



REPORT

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Meeting Date: March 29, 2022

[Submit comments to Council](#)

TO: Vancouver City Council

FROM: General Manager, Engineering Services, and General Manager, Planning, Urban Design and Sustainability

SUBJECT: Millennium Line UBC Extension Alignment and Integration

RECOMMENDATION

- A. THAT Council endorse a Millennium Line UBC SkyTrain Extension alignment from Arbutus Street to the University of British Columbia (UBC) as described in this report, including stations at Macdonald Street, Alma Street and Jericho Lands.
- B. THAT Council endorse a station location within the Jericho Lands with the location to be refined through future City and TransLink processes.
- C. THAT Council endorse staff working with project partners including the Province, TransLink and others to advance opportunities for station integration with development and achieve shared design objectives such as enhanced connectivity, accessibility, passenger amenities as well as a vibrant public realm.

REPORT SUMMARY

The Millennium Line UBC SkyTrain Extension from Arbutus Street to UBC (UBCx or the Project) is a critical regional rapid transit link within the Metro Vancouver transportation network. The Project will support City (Transportation 2040, Climate Emergency Action Plan, Housing Vancouver Strategy), regional (Transport 2050) and provincial (Clean BC, Homes for BC) goals by connecting a significant number of people to major destinations, while creating opportunity for important transit integration with planned development.

City Council and the Mayors' Council on Regional Transportation have both previously confirmed SkyTrain technology for the Project, as well as agreeing to advance further design and public engagement. Following the recent Millennium Line UBC Extension Design Development Review, City Staff are recommending alignment and station locations within the City of Vancouver along Broadway/West 8th Avenue, with stations located at Macdonald Street, Alma Street and within the Jericho Lands. Staff are seeking Council endorsement of a preferred alignment and station locations to demonstrate municipal support for the Project, which the Mayor can relay to the TransLink Mayors' Council and senior government, reinforcing the overall commitment to the project and its objectives.

Additionally, City Staff seek endorsement to work with project partners, including the Province, TransLink and others, to advance opportunities for station integration with development acknowledging that an early start on this work will help optimize outcomes not possible to achieve at a later stage in the planning process.

Subsequent to the City's endorsement process, TransLink staff plan to bring a report to the Mayors' Council, with a goal of selecting a preferred alignment and station locations. UBCx will also be evaluated with other regional projects as part of the upcoming New Vision (Transport 2050 10-Year Priorities), an update to the 2014 Mayors' Council 10-Year Vision. If the Project is approved as part of New Vision, that process will set the timelines to progress to the next phase of design development. This next phase includes advancing one or more preferred alignments into further design development and creation of an associated business case needed for project funding approval.

COUNCIL AUTHORITY/PREVIOUS DECISIONS

- 1997: Council approved the City Transportation Plan which includes a rapid transit line along the Broadway Corridor with possible extension to UBC. The line should serve the needs of city riders as well as other Regional users, and should not result in a loss of local transit service.
- March 2000: (Phase II Commercial Drive West) Council recommended that the SkyTrain continue west from Vancouver Community College, via the False Creek Flats and Broadway to Granville Street, with consideration to Arbutus, as part of the Millennium Line Construction Program. A rapid bus extension would connect the terminus (Granville or Arbutus) to UBC.
- April 2002: (Vancouver Transit Strategy) Council re-affirmed its support for the Millennium Line extension as a subway serving the Central Broadway Corridor to Granville Street.
- January 2008: Council passed a motion that the City of Vancouver opposes cut and cover construction for the completion of the Millennium Line through commercial, congested or confined rights-of-way.
- April 2010: Council approved Vancouver's rapid transit principles for the Broadway Corridor to guide staff involvement in the TransLink-led UBC Line Rapid Transit Study. At this time, Council also requested that staff report back at key study milestones including after the development and public review of TransLink's rapid transit alternative shortlist.
- October 2012: Council approved Vancouver's Transportation 2040 Plan which includes "Action T 1.1.1 Work with partners to deliver an underground Millennium Line extension serving the Broadway Corridor as a top Regional priority."

