



# Burnaby Mountain Gondola

Business Case Discussion Guide

November 6–19, 2023

# Background

**In 2020, TransLink conducted public engagement to support the evaluation of three potential gondola routes connecting the rapid transit network to the top of Burnaby Mountain.**

With a final route selected, and project support from City of Burnaby and TransLink's Mayors' Council, the project advanced to the business case stage.

**To help inform the business case, TransLink is now seeking your feedback on:**

- Understanding travel and trips to Burnaby Mountain
- Environmental Screening Review – Terms of Reference
- Design approach (e.g. terminals, boarding area)

*The Burnaby Mountain Gondola is not a funded project, it is still in the planning phase.*

# Background: Selected Route

Watch the **Burnaby Mountain Gondola - 360 FlyOver** video to see what the view from the gondola will look like.

[youtu.be/mnnkxes4ZxE](https://youtu.be/mnnkxes4ZxE)



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## Business Case Development



## Feedback Topics

- Travel Patterns and Trip Types
- Environmental Screening Review
- Design approach (e.g. terminals, boarding area)



## Next Steps



# 2020 Route Evaluation Engagement – What We Heard



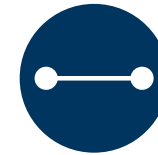
**Broad support for the project  
across Metro Vancouver**



**The need to minimize  
impact on the environment**



**The need for improved service  
to Burnaby Mountain**



**Preference for most  
direct route**



**Concerns about impact on  
Forest Grove residents**

**Over 20,000** completed surveys,  
emails, and event participants  
during 2020 public engagement

# First Nations Engagement

Since 2020 TransLink has been directly engaging with:



**kʷikwəłəm**  
(Kwikwetlem)



**xʷməθkʷəyəm**  
(Musqueam)



**Sḵwxwú7mesh**  
**Úxwumixw**  
(Squamish)



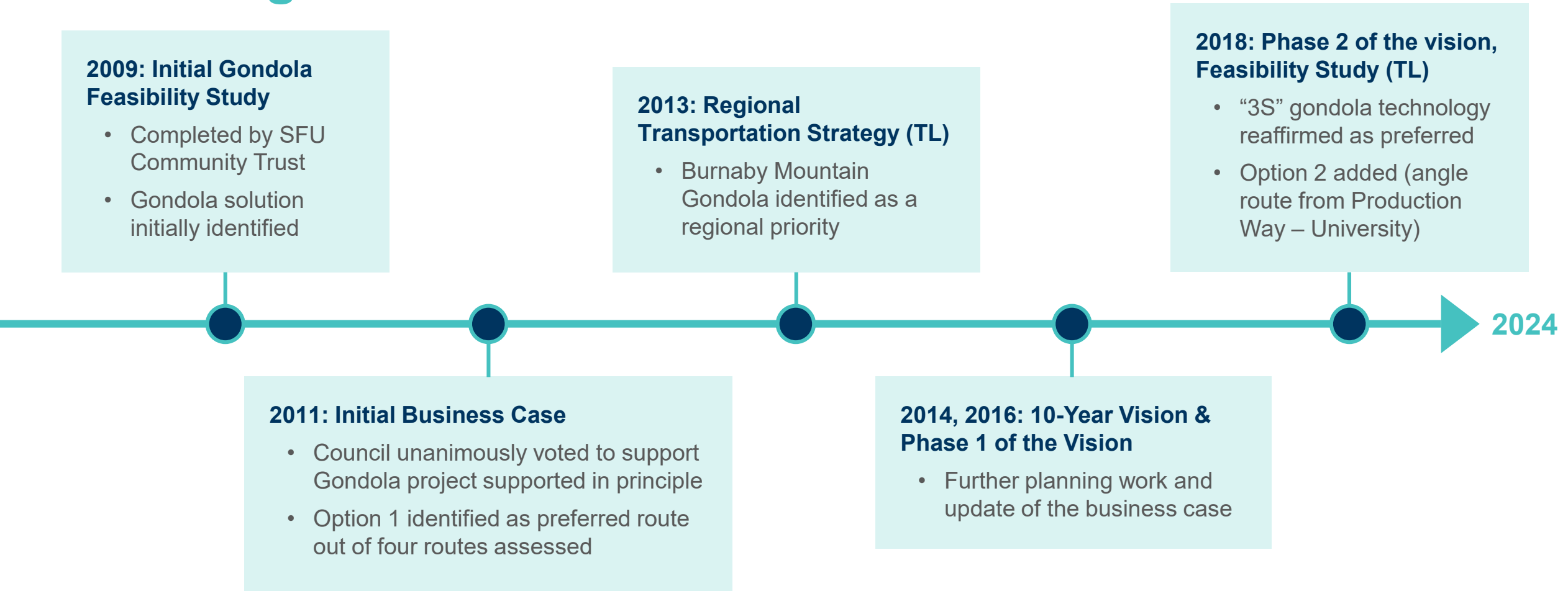
**səlilwətał**  
(Tsleil-Waututh)

Engagement areas include opportunities and potential impacts to their Aboriginal rights and interests related to the Burnaby Mountain Gondola project, and to advance reconciliation.

