

Appendix 1

Responding to Key Engagement Themes



Burnaby Mountain Gondola: Responding to Key Engagement Themes

Table of Contents

Context	1
Safety	2
Transportation & Project Need	6
Routes	10
System Design	12
Operational	15
Gondola Cabins	17
Neighbourhood	20
Environment	23
Indigenous Cultural Resources	26

Context

Throughout both phases of engagement we heard similar themes from Forest Grove residents, regional residents and Indigenous Nations. During the engagement we responded to these questions and comments with current project information or by noting that further exploration could occur through more detailed design, analysis or mitigation.

This document details the key themes we heard from engagement. It contains direct quotes from the engagements that are then re-phrased as questions. The responses were categorized by type:

- **Information:** a response that provides information;
- **Design:** a response that indicates whether the topic would be explored in future design phases should the project advance;
- **Analysis:** a response that indicates whether the topic would be considered for additional analysis should the project advance; and
- **Commitment:** a response that indicates what TransLink's commitments are with respect to the gondola project should it advance. These also include project mitigations.

This document captures the flow through of information from what we heard from the engagements, to work we have undertaken, and future work and commitments should the project advance.

Safety

1. What we heard: Make sure the gondola is safe.

How safe are gondolas?

Information: Gondola systems are a proven safe technology with more than 20,000 ropeway systems worldwide. The proposed Burnaby Mountain Gondola would be a 3S system, which operates using three high-strength, multi-strand steel cables. Gondola cabins would be stored in stations overnight as opposed to leaving them on the line. The system would come with strong security measures in place to monitor the integrity of the gondola, like what is in place for SkyTrain, and the towers would be designed to prevent unauthorized access.

2. What we heard: A gondola is an excellent idea, but Translink will have to take an active approach to security, especially in light of the Sea to Sky gondola incidents.

What specific measures could be put in place to prevent an act of vandalism that could cause the system to fall?

Analysis and Design: The system would come with strong security measures in place to monitor the integrity of the gondola, like what is in place for SkyTrain, and the towers would be designed to prevent unauthorized access. Specific measures could include:

- Physical barriers, gates, and locks could be used to impede access to critical components of the system;
- Towers could be gated, or designed with unclimbable, tubular structures surrounding them; and
- Maintenance ladders could be placed on the inside of the towers with lockable doors and monitored with a security system.

3. What we heard: The Sea to Sky gondola has been tampered with again.

Was there a flaw in the Sea to Sky gondola system that contributed to its failure?

Information: A report by Technical Safety BC released on October 30, 2020, confirmed that the Sea to Sky Gondola's cable was vandalized. There were no design, installation, or manufacturing flaws that contributed to the failure of the system. The director of risk and safety knowledge with Technical Safety BC confirmed that this is exceptionally rare for this industry and that the integrity of these types of systems is robust.

4. **What we heard: A gondola is so much safer. I had a friend who was severely injured in a car accident on the hill.**

Are gondolas or buses safer?

Information: The safety of everyone involved – passengers and nearby residents – will be a top priority for TransLink if this project proceeds. Gondola technology has an excellent safety record. In Switzerland, where gondolas and aerial trams are commonly used, ropeway transportation systems have higher safety rankings than bus, rail, and tram systems. While all modes of transportation carry risks, we are confident in the advanced safety features embedded in the 3S technology the gondola would utilize, should the project proceed.

5. **What we heard: As high winds and ice would shut down gondola use, it would be important to have back up plans and factor in those costs as well.**

Is the gondola safe in the wind?

Information: The 3S gondola system can operate safely in winds of up to 100 km/hr. Having a three-cable system increases the stability of the gondola. In addition, the proposed gondola would be equipped with a weather monitoring system to keep operators aware of weather and wind conditions.

6. **What we heard: I just hope the engineers can get it right look at cable bridges Port Mann and Alex Fraser. Some design faults with ice bombs etc.**

Would the gondola cables ice-up in the winter leading to ice-bombs similar to what has happened on the Port Mann Bridge?

Information: It would be quite unlikely for the gondola cables to ice-up, given the cabins move continuously. If ice was to form while the lift is operating, it would come off at the towers as the cabins pass, but in very small particles, similar to snow. If any ice formed overnight, onsite maintenance staff would take steps to mitigate the ice formation (e.g. operating the lift at slow speed with reduced cabins overnight).

The proposed gondola is a three-cable system that is the same as the Peak to Peak Gondola in Whistler Blackcomb that has been operating safely since 2008.

7. What we heard: If there's a disaster at the tank farm, the gondola may not be able to operate right over top of it.

How safe would the gondola infrastructure be in the event of a hazardous event at the nearby Burnaby Mountain storage terminal (i.e. tank farm)?