- June 2014: TransLink Mayors' Council 10-Year Vision was approved, which calls for rapid transit between Commercial Drive and UBC. As the first phase, the Millennium Line Broadway Extension of SkyTrain in a tunnel under Broadway to Arbutus Street was approved to be delivered within the first 10 years of the Vision.
- November 2015: Council approved the Renewable City Strategy which includes priorities that shift Vancouver's transportation system towards renewable energy sources, including a Millennium Line extension under Broadway as a key priority.
- November 2017: Renewable City Action Plan approved by Council is based on assumptions of GHG reductions projected by the sustainable transportation actions from Transportation 2040, including a Millennium Line extension under Broadway.
- May 2018: Council endorsed the Broadway Subway Project (BSP), a primarily tunnelled Millennium Line SkyTrain extension from VCC- Clark to Arbutus; Council also endorsed a set of Principles and Strategies that identify the goals the City will endeavour to achieve through BSP and related City activities.
- January 2019: Council endorsed a SkyTrain extension from Arbutus Street to UBC and directed staff to work with partners to advance the design development and to write a letter to the Mayors' Council informing them of Council's support for the selection of SkyTrain technology and further design and consultation on alignment
- April 2019: Council approved an amendment to the Development Contribution Expectation (DCE) policy in conjunction with interim rezoning policies to limit land value speculation for the portion of the Broadway Corridor not covered by the previously approved DCE policy for the Broadway Plan geography.
- November 2019: The City entered into a Memorandum of Understanding with the MST-DC and UBC to work together to advance the Millennium Line UBC Extension and seek funding from the Federal and Provincial governments.
- June 2021: Council approved the Jericho Lands Site Emerging Ideas and Guiding Principles that include direction to encourage transit use through site design and considers a SkyTrain station on-site.
- January 2022: TransLink approved Transport 2050 that outlines how TransLink will expand the regional transportation network over the next thirty years. The plan identifies corridors needing transit improvements, including rapid transit between Arbutus and UBC. These transit improvement corridors are now being prioritized through the New Vision process, an update to the 2014 Mayors' Council Vision prioritizing projects to be delivered within ten years.

CITY MANAGER'S/GENERAL MANAGER'S COMMENTS

The City Manager recommends approval of the foregoing.

REPORT

Background/Context

Mayors' Council History on the Millennium Line UBC Extension (UBCx)

In 2014, the Mayors' Council on Regional Transportation ("Mayors' Council") approved their 30-year plan and identified rapid transit between Commercial Drive and UBC as a regional priority to be delivered in two phases. The first phase (BSP between VCC-Clark Station and Arbutus Street) is to be delivered within the first 10 years of the plan. BSP is funded by the Federal and Provincial governments, with contributions from the City. Construction is underway and is anticipated to be complete by the end of 2025. The Mayors' Council Vision also identified that stakeholders should work together to determine how and when the second phase connecting Arbutus to UBC would be completed. The first component of this work was the Rail to UBC Rapid Transit Study that explored which technology is most appropriate for the extension.

Rail to UBC Rapid Transit Study & Millennium Line UBC Extension Design Development

In 2019, the Rail to UBC Rapid Transit Study found that SkyTrain was the only rapid transit solution that provides the needed long-term capacity for the western part of the Broadway Corridor to UBC. It also found that the truncated 99 B-Line bus between the future Arbutus Station and UBC is anticipated to be operating at capacity during peak periods on opening day of the Broadway Subway. Recognizing the urgent need to keep this Project moving forward, in January 2019, Council endorsed further study of a SkyTrain extension between Arbutus Street and UBC and directed staff to work with partners to advance the design development (station locations, vertical and horizontal alignment), including public engagement.