# Project Overview

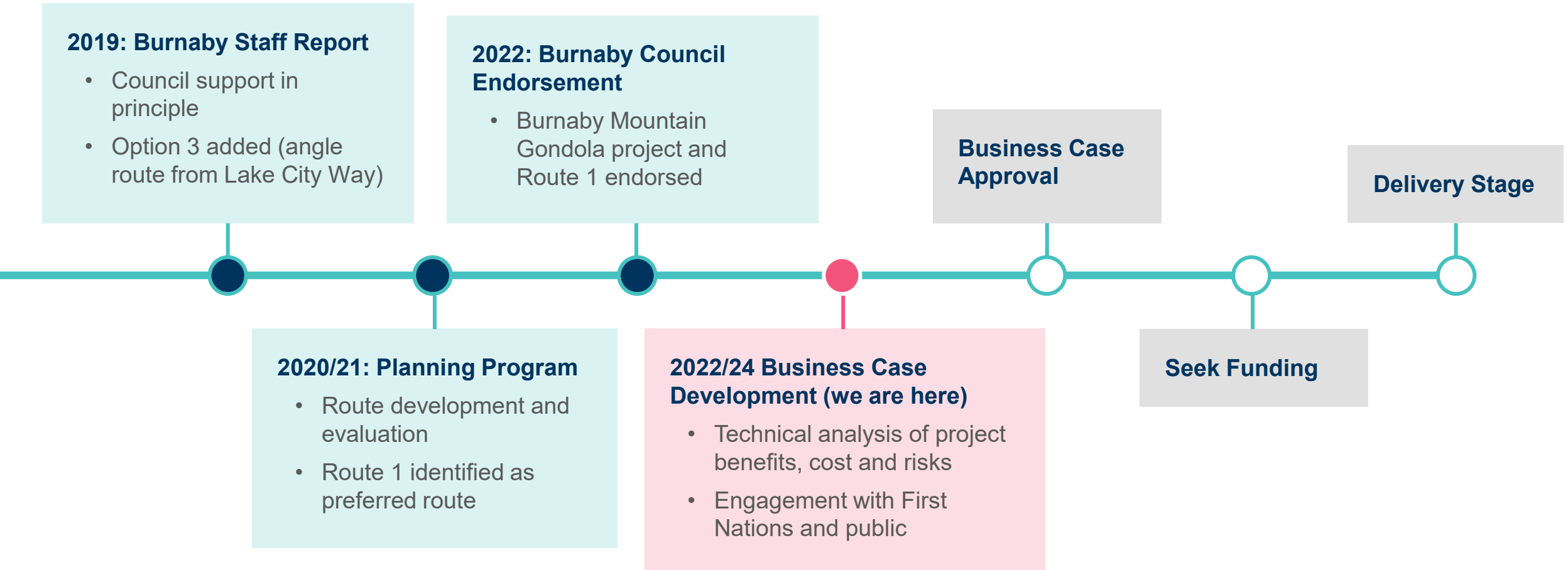


# Planning Timeline

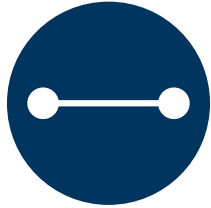




# Planning Timeline (continued)



# Benefits



## Direct Route

Offers the most direct route connecting Skytrain with Burnaby Mountain



## Rising Demand

Enough capacity to meet rising demand over the next 30 years



## Environment

Reduces GHG emissions and air pollution



## Reliable

Addresses overcrowding and weather-related reliability issues



## Cost-Effective

Requires less annual operating costs than current bus service

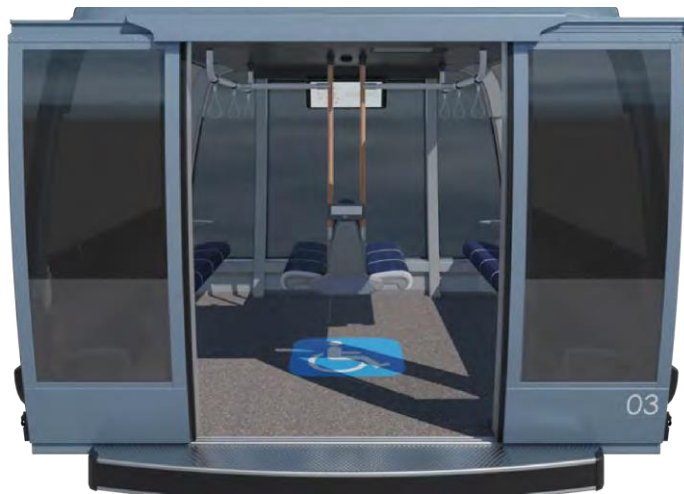


## Customer Experience

Improves customer experience through reduced travel time and ease of travel

# 3S Gondola Cabins Overview

- Can accommodate up to 30 customers
- Seats and flexible-use area
- Assumed one dedicated spot for customers using mobility devices
- Assumed one bike per cabin



*This is a conceptual rendering only.*



*3S Gondola, Bolzano, Italy*

# Technical Summary

*These components have been confirmed*

## Gondola type

- 3S gondola technology (like the Peak-to-Peak gondola at Whistler)

## Infrastructure

- Two terminals, four towers
- Terminals located at Production Way-University and near SFU Town Square (east side of campus)

## Attendants

- Attendants in each terminal to assist with boarding and alighting

*These components may be refined through future design phases*

## Capacity

- Opening day: ~3,000 passengers per hour per direction
- Ultimate: ~4,000 passengers per hour per direction

## Trip time

- 7 minutes

## Travel speed

- Between terminals: 6-8 meters/second or 27.5 kilometers/hour
- In terminals: 0.18 meters/second, can slow down more or stop if needed

