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CORPORATE REPORT

NO: R052 COUNCIL DATE: March 11, 2024

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**March 7, 2024**
FROM:	**General Manager, Engineering**	FILE:	**1724-002/00**
SUBJECT:	**Feasibility of 72 Avenue Extension between 152 Street to Highway 15**		

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report for information;

2. Direct staff to proceed with procurement for the detail design of the 72 Avenue extension between 152 Street to Highway 15 based on Scenario 3, as outlined in this report and in the attached Appendix "I"; and

3. If and only if Council approves Recommendation 2 of this report, then:

    a. Direct staff to change the designation of the 'Bear Creek Connector' from a major road to a greenway corridor for pedestrian and cyclists, as outlined in this report;

    b. Direct staff to designate 72 Avenue between 152 Street to Highway 15 as a truck route;

    c. Direct staff to initiate discussions with TransLink to designate 72 Avenue between 152 Street to Highway 15 into the TransLink Major Road Network; and

    d. Authorize staff to initiate applications, including non-farm use applications if necessary, to the Agricultural Land Commission for the 72 Avenue corridor extension between 152 Street and Highway 15.

INTENT

The intent of this Corporate Report is to seek direction from Council on its preferred direction on the 72 Avenue extension between 152 Street and Highway 15, as illustrated in Appendix "II".

BACKGROUND

At the May 15, 2023 Regular Council Meeting, Council endorsed through Corporate Report No. R071; 2023 (attached as Appendix "III"), the strategic transportation short-term projects which identified and prioritized developing specific arterial roads to support the City's growth which is projected to reach one million people as early as 2042. One of the key corridors identified included assessing the feasibility of extending 72 Avenue between 152 Street and Highway 15.

72 Avenue has been identified as a four-lane arterial road on the City's Road Classification Map (R-91). Two segments of 72 Avenue, 144 Street to 152 Street and Fraser Highway to 188 Street, are planned to be widened as part of the approved 10-Year Servicing Plan. The central segment between 152 Street and Highway 15 is not within the City's 10-Year Servicing Plan nor is it identified on the City's Road Classification Map. However, on May 22, 1875, the British Columbia Gazette established a 20-metre wide road corridor for the 72 Avenue corridor between 152 Street and Highway 15.

The City recently undertook a feasibility study for the extension of 72 Avenue between 152 Street and Highway 15. As part of the feasibility study, the City undertook an agricultural impact assessment, geotechnical screening, environmental site reviews, topographical surveys, archaeological screening review, and traffic analysis, as well as consultations with local property owners and farmers including the Agricultural and Food Policy Committee ("AFPC"). This information has informed the development of functional designs scenarios for the 72 Avenue corridor project. This report summarizes the results of the feasibility study and functional design scenarios developed.

DISCUSSION

72 Avenue Corridor Traffic Analysis

72 Avenue between 120 Street to 152 Street and from Fraser Highway to 196 Street is classified as an arterial road. Staff have recently developed high level traffic modelling forecasts for the following land-use/populations timelines and scenarios to assess the impacts of the 72 Avenue extension.

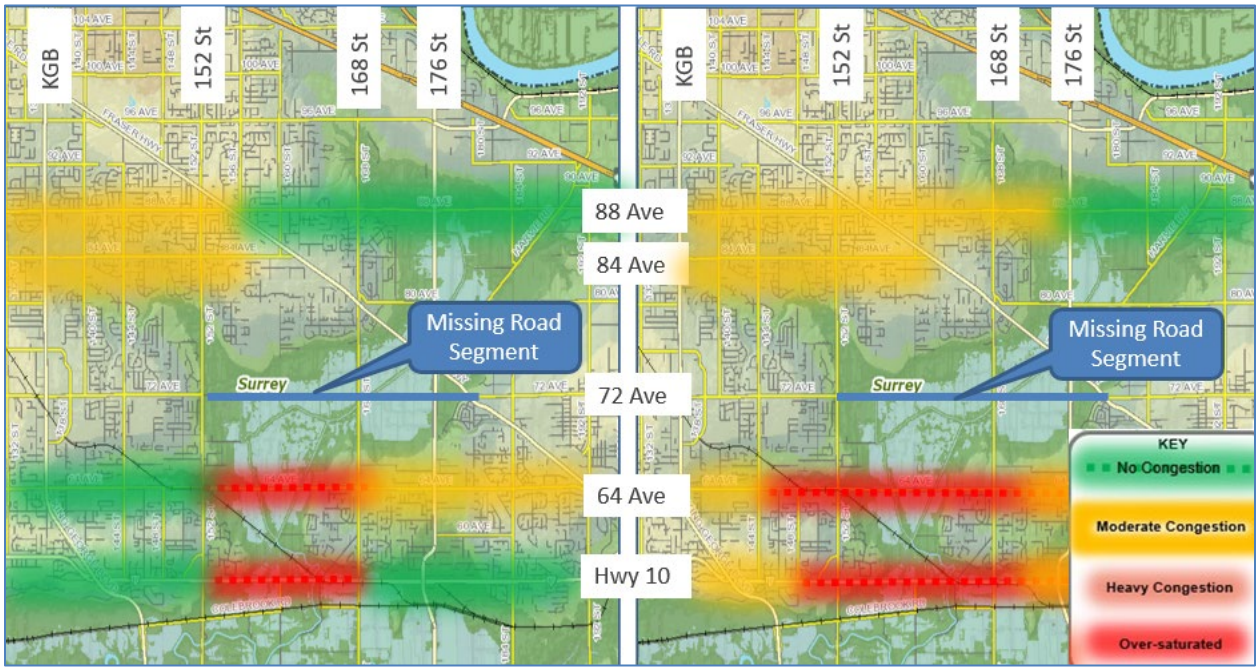
1. 2022 baseline condition;
2. 2050 baseline condition (without a continuous four-lane 72 Avenue, however still including major transit investments such as the Surrey-Langley SkyTrain ("SLS") and King George Boulevard Bus Rapid Transit); and
3. 2050 with a continuous four-lane 72 Avenue (including major transit investments).