In February 2019, the Mayors' Council also endorsed the selection of SkyTrain technology and further design and engagement on alignment. This work (Millennium Line UBC Extension Pre-Business Case Design Development) has now been completed and this report provides recommendations for Council endorsement. The last round of TransLink public engagement took place in April-May 2021.

Subsequent to the City's endorsement process, TransLink is seeking Mayors' Council endorsement of the preferred alignments and station locations. The timing for delivery will be dependent on the projects that are prioritized in the updated Mayors' Council New Vision, currently under development.

Strategic Analysis

TransLink's Millennium Line UBC Extension Pre-Business Case Design Development Review is in the process of being finalized. The work was guided by a technical review team, leadership team and Project Board that included representatives from the City, UBC, University Endowment Lands, the xʷməθkʷəy̓əm (Musqueam Indian Band), Skwxwú7mesh (Squamish Nation), and səliłwətał (Tsleil-Waututh Nation), Ministry of Transportation and Infrastructure, and Ministry of Housing as key contributors to the study. The following provides a summary of the benefits of UBCx, recommended alignment and station locations, and next steps for further technical work.

Benefits of UBCx

The Broadway Corridor is a regionally important corridor that includes the largest university (UBC) and the largest hospital (Vancouver General Hospital) in Western Canada, as well as the second largest employment centre in the Province. There are significant benefits offered by the Project including:

- Addressing the anticipated bus capacity issues during peak periods at Arbutus upon opening of BSP
- Serving UBC's 80,000 daily visitors including 20,000 workers at UBC, VCH and other employers.
- Serving the region with about half of all riders anticipated to come from outside of Vancouver and connecting over one million people within a 60 minute trip to UBC.
- Significantly reducing the travel time between Arbutus Street and UBC and addressing overcrowding on east-west bus routes through Vancouver and on to UBC.
- Adding approximately 25,000 new daily transit trips and carrying over 130,000 passengers daily by 2050.
- Supporting xʷməθkʷəy̓ əm (Musqueam Indian Band), Skwx̱ wú7mesh (Squamish Nation), and səliłwətał (Tsleil-Waututh Nation) economic development in the Jericho Lands.
- Providing improved links between centres of innovation along the Millennium Line at UBC and SFU with Central Broadway's growing biomedical and high tech job centre.
- Removing 3,000 peak hour automobile trips every day and contributing to the Province of BC's, TransLink's and the City of Vancouver's GHG emission reduction targets.
- Providing greater housing options along the regional SkyTrain system creating better links between homes and jobs and providing the opportunity to locate more affordable housing around the new stations.

Summary of Updated Technical Analysis

This phase of the technical work started in 2019 and an initial draft has been completed for review by the Mayors' Council and TransLink Board. TransLink engaged a consultant to investigate alignment and station alternatives to deliver a SkyTrain extension from Arbutus Street Station to UBC. The objective of the work was to short-list alternatives to carry forward to the next phase of project development. A TransLink fact sheet is provided in Appendix A and an overview of the key decision points is provided below.

Station Locations

TransLink considered three proposed station locations within the City to best serve ridership. Early work during this phase identified that two stations, Macdonald Street and Alma Street, were regionally performing. For the third regional station, between Alma and Blanca streets, station options included Jericho Lands or Sasamat Street.

Initial analysis indicated that a Jericho Station performs better than a Sasamat Station across strategic objectives. A Jericho Lands station offers opportunities for future development of xʷməθkʷəʔəm (Musqueam Indian Band), Skwxwú7mesh (Squamish Nation), and səliwətał (Tsleil-Waututh Nation) lands and integration of a new community with rapid transit, ensuring the greatest number of people and jobs are in close proximity to the station. A station within the Jericho Lands would also allow for connections beyond the site, including to nearby West Point Grey Village, as well as improved access to beaches as a regional destination, not previously served with robust transit.

