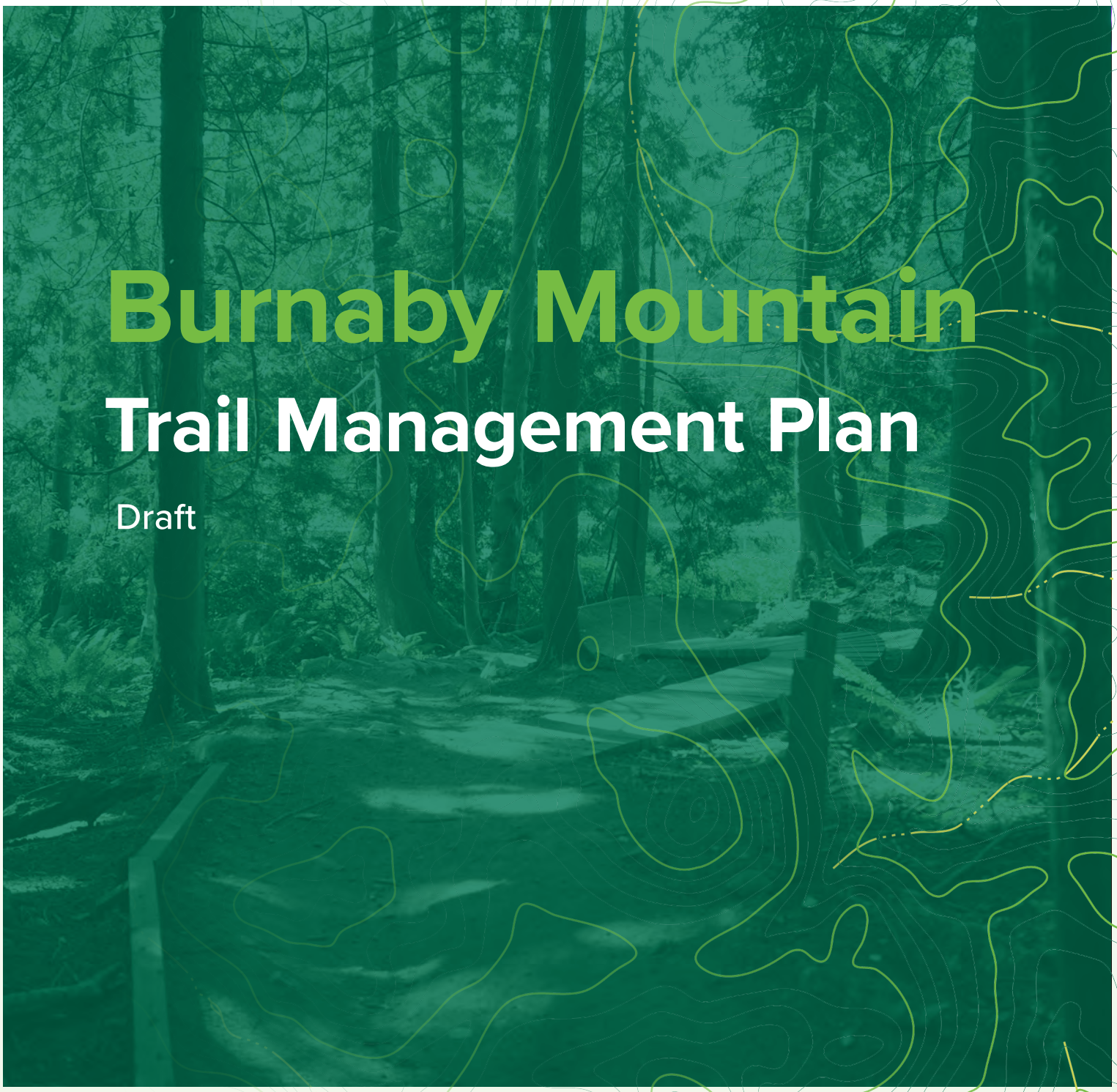


Burnaby Mountain

Trail Management Plan

Draft

MARCH 31, 2026

City of Burnaby



Prepared for
City of Burnaby
4949 Canada Way
Burnaby, BC V5G 1M2

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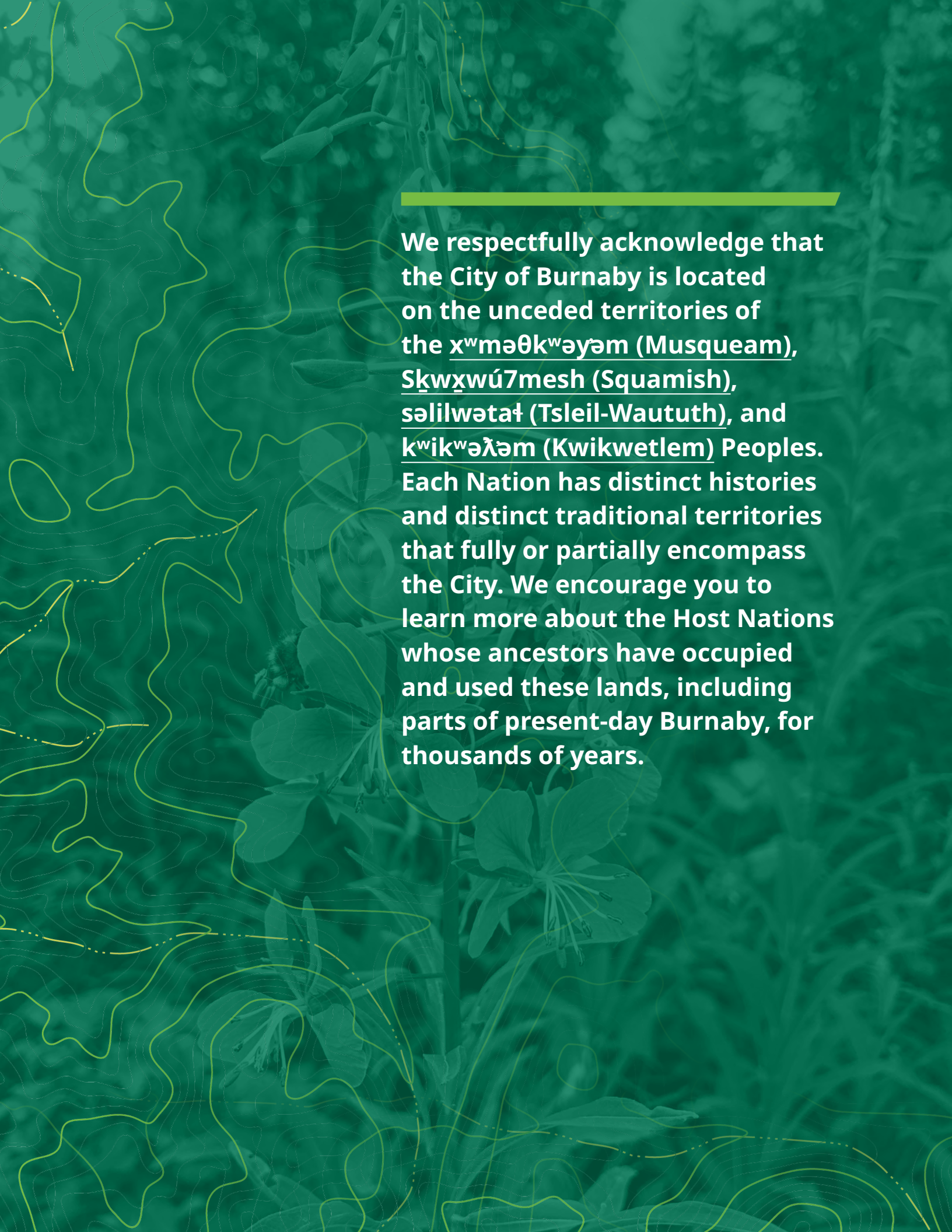
Appendices

Appendix A: Environmental Overview

Appendix B: Checklist for Building and Sustaining Resources

Appendix C: Trails Condition Ranking

Appendix D: Trail Expansion Suggestions



We respectfully acknowledge that the City of Burnaby is located on the unceded territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), səlilwətaɬ (Tsleil-Waututh), and kʷikʷəƛ̓əm (Kwikwetlem) Peoples. Each Nation has distinct histories and distinct traditional territories that fully or partially encompass the City. We encourage you to learn more about the Host Nations whose ancestors have occupied and used these lands, including parts of present-day Burnaby, for thousands of years.

Trail Management Plan at a Glance

The Burnaby Mountain Trail Management Plan (BMTMP) is designed to guide the maintenance and redevelopment of the trail system over the next 15 years. The Plan has come together with background research on City growth and trail system use patterns, on-site technical reviews, community engagement and Council guidance. These comprehensive inputs and analyses have led to two strategies to manage trail systems and to enhance community connections.