Information: Trans Mountain has indicated they have concerns with the safety and security of Route 3, given its proximity to the Burnaby Mountain storage terminal (i.e. tank farm). Routes 1 and 2 would operate within a safe distance from the terminal. Should the project advance, we would engage with Trans Mountain to better understand mitigations and safety protocols related to the operation of the proposed gondola.

8. What we heard: Will there be a solid emergency plan in the event of a fire at the tank farm etc.?

What are the emergency procedures in the event of an incident at the Burnaby Mountain storage terminal (i.e. tank farm)?

Analysis: A safety plan that includes a risk assessment of threats to the system would be conducted should the project advance.

9. What we heard: Would there be a danger of collapse in the event of a powerful earthquake?

How safe are gondolas in the event of an earthquake?

Information: Gondola systems are used in earthquake-prone zones around the world, including here in British Columbia as well as in California. Gondolas are more resistant to earthquakes than most structures, and the Burnaby Mountain gondola system would be designed to be seismically resilient. If the gondola is approved and funded, a detailed geotechnical evaluation would take place in order to ensure the final design of the gondola is compatible with the specific geotechnical conditions on Burnaby Mountain. Should the project proceed, a sophisticated emergency management plan would be put in place, including redundant machinery, backup power sources, and trained personnel to conduct evacuations, if needed.

Analysis: A safety plan that includes a risk assessment of threats to the system would be conducted should the project advance.

10. What we heard: Please ensure it's reliable and safe to use during mountain evacuations / campus closures.

Could the gondola act as a safe way off Burnaby Mountain in the event of a major incident in the area that limits road access?

Analysis: A gondola to Burnaby Mountain could provide an alternate route off the mountain in the event of a major incident, where today there is only one road down from the top of the mountain. However, we would seek to clarify during which potential hazards the gondola could act as an alternate route off Burnaby Mountain.

11. What we heard: What is being done for security for those in cabins? Video?

With what kind of safety features can the gondola be equipped?

Information and Design: Gondola cabins could include closed-circuit video that can be monitored by staff to promote safety and security. Cabins could also be equipped with call buttons and intercoms that allow passengers to contact staff.

12. What we heard: Good idea to have transit security posted at both ends to ensure safety at night or at less busy operating hours.

Will there be staff at nighttime or less busy times?

Information: During operating hours there will be staff present, gondola attendants assisting with boarding cabins and staff working in the operation booths.

What if a passenger feels unsafe riding a gondola late at night?

Information: Passengers could choose to ride alone or only with people they know during times of low ridership, such as later in the evenings. In addition, gondola cabins can include closed-circuit video that can be monitored by staff to promote safety and security. They can also be equipped with call buttons and intercoms that allow passengers to contact staff.

Transportation & Project Need

1. What we heard: The gondola is a done deal.

What is the status of the Burnaby Mountain Gondola Transit project and what has to happen for it to be built?

Information: We are currently in the process of doing more technical work related to the three proposed routes with public engagement planned for fall 2020. The outcome of the technical work and two rounds of engagement throughout 2020 has lead us to a preferred route. Burnaby City Council and the Mayors' Council will review the findings of the Route Selection Report and provide direction on next steps. Subject to the support of Burnaby City Council and Mayors' Council approval, the next step would be to develop a business case, which would be shared with our government partners for their review and as a means to seek potential funding contributions. Prior to a gondola being built, TransLink would need to secure funding for the project.

2. What we heard: More courses are being provided online reducing the demand to transport bodies.

Most SFU students are on campus for only eight months of the year. Is there enough demand throughout the year to warrant a gondola?

Information: Yes, the demand for transit service to Burnaby Mountain warrants a gondola. Even today, for a majority of the year, there are 25,000 trips made up and down Burnaby Mountain for school, work, business and recreation. In addition, the residential community of UniverCity has a population of roughly 5,200 residents and that number is expected to nearly double in the next four years. While there are generally lower ridership levels to Burnaby Mountain in the summer months, we would also expect to see an increase in tourists at that time, similar to our SeaBus ridership.

3. What we heard: How has ridership evolved? Need reliable data.

What is the ridership between SkyTrain and Burnaby Mountain?

Information: Burnaby Mountain is currently served by four bus routes: R5, 143, 144, and 145. Between 2015-2019, transit ridership to/from Burnaby Mountain was 25,000 trips per day. At this level of ridership, customers often experience unreliable service and overcrowding. These problems are expected to worsen as the daytime (SFU student and staff) and permanent residential communities grow. Transportation modelling found a steady increase in trips of approximately 2 per cent per year.

4. What we heard: Just add more buses

Can't you just add more buses to meet the ridership demand?