Since 2008, the lands west of Blanca Street within the University Endowment Lands that currently house the University Golf Club have been owned fee simple by xʷməθkʷəʔəm (Musqueam Indian Band). A covenant currently stipulates that the property must remain a golf course until at least 2083. Land use within the UEL is governed directly by the Province through the Ministry of Municipal Affairs. TransLink plans to explore if provision of future stations in this area should be delivered if and when redevelopment of these lands occurs. This could provide an opportunity for a station that could serve both the eastern portion of the University Golf Course and West Point Grey Village in the future. Until that time, City Staff will explore opportunities to better connect West Point Grey Village to the future station at Jericho through improved walking, cycling and transit connections.

Horizontal Alignment

The City's preferred horizontal alignment through the Vancouver segment of the line, pictured below, would travel west along Broadway from Arbutus Station to Jericho Lands and onwards to Blanca Street along west 8th Avenue, with stations at Macdonald Street, Alma Street and within the Jericho Lands.



Through the City's work on the development of a Jericho Lands Policy Statement, it was identified that a station located within the site could provide benefits for overall site development as well as more opportunities for construction staging that fit with long term development needs.

The Jericho Lands provide significant opportunities for SkyTrain construction staging and space for needed operational rail infrastructure, such as crossover tracks. It is anticipated that a station location within the Jericho Lands would also minimize construction disruption to established neighbours on the perimeter of the site.

The final location of a station within the Jericho Lands would be confirmed in collaboration with the Jericho Lands owners (xʷməθkʷəy̓əm (Musqueam Indian Band), Skwxwú7mesh (Squamish Nation), səliłwətał (Tsleil-Waututh Nation) and Canada Lands), City of Vancouver and TransLink via the Jericho Land Planning Process and further UBCx project development.

Vertical Alignment

In accordance with TransLink's Municipal Contributions Policy Framework adopted by the Mayors' Council in 2021, elevated vertical alignments are considered the baseline for regional base project scope unless it can be demonstrated that it is not technically or functionally possible to do so.

During this phase of the Project, the options for the vertical alignment are in the process of being assessed, including review of below grade, elevated and mixed alternatives. This is similar to the process undertaken for the Broadway Subway Project, which determined an above grade option was not functionally feasible primarily due to the narrow width of the corridor and established developments within close proximity to the alignment which were not designed to be adjacent to SkyTrain. The corridor west of Arbutus is generally narrower than the Broadway Subway section of Broadway, where an above-grade alignment was determined to not be feasible.

Land Use Planning and Station Integration

Limiting Land Speculation

In 2019, Council approved an amendment to the Development Contribution Expectation (DCE) policy intended to limit land value speculation for the portion of the Broadway Corridor not covered by the previously approved DCE policy for the Broadway Plan area. These policies provide buyers and sellers of land in areas anticipating rapid transit investment with clarity regarding the City's priorities in areas undergoing community planning and expectations for contributions towards amenities and affordable housing as a result of community planning.

At this point staff do not foresee a need to adjust the DCE that is currently in place. A future comprehensive planning program for the area west of Vine Street will explore and determine future land use policies and is likely to prioritize rental and affordable housing, job space and community amenities. When the announcement of defined station locations is made and/or when a future land use planning program for this area is launched, staff would come back to Council with an updated DCE.

Planning for Station Integration with Development

Station sites are significant place-making opportunities within the city as they have a long design service life and are located at key intersections in the heart of many of Vancouver's

neighbourhoods. Integration of development with the stations presents numerous benefits such as the opportunity to provide job space, housing and public amenities to support future planning objectives and policies. There is also a significant partnership opportunity to leverage investment in station sites amongst various levels of government. Locating jobs, housing, services and amenities with transit also increases movement by active travel modes which helps to support the City's Climate Emergency Action Plan and the Province's CleanBC plan. The Council approved BSP Principles and Strategies reinforced the project vision of stations integrated with development.