## Cabins

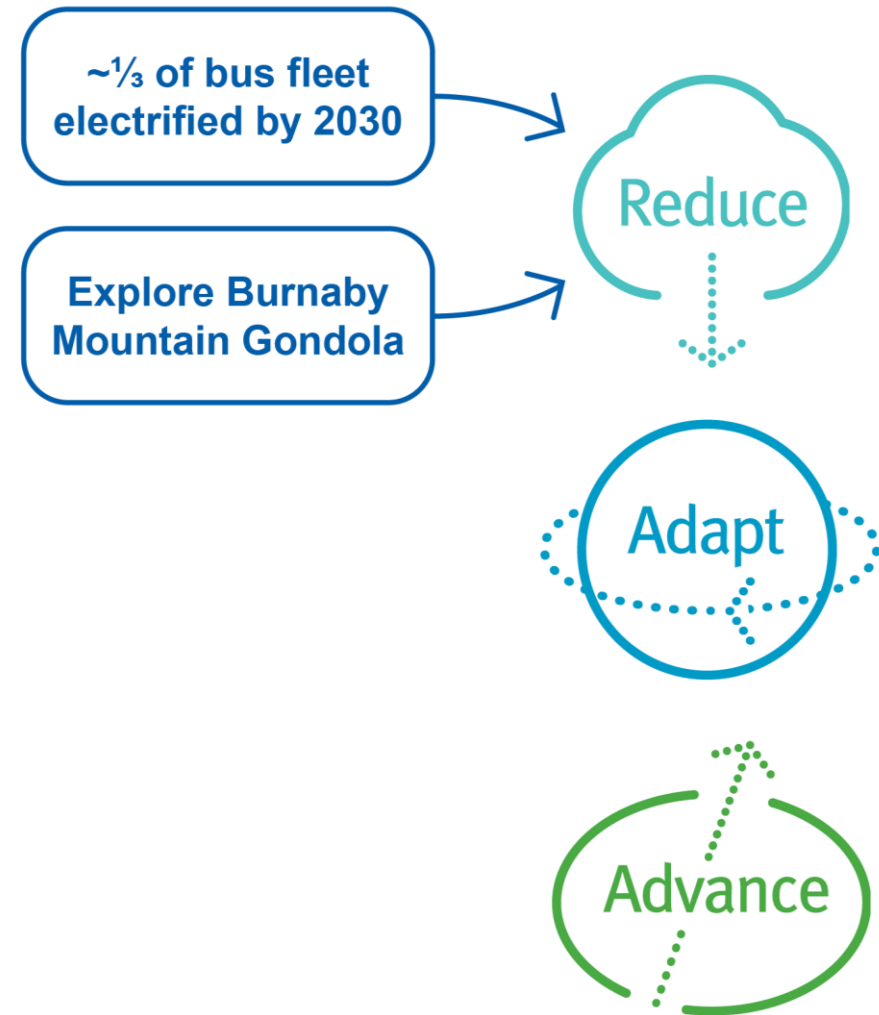
- Capacity of about 30 passengers

# Greenhouse Gas (GHG) Emissions

The Project would operate on electricity, reducing the amount of GHG emissions from current bus operations and from supporting mode switch from vehicles to transit.

We've compared the Project's GHG emissions to current diesel and future battery electric bus operations.

- An estimate of direct emissions (including the gondola's fossil fuel and electricity uses) has been completed.
- An estimate of indirect emissions (including embodied carbon in materials and GHGs from construction activities) is planned for 2024.



TransLink Climate Action Plan

# Direct GHG Emissions Estimates

**99% reduction in  
GHG emissions in  
2028 and 2035**

(compared to current diesel-hybrid buses)

**60% reduction in  
GHG emissions in  
2050**

(compared to future battery electric buses)

*Interim emissions are per trip and based on current gondola design assumptions.*

# Business Case Development



# What is the Business Case?

**A Business Case defines a regional transportation problem (or opportunity) and evaluates the benefits, costs, impacts and risks for each potential initiative being considered.**

Business Cases support decision makers in making evidence-based and transparent decisions based on both quantitative and qualitative analysis.

Once the business case is finalized it will be taken to TransLink's Mayors' Council for their decision and direction.





# Business Case: Components

## The Business Case Phase includes:

- **Assessment of the route and infrastructure**, as well as the costs, benefits, impacts, and mitigations of the project
- **Refinement of the conceptual design** of the terminals, towers and route alignment
- **Environmental work**, through an Environmental Screening Review
- **Archaeological assessment**, through the Archaeological Impact Assessment
- **GHG emissions work**, through the GHG emissions calculations
- **Continued engagement** with the First Nations of interest and Project Partners
- **One round of engagement** with local communities, public, key stakeholders, and equity groups