To support strategic decision-making for trail reconstruction, a prioritization system with three key criteria has been developed. The prioritization reflects changing community use and the pace of deterioration to inform annual capital decisions. As trail condition declines, larger capital reconstruction plans are identified for the trails in the poorest condition.

Indigenous people have stewarded this area since time immemorial and the City is committed to ongoing engagement with the Host Nations on the development and the implementation of this Plan. The community's interest in involvement in the trails and environmental sustainability is strong. This Plan acknowledges and proposes further development in community programs and recommends enhanced communication tools and opportunities to support public engagement.

This Plan also builds on the findings from the City's environmental reviews of Burnaby Mountain. The City has consistently completed high-quality environmental assessments every five years, and this work directly informs the Plan's direction. Protecting the environment is a central priority in all City activities on Burnaby Mountain Park, guiding how trails are built, how rogue trails are decommissioned, how drainage is improved, and how all other work is carried out in and around sensitive ecosystems.

This plan builds on completed environmental studies, and their findings by focusing specifically on the established trail network, ensuring that actions from this Plan align with environmental recommendations.

The Burnaby Mountain Trail Management Plan is organized around **one central vision**, supported by **two strategies,** and **seven immediate actions**.

Vision

Establish a safe, sustainable trail system that supports recreational activities while protecting and conserving the natural ecosystems within the Park.

Strategies & Actions



Strategy #1: Trail Management

Maintain the Existing Trails System

Action 1: Continue trail maintenance, including measures to protect environmentally sensitive habitats, and provide safe routes for recreational hiking and biking.

Action 2: Manage rogue trails via removal.

Action 3: Upgrade and add trail amenities to meet basic safety needs, including signage, garbage removal, seating, and rest areas.

Reconstruct Trails in the Poorest Condition

Action 4: Prioritize trails for reconstruction.

Action 5: Reconstruct trails to appropriate design standards for trail uses.



Strategy #2: Connect to the Community

Action 6: Build community relationships.

Action 7: Enhance communication systems.

1.0 Overview

Burnaby Mountain Park is a 590-hectare municipal park. The Park contains environmentally sensitive areas protected by conservation covenants, while providing essential recreation services to the rapidly densifying community. When recreational pressures continue to increase, and operational maintenance does not keep pace, the system begins to decline. The development of a management plan provided an opportunity to open discussions with user groups, the Host Nations, and the Council on sustainable service levels and to develop a strategy to meet public expectations.

As the region grows and visitor volumes increase, so do the pressures on the existing trail infrastructure, which puts environmental values at risk. This plan outlines a balanced approach to maintaining and restoring trails, while respecting the need to create ongoing opportunities to communicate with and connect to the community through conservation and stewardship programs.

2.0 Burnaby Mountain Park

2.1 Study Area



Figure 1. Map of Burnaby Mountain

Burnaby Mountain Park is located in north Burnaby and surrounds Simon Fraser University's (SFU) main campus. The mountainous topography varies throughout the Park, with steeper terrain on the northern side, climbing from 25 metres above sea level to 366 metres at the summit. The Park offers scenic viewpoints along multiple trails, as well as at the Mintara restaurant area, a popular tourist zone within the park.

Burnaby Mountain Park boasts a vast and diverse network of trails, with about **35 kilometres of developed trails** designed primarily for walking, hiking, and biking. Approximately 49% of recreational trails are located in the southeast sector of the Park. The majority of the trails are narrow, natural surface trails ranging from 1 metre to 1.5 metres and appeal to nature seekers and the mountain biking community. These biking trails are popular year-round destinations in the Lower Mainland, offering a local alternative to the riding trails further afield on the North Shore mountains.

To characterize the attractions and use patterns within the Park, the lands are described in three zones:

1. **Southeast:** This zone offers the majority of the biking and hiking trails network, covering 49% of the trail system. The area has multiple drainage channels, dense forests and complex underground utility services.
2. **West:** This zone offers pedestrian-only trails, accounting for 22% of the trail network. This area boasts popular attractions for tourists, including spectacular views over the inlet, the Centennial Rose Garden, and the Mintara restaurant and event space.
3. **North:** This zone is largely occupied by steep, hazardous slopes, comprising 26% of the trail system. The trails and regional attractions of Mountain Air Skills Park and the Harry Jerome Sports Center are accessed by Barnett Highway.