The estimated traffic volumes on a few select road segments are summarized in Table 1.

Road Segment	**Daily Traffic Volumes/AADT (vehicles/day)**				
	2022	**2050 (w/o 72 Ave)**	**2050 (with 72 Ave)**	**2022 vs 2050 (w/o 72 Ave)**	**2022 vs 2050 (with 72 Ave)**
88 Avenue: 152 Street to Highway 15	12,500	19,500	17,500	56% increase	40% increase
64 Avenue: 152 Street to Highway 15	27,000	36,600	24,900	36% increase	8% decrease
Highway 10: 152 Street to Highway 15	47,300	53,300	50,000	13% increase	6% increase
72 Avenue: 152 Street to Highway 15	-	-	37,300	-	-
Total Trips	**86,800**	**109,400**	**129,700**	-	-

As indicated in Table 1, by 2050, the east-west central arterial roads are forecasted to experience an increase in 23,000 vehicles per day, which exceeds the threshold of requiring a new four-lane arterial road (generally 18,000 cars/day). A 72 Avenue extension would have a significant calling effect, diverting traffic from other east-west arterial corridors such as 64 Avenue and Highway 10, providing these corridors with significant relief and providing adequate capacity for the east-west corridors in the City into the future, as illustrated in the following graphic.

Congestion Levels at Year 2022 **Congestion Levels at Year 2050**



The traffic analysis also indicates that 72 Avenue would have a high demand levels (37,300 vehicles per day), as it provides more complete east-west connectivity for multiple communities in Surrey, and a regional significance, becoming a continuous connection between Highway 91 to Highway 15, and a desirable connection into Langley and Maple Ridge via Highway 15 and Golden Ears Way.

Given the anticipated regional significance of the 72 Avenue corridor for the movement of people and goods throughout the region, the 72 Avenue corridor is a strong candidate for designation to the TransLink Major Road Network ("MRN"), especially considering that 72 Avenue between 120 Street to 152 Street is already designated as a MRN corridor.

Additional details, considerations and implications of the extension of 72 Avenue, including the various design scenarios that have been considered, can be found in the attached Appendix "I".

Next Steps and Project Timing

Should Council proceed with the detail design for this project the anticipated project schedule moving forward is as follows:

Project Schedule for 72 Avenue Extension between 152 Street to 176 Street	
Initial Detail Design Contract Award(s) (*Subject to Council Approval)*	May 2024
Detail Design	May 2024 to Spring 2025
Public Engagement (Council Committees)	June 2024
Initiating Regulatory Permitting	August 2024
Second Round Engagement (Council Committees)	Spring 2025
Property Acquisitions	May to September 2025
Pre-load Placement Contract Award(s) (S*ubject to Council approval, and securing necessary regulatory permitting and property*)	Fall 2025
Pre-load Placement & Settlement Period	Fall 2025 to 2028
Roadway Construction	2028 to 2030

FUNDING

The preliminary estimated costs of the 72 Avenue extension for Scenario 3 are $138 million, which includes the cost of design and contingency. It is anticipated that 38% of the project funding would be growth-related and funded through Development Cost Charges, and the remaining 62% of the project would be funded by general revenue collected by the City as Roads and Traffic Safety Levy (the "Levy'), and with potential external funding from TransLink should the 72 Avenue corridor extension be added to the MRN. The current 2023-2027 Five-Year Financial Plan includes a 1% increase in the Levy each of the five years.

The City's Engineering 10-Year Servicing Plan currently does not include a budget for the 72 Avenue corridor extension. Given the delivery timeline for this project is over six years, it is anticipated that projects within the 10-Year Servicing Plan could be re-prioritized to include the 72 Avenue corridor project without a net overall increase in the 10-Year Plan value. Since the current Levy is insufficient to fund the re-prioritized projects, the current rate of 1% Levy will need to be increased by an additional 1% in 2025 and an additional 1% in 2026, to be dropped back to the current rate of 1% increase in 2027 and future years.