Information: Buses serving Burnaby Mountain currently run every 5 minutes. Even at this frequency, during peak hours there are more people trying to board each bus than there is space available on the bus (demand exceeds capacity). This means that our customers often experience unreliable service and overcrowding when trying to transit up and down Burnaby Mountain. These problems are expected to worsen as the daytime (SFU student and staff) and permanent residential communities grow.

We cannot keep adding buses to solve the capacity issue. There are a fixed number of buses that we can efficiently operate on a route and we are nearing the upper limit. Buses need to run their routes, have layovers, and in the case of electric buses, charge.

We cannot add enough buses to meet current demand, nor the future anticipated demand from the growing student, staff, faculty, and residential population. A key limitation as to how fast we can operate buses is constrained by the time it takes people to board and exit a bus. The fastest observed frequency of bus operation on our network is every 2.5 minutes and that would not address our overcrowding problem.

5. What we heard: Need info on travel time savings between bus and gondola.

What are the travel time savings of gondola?

Information: The gondola would provide a 6-minute service between SkyTrain and Burnaby Mountain. The current 145 takes about 15 minutes. Our transit forecasting model found that the gondola will reduce total trip times by 13% for trips to/from anywhere on our network. And over the course of the year that could be a 56-hour annual savings for an average transit user.

6. What we heard: I am afraid of heights, will buses keep going to SFU?

What buses would continue operating on Burnaby Mountain?

Information: Existing transit service to Burnaby Mountain consists of four bus routes: R5, 143, 144, and 145. The gondola is proposed to replace Routes 143 and 145. No changes are proposed for Route 144 or the R5 RapidBus.

7. What we heard: Students who already have to take a bus and or SkyTrain to even get to Production Way, every minute counts when you have a long commute time.

Why would a gondola be needed to replace bus service?

Information: The 145 is the most direct path from the SkyTrain network to Burnaby Mountain that is served by both Expo and Millennium lines and there is overcrowding on a regular basis. During peak periods, passengers often experience unpredictable travel times, with frequent pass-ups, adding 5-30 minutes to what should be a 15-minute trip. A gondola would help to address today's transit challenges and allow us to better meet future demand.

8. What we heard: SFU has a summer semester which brings in approximately 70% of the regular students. No one is on campus in the summer.

Most SFU students are on campus for only eight months of the year. Is there enough demand throughout the year to warrant a gondola?

Information: Yes, the demand for transit service to Burnaby Mountain warrants a gondola. Even today, for a majority of the year, there are 25,000 trips made up and down Burnaby Mountain for school, work, business and recreation. In addition, the residential community of UniverCity has a population of roughly 5,200 residents and that number is expected to nearly double in the next four years.

While there are generally lower ridership levels to Burnaby Mountain in the summer months, we would also expect to see an increase in tourists at that time, similar to our SeaBus ridership.

9. What we heard: Classes are now online, no need for masses of students/staff to attend SFU site

In light of COVID-19 impacts and the shift to virtual learning, is it still prudent to build a gondola connecting to Burnaby Mountain where the majority of commuters would be associated with SFU in some way?

Information: Despite COVID-19, SFU's residences on Burnaby Mountain are home to hundreds of students, and there are an additional 5,200 residents in UniverCity. Essential service workers, researchers, students and staff are also commuting to Burnaby Mountain for work, research and approved in-person course work even at this time. SFU continues to safely expand on-campus activity and they plan to resume in-person classes and labs, and a full complement of student experience activities on the Burnaby campus as soon as it is safe to do so.

10. What we heard: Why isn't TransLink considering electric buses instead of gondola

Is TransLink considering other technologies to connect Burnaby Mountain to the SkyTrain?

Information: Past studies considered a number of ground-based and aerial transit options and led to the 3S gondola technology as the preferred solution to connect Burnaby Mountain to SkyTrain.

The benefits of a 3S gondola system include: the ability to operate in high wind conditions, sufficient ridership capacity, and energy-efficiency, which results in lower operating costs.

We recently consulted with two aerial ropeway suppliers on technology options who confirmed that 3S technology remains the best option.

Why are increasing buses, clean-energy buses, better snow removal and/or other solutions not being considered to meet the transit needs in the area?

Information: More buses will not solve our current and future capacity problem. From the first studies conducted in 2011, to our feasibility study in 2018, and including the technical work we have done through 2020, a gondola service is still considered the best option for high-capacity transit to SFU's Burnaby Mountain. A gondola service would be able to move more people per hour and support increasing demand for travel to Burnaby Mountain as SFU enrollment and the surrounding UniverCity community continues to grow. Once constructed, it would cost less to operate than the current diesel bus fleet and produce less greenhouse gases. It would also support faster travel times for customers and be more reliable, particularly during ice and snow conditions.

