Burnaby Mountain Gondola

Phase Two Stakeholder and Public Engagement

November 23 – December 14, 2020

Overview

- Route Summary and Project Background
- Phase One Engagement Results
- Route Evaluation

Route Summary and Project Background

3 Potential Routes

Burnaby Mountain Gondola

Why a Gondola on Burnaby Mountain?

Direct Route

The most direct route connecting Skytrain with Burnaby Mountain

Capacity

Enough capacity to meet 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

City of Burnaby Core Principles for Developing a Gondola

In 2019, the City of Burnaby confirmed support in principle for the gondola, subject to the following principles:

Residents: Minimize impacts to residents living near the gondola

Environment: Minimize impacts to areas with high ecological values, such as fish-bearing streams and riparian areas

Compensation: Provide fair compensation to affected property owners for intrusion of the gondola

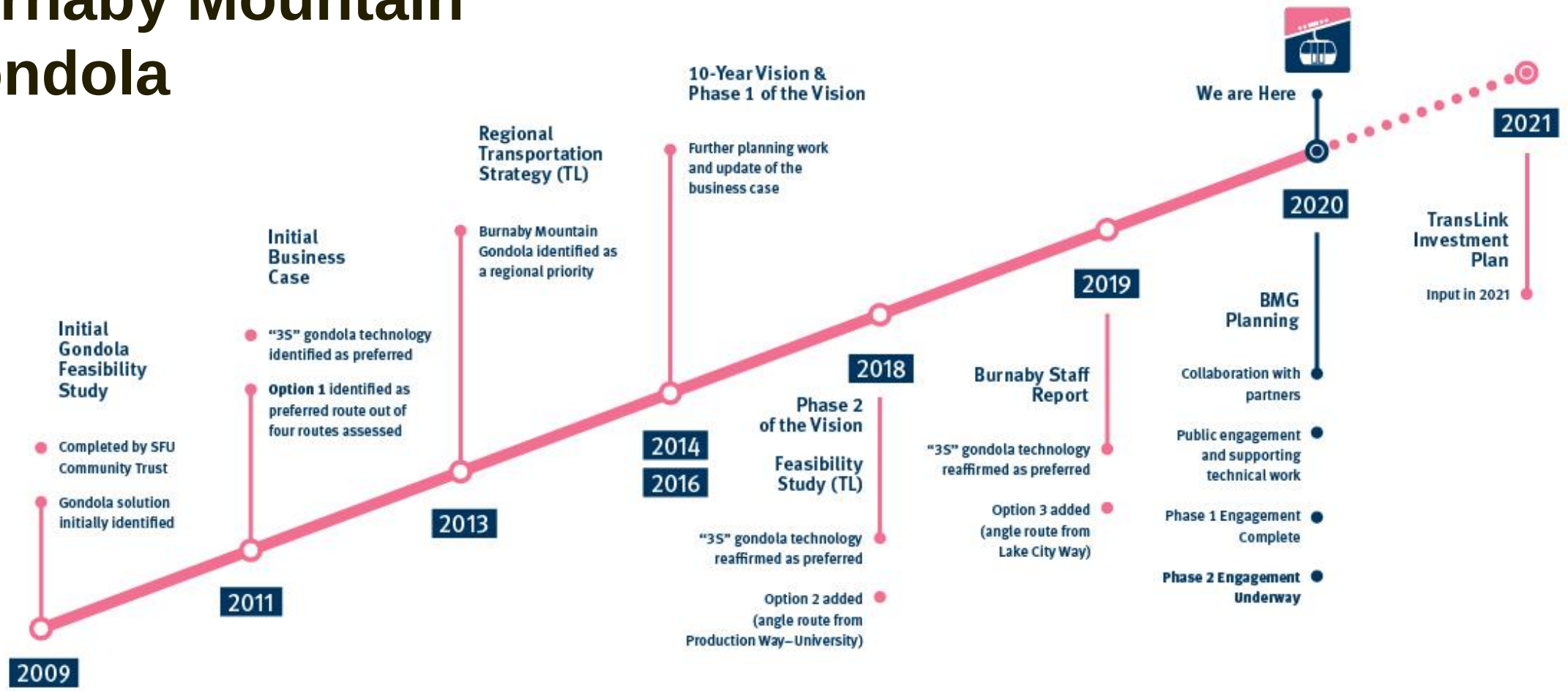
Options: Consider all three options on an equal basis

Consultation: Engage the community in meaningful consultation and report back to Council on the results

Why Advance the Gondola Project Now?

- Identified by the regional Mayors' Council as a priority in their 10-Year Vision
  - Dedicated resources within TransLink
- Operationally cost-effective: savings could offset some capital costs
- Improved customer experience would help rebuild and grow ridership
- Could qualify for potential federal stimulus/recovery funding
- Greenhouse gas (GHG) benefits would contribute to near-term reduction targets

