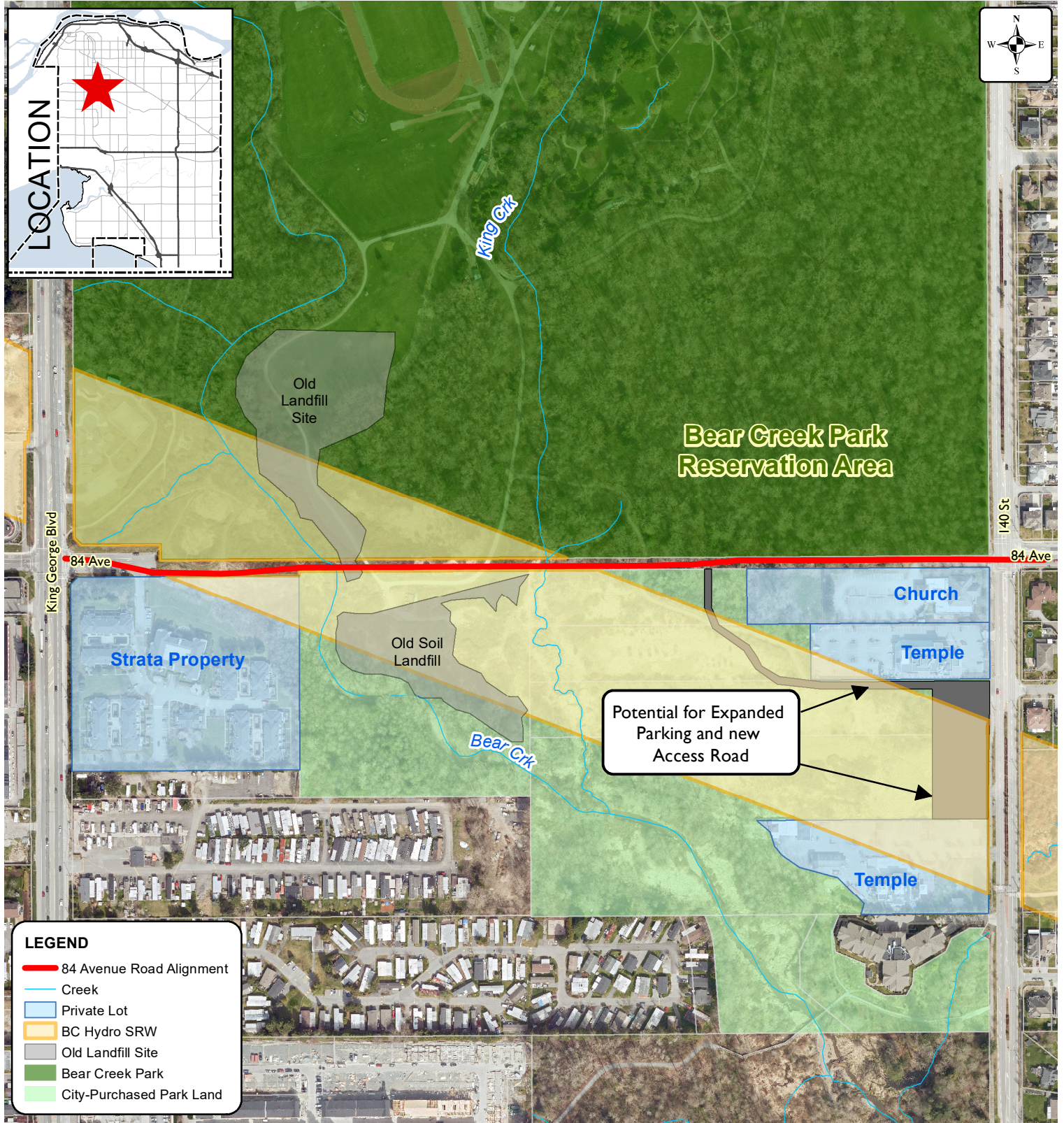
Road Network and Project Location

ENGINEERING
DEPARTMENT



Bike Network and Proposed Connection

ENGINEERING
DEPARTMENT



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84 Ave Corridor: KGB to 140 St

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