CONCLUSION

At the May 15, 2023 Council Meeting, Council directed staff to undertake a feasibility study for the 72 Avenue extension between 152 Street and Highway 15. The intent of this Corporate Report is to seek direction from Council on its preferred direction on the 72 Avenue extension based on the findings of the feasibility study presented in this report.

Scott Neuman, P.Eng.
General Manager, Engineering

VJ/cc

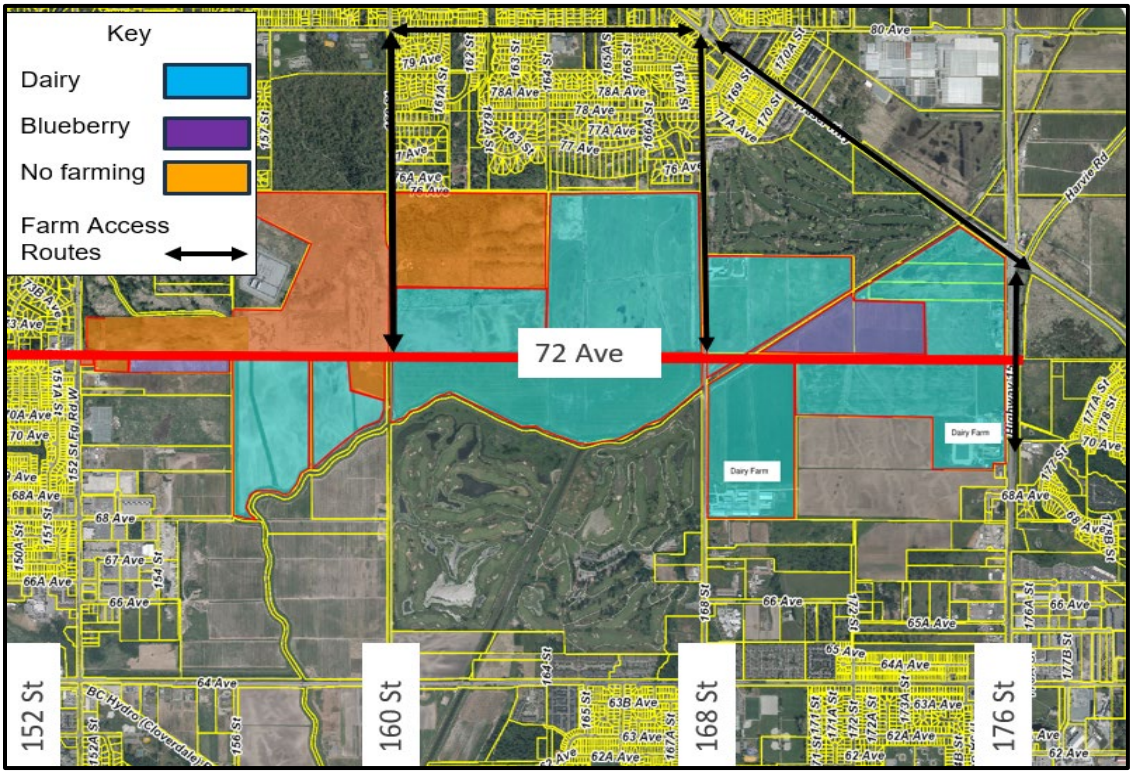
Appendix "I" – Additional Considerations and Design Scenarios for the 72 Avenue Extension
Appendix "II" – Map of Project Location
Appendix "III" - Corporate Report No. R071; 2023

Additional Considerations and Design Scenarios for the 72 Avenue Extension

Agricultural Considerations

A key component of the 72 Avenue feasibility study was to understand agricultural impacts and opportunities, as the 72 Avenue extension is located through the Agricultural Land Reserve ("ALR"). The agriculture impact assessment undertaken to date included field assessments, including current land uses of the surrounding properties, interviews with directly affected land-owners and farmers, as well as seeking feedback from the AFPC.

Agriculture varies across the project length, as illustrated in the graphic below. Most of the adjacent farms are being utilized by farmers to grow crops that support dairy herds, with a small percentage of the land being utilized for blueberry farming, or land not actively farmed.



<u>Ensuring Farm Security is Maintained</u>

Increased public access and its negative effect on farm security is a significant concern for local farmers. Farmers are particularly concerned with multi-use pathways leading to an increase in public trespassing onto private land. Along with limiting multi-modal access, farmers request the road corridor include agricultural fencing to deter trespassing, vandalism, theft, illegal dumping, and to protect livestock.

Improving Farm Access

Many farmers rent or lease land throughout the 72 Avenue corridor, and without having direct access along 72 Avenue, are currently utilizing Fraser Highway, 80 Avenue, and residential streets such as 160 Street to access the farm properties, as illustrated in the graphic above. As a result, 72 Avenue will provide for a more direct access to the properties along the corridor, resulting in a significant time and financial savings for farming. However, with the extension of 72 Avenue, properties will no longer have exclusive access along the road corridor once it is open to traffic, making it more challenging to move from parcel to parcel across the 72 Avenue corridor, especially for the dairy farms which constantly move agricultural product and supplies in and out of the farm parcels year-round, whereas other types of farms only access their fields seasonally.