11. What we heard: Make the gondola cars big enough to move large numbers of people.

What is the total system capacity?

Information: With a maximum number of 20 cabins, the gondola system would be built to support an ultimate capacity of 3,000 passengers per hour per direction (pphd).

12. What we heard: I ride the bus and want to continue riding the bus.

Would you still offer bus service as an alternative for people who wouldn't want to take the gondola?

Information: We would continue to provide bus service to Burnaby Mountain. If the proposed gondola becomes a funded project, we would review bus route and frequency needs at that time.

Routes

1. What we heard: What are the potential gondola routes?

How many routes were assessed and what are the characteristics of each route?

Information: Three potential routes linking Burnaby Mountain to the SkyTrain have been identified. Route 1 has been identified as the preferred route as it has the greatest benefits, lowest cost, and least impacts. Route 1 is also the most supported route by the public across all geographies and demographics.

Route 1 is a straight-line route from Production Way–University Station to SFU Burnaby campus with the terminal located near the bus exchange.

- Route length: 2.7 km
- Number of towers: 5
- Gondola travel time: 6 minutes
- SkyTrain lines served: Expo and Millennium Lines
- Lower terminal: Next to bus loop at Production Way–University Station
- Upper terminal: Next to SFU Town Square

Route 2 is the eastern route from Production Way–University Station, travels along Gaglardi Way, changes direction at an angle station, and continues to SFU Burnaby campus with the terminal near the bus exchange. No passenger boarding is proposed at the angle station.

- Route length: 3.7 km
- Number of towers: 7
- Gondola travel time: 11 minutes
- SkyTrain lines served: Expo and Millennium Lines
- Lower terminal: Short walk from Production Way–University Station
- Upper terminal: Next to SFU Town Square

Route 3 is the western route from Lake City Way Station to SFU Burnaby campus, crosses the Burnaby Mountain Golf Course, and changes direction at an angle station, and continues to SFU Burnaby Campus with the terminal located south of South Campus Road. No passenger boarding is proposed at the angle station.

- Route length: 3.6 km
- Number of towers: 7
- Gondola travel time: 10 minutes
- SkyTrain line served: Millennium Line
- Lower terminal: Next to Lake City Way SkyTrain Station
- Upper terminal: Located south of South Campus Road at Science Road

2. What we heard: Have all other route options been explored and exhausted? What alternatives are still missing from the conversation?

Information:

Route 1: The 2011 business case considered several route options, including straight-line service from various SkyTrain stations. Production Way–University Station was chosen, given it is the closest station and the most convenient for the largest number of potential users.

Route 2: The 2018 Feasibility Assessment added the eastern route (with a non-boarding angle station) from Production Way–University Station to address public concern regarding the route being above the residential neighbourhood of Forest Grove.

Route 3: In 2019, at the request of Burnaby Mayor and Council, the western route (with a non-boarding angle station) from Lake City Way Station to Burnaby Mountain was added to address public concern regarding the potential environmental impacts of Option 2 and public concern regarding the route being over the residential neighbourhood of Forest Grove.

In 2011, three other routes were assessed and deemed infeasible, including:

Lake City Way Station to South Campus Road (across from South Sciences Building) – crossed over the Burnaby Mountain storage terminal (i.e. tank farm) and presented significant safety risks.

Production Way–University Station to the intersection of Highland Court and Tower Road – significant residential impacts and lack of SFU campus and UniverCity integration.

Burquitlam Station to SFU Bus Exchange – significant impacts to the Burnaby Mountain Conservation Area.

3. What we heard: If you go with routes 2 or 3, there should be the opportunity to board at the angle stations in order to support future development and density.

What is an angle station?

Information: Gondola systems are restricted to straight lines. An angle station is a station along the route where gondola cabins can be redirected if a straight path of travel is not possible. The angle stations TransLink is proposing for Routes 2 and 3 would not allow for passenger boarding.

Would there be passenger boardings at the angle stations?

Information: No, the three routes under consideration have termini locations at the SkyTrain network and Burnaby Mountain. Constructing a passenger accessible midpoint, or angle station would add to the cost of the potential gondola project, slow down travel time for passengers traveling from the SkyTrain network to Burnaby Mountain, and the angle stations are not located near significant residential or commercial areas.

4. **What we heard: Route 3 with expo line extension to Lake-City is the most logical option with minimal community and ecological impacts.**

Could the Expo Line be extended to Lake City Way making Option 3 a more feasible option to connect SkyTrain to Burnaby Mountain?

Information: It is not feasible to extend the Expo Line to Lake City Way. Extending the SkyTrain to Lake City Way would require more SkyTrain cars to maintain the current service levels across the Expo Line. Without extra cars, the frequency between trains would slow, meaning passengers would have to wait longer. There would also be additional operating and maintenance costs associated with extending the route. Such an investment would greatly impact our ability to invest elsewhere in the network where there is a higher demand for service.