Important lessons have been learned from the recent BSP design development experience. BSP includes examples of station integration with new developments (e.g. South Granville and Great Northern Way – Emily Carr Stations). However, achieving integration can be challenging; the design development process by partner agencies (TransLink and the Province) creates station design reference concepts early in the process that typically set the project funding envelope. Once the envelope is set and the projects reach detailed design development stages and move into construction phases, it is much more difficult, and often too late, to make significant changes which would enable overbuild and station integration.

When not contemplated in the early stages of a project, development over the stations can be complex and add significant costs to building construction. This could mean that development integrated with the station is delayed or opportunities are missed altogether.

More detailed work on the broader corridor will build off the direction currently contemplated in the Vancouver Plan and will come in the future through a comprehensive land use plan. However, it is critical that staff begin considering the integration of new stations with development in advance of this planning work. This work could include exploring:

- station location, layout and configuration,
- sizing of public realm outside of stations,
- provisions for various development integration scenarios,
- multimodal connectivity, and;
- accommodating essential transit system infrastructure.

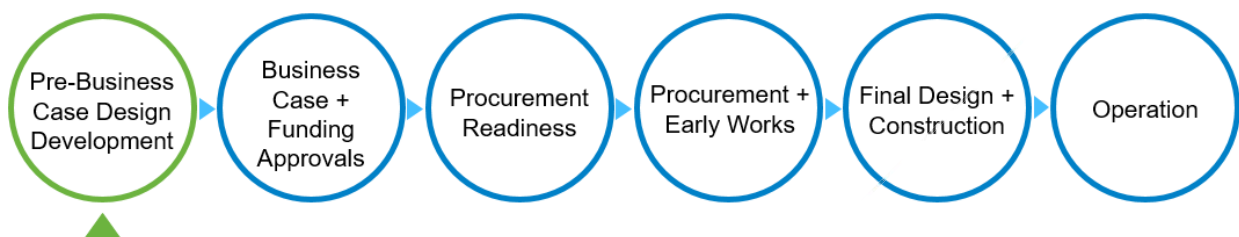
Staff are seeking Council endorsement to work with project partners including the Province, TransLink and others to identify what might be required to achieve better outcomes in terms of station integration with development and contribute towards shared design objectives such as enhanced connectivity, accessibility, passenger amenities as well as a vibrant public realm.

Next Steps

Staff are seeking Council endorsement of the City's preferred alignment and station locations to demonstrate municipal support for the Project, which the Mayor can relay to the TransLink Mayors' Council and senior government, reinforcing the overall commitment to the project and its objectives.

Subsequent to this Council report, TransLink staff plan to bring a report to the Mayors' Council, with a goal of selecting a preferred alignment and station locations, with a decision planned through the New Vision early this summer. UBCx will also be evaluated with other regional projects as part of the update to the Mayors' Council New Vision.

If the Project is approved as part of New Vision, it could then be advanced for further funding approvals in a future TransLink Investment Plan, determining timelines to progress to the next phase of design development, as outlined in the diagram below. This next phase includes advancing one or more preferred alignments into further design development and associated business case which will be used to set the project funding envelope.



If and when the Project receives a firm commitment to proceed, staff would then seek Council approval to undertake a comprehensive land use planning program to explore opportunities to integrate new development, transportation improvements and other city building opportunities associated with the transit investment.

Implications/Related Issues/Risk

Financial

In this phase of the Project, TransLink, in accordance with their Municipal Contributions Policy Framework, is defining the Regional Base Scope using technical and functional analysis for both the horizontal and vertical alignment to determine eligibility for regional funding. The initial findings of this analysis will be presented for review by the Mayors' Council and TransLink Board. At this time, it is anticipated that the alignment and station locations will generally be included within the Regional Base Scope with no partner contributions from the City required. There is a potential that variations of station locations within the Jericho site could result in a requirement for a partner contribution. Staff will use the framework for contributions to past rapid transit projects to guide analysis. This has primarily been through the provision of right of ways for alignment, station locations and construction staging areas. City Staff will work with TransLink and the Jericho Lands landowners to explore options and costs for station locations and will report back to Council if there are any financial implications.