72 Avenue as a corridor for the transportation of agricultural goods and services will be improved if adequate property access, planning for wider travel lanes to accommodate wide farm vehicles, un-restricted turning movements, and full movement intersections are provided along the road corridor. However, there are concerns regarding access to farms during peak traffic hours becoming challenging, specifically for the three existing driveways along the 72 Avenue corridor located near major intersections. As a result, ensuring efficient intersection movements and signal timing to minimize traffic queuing along 72 Avenue is important, as well as establishing driveways at an appropriate distance away from major intersections.

Irrigation and Drainage

Irrigation and drainage are critical infrastructure for farms, the 72 Avenue extension provides an opportunity to improve existing drainage ditches and floodboxes exist which will improve the agricultural capability of the adjacent farm properties. The improvement of drainage ditches to improve farming would be located outside of the existing 20-metre road corridor and would require the alteration of land that is currently being utilized for crop production. However, based on the agricultural assessment, it is anticipated the additional drainage ditches and irrigation from these ditches will increase crop yield and allow for a wider range of crops to be grown, resulting in a net benefit for agriculture.

Effects on Farm Infrastructure and Operations

Two dairy farms along the corridor have above-ground infrastructure to pump manure from farm properties on the south side of the 72 Avenue road corridor to the north side of the road corridor. If the 72 Avenue extension proceeds, the ability to utilize above-ground infrastructure to pump manure across the road corridor will no longer be possible. This impact could be mitigated through the installation of private culverts/pump sleeves in key locations along the road corridor that could be funded by the property owner.

Managing waterfowl is necessary to limit damage to agriculture crops. Select farms along the 72 Avenue corridor allow local bird hunting clubs to use their land to assist in controlling waterfowl. The 72 Avenue corridor extension would restrict the zone where hunting is prohibited within 400m of the road corridor, and as a result farmers will need to use alternative means to manage waterfowl.

Mitigating Construction Impacts

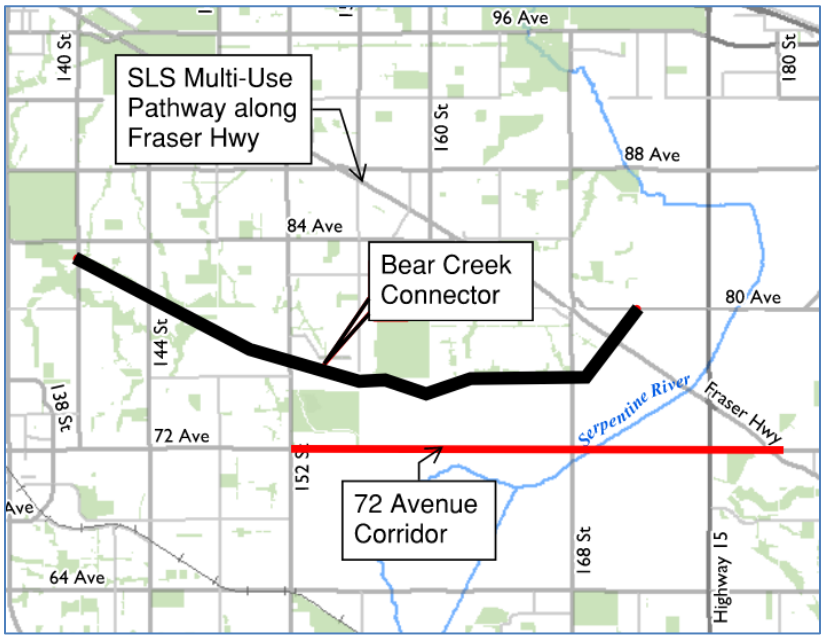
During construction, potential effects to agriculture include increased travel times for farmers due to construction-related activities. As well, dust generated during construction, if not adequately managed, has the potential to impact crops such as blueberries which may be close to or at their harvesting stage. Furthermore, noise impacts to livestock, specifically dairy farms and barns, may impact dairy herds. Overall, noise levels from 72 Avenue are anticipated to have a negligible impact on agriculture. Should the 72 Avenue corridor extension proceed, local farmers request the 72 Avenue corridor be built to the ultimate condition (i.e., four lanes) to avoid any future construction impacting their properties again at a later stage.

Pedestrian and Cycling Considerations

Improvements to east-west cycling and pedestrian corridors, such as 64 Avenue and 84 Avenue onto Fraser Highway, are included in the 10-year Engineering Servicing Plan. These improvements will provide for a continuous multi-modal corridor along these road corridors. Similarly, through the delivery of the SLS project, significant funding for a multi-use pathway along the entire length of Fraser Highway is being delivered, providing another continuous east-west multi-modal corridor across the City.