Each zone has distinct natural characteristics and trail attractions that appeal to different user groups. Access and use patterns on the Park trails are influenced by population growth in the larger region and growth specific to SFU and UniverCity.

2.2 History

Burnaby Mountain Park is located on the traditional, unceded territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), səlilwətaɬ (Tsleil-Waututh), and kwikwəƛ̓əm (Kwikwetlem) Nations. The area has been used for hunting and harvesting bark, berries, and medicinal plants since time immemorial.

In 1903, the park area was home to a sawmill and played a significant role in the region's past lumber industry. The area became a popular hiking destination in the 1920s, and an official municipal park was established in 1957. Simon Fraser University (SFU) was established in 1965, and the university began building its campus on top of the mountain. It has been the primary development on the mountain ever since.

In 1996, the British Columbia (BC) Provincial Government and SFU transferred an additional 820 acres (313 hectares) of parkland to the Park and established the Burnaby Mountain Conservation Area (BMCA), protected by a Conservation Covenant. This increased the park area to 1,423 acres (576 hectares).

The City developed a Management Plan for Burnaby Mountain Park in 2000, which has informed the management initiatives in the Park for the last 23 years. Most recently, in 2019, the degradation of the trail systems was evaluated in an Environmental Conditions Assessment review, leading to the development of the **Burnaby Mountain Trail Management Plan in 2026**.

Timeline

Time Immemorial: Site of cultural significance to the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), səlilwətaɬ (Tsleil-Waututh), and kwikwəƛ̓əm (Kwikwetlem) Nations

1903: Burnaby Mountain was used for logging and had a sawmill

1957: Official park and recreation area was established

1965: Simon Fraser University (SFU) was founded

1996: Burnaby Mountain Conservation Area (BMCA) was created.