Background of the Burnaby Mountain Gondola



Phase One Engagement Results

Phase 1 Engagement Results

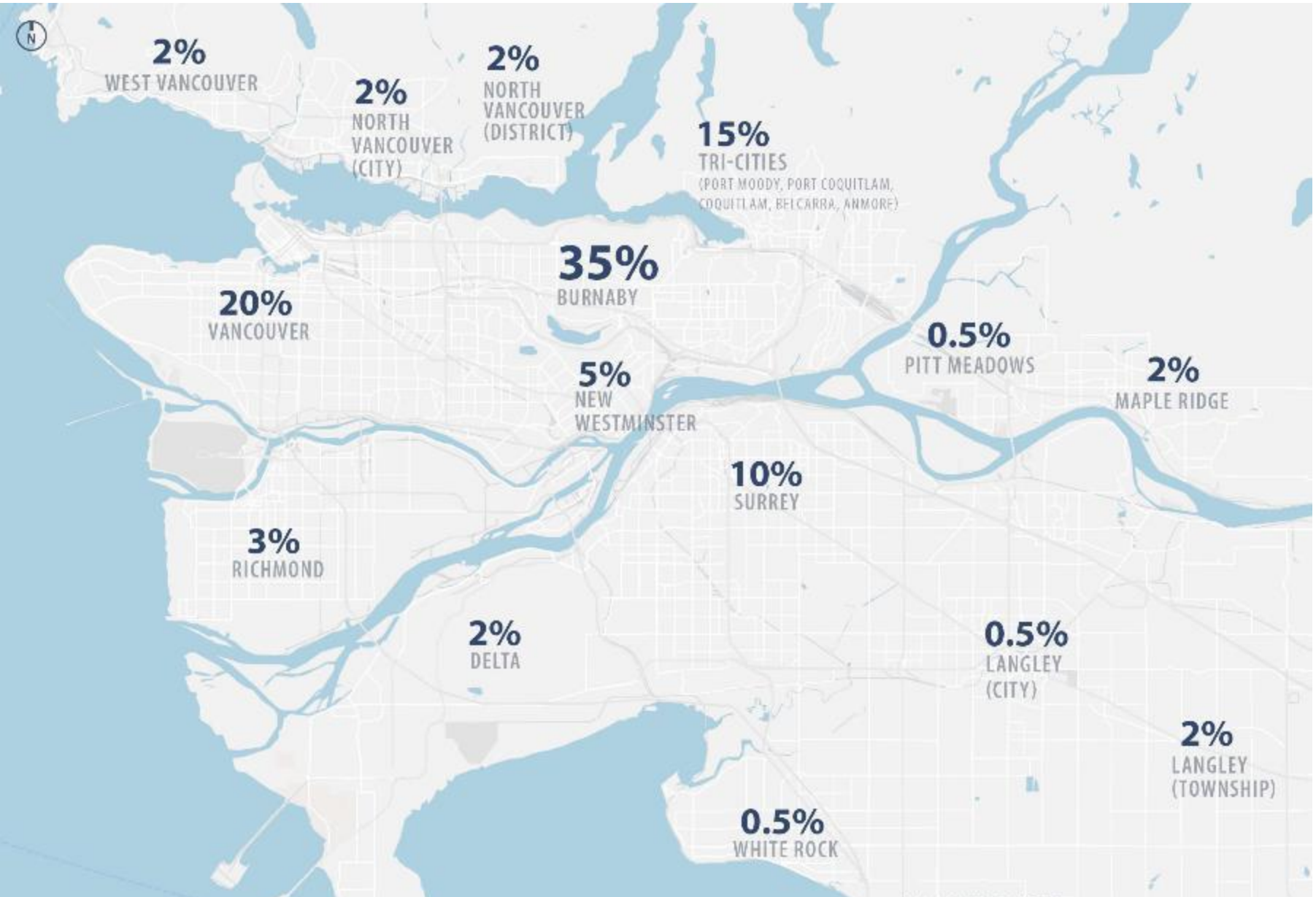
Engagement Period Sept 1-30

- Total interactions: 13,173
  - 12,955 completed surveys
  - 73 virtual open house attendees
  - 37 telephone townhall participants
  - 21 general stakeholder meeting attendees
  - 48 attendees at two Forest Grove workshops
  - 32 written submissions via email
  - 7 telephone calls

Phase 1 Objectives

- Share information about gondola technology and potential gondola routes
- Understand values related to gondola
- Solicit feedback on criteria
- Gauge support for gondola

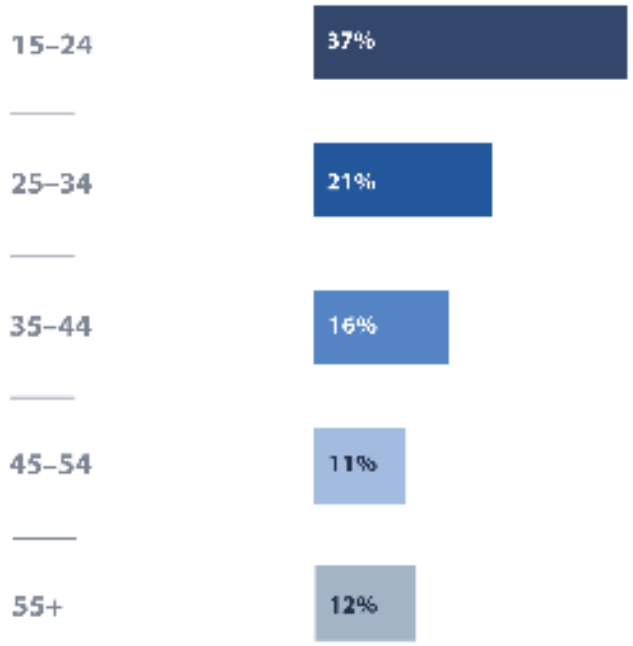
Survey Respondents: Residence and Age



Composition of Burnaby respondents (n=4,535)

18% from Forest Grove
17% from UniverCity
60% other Burnaby neighbourhood
5% preferred not to say