Bear Creek Connector

Given farm security concerns with allowing pedestrian and cycling facilities along 72 Avenue, an alternative approach to providing a multi-modal corridor along the 72 Avenue extension is to utilize the future Bear Creek Connector as a pedestrian/cycling corridor for all ages and abilities, the location of which is generally illustrated in the graphic below. Furthermore, staff have confirmed that should the 72 Avenue corridor extension proceed, the Bear Creek Connector will become a redundant transportation corridor that will no longer be required for vehicles. Changing the designation of the Bear Creek Connector to a pedestrian/cycling greenway will also reduce the cumulative footprint of transportation routes within the ALR.



Environmental Considerations

The environmental assessment completed along the 72 Avenue corridor identified salmon-bearing watercourses such as Bear Creek, Fleetwood Creek, the Serpentine River, as well as a number of un-named ditches that may contain fish presence.

The road corridor design is anticipated to include a clear span bridge across Bear Creek, a large box culvert across Fleetwood Creek, with fish and wildlife passage features, and a three-span bridge across the Serpentine River. There is an existing series of culverts across the 72 Avenue corridor at the 168 Street canal that are not anticipated to be modified.

Species at risk with critical habitat near the project corridor include Barn Owl, specifically east of the Serpentine River where the presence of suitable habitats, such as barns, exist. The 72 Avenue project is not anticipated to impact Barn Owl nesting habitat. There is also one bald eagle nest located within the 72 Avenue corridor alignment which may be impacted requiring relocation when the nest is inactive to either an adjacent tree or artificial nesting platform.

Archaeological Considerations

An archaeological screening review for the 72 Avenue corridor did not identify any known heritage sites within the 72 Avenue corridor, with the nearest documented heritage site located approximately 400m away from the corridor.

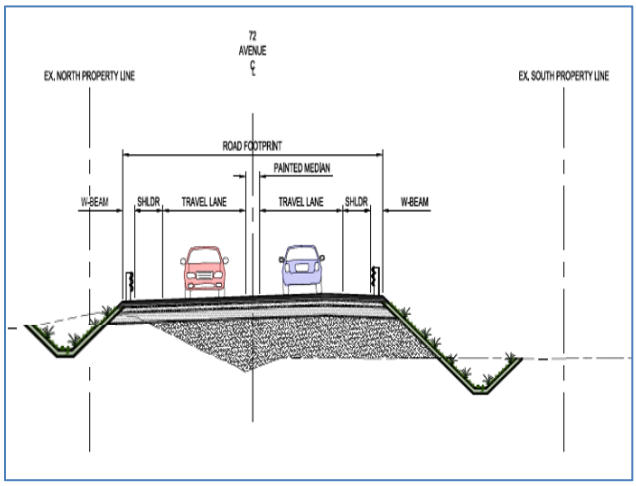
72 Avenue Corridor Design Scenarios

Based on the traffic analysis and agricultural, multi-modal, environmental, and archaeological considerations discussed above, conceptual design scenarios were developed for the 72 Avenue extension between 152 Street and Highway 15 as follows.

<u>Scenario 1 - Two Lane Narrow Road</u>

This scenario provides for the smallest road footprint with one lane in each direction, narrow shoulders, and would look similar to Colebrook Road, as illustrated in the graphics below. This scenario will fit within the 20 metre un-opened road corridor. However, based on the traffic modelling completed, a two-lane road is anticipated to be saturated with traffic during peak hours on 'opening-day' of the road. Furthermore, drainage ditches would be replaced 'like for like' with no improvements made for agricultural ditching or irrigation.

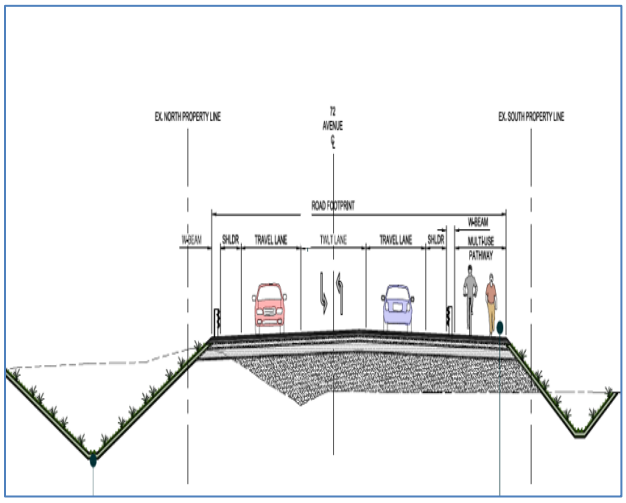
The estimated construction cost for this scenario is $95 million. Although this scenario could be constructed entirely within the 20-metre road corridor, it would be recommended to place the ditch locations in the ultimate four-lane road corridor location and within private land to avoid rebuilding the entire road corridor and ditches in the future.