2000: Management Plan for the BMCA

2019: Environmental Conditions Assessment

2026: *Burnaby Mountain Trail Management Plan*

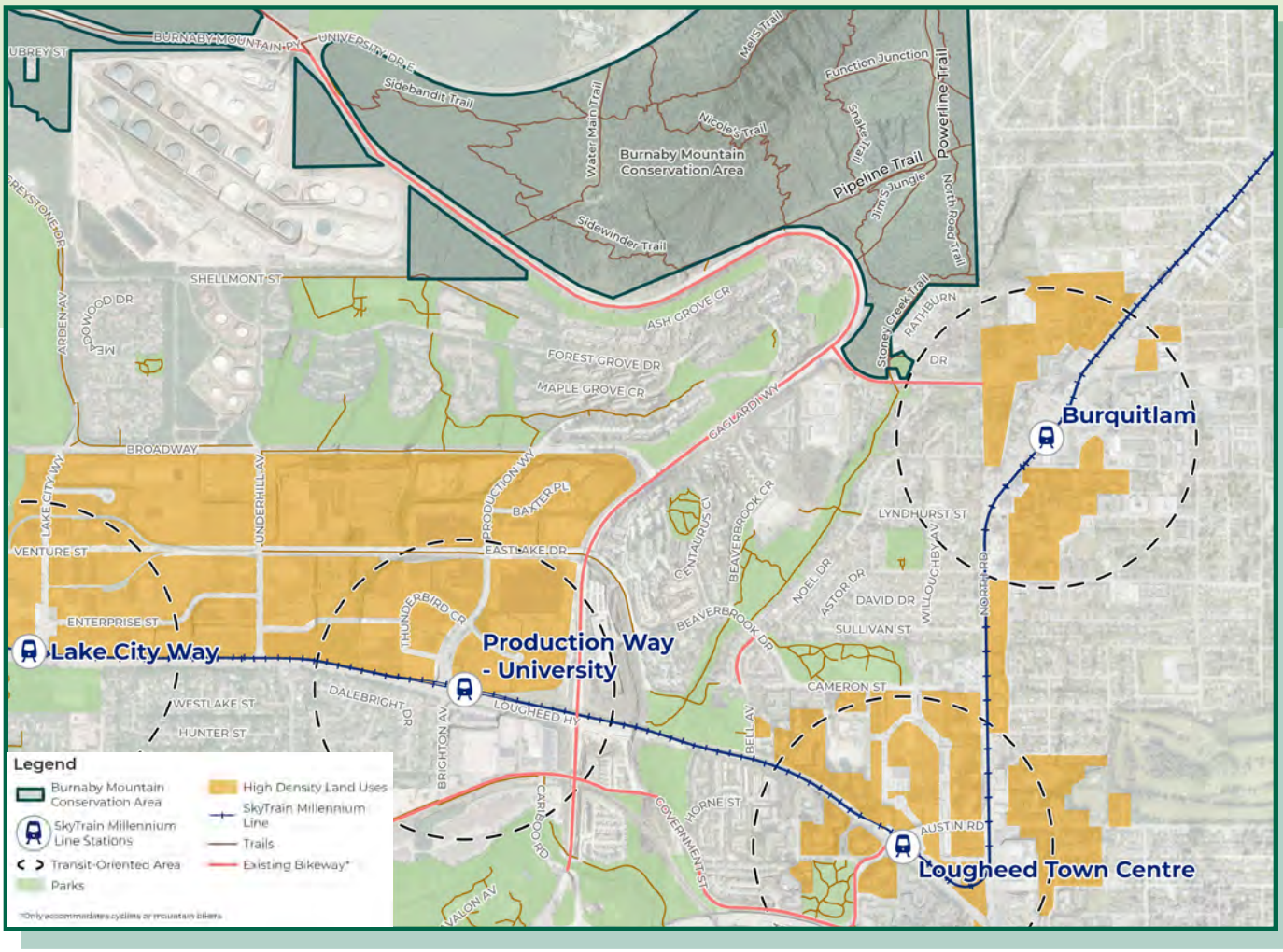


Figure 2. Proximity to Burnaby Mountain Park Trails from Millenium Line Station Areas

2.3 Development Context and Current Growth Pressures

Burnaby's population is projected to reach 345,000 by 2041, and nearby transit-oriented hubs such as Production Way–University, Lougheed Town Centre, and Burquitlam continue to densify. In these areas, building heights range from 8 to 20 storeys, and densities range from 3.0 to 5.0 Floor Area Ratio.

The population growth around transit-oriented areas on the edges of the Park will improve transit connections to the nearby SkyTrain network and will have a significant impact on trail use, additional amenities, and maintenance requirements.

These developments will contribute to higher visitation and greater demand on the trail network, reinforcing the need for resources to maintain a sustainable recreational trail system in the Park.

2.4 Park Visitation

The trail system functions as a conduit for people arriving at and travelling through the Park. To better understand how the trail system and amenities can be improved to meet user needs, the City has obtained human mobility data from cell phone services between October 2022 to October 2023. Further analysis is presented in the **Background Technical Report**.[1]

Data extracted from the tracking reveals where visitors are coming from, where they are going within the Park, and the most intensely used areas of the Park and its trails.

1. Where the Park Users are Coming From

Table 1 and **Figure 3** illustrate the origins of Park users. Data reveals that approximately one-third of visitors are from Burnaby, one-third from adjacent municipalities, and one-third from the broader region. It is essential to acknowledge that all municipalities in the surrounding area, including Coquitlam and Port Moody, as well as the broader region, utilize the Park assets.

Table 1. Common Visitor Origins to Burnaby Mountain Park

Location	Percentage of Visitors
Burnaby (not including SFU)	27%
SFU	23%
Coquitlam	17%
Other areas of Metro Vancouver	28%
Beyond	5%