SYSTEM DESIGN

5. **What we heard: What type of gondola are you thinking about?**

What is the 3S gondola technology proposed for the Burnaby Mountain Gondola?

Information: The 3S gondola proposed to connect to Burnaby Mountain is an aerial transportation system. It carries passengers comfortably in gondola cabins from station to station. It is a three-cable technology that is the same as the Peak to Peak Gondola in Whistler Blackcomb.

6. **What we heard: Aren't gondolas just for skiing?**

How many aerial gondola systems are there worldwide?

Information: Gondola systems are a proven technology with more than 20,000 ropeway systems worldwide. For example, the system in Voss, Norway, has nearly 25,000 trips on an average day, and the system in Koblenz, Germany, has more than 91,000 trips per day.

7. What we heard: Do other gondolas go over residential neighbourhoods?

Are there examples of gondola systems that operate over residential neighbourhoods similar to those that would be impacted in Burnaby if the gondola was to be built?

Information: The Portland Aerial Tram passes over the Corbett-Terwilliger and Lair Hill neighbourhoods. The cabins pass between 12 and 21 metres above homes. For the Burnaby Mountain Gondola, we would have a minimum cabin clearance of 61 metres above the Forest Grove residences. The design was governed by the tree heights around the neighbourhood and is much more conservative than the Portland Aerial Tram.

8. What we heard: What is part of the gondola system?

How fast could the gondola travel?

Information: For comparison, the Peak2Peak 3S gondola can travel up to 8 m/s or 27 km/hr. However, the speed of the gondola is determined by the number of towers. The more towers, the slower the overall average speed as the gondola must slow down and speed up after it passes through each tower.

What do gondola towers look like?

Information: A standard gondola tower is a lattice structure, like a BC Hydro transmission tower. A custom gondola tower is cylindrical in shape and constructed out of concrete. Tower heights can be short or tall. A shorter tower means the gondola system is located closer to the ground, a taller tower height (approx. 90 m) moves the gondola up and over buildings and the forest canopy.

How many towers would this gondola likely have?

Information: Route 1 would have five towers.

Where are the terminals?

Information: The lower terminal would be integrated into the Production Way–University SkyTrain station. The upper terminal would be located near the existing SFU bus exchange.

9. What we heard: How many people can go on a cabin?

What is the capacity of a gondola cabin?

Information: The maximum capacity of a gondola cabin is 35 passengers.

Will everyone have a seat, or can people stand as well?

Information: Most passengers will have a seat (approx. 28) and there will be also be some standees (approx. 7). A maximum of 35 passengers will be allowed per cabin.

10. What we heard: Want to make sure that there's air conditioning and heating in the gondola cabins to combat the hot summer months and the cold winter.

Would the gondola include a heating/air-conditioning system?

Information: The proposed Burnaby Mountain Gondola would have a ventilation system that either uses the speed of the cabins or fans to move fresh air through the cabins. Heating and air-conditioning is also an option. These systems can be adjusted seasonally to operate when needed and otherwise remain inactive.

11. What we heard: What needs to be maintained on the system and when will it occur?

Where would the gondola maintenance take place?

Information: Maintenance would occur regularly on the cabins, in the station and at the towers.

When would the maintenance of the system take place?

Information: Like SkyTrain, most system maintenance would occur at night or when the system is scheduled to be out of operation.

What if the gondola requires repairs? Would you need to shut down the entire system? Wouldn't that be far more impactful than one bus being out of service?

Information: Routine system maintenance would occur, similar to SkyTrain, when the gondola is not in operation. This would help to lessen any unplanned maintenance. When larger scale maintenance would be required, we would plan for that during periods of lower demand and continue to serve customers using buses.

12. What we heard: Consider what will happen in the event of a system failure

What if the gondola system shuts down unexpectedly due to a mechanical failure? How would all of those customers get up the mountain?

Information: As is the case today on the rare occasion when the SkyTrain system is shut down for a period of time, we would establish a bus bridge to assist customers in a timely manner.

OPERATIONAL

13. What we heard: When will the gondola operate?

What would the hours of operation be?

Information: We anticipate the gondola service would have the same hours of operation as SkyTrain.

14. What we heard: Gondolas would leave more frequently than bus.

How frequently would each cabin arrive?

Information: During peak periods, the gondola system would operate continuously with cabins departing about every minute. In periods of low demand, (i.e. early morning, midday or late at night) the frequency could be reduced to better meet demand.

15. What we heard: Please make accessible by compass card.

Would passengers access the gondola using tickets or with a Compass card?

Information: The gondola would be fully integrated into our transit system, so passengers would access it using the same fare options.