Scenario 2 - Two Lane with Dual Left-Turn

This scenario provides one travel lane in each direction with improved farm access through the provision of a two-way left-turn lane. As well, this scenario includes improved agricultural ditches, a protected multi-use pathway for cyclists and pedestrians, and would look similar to 32 Avenue between 164 Street and 168 Street, as illustrated in the graphics below. The road corridor under this scenario will also fit within the 20 metre un-opened road corridor; however, land would be required for the improved agricultural drainage ditches. Similar to the previous scenario, a two-lane road is anticipated to be saturated with traffic during peak hours; however, based on the pavement width of the road corridor under this scenario, the road could be converted into two travel lanes in each direction in the future by repurposing the two-way left-turn lane and multi-use pathway as travel lanes.

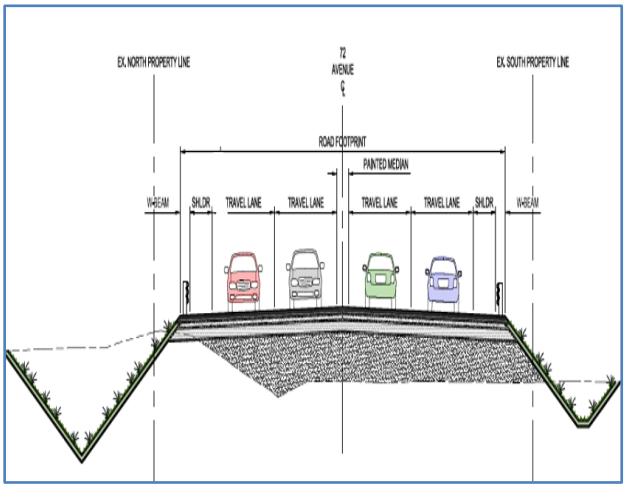
The estimated construction cost for this scenario is $132 million.



Scenario 3 - Four-Lane Road with Shoulder

This scenario provides two travel lanes in each direction, improved agricultural ditches, and would look similar to 176 Street south of 8 Avenue, as illustrated in the graphics below. Based on the traffic modelling, a four-lane road will provide adequate traffic capacity during peak hours well into the future. As well, four travel lanes with a 1.5m wide shoulder will allow farm vehicles to use the road while allowing vehicles to pass along the inside travel lane. The wider shoulder would allow for confident cyclists, but not those of all ages and abilities. This scenario combined with the ultimate Bear Creek Connector greenway finds a balance between transportation users and farming community concerns over pedestrian access. This road corridor scenario would generally fit within the 20-metre un-opened road corridor; however, land would be required for the improved agricultural drainage ditches and at major intersections to accommodate full turning movements.

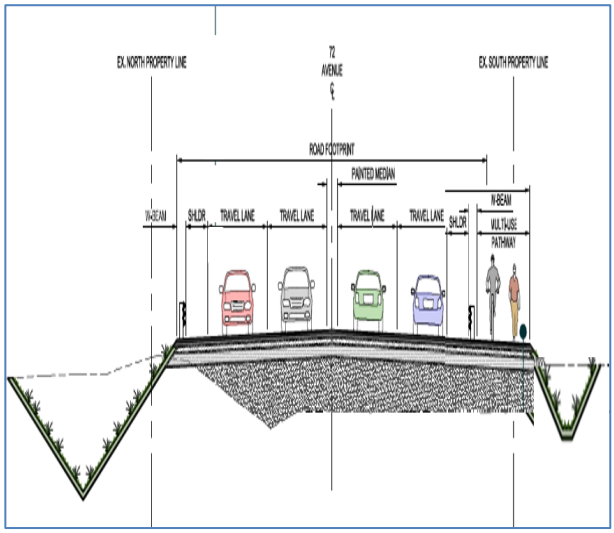
The estimated construction cost for this scenario is $138 million.



Scenario 4 - Four-Lane Multi-Modal Corridor

This scenario is similar to Scenario 3 by providing two travel lanes in each direction, with the addition of a protected multi-use pathway, and would look similar to what is being constructed along 152 Street between the Nicomekl and Serpentine River, as illustrated in the graphics below. This road corridor scenario would not fit the 20 metre un-opened road corridor, as land would be required for the entire road corridor, as well as for agricultural drainage ditches and at major intersections.

The estimated construction cost for this scenario is $158 million.



72 Avenue Corridor Scenario Evaluation

A summary of the design scenarios is illustrated in the graphic below.

#	Description	Cost (Million)	Level of Service for Vehicles	Farming Access	Pedestrian /Cyclist Access	Project Footprint	Likelihood of ALC Approval?
1	**2 Lane Narrow Road**	**$95**	🔴	🔴	🔴	🟢	🟢
2	**2 Lane Road** +Multi-Use Pathway +Farm Access +Improved Drainage	**$132**	🟡	🟡	🟢	🟡	🟢
3	**4 Lane Road** +Improved Drainage +Farm Access	**$138**	🟢	🟢	🟡	🟡	🟢
4	**4 Lane Road** +Multi-use Pathway +Improved Drainage +Farm Access	**$158**	🟢	🟢	🟢	🔴	🟡

🟢 Positive 🟡 Neutral 🔴 Negative

Scenario 3 provides the necessary traffic capacity to 2050 population, provides the most optimal balance between transportation users and farm access while minimizing farm security concerns, improved drainage and irrigation, and the majority of the road corridor fits within the 20 metre un-opened road allowance.