**1** Project Understanding

**2** Design & Development

**3** Business Case Finalization

# Feedback Topics

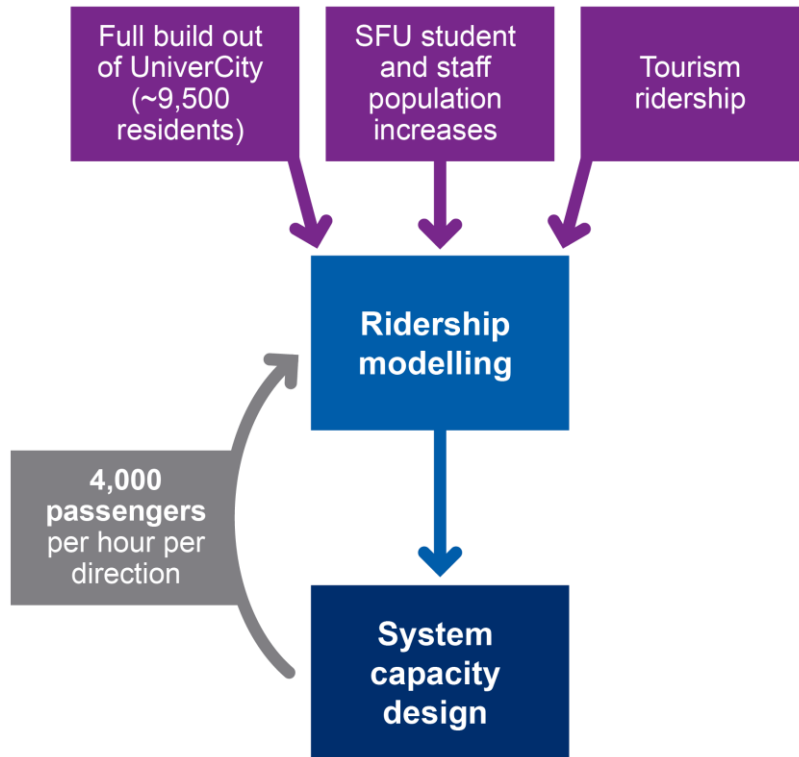


# Travel Patterns and Trip Types



# Travel Patterns and Trip Types

## Ridership modelling informs gondola system capacity design



## Transit ridership is returning steadily

- SFU-specific return to transit is 90%



We want to hear from you about your trips to Burnaby Mountain:

- How often do you travel?
- Why do you travel?
- What mode do you travel on? (transit, single occupancy vehicle, cycling, etc.)
- How do you connect to/from transit? (walking, micro mobility, etc.)

# Environmental Screening Review



# Environmental Screening Review

The Environmental Screening Review (ESR) is intended to be a clear and transparent process for identifying and protecting environmental values in the Project area.

It includes opportunities for input from the public, First Nations, stakeholders, and partner agencies.

This analysis will:

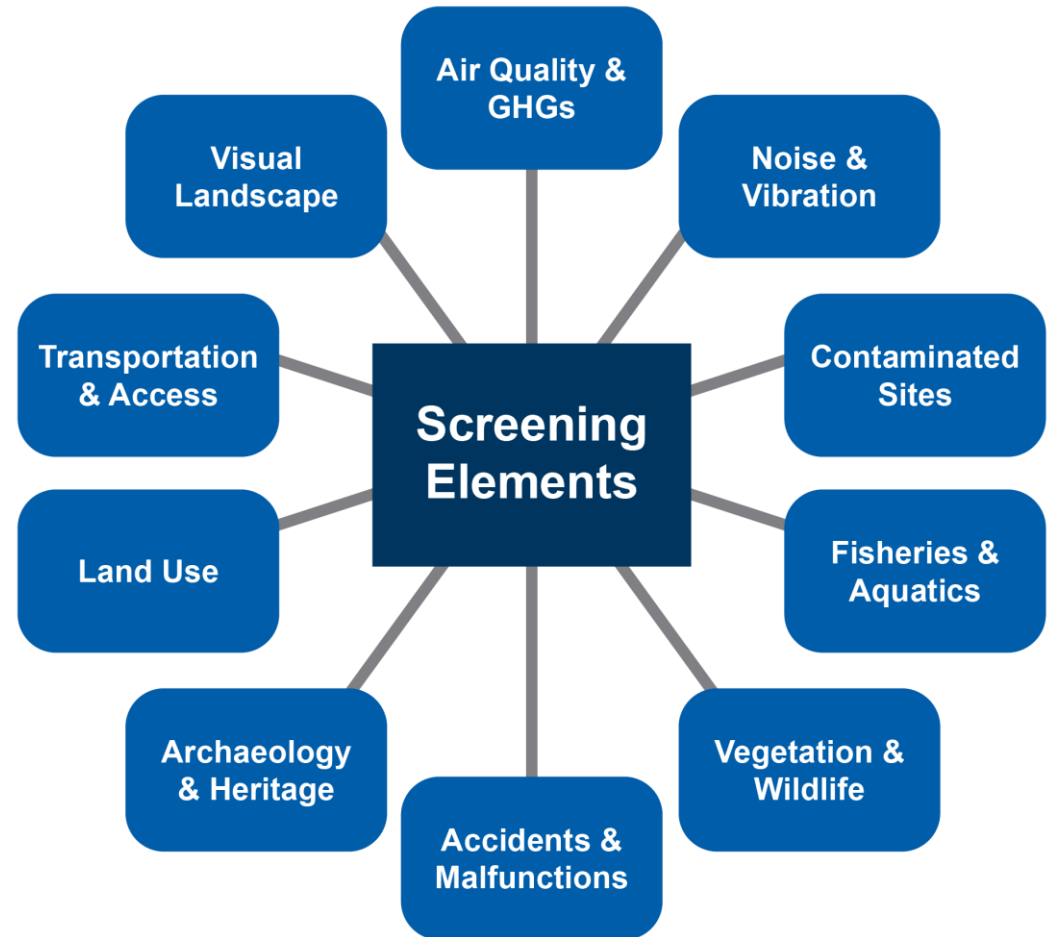
- identify potential effects on the environment
- identify mitigations to avoid or minimize those effects
- identify any remaining effects that are still anticipated after mitigations
- inform an environmental framework for construction and gondola operations

## ESR Stages



# Screening Elements

Screening elements are components of **nature** and the **human environment** that are considered to have ecological, economic, social, archaeological, historical, or other importance in the Project area.