16. What we heard: How much will it change the current fare.

How would the fare be calculated for a gondola ride?

Information: The gondola would be fully integrated into our current zoned based transit fare system. As a gondola trip would occur within a single zone (i.e. within Burnaby), it would be a one-zone fare. However, if a person was to start their trip in another zone and end at SFU, then gondola may be a two- or three-zone trip.

17. What we heard: More information about how bikes etc. will be handled would be helpful.

Would bikes be allowed on the gondola? If so, would there be any restrictions?

Information: Yes, bikes would be allowed on the gondola. The number of bikes per cabin would depend on the interior design. That said, if space wasn't available when a passenger with a bike arrived, they would only need to wait a short time before the next cabin would depart.

Analysis and Design: Details related to bike usage on the gondola would be determined at a later stage through passenger modelling if the project proceeds. Details specific to the hourly carrying capacity of bikes on the gondola would be determined at a later stage, if the decision is made to proceed with the project. TransLink would work with stakeholders to better understand the needs of the cycling community in the gondola design and policy development.

Will customers with sight loss or people traveling with bikes, strollers, or a mobility device be able to easily move throughout the terminals?

Analysis and Design: If the project proceeds, we would undertake passenger modelling flows to understand boarding, exiting, and queuing in terminals to maximize ease of access for all customers, including customers with sight loss, or people traveling with bikes, strollers, or mobility devices.

18. What we heard: Will there be changes to parking availability at the base of the mountain?

Have you considered parking at this stage in the gondola planning process?

Information: If the project proceeds, parking needs would be assessed during a future stage of the project with community engagement.

19. What we heard: A key issue is how much it would cost in relation to existing transportation costs and access

What is the cost of gondola compared to bus?

Information: The capital cost of the gondola is \$210 million. The operating cost of the gondola is \$5.6 million annually. The project life of gondola is assumed to be 25 years. There are capital and operating expenses attributed to bus. If bus service continued, instead of gondola, the estimated capital cost of bus is \$77.5 million. The annual operating cost of bus is \$7.8 million. Gondola would provide a 30% savings in annual operating costs over current bus operations.

What would the Burnaby Mountain Gondola cost and who would pay for it?

Information: If the project proceeds, the Mayors' Council on Regional Transportation would determine if the Burnaby Mountain Gondola is a funding priority to be included in a future Investment Plan.

GONDOLA CABINS

20. What we heard: Prioritize seating space over standing; this immensely helps invisibly disabled people.

What would the seating inside the gondola cabins be like?

Information: Each gondola cabin can accommodate 35 people, there is room for 28 seated passengers and 7 standees. Gondola cabin interiors can be customized to suit the needs of the system. They can maximize seating capacity, focus on standing design option (e.g. grab-straps), or create a combination of the two, which is one of the more popular configurations.

Design: Design and specific features of the system would be considered later, if the decision is made to proceed with the project.

21. What we heard: Accessible access for all.

Would all the gondola cabins be accessible?

Information: Yes, all gondola cabins would be accessible.

Design: Should the project advance we would work with stakeholders from the accessibility community to better understand their needs of the gondola system and to incorporate feedback into gondola design and policy development.

Would there be features included that assist passengers with vision impairment?

Design: Gondola systems can include tactile pavement markers or auditory signaling for passengers with vision impairment. Design and specific features of the system would be considered later, if the decision is made to proceed with the project.

How is gondola accessible to passengers using mobility devices? How many mobility devices can fit in a cabin?

Information: Gondolas cabins slow down when they enter the station to allow passengers to alight and board in separate areas. The cabin floor matches the station floor elevation and the gap between the cabin and platform meets all requirements for safe boarding and exiting. If a passenger needs extra time to get on or off the cabin, an attendant would be present to offer assistance. If needed, the attendant could also slow or stop the system.

Design: If the project proceeds, we would undertake passenger modelling flows to understand boarding, exiting, and queuing in terminals to maximize ease of access for all customers, including customers with sight loss, or people traveling with bikes, strollers, or mobility devices. The number of mobility devices per cabin would depend on the interior design. Design elements of the gondola would be considered at a later date, if the decision is made to proceed with the project.

That said, if space wasn't available when a passenger with a mobility device arrived, they would only need to wait a short time before the next cabin would depart.

What happens if a person needs extra time to get on or off the cabin?

Information: Cabins slow to a walking speed in stations to allow for easy boarding and exiting. If a passenger needs extra time to get on or off the cabin, an attendant would be present to offer assistance. If needed, the attendant could also slow or stop the system.

22. What we heard: What is the exact dimensions of the gondola? What is the width of the swath they will be cutting?

What size are the gondola cabins?