Adjacent Properties

Based on Scenario 3, the 72 Avenue extension will have a direct impact on approximately 17 properties located along the road corridor. Currently, the 20-metre un-opened road corridor is being occupied with private crops, drainage ditches, and private farm access roads. Should Council select to move forward with the 72 Avenue extension, the agricultural drainage ditches that exist within the 20 metre un-opened road corridor will need to be relocated outside the road corridor and it is anticipated that approximately 24 to 28 acres of ALR land would be utilized to construct the proposed drainage and irrigation improvements. Furthermore, approximately one acre of land would be required from the ALR, for roadway purposes, to construct full movement intersections at major intersection locations.

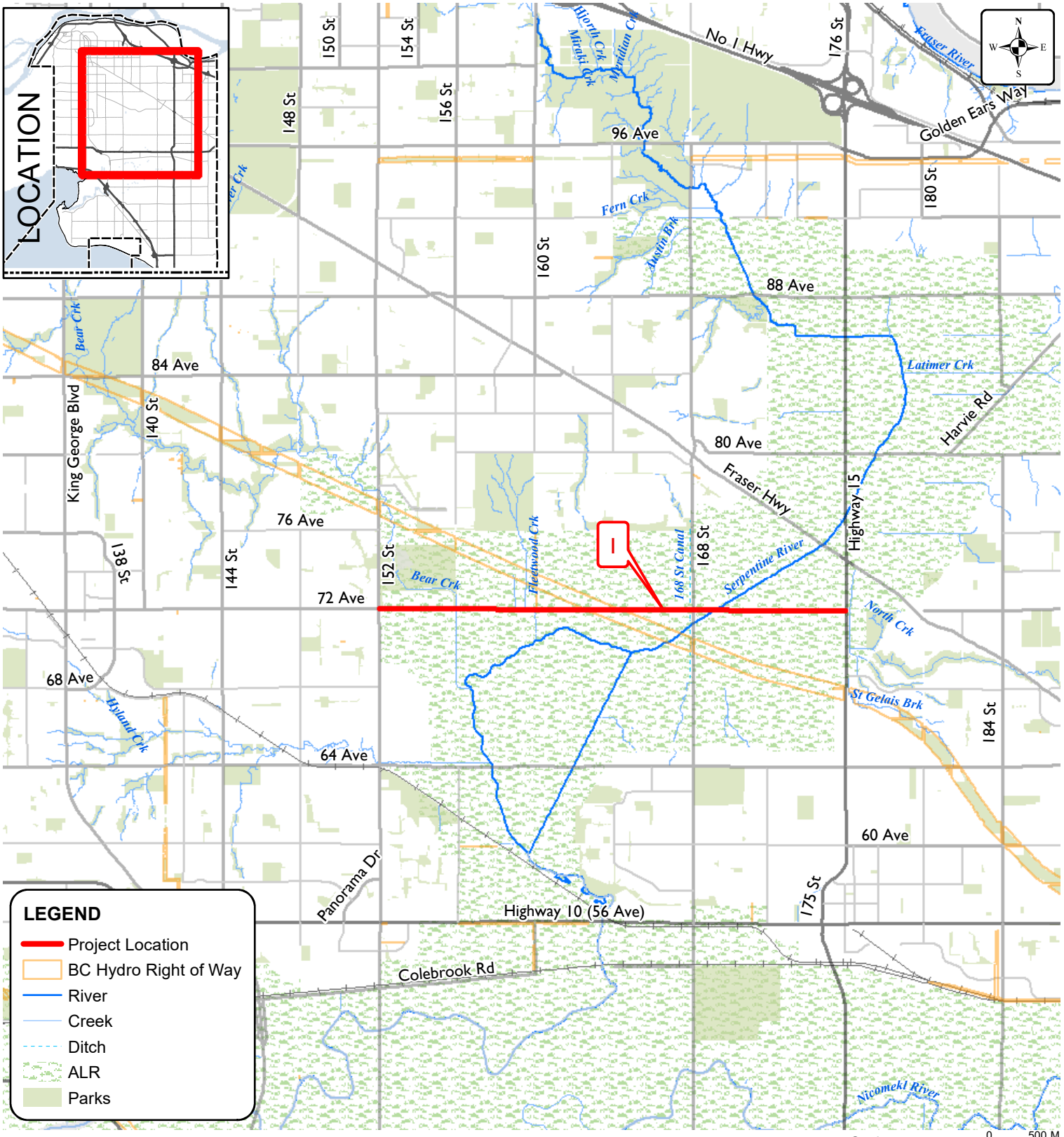
72 Avenue Corridor Connection with Highway 15

The connection of the 72 Avenue corridor with Highway 15, and particularly the allowance of movements on/off the highway, is necessary. Staff are currently developing plans in consultation with the Ministry of Transportation and Infrastructure ("MOTI") on the proposed connection of the 72 Avenue corridor with Highway 15. Both corridors will have significant traffic volumes, and as highways typically have controlled access points to minimize interruptions to the highway corridor, staff are reviewing the optimal signalized intersection treatment at this location, which would need MOTI's approval for a signalized intersection.