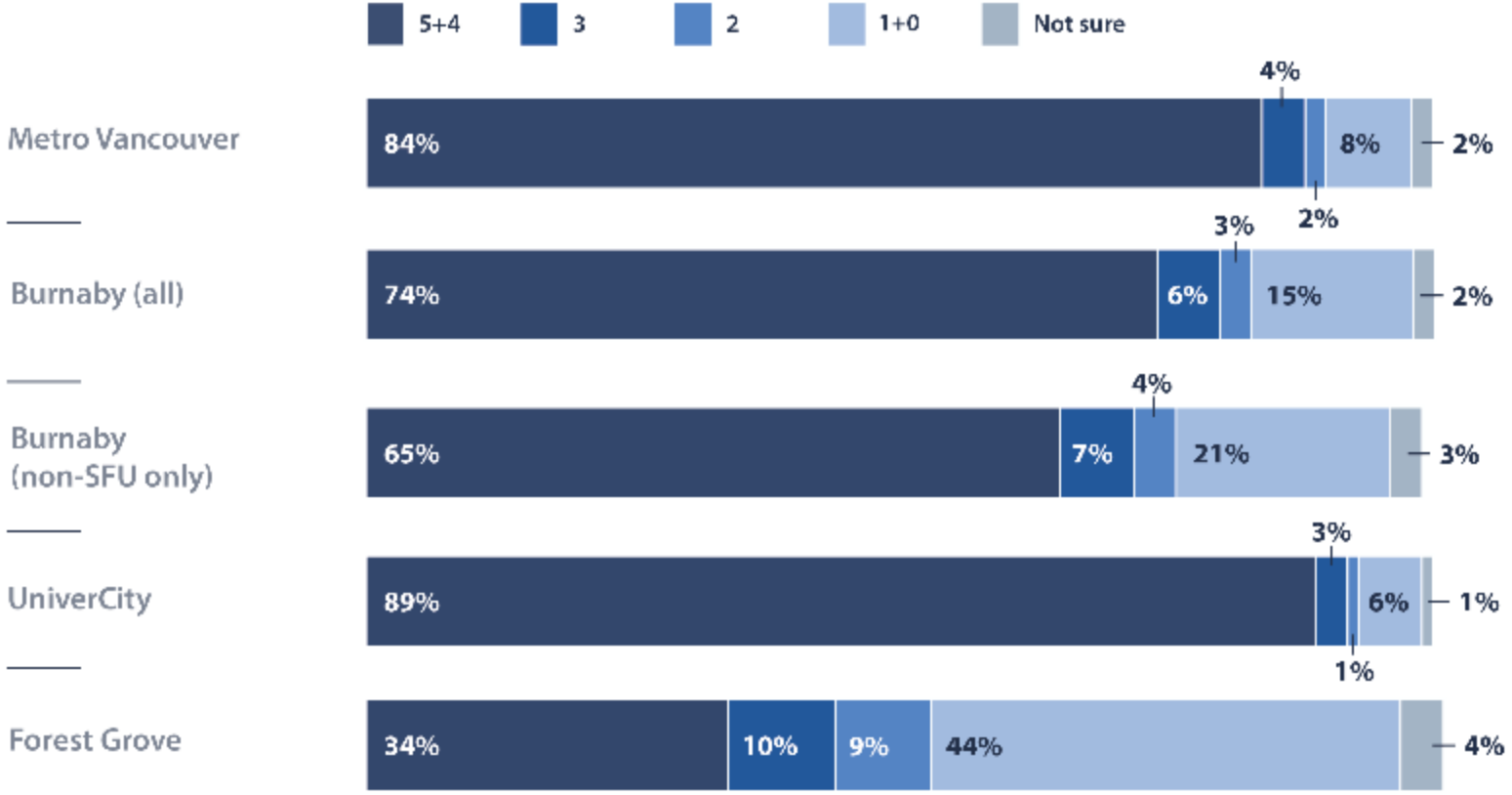
Age demographics



Support for a Proposed Gondola

84% of survey respondents were supportive or very supportive of the proposed project.

Respondents were given an opportunity to rate their support on a scale of 0 to 5, where '0' is 'not at all supportive' and '5' is 'very supportive.'



Key Feedback: Safety

- Residents expressed concern about the gondola passing over their homes, particularly in light of the Sea-to-Sky Gondola incidents
  - **Ropeway supplier assessment and RCMP findings confirmed**:
    - Incident was a deliberate, criminal act
    - Exceptional in that it has not occurred anywhere else in the world
    - There were no design, installation, or manufacturing flaws that contributed to the failure of the system
- In response to feedback, TransLink is working with industry experts on mitigations
  - Gondola cabins would be stored in stations overnight
  - Surveillance measures and physical barriers, gates, and a security system would be included
  - The proposed 3S system uses three high-strength, multi-strand steel cables (unlike the Sea-to-Sky Gondola's single-cable system)

Highest ranked values

Rank	Value
1	Provide a safe and secure service
2	Improve all-weather and daily travel reliability
3	Provide a connection to and from the existing rapid transit network to Burnaby Mountain to meet current and future travel demand

Route Evaluation

Route Evaluation

- Purpose: evaluate three potential gondola routes and identify a preferred route
- Inputs from:
  - Members of the public
  - Indigenous groups
  - Gondola ropeway designer
  - Environmental consultants
  - TransLink planning advisors
  - Utility companies
  - City of Burnaby staff

Route Evaluation Considerations

Benefits

The positive changes that we can expect the proposed gondola to deliver

Costs

The capital, operating, and maintenance costs of the proposed gondola system

Implementation Considerations

Trade-offs that will result from implementing the proposed gondola

Benefits

Transportation User Experience

Sustainable Transportation

Transportation User Experience

	Route 1	Route 2	Route 3
One-way transit user time savings (bus=55 mins) Users travelling from anywhere on network to/from SFU. Includes walking time to central campus.	13% faster than by bus	9% faster than by bus	Similar time to bus
Reduction in daily congestion	– 700 hrs	– 660 hrs	– 490 hrs
SFU classrooms and other buildings within a 5-minute walk of the upper terminal	Classrooms: 80% Other: 36%	Classrooms: 80% Other: 36%	Classrooms: 52% Other: 45%

Finding: Route 1 is the fastest, reduces the most congestion, and has greatest number of SFU buildings within a 5-minute walk of the upper terminal

Sustainable Transportation

	Route 1	Route 2	Route 3
Daily combined boardings To/from Burnaby Mountain in 2035	30,400 boardings	28,200 boardings	25,400 boardings
Reduction in greenhouse gas (GHG) emissions from auto	– 1,400 tonnes	– 1,300 tonnes	– 800 tonnes

Current bus service emits
3,684 t of CO_2e annually

Finding: Route 1 will attract the most transit users, encourage more people to switch from driving to transit, which will result in the greatest reduction in GHG emissions

Costs

Capital Cost

Operating and Maintenance Costs

Capital and Operating and Maintenance Costs

	Bus	Route 1	Route 2	Route 3
Capital cost	$77.5 Million	$210 Million	$237 Million	$231 Million
Annual operating and maintenance cost	$7.8 Million	$5.6 Million (30% less than bus)	$7.2 Million (8% less than bus)	$7.2 Million (8% less than bus)

Finding: Route 1 has the lowest capital, operating, and maintenance cost.