Information: The exterior dimensions of the gondola cabins are approximately 3.5 metres square by 2.5 metres tall. The height from the cable to the bottom of the cabin is about 6 metres. The right-of-way for the gondola is generally 20 metres wide.

Do trees need to be removed under the gondola?

Information: Since most of the right-of-way required is aerial, ground clearing is limited to areas around infrastructure – the tower and upper terminal. The gondola will operate above the treeline at a safe separation from the trees to not impede future tree growth and as a buffer between any forest fires. Route 1 has the lowest impact to trees.

Do the cabins stay on the cable at night?

Information: When not in operation, cabins are typically removed from the line automatically and stored to reduce exposure. The cabin storage area is commonly collocated with a station or maintenance facility.

Neighbourhood

1. What we heard: Being Forest Grove residents, my family/I are very concerned about the potential residential impact.

Are you considering the concerns of Forest Grove residents who don't want a gondola built above their homes?

Information: Yes, we're taking all concerns and feedback seriously. The two rounds of public engagement that took place in fall 2020 each included neighbourhood specific workshops. Much of the technical work that has been done over the past several months addresses many of the concerns raised by local residents who we appreciate have different considerations than the general public.

Commitments: TransLink has made commitments to avoid increasing noise, protecting residential privacy, minimizing property impacts, compensating impacted residents, minimizing visual presence, and maximizing safety.

2. What we heard: I would want to know in detail the extent of noise impact. I am concerned about hearing people in the cabins.

How loud would the gondola be?

Information: The gondola is silent except when it passes over the towers. When doing so, there is a slight rumbling that is about the level of a normal conversation if you were standing on the top of the tower. The sound at ground level would be very minor (directly below the tower). Sound modelling has demonstrated that the noise from the gondola does not exceed background noise levels.

Analysis: TransLink will model in-cabin noise impacts on the Forest Grove neighbourhood.

Commitment: TransLink commits to designing a gondola system that does not exceed background noise levels in Forest Grove.

3. What we heard: Since all routes look to impact residential neighbourhoods, privacy measures need to be implemented (such as lower frosted glass, etc).

Would gondola passengers be able to see into the homes and backyards they pass over?

Information: The gondola would travel above the tree line and upwards of 60 m above homes. The height and design of the cabins for the proposed gondola to Burnaby Mountain would mitigate potential privacy concerns.

Design: Gondolas can also be equipped with features, such as blinds that would prevent passengers from seeing out at certain angles, or with tinted glass.

Commitment: TransLink will explore outfitting gondola cabins with tinting windows that will automatically block visibility into homes in the Forest Grove neighbourhood.

4. What we heard: Please do a detailed assessment of the effect on property values from a gondola near homes

What is the visibility of the gondola from homes in Forest Grove?

Analysis: Further analytical work would be conducted to better understand how local topography, tree cover, and orientation of windows influence the visibility of the gondola in the Forest Grove neighbourhood.

Commitment: TransLink is committed to assessing the visibility of the gondola and using natural topographic features and design elements to minimize the visual presence of the gondola in the Forest Grove neighbourhood.

5. What we heard: Be kind - arrange to offer compensation to folks beneath the gondola

If Route 1 is chosen, would impacted residents receive compensation?

Information: TransLink would undertake a process to acquire the necessary aerial rights to allow for the passage of the gondola. We would engage the services of an independent appraiser to determine the current market value of the property/aerial rights and work to reach an agreement with each property owner. Residents can remain in their homes and are not required to move.

Commitment: TransLink will provide compensation to the two multi-family property complexes for aerial passage of the gondola.

6. **What we heard: the gondola passing directly over residential properties could be a non-cosmetic problem if passengers can throw garbage out of the gondola cabin.**

Would the cabins have windows that open? Would people be able to throw things out the windows?

Information: Cabin windows do not open, so passengers could not throw things out the window.

7. **What we heard: Will the bright lights be an interruption to residence and neighbourhood?**

Would lighting from the gondola be bright and obvious to people below its path of travel?

Information: The gondola would incorporate interior lighting that meets the appropriate standards. Floor lighting is typically used to create a safe space in which to move, but would not be visible at ground level.

Environment

1. What we heard: I have concerns with the environmental impacts associated with building the gondola.

Which of the three route options would have the lowest environmental impact in the surrounding areas?

Information: Route 1 has the lowest environmental impact as it minimally intrudes in the conservation area.

2. What we heard: Save the trees. Is there a tree replanting plan?

Would trees need to be cut down for a gondola to be built?

Information: The gondola system was designed to operate above the tree line, with no clearing below the line for Route 1. Routes 2 and 3 would require tree clearing to accommodate the angle stations. Through the conceptual design process, gondola towers were placed in developed areas, or adjacent to roads, wherever possible to minimize tree loss. That said, some tree removal would be required for each of the routes with Route 1 having the lowest impact. We anticipate that approximately 220 trees, of which about a total of 40 are in parks and conservation areas.