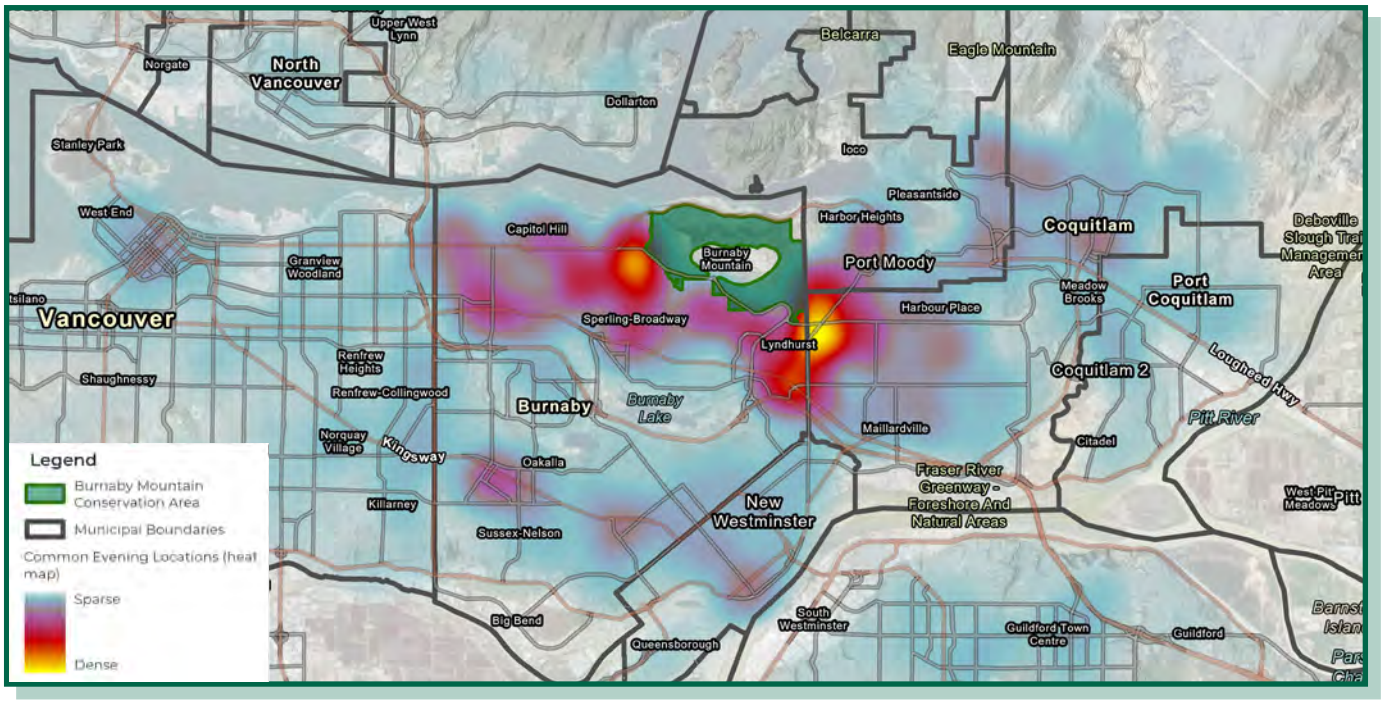


Figure 3. Common Visitor Origins to Burnaby Mountain Park (all visits, excluding visits from SFU)

1 The Background Technical Report for the Burnaby Mountain Trail Plan can be read on the City of Burnaby's website at https://www.burnaby.ca/sites/default/files/acquiadam/2024-04/Draft-Burnaby-Mountain-Background-and-Field-Review.pdf

2. Park Trail Use Patterns

Human movement data was captured through heat mapping in 2024. **Table 2** and **Figure 4** broadly illustrate high-and low-use areas within the Park. Like most recreation areas, Burnaby Mountain sees higher traffic on the weekends.

Table 2. Activity Level by Planning Area

Planning Areas (see Figure 4)		**Activity Level**	**Notes**
	Mintara Restaurant & Tourist Attraction Zone	High	Most visited on weekends
	West Burnaby Mountain	High	Most visited on weekends
	Southeast Burnaby Mountain	High	Most visited on weekends
	Harry Jerome Sports Centre	Consistent	Lower activity levels
	Mountain Air Bike Skills Park	Consistent	Lower activity levels
	Burnaby Mountain North & East	Consistent	Lower activity levels
	Burnaby Mountain – No Access	None	Not Safe Area – Limited Access