Implementation Considerations

Neighbourhood

- Noise
- Privacy
- Visual Presence
- Property Impacts
- Safety

Environment

- Land Impacts
- Water and Critical Habitat
- Waterways and Riparian Areas
- Critical Habitat for Western Painted Turtle

Safety

- Geotechnical Site Stability
- Utility Conflict
- External Safety Risk

Neighbourhood: Noise

- Gondola systems produce noise at terminals, towers and angle stations

- There are proposed towers and an angle station proposed near the communities of Forest Grove, Rathburn, Meadowood

- We measured existing background noise levels and used modelling to assess the potential change in noise levels (decibels)

Neighbourhood: Noise

	Route 1	Route 2	Route 3
Increase in neighbourhood noise attributed to gondola	Less than 1 decibel	Less than 1 decibel	Less than 1 decibel

Note: The human ear detects a change in sound starting at 3 decibels.
(For more infomration, refer to the Noise Memo in the Document Library).

Findings for all routes: There would be no perceptible increase in potential neighbourhood noise. The gondola cannot be heard over existing background noise

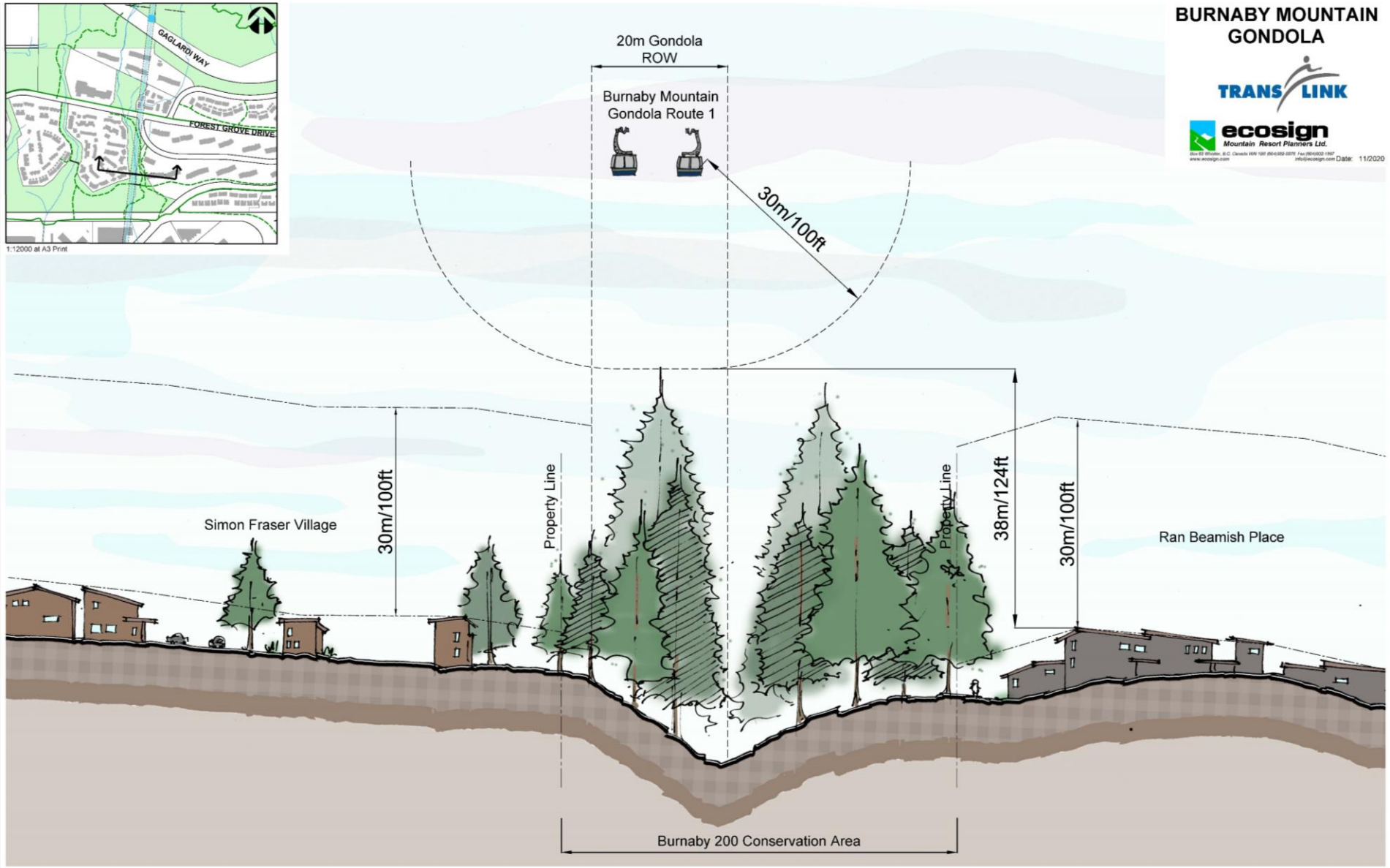
Neighbourhood: Privacy

- Local residents have identified privacy as a key concern, citing the potential for customers to look out on to residential, industrial, or office properties
- When planning new high-rise buildings, the City of Burnaby applies a separation distance of 30 m between buildings to account for privacy
- We applied the same separation distance (30 m) by line of sight from residential and industrial buildings to the gondola

Privacy Impacts

Route 1

The gondola cabins are travelling at a height where there is no overlap between the privacy impact zone and residential buildings