# Screening Elements Explained



**Air Quality and Greenhouse Gases** – Air pollutants and greenhouse gas levels will be assessed to determine project effects on air quality



**Noise and Vibration** – Noise emissions and vibration during construction and operation will be assessed to manage impacts to surrounding communities



**Contaminated Sites** – Hazardous materials encountered during construction will be identified and managed safely



**Fisheries and Aquatics** – Fish health, habitat, and water quality will be analyzed to manage any changes during construction and operation



**Vegetation and Wildlife** – Trees, vegetation, wildlife and wildlife habitat along the gondola route will be assessed and any invasive vegetation encountered during the Project will be managed

The **2020 Noise Study** can be accessed at [translink.ca/gondola](https://translink.ca/gondola)



# Screening Elements



**Land Use** – Determine any impacts to residential, commercial, and conservation land designations along the route.



**Archaeology and Heritage** – Field investigations are planned in areas of archaeological significance to inform design decisions and advance reconciliation. Impacts to any heritage resources will be assessed.



**Transportation and Access** – Impacts from the Project on traffic patterns, vehicle volumes, emergency response times, parking and property access will be assessed and considered.



**Visual Landscape** – Assess any visual changes to local and regional landscapes that occur due to the Project and any findings will inform the Land Use section of the business case



**Accidents and Malfunctions** – Procedures will be identified to respond to internal events such as key equipment breakdown (e.g. gondola motor), as well as external events (e.g. extreme weather)

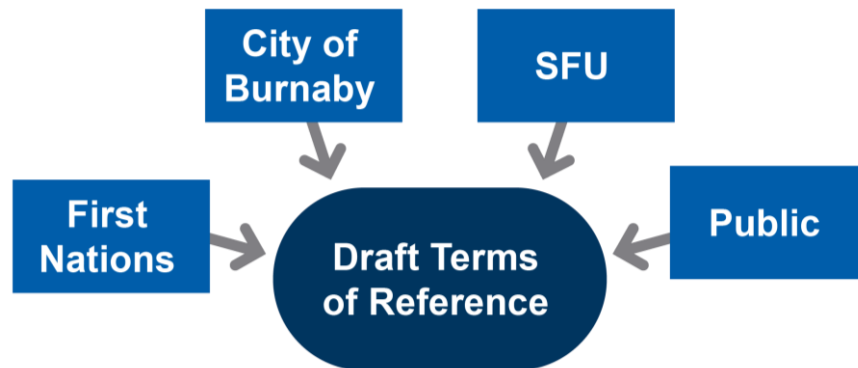
For more information on screening elements and the ESR process, read the **Environmental Screening Review, Terms of Reference** at [translink.ca/gondola](https://translink.ca/gondola)

# Draft Terms of Reference

**The scope of the Environmental Screening Review process will be defined by a Terms of Reference.**

A Terms of Reference is a framework for the planning and decision-making process to be followed during the preparation of the ESR.

The draft Terms of Reference will be developed with feedback from First Nations, stakeholders, and partners.



The draft Terms of Reference includes:

- The screening elements to be selected
- Existing/baseline conditions
- Project interactions and effects
- Mitigations during construction and operation

**?** Is the Environmental Screening Review Terms of Reference sufficiently thorough?

# Design and Development



# Conceptual Design Components

**As part of the business case phase, TransLink has developed conceptual designs of the gondola.**

This section will focus on:

- The project's overarching design principles
- The design approach for the following components of the gondola design:
  - Terminals
  - Boarding and alighting areas
  - Cabins
  - Cycling and pedestrian connections
  - Route alignment and towers



# Conceptual Design Principles



## Minimize impact to residential areas

- No towers in residential neighbourhoods
- Minimize the number of residential buildings the alignment crosses
- Design system to exceed City of Burnaby's privacy separation



## Acceptability of terminal locations:

- Lower terminal location acceptable to TransLink and City of Burnaby
- Upper terminal location acceptable to TransLink and SFU



## Minimize impact to natural areas

- Towers located in developed areas or as close as possible in road right of ways



## Minimize ground impacts

- Limit impacts to natural areas and potential for archaeological disturbance

# Terminals: Design Approach

## Accessible best practices and design standards

- Designed based on accessible best practices and design standards to ensure customers feel comfortable, safe and secure customer experience by incorporating:
  - Universal design
  - Clear sightlines
  - Presence of people and activity
  - Easily located safety features
  - Wayfinding information
  - Well-lit areas

## Comfortable and convenient transfers

- Support comfortable and convenient transfers between transit modes, walking, active transportation, and pedestrian access from the street

## Safety considerations

- Consider aspects of design and operations to ensure safe environments



**Do these seem like the right components to guide design?**

# Terminals: Conceptual Design

## Gondola Lower Terminal at Production Way-University Station



Integrated into Production Way-University Station area to support transfers between SkyTrain, bus, and gondola.

# Terminals: Conceptual Design

## Gondola Upper Terminal beside SFU Town Square



Located to the east of SFU Town Square and connecting to Cornerstone Mews



# Boarding and Alighting: Design Approach

## Straight and level platform

- Platform flush with cabin floor

## Tactile directional and warning paving

- Consistent with other TransLink facilities

## Slow moving cabins

- Can be slowed further or stopped for boarding and alighting

## Attendants present at terminals

- Attendants at each terminal to assist with boarding and alighting

## Priority boarding lane

- For passengers who require more time to board.