Commitments: Minimizing tree removal would be a key objective if this project moves ahead, where, TransLink would adhere to Burnaby’s Tree Bylaw. This bylaw sets out requirements for tree replacement. TransLink will continue to assess and mitigate potential environmental impacts of the project.

3. **What we heard:** There are many spawning streams in the area, so environmental issue /fish habitat areas need to be respected. Impact to the Stoney Creek waterway must be avoided during construction.

Would riparian areas and fish-bearing streams be impacted by the gondola?

Information: Minimizing environmental impacts will be a key objective if this project moves ahead. The Stoney Creek Environment Committee (Stoney Creek and Eagle Creek Streamkeepers) was consulted in initial planning, and will be participating in this consultation. Some intrusion into the stream setbacks will be required for Routes 2 and 3. Route 1 would not impact stream setbacks.

Analysis and design: Further environmental work and design refinements would be done to mitigate environmental impacts that could be associated with the construction of a gondola.

Commitment: TransLink will continue to assess and mitigate potential environmental impacts of the project.

4. **What we heard:** I am concerned about the impact of building and maintaining gondola towers on wildlife and ecology on the ground, especially on Burnaby Mountain Conservation Area

How much impact would there be to the Burnaby Mountain Conservation Area (BMCA) during construction and operation?

Information: In the conceptual design phase, TransLink tried to limit the impact to the conservation area and parks by locating infrastructure in developed areas or road right-of-ways. Route 1 has one tower (located in the Gaglardi road right-of-way) that partially extends into the BMCA. Due to the nature of the angled alignments, we were not able to avoid placing infrastructure in the conservation area or parks. Route 2 and 3 would have angle stations and towers located in the BMCA and Naheeno Park. This infrastructure would require land disturbance, tree clearing, overlap with the BMCA area, and would possibly infringe on waterways and riparian setbacks. Access roads would be required to construct and maintain the angle stations and towers. These roads could be built out of gravel and would not necessarily need to be asphalt or concrete in order to minimize further impacts.

Commitment: TransLink will seek to minimize construction related environmental impacts.

5. What we heard: Are you doing an environmental assessment of gondola?

Will this project be subject to an environmental assessment process?

Information: TransLink is committed to minimizing the environmental impact of the proposed project. Should the project proceed, the gondola would be designed and constructed in compliance with relevant federal, provincial, and municipal environmental regulations and policies, including an environmental assessment, if required.

TransLink's typical practice is to study the potential effects of the project's construction and operation, and implement mitigation measures, as required. These studies would be completed concurrent with a decision to implement the project.

What are the GHG benefits of the gondola?

How much would the Burnaby Mountain Gondola offset GHGs?

Information: A Burnaby Mountain gondola would reduce GHG emissions from trips made by bus and vehicles. The GHG emission reductions from bus are considered short-term savings as TransLink moves to transition its fleet to battery electric buses. The GHG emissions reductions from vehicles are long-term savings.

- Buses CO₂e reductions from replacement with gondola: -3,700 tonnes CO₂e
- Vehicles CO₂e reductions: Route 1: -1,400 tonnes, Route 2: -1,300 tonnes, Route 3: -800 tonnes

Indigenous Cultural Resources

1. What we heard: What has consultation with the Indigenous communities been like? Are they aware of some of the local concerns?

Information: During the planning phase of the gondola project, TransLink engaged potentially affected Indigenous Nations, in particular, kʷikʷəłəm (Kwikwetlem), xʷməθkʷəyəm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish), səliwətał (Tseil-Waututh) to understand their rights and interests in the project area and obtain their input on the evaluation of route options. Interests and priorities identified by Indigenous Nations during engagement related primarily to protection and enhancement of cultural, archaeological and environmental values, the cumulative effects of development, and climate change.

Indigenous Nations participated in a preliminary field reconnaissance to identify potential archaeological values in the project area. Of those Indigenous Nations that identified a preferred route, Route 1 was identified as the preferred option. Reasons included the fact that Route 1 provides the greatest GHG reduction benefits and the lowest environmental and land disturbance impacts, including requiring no access roads and fewer structures. TransLink has incorporated this feedback into the evaluation of route options.

Commitments: TransLink will commit to conducting an Archaeological Impact Assessment (AIA) for ground disturbing activities in areas identified as AIA required. TransLink will ensure that all crews conducting ground disturbing activities within any portion of the project area receive Chance Find Training and a project specific *Chance Find Procedure*. TransLink will continue to engage with the Indigenous Nations to better understand areas of current and traditional cultural importance.