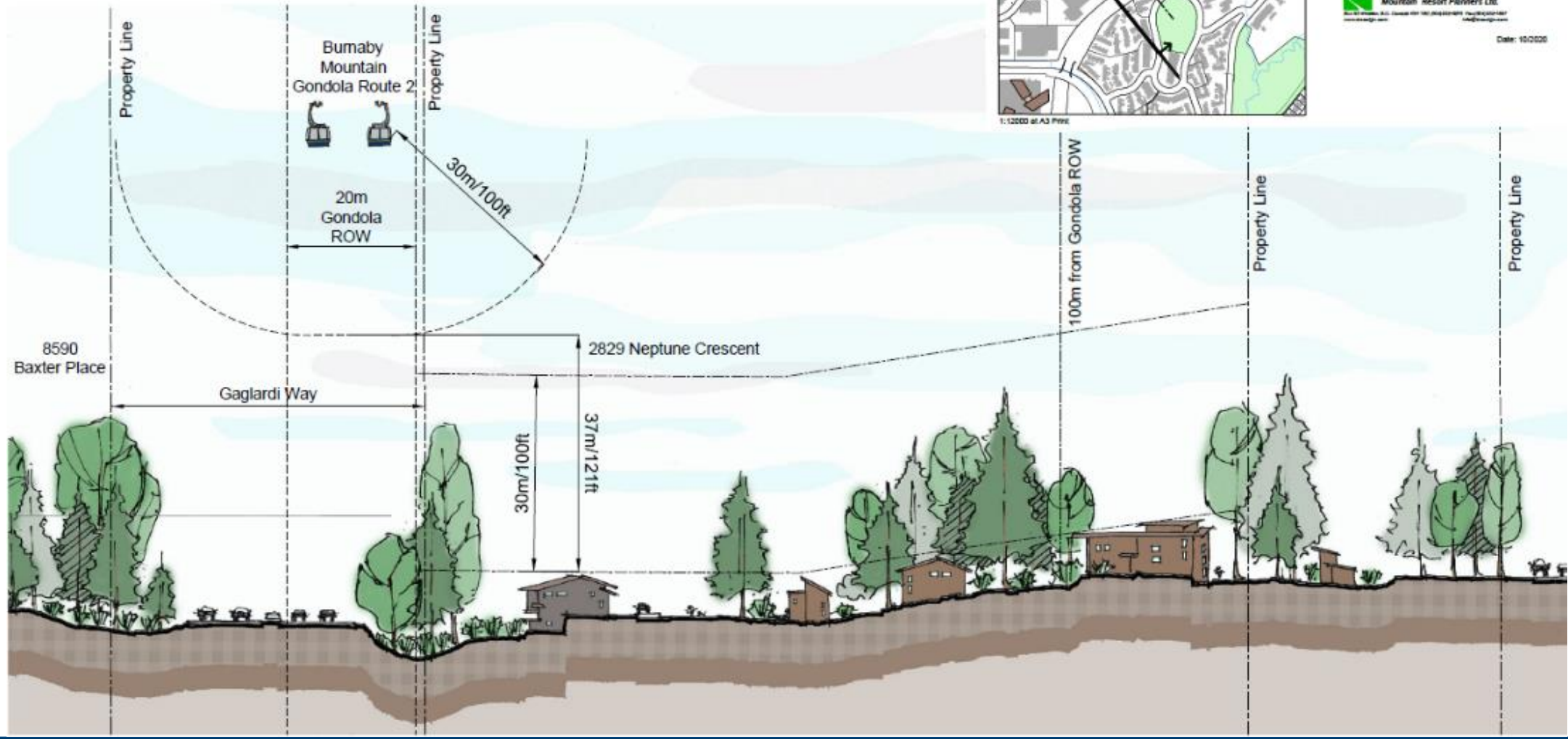
Privacy Impacts

Route 2

BURNABY MOUNTAIN GONDOLA

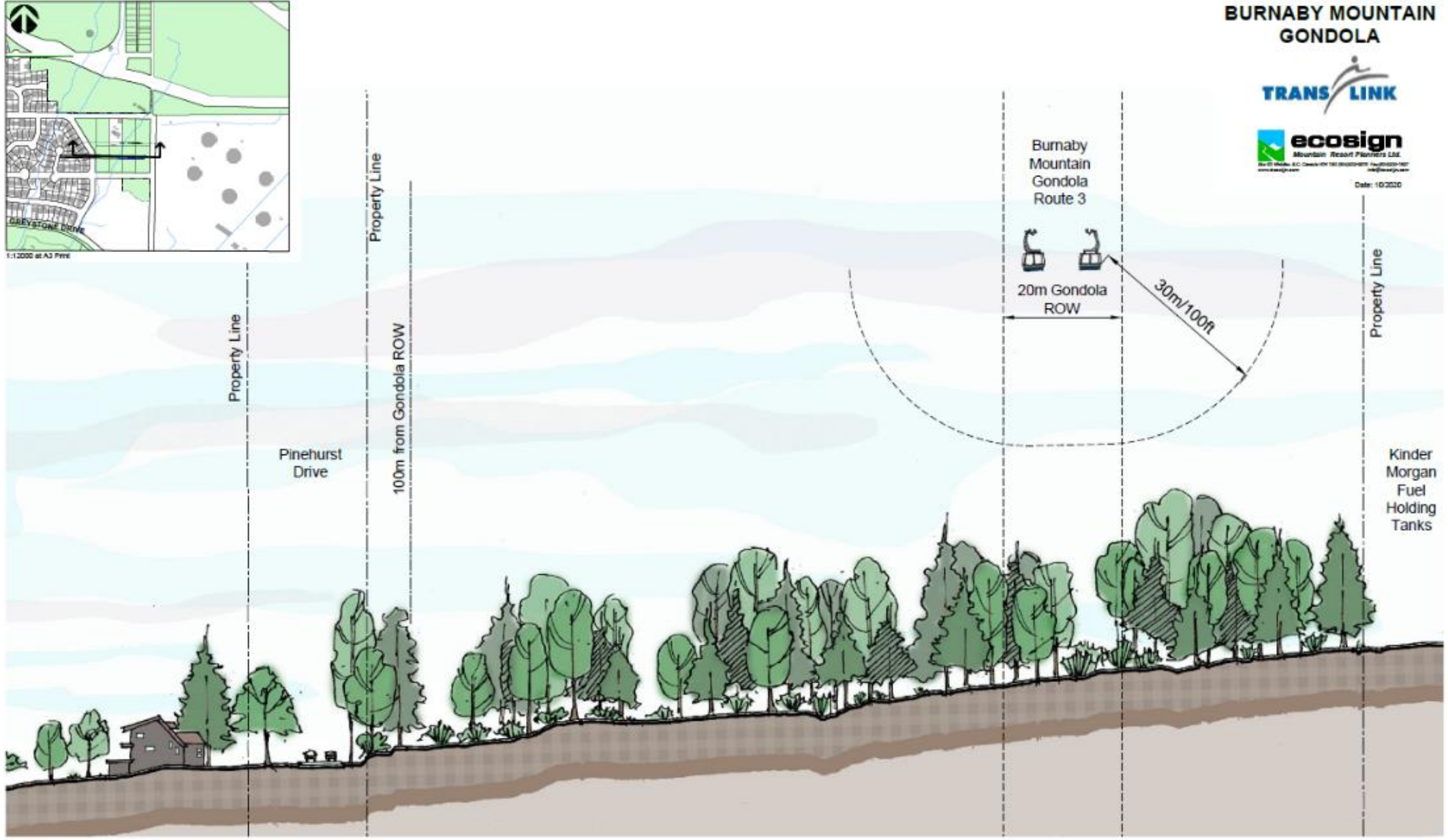
TRANS LINK

ecosign
Mountain Resort Planners Ltd.



Privacy Impacts

Route 3



Neighbourhood: Privacy

Within 100 ft (30.5 m) of gondola by line of sight and measured by linear distance	Route 1	Route 2	Route 3
Residential properties.	None	UniverCity: 12 residential units in 1 property Unknown number of units in future mixed-use residential property	None
Industrial/office properties	6	3	1