## Design considers the ability to skip a cabin

- Allows for extra boarding time if required



**Do these seem like the right components to guide design?**

# Cabins: Design Approach

## Seating and flexible area

- Gondola cabins would provide seats and a flexible area for customers

## Designated priority seating

- Based on the cabin capacity and regulations

## Designated space

- One dedicated space for a mobility device per cabin

## Bikes on the gondola

- One bike or micro mobility device allowed per cabin

## Ventilation

- In-cabin ventilation, windows would be inoperable

## Cabins would be equipped with in-cabin safety components including:

- Two-way communication with security staff
- CCTV
- Transit Police emergency number

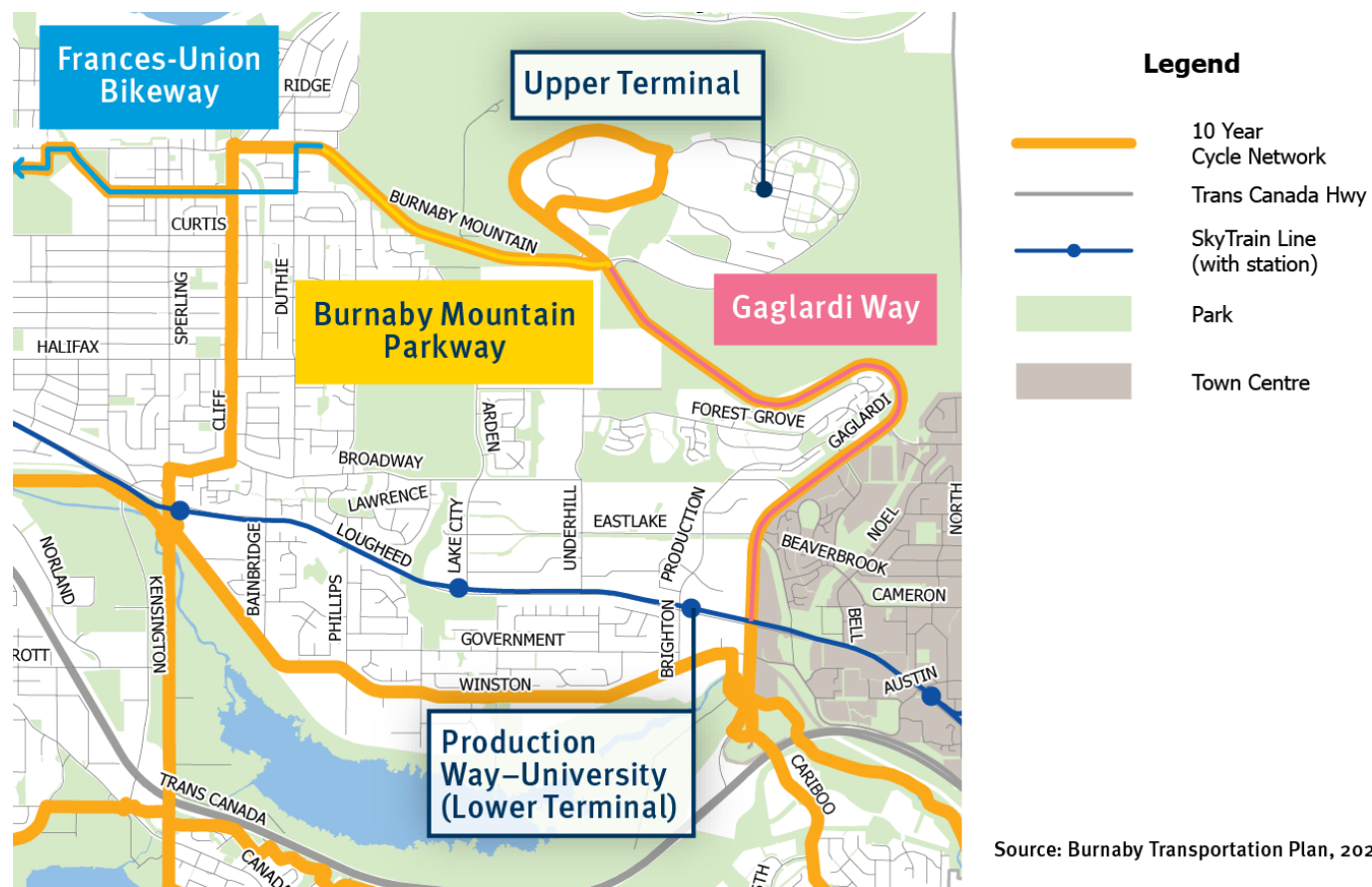
*Design parameters will be developed should this project move ahead.*

# Cycling Network Connections: City of Burnaby

The City of Burnaby is upgrading its cycling network to support increased active transportation with safer on-street facilities.

Planned improvements will extend from Burnaby Mountain Parkway on Gaglardi Way to the cycling route on Lougheed Highway. These upgrades will support the multimodal capability of customers traveling to Burnaby Mountain by bike and improve the trips of customers who choose to cycle one way from Burnaby Mountain.

The City of Burnaby has plans to make improvements to other links in the nearby cycling network.