BC Hydro Considerations

BC Hydro's transmission lines in the area cross the 20 metre un-opened 72 Avenue road corridor, with one of the transmission line support structures located within the un-opened road corridor. Should the 72 Avenue extension proceed, it is anticipated that at least one transmission support tower will require relocation, as well as the need to raise the overhead transmission lines to allow sufficient vertical clearances for vehicles travelling along the 72 Avenue road corridor. Staff are working with BC Hydro to determine who will be responsible for the relocation of the transmission tower within the un-opened road corridor.

APPENDIX "II"



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72 Avenue Extension Between 152 Street to Highway 15

ENGINEERING DEPARTMENT

Source: G:\MAPPING\GIS\Maps\CorporateReps\DnC\JX_72 Ave - 152 St to Hwy 15_TA.mxd

APPENDIX "III"

CITY MANAGER'S DEPARTMENT

CITY OF SURREY
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CORPORATE REPORT

NO: R071 COUNCIL DATE: May 15, 2023

REGULAR COUNCIL

TO:	**Mayor & Council**	DATE:	**May 11, 2023**
FROM:	**General Manager, Engineering**	FILE:	**5260-07**
SUBJECT:	**Short-Term Transportation Priorities**		

RECOMMENDATION

The Engineering Department recommends that Council:

1. Receive this report as information;
2. Endorse the proposed strategic Transportation short-term projects, as presented in this report;
3. Endorse staff to develop a strategy for advocating for increased transit service in Surrey; and
4. Direct staff to assess the feasibility, costs, benefits, and impacts of extending 72 Avenue between 152 Street and Highway 15.

INTENT

The intent of this report is to obtain Council endorsement of the short-term transportation priorities to support the City's growth, including direction on proceeding with a feasibility study of extending 72 Avenue east of 152 Street.

BACKGROUND

The Engineering Department's 10-Year Servicing Plan (2023-2032) was approved by Council at the Regular Council Meeting on March 6, 2023 through Corporate Report No. R031; 2023. The plan identifies the infrastructure investments required to support the City's anticipated population growth over the next ten years. At the March 6, 2023 Council Meeting, questions were raised by Council as to the ability to prioritize particular transportation projects in the short-term and the feasibility of extending 72 Avenue east of 152 Street. This report highlights the City's strategic transportation priorities and capital programming over the next few years.

DISCUSSION

Transportation's short-term capital program focuses on delivering $300 million in transportation investments over the next four years, primarily funded through Development Cost Charges and the recently approved increase in Road and Traffic Levy. City funds are complemented by

financial support from TransLink for major road, bike and transit networks, and the Ministry of Transportation and Infrastructure for Highway 99 interchange improvements.
The following summarizes the recommended direction for key areas of investment:

1. Developing the arterial network to improve traffic movement, safety and integrated cycling-walking facilities where possible. The priority arterials are 20 Avenue, 32 Avenue, 72 Avenue, 80 Avenue, 132 Street, and 152 Street, as outlined in Appendix "I";
2. Prioritizing protected cycling around SkyTrain stations and connecting City Centre to Guildford and Fleetwood, as outlined in Appendix "II";
3. Working with TransLink and the Province to implement improved transit services essential for sustaining Surrey's continuous growth, focusing on the Surrey-Langley SkyTrain Project, Bus Rapid Transit to Newton, and RapidBus on Scott Road, as outlined in Appendix "III"; and
4. Advocating for strategic regional connections to Highway 99 in South Surrey, as outlined in Appendix "IV", to support population growth and manage congestion.

72 Avenue between 152 Street and Highway 15 (176 Street)

Over the past year, staff have received inquiries from both the public and Council regarding the need for additional east-west connectivity across the City, particularly the feasibility of connecting 72 Avenue. Two segments of 72 Avenue, 144 Street to 152 Street and Fraser Highway to 188 Street, are planned to be widened as part of the approved 10-Year Servicing Plan.

The central segment, between 152 Street and Highway 15, is not within the City's 10-Year Servicing Plan. Along this 5 km segment, a 20m wide unopen road allowance exists through the Agricultural Land Reserve; however, a road through this area would require lengthy preloading, raising above the floodplain, and a bridge across Serpentine River. The estimated cost for this road segment is $75 to $95 million.

If Council desires, staff could commence a feasibility study of the costs, benefits, impacts, permit requirements, and project timeline for extending 72 Avenue east of 152 Street. This study would be completed by Q1 2024 and presented to Council.

CONCLUSION

Council's approval of the proposed transportation short-term capital priorities will benefit residents and support growth across the City.

Scott Neuman, P.Eng.
General Manager, Engineering

RV/KS/AM/PK/BH/cc

Appendix "I" – Major Arterial Improvements
Appendix "II" – Cycling Connections
Appendix "III" – Rapid Transit
Appendix "IV" – Regional Projects

Note: Appendices available upon request