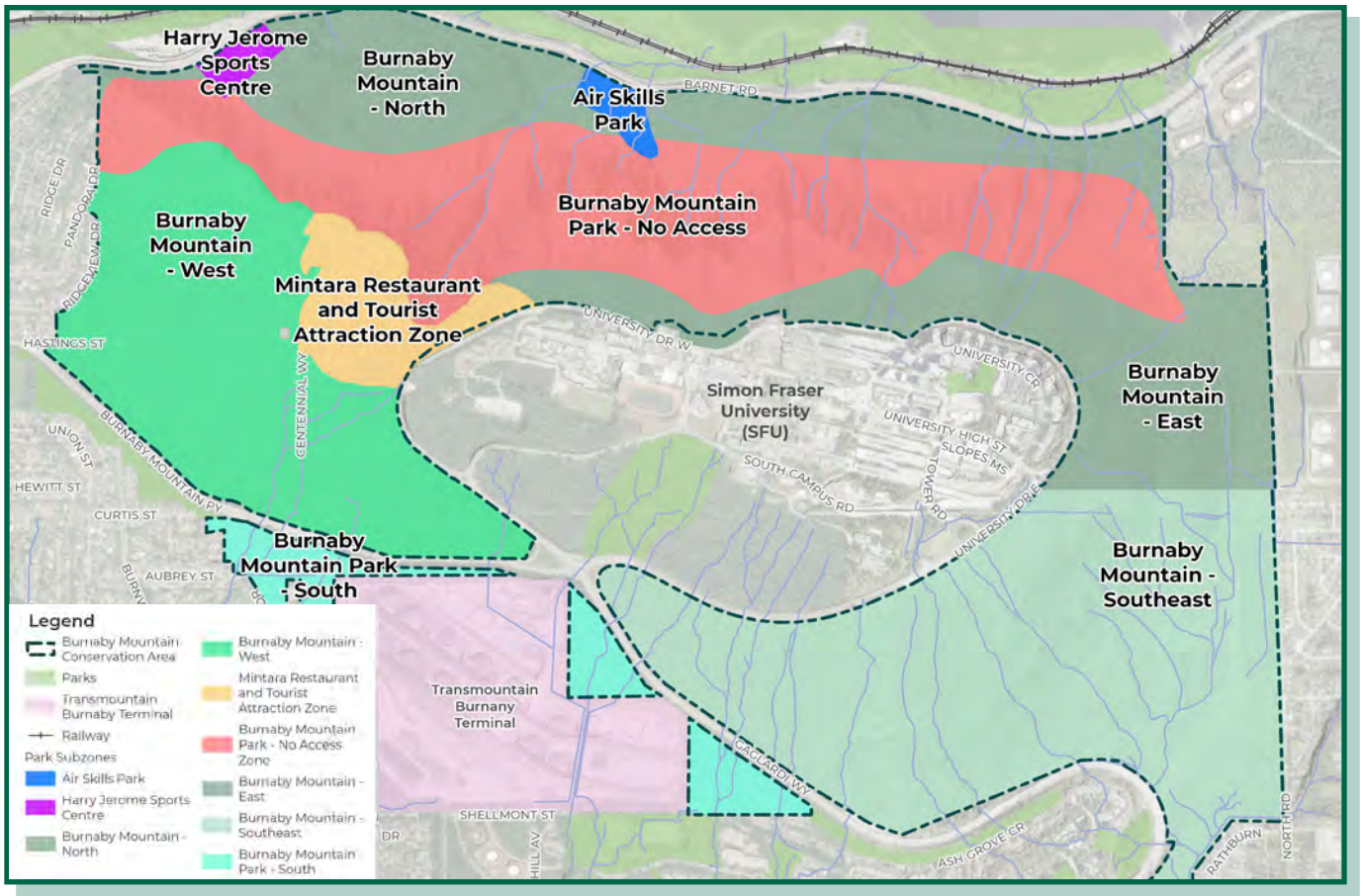


Figure 4. Planning Areas for Burnaby Mountain

3. Destination and Congregation/High Use Areas

Figure 5 shows the most frequented destination areas in the Park. The western area of the Park sees the most frequent visitation, with tourist attractions that are accessible by car. However, within the trail system, the common use areas are trail intersections and trailheads. These prime spots are critical to consider when planning for additional amenities, such as parking, rest areas, orientation mapping, water and washroom services.