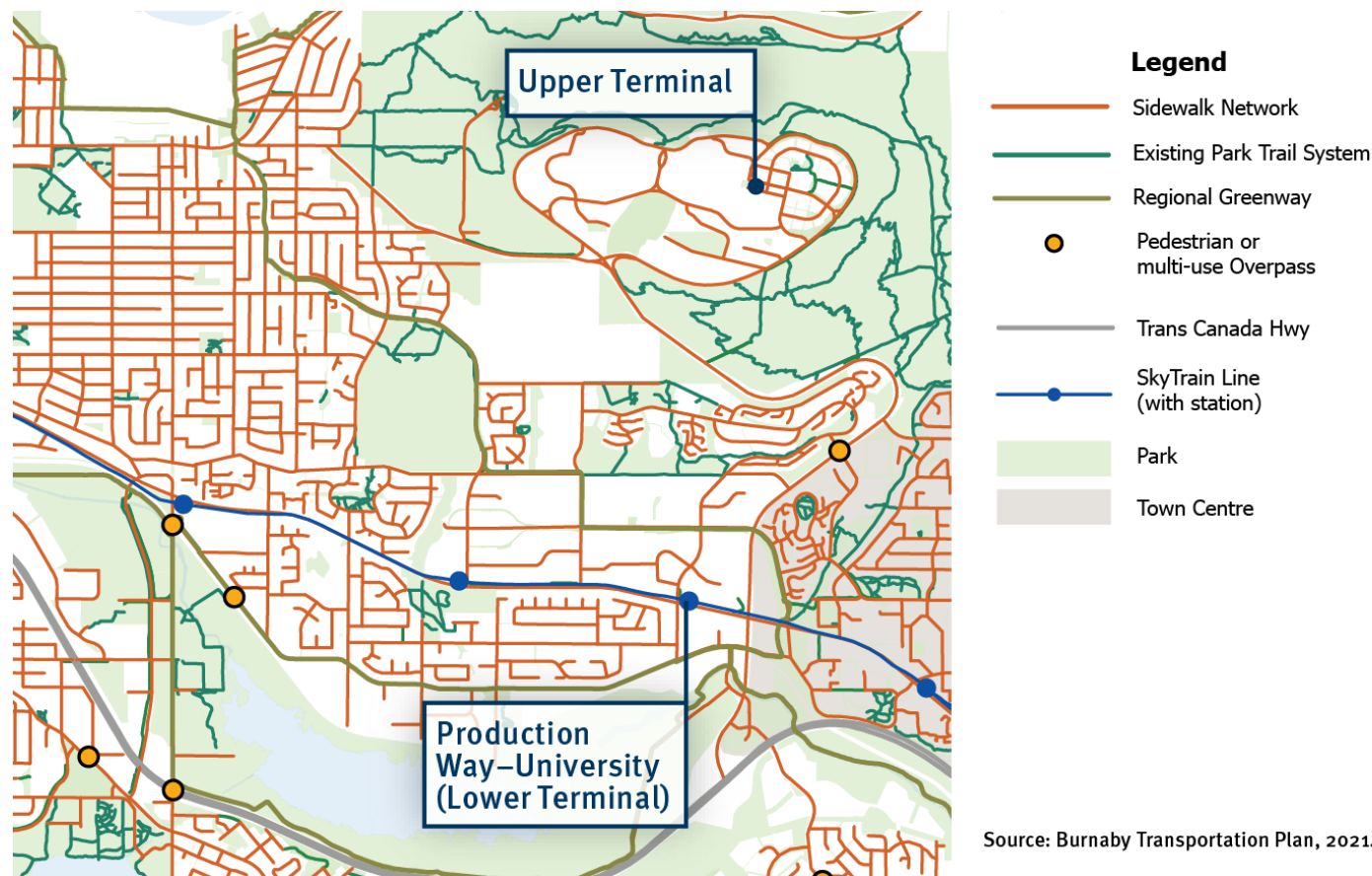


# Pedestrian Network Connections: City of Burnaby

**All trips start and end by walking or rolling.**

Connecting the pedestrian network and transit needs can make trips more accessible and comfortable for pedestrians.

The City of Burnaby monitors and upgrades the pedestrian network as needed. The Project will be integrated into the pedestrian network area near Production Way-University Lower Terminal and the Upper Terminal.



# Gondola Towers: Approach

## Reduce number of gondola towers

- 2020 conceptual design included five towers
- 2023 conceptual design has four towers
  - Fewer towers means less ground disturbance and ground impact, less visual impacts, and lower capital and operating costs to maintain

## Tower locations

- Located in urbanized areas or as close as possible in road right of ways
- No towers proposed in residential neighbourhoods