Total linear distance in privacy zone	385	715	450

Finding: Generally, Route 1 is travelling at heights above the 30.5 m separation (including over Forest Grove), consistent with City of Burnaby separation distance requirements

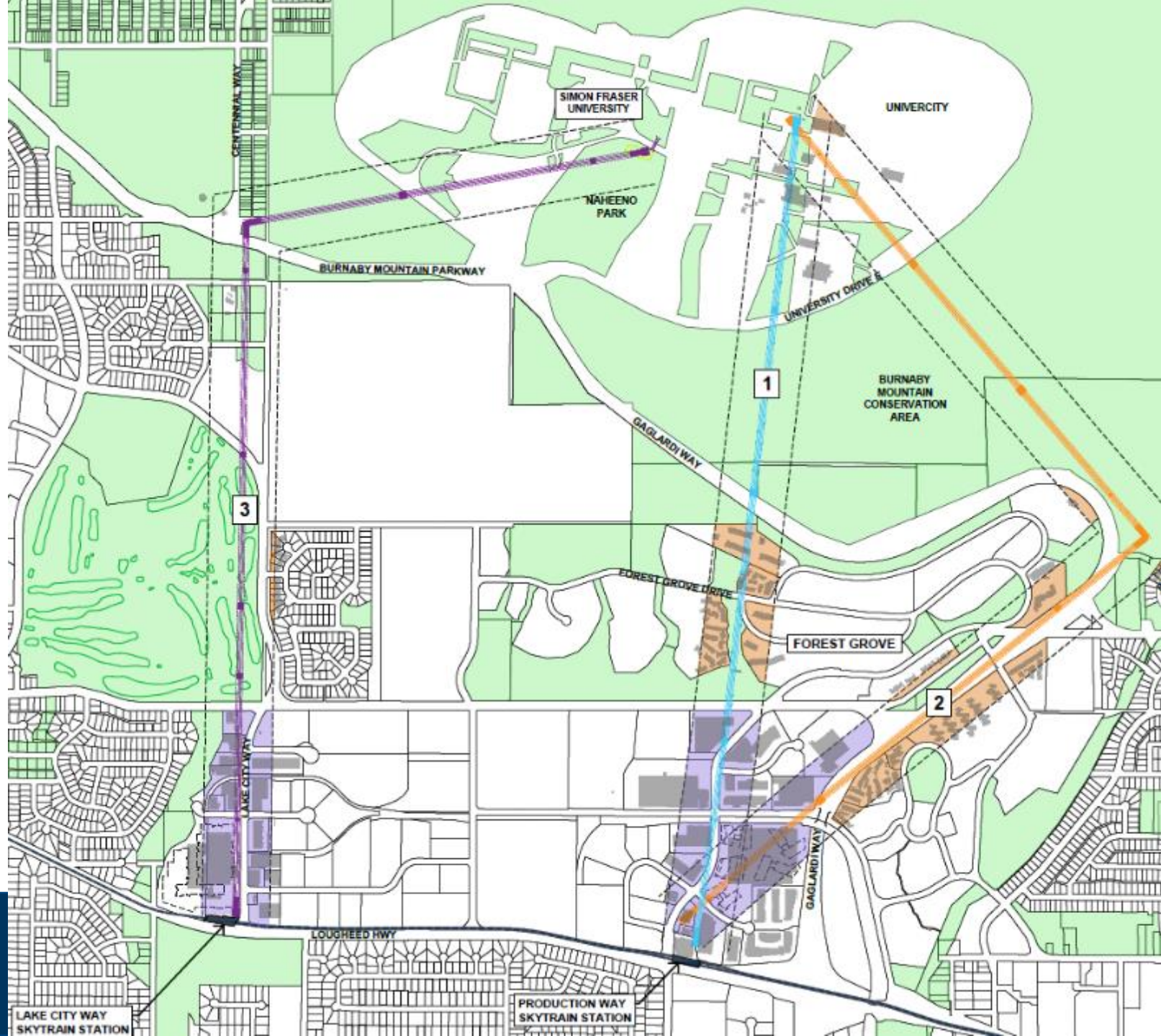
Neighbourhood: Visual Presence

- Visual presence is the ability of people to see the gondola
- Topography and trees may reduce the visual presence of the gondola
- To measure visual presence, we calculated the number of units within 100 m of the gondola right-of-way (ROW)