TransLink or the Province will ultimately own and operate the SkyTrain extension to UBC. City Staff will continue to explore opportunities to support the Project as the design and business case development occurs similar to past rapid transit projects and will report these to Council.

In summer 2021, the Federal and Provincial governments committed to providing funding contributions for the next phase of the project including future planning and business case development.

Legal

As the Project progresses, City Staff will have more specifics on how the City can support the Project. As in past rapid transit projects, when more details are known, the City will negotiate one or more agreements with TransLink, the Province and other project stakeholders to formally document the terms upon which the City will support the Project. Prior to execution, City Staff will summarize these agreements for Council's consideration.

CONCLUSION

The Millennium Line UBC SkyTrain Extension from Arbutus Street to UBC is a critical regional rapid transit link within the Metro Vancouver transportation network. The Project will support city, regional and provincial goals by connecting a significant number of people to major destinations, while creating opportunities for important transit integration with planned development.

It is recommended that, within the City of Vancouver, stations at Macdonald Street and Alma Street, as well as a station located within the Jericho Lands be endorsed for further project development. Additionally, given the important permanent role that rapid stations play within the City and lessons learned from BSP process, it is recommended that the benefits of station integration with development be acknowledged early and actions defined to ensure the City can leverage the opportunity that transit investment enables from a place-making and city-shaping perspective.

A Council endorsement of the alignment and station locations will demonstrate City of Vancouver support for the upcoming Mayors' Council meetings that will seek endorsement of project elements and determine the manner in which this Project is advanced within the next 10 year vision.

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SkyTrain Millennium Line UBC Extension – Update

This summary provides an update from TransLink on technical work that has continued after the last round of public engagement in May 2021, as well as the anticipated next steps for further refining and advancing the potential Millennium Line UBC Extension.

Background

From April 19 to May 14, 2021, TransLink undertook a round of public engagement for the proposed Millennium Line UBC Extension. During the engagement, TransLink sought feedback on the priorities, opportunities, and considerations regarding a potential SkyTrain extension to UBC, and the criteria to help assess potential route and station location options. An engagement summary report outlining what we heard was published in October 2021 (report link: <https://www.translink.ca/-/media/translink/documents/plans-and-projects/rapid-transit/skytrain-to-ubc/translink-ubcx-summary-report-oct-2021.pdf>).

TransLink has considered input received and is undertaking technical work to assess the benefits and costs of different alignment and station options based on regional, partner and public inputs, and short-list alternatives that could be used for future phases of project development.

If decision makers direct TransLink to undertake additional technical work, the next step would be to develop a business case, which is required to seek project funding and approval before proceeding with procurement and construction.

TransLink is working closely with the Province of BC, City of Vancouver, the University of British Columbia, xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish Nation) and səliłwətał (Tsleil-Waututh Nation), Metro Vancouver, and the University Endowment Lands (UEL).

Potential Station and Alignment Options





Technical work includes analyzing potential station and alignment options:

- Station options at either the Jericho Lands or near Sasamat Street
- Identification of a potential future infill station within the vicinity of the University Endowment Lands
- Potential for a second station on the UBC Campus
- Potential for where the guideway could be elevated

These alternatives are being evaluated to compare trade-offs and understand benefits and costs.

For the questions about where the guideway could be elevated, analysis is underway to assess technical and functional feasibility along the corridor. Technical feasibility relates to the physical factors that determine whether the guideway is constructable. Functional feasibility examines the performance of an elevated guideway in its ability to meet the project's objectives, such as impacts to travel time, multimodal road users, urban development, and neighborhoods.

Anticipated Next Steps

April-May 2022 – Public engagement regarding the detailed implementation blueprint for Transport 2050 (New Vision). Millennium Line UBC Extension is one of the projects under consideration.

Summer 2022 – Detailed implementation blueprint for Transport 2050 (New Vision) is submitted for decision-maker approval.

Beyond July 2022 – Subject to direction from decision makers, begin development of business case.