## Tower type

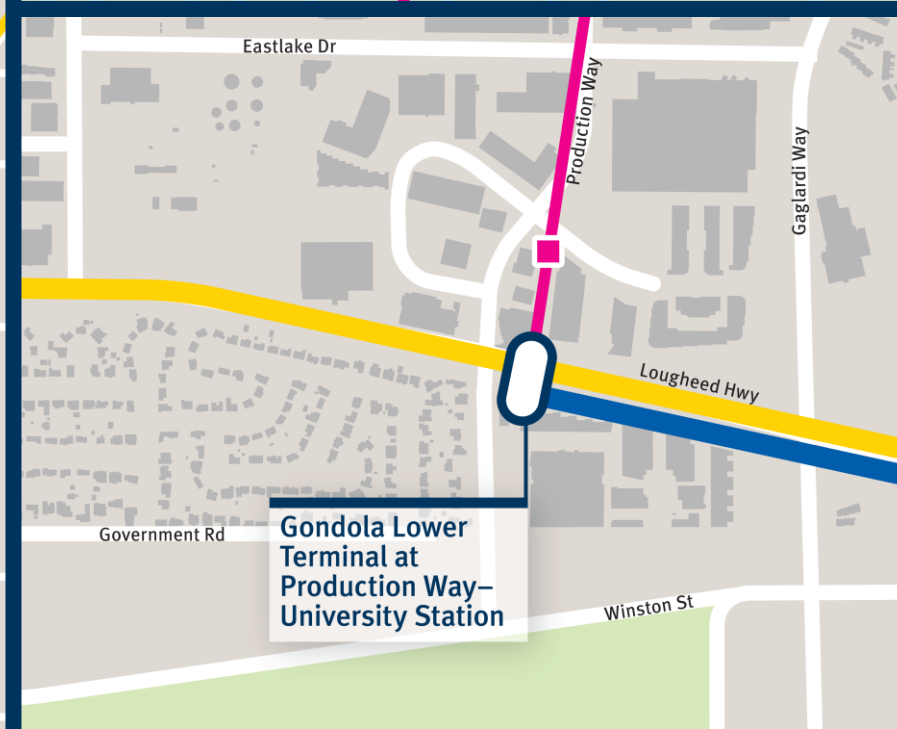
- Lattice towers have been assumed at this stage of the design
  - Less visual presence/impact than other tower types (such as monopole and custom towers)
  - More cost-effective than other tower types



**Do these seem like the right components to guide design?**

**Legend**

- Planned Burnaby Mountain Gondola Route
- Gondola Tower
- Expo Line
- Millennium Line
- Bus Exchange
- Conservation Area/Parks/Golf Course
- Burnaby Mountain Conservation Area



# Gondola Towers: Conceptual Design



*Tower 3 looking east on Galgardi Way*



*Tower 4 looking east on University Drive*

# Next Steps





# Business Case Finalization

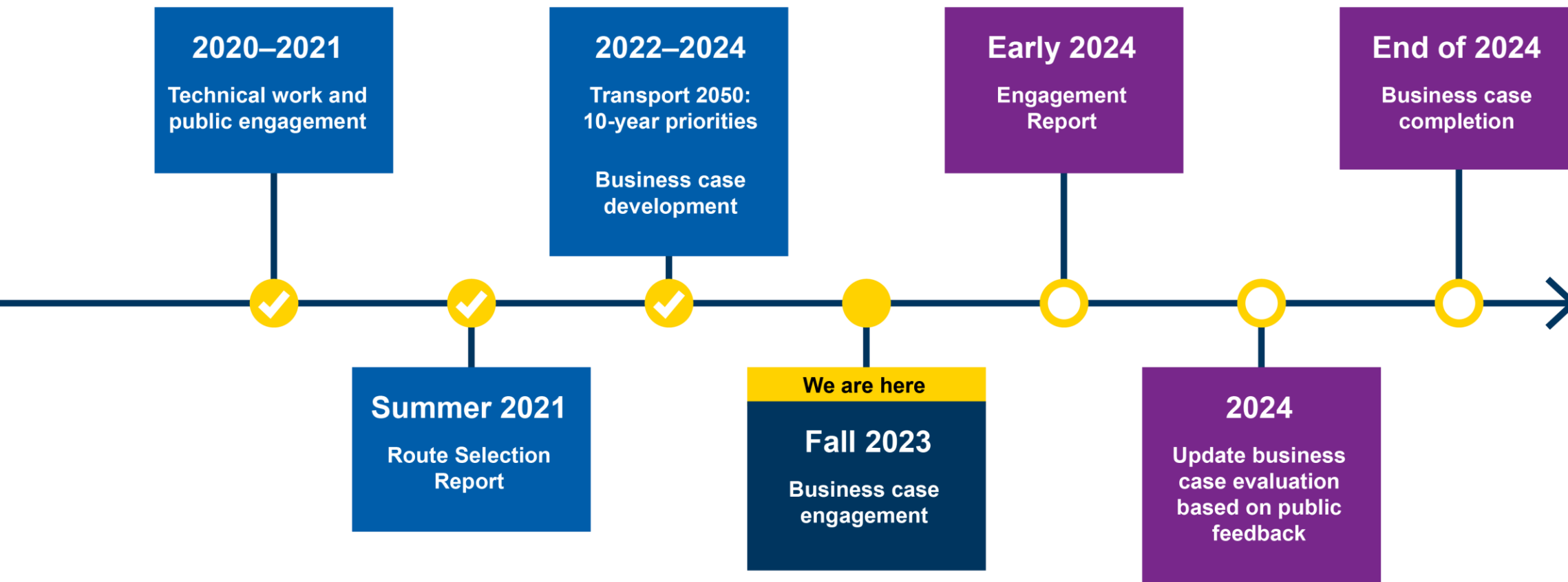
**The final stage of the business case will include:**

- Updated conceptual design based on public engagement and engagement with key stakeholders, equity groups, and First Nations
- Assessment of project benefits
- Project costs, including capital and operating costs

**The business case will be presented to TransLink's Mayors' Council for their decision and direction.**



# Project milestones and next steps



# Have your say from November 6-19, 2023

Go to [translink.ca/gondola](https://translink.ca/gondola)  
to learn more and complete  
the online survey