Neighbourhood: Visual Presence

The shaded areas are within 100 m of the gondola cabins

- Orange residential units
- Purple industrial & office buildings



Burnaby Mountain Gondola

Neighbourhood: Visual Presence

Visual presence (visibility of the gondola from homes)	Route 1	Route 2	Route 3
Multi-family units and properties	250 units in 4 properties	290 units in 7 properties	None
Single-family properties	None	7	13

Finding: Route 3 would have the lowest visual impact as it would only be visible from 13 homes

Neighbourhood: Property Impacts

- Within the 20 m gondola right-of-way there may be aerial or infrastructure (land) property impacts

- Property requirements will impact:
  - Residential
  - Industrial or office
  - Other: which includes Conservation Area or parks, Burnaby Mountain Golf Course, and SFU lands

Neighbourhood: Direct Property Impacts

Properties impacted	Route 1	Route 2	Route 3
Residential	2 properties Total area: 3,778 m² 100% aerial	Properties: none	Properties: none
Industrial or office	Properties: 9 Total area: 9,488 m²	Properties: 4 Total area: 10,225 m²	Properties: 7 parcels Total area: 12,758 m²
Other	Total area: 15,446 m²	Total area: 16,104 m²	Total area: 36,567 m²

Finding:
Route 1 would have the fewest overall direct property impacts, but impacts two residential properties

Property Impacts

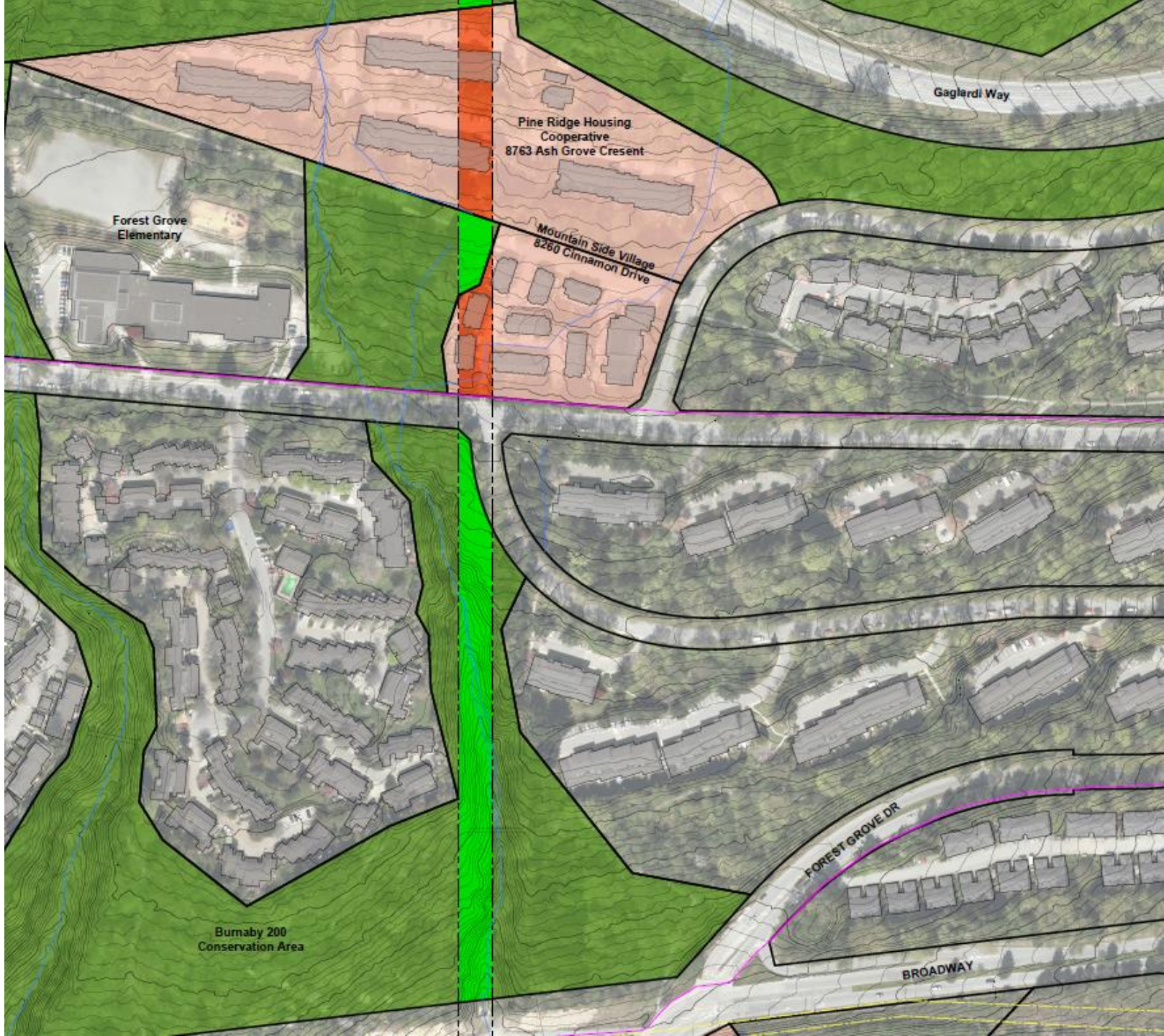
Residential property impacts of Route 1

2 multi-unit properties have aerial impacts

Affected property owners would be entitled to compensation if the gondola becomes a funded project.

Legend

- Gondola ROW Across Private Land Parcels
- Private Land Beneath Gondola ROW
- Conservation Area Beneath Gondola ROW



Environment: Land Impacts

	Route 1	Route 2	Route 3
Bunaby Mountain Conservation Area and parkland* aerial and infrastructure overlap *includes the golf course	19,779 m²	36,768 m²	57,455 m²
Land disturbance area	Access road: 0 m Structures: 725 m²	Access road: 7,515 m² Structures: 2,474 m²	Access road: 990 m² Structures: 2,733 m²
Approximate tree loss	220	1,100	1,330

Finding: Route 1 has the lowest environmental land impacts

Environment:
Waterways and Riparian Areas

	Route 1	Route 2	Route 3
Clearing or infrastructure in waterways and riparian areas setbacks (Class A or B waterways/riparian areas m²)	Class A: 0 m² Class B: 8 m²	Class A: 7,464 m² Class B: 5,681 m²	Class A: 0 m² Class B: 6,490 m²

Findings: Route 1 has the fewest impacts to waterways and riparian areas

Environment: Critical Habitat for Western Painted Turtle

Impact to critical habitat for Western Painted Turtle (crucial habitat in m²)

Route 1	Route 2	Route 3
No Western Painted Turtle habitat	9,344 m²	580 m²

Future field work would confirm the presence of Western Painted Turtle.

Finding: Route 1 does not impact identified Western Painted Turtle critical habitat

Safety: Geotechnical Site Stability

	Route 1	Route 2	Route 3
Geotechnical site stability for tower and terminal location	Very good	Average	Poor

Finding: Route 1 is located in the most favourable geotechnical conditions

Safety: Utility Conflict

	Route 1	Route 2	Route 3
Utility conflict significance	Good	Poor Conflict with high-voltage transmission lines in two locations	Poor Angle station close to Trans Mountain pipeline right-of-way

Finding: Route 1 does not have significant utility conflicts

Safety: External Safety Hazard

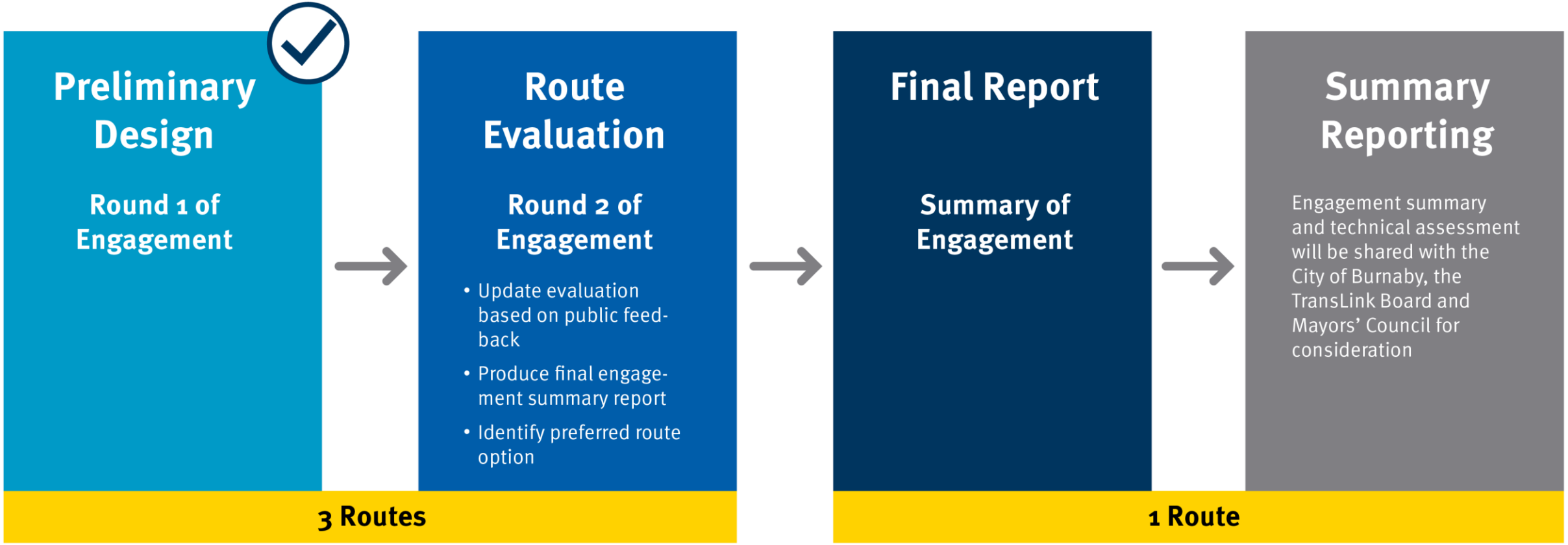
	Route 1	Route 2	Route 3
Risk to system from external safety hazard	Average	Poor Residual risk from high-voltage power lines above gondola	Very Poor Gondola alignment is relatively close to tank farm

Finding: Route 1 has the lowest risk from external safety hazards

Summary of Evaluation: Routes Ranked by Account

		Route 1	Route 2	Route 3
Benefits	Transportation User Experience	Most transit and auto travel time savings, greatest number of SFU buildings within a 5-minute walk	Second most transit and auto travel time savings	Least transit and auto travel time savings
	Sustainable Transportation	Greatest boardings and most GHG emission offsets	Second greatest boardings and second most GHG emission offsets	Lowest boardings and least GHG emission offsets
Financial considerations	Fiscal Stewardship	Lowest capital, operating and maintenance cost	Highest capital, operating and maintenance cost	Second lowest capital, operating and maintenance cost
Implementation considerations	Neighbourhood	Visual impacts to Forest Grove neighbourhood Gondola would pass directly over two properties	Visual impacts to Rathburn neighbourhood	Visual impacts to Meadowood neighbourhood
	Environment	Lowest environmental impacts	Tied for highest environmental impacts	Tied for highest environmental impacts
	Safety	Most favourable geotechnical conditions, no significant utility conflicts	Average geotechnical conditions, conflict with high-voltage transmission lines	Poor geotechnical conditions, proximity to Trans Mountain right-of-way

Next Steps


Preliminary Design
Round 1 of Engagement
Route Evaluation
Round 2 of Engagement
• Update evaluation based on public feed-back
• Produce final engage-ment summary report
• Identify preferred route option
Final Report
Summary of Engagement
Summary Reporting
Engagement summary and technical assessment will be shared with the City of Burnaby, the TransLink Board and Mayors' Council for consideration
3 Routes
1 Route

Have your say from November 23 – December 14, 2020

Go to translink.ca/gondola to learn more and complete the online survey

Contact us:
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or 778-375-7220