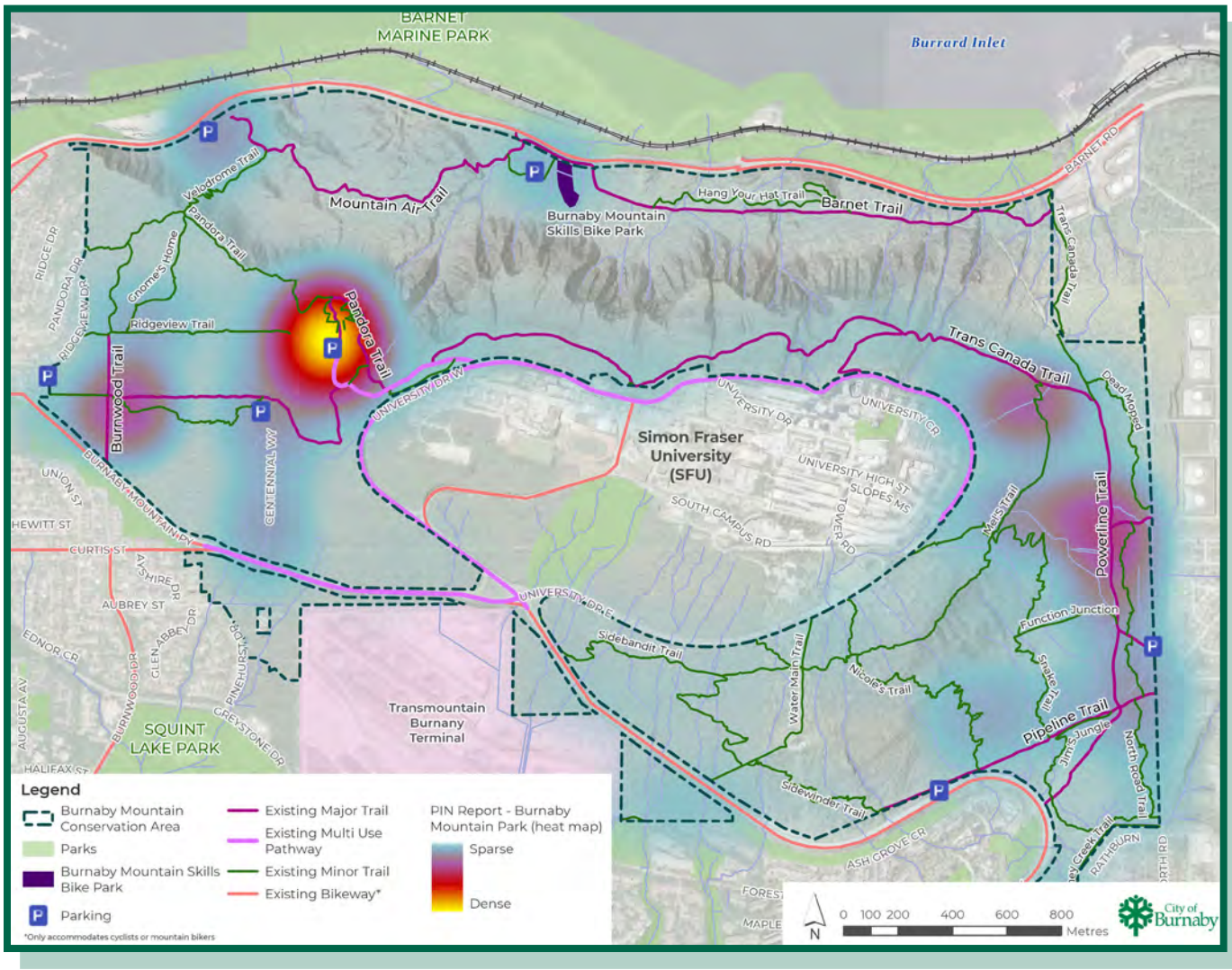


Figure 5. Popular Use Areas of Burnaby Mountain – All Areas

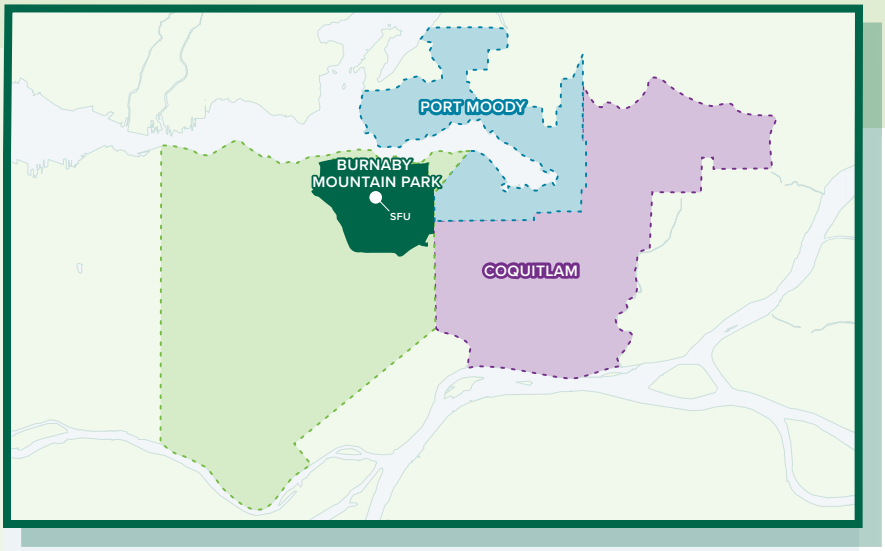
3.0 Trail Management Planning Inputs

3.1 Legal and Regulatory Considerations

Burnaby Mountain Park is governed by a complex regulatory framework created by multiple levels of government. The documents listed below and their influence have been described in the **Background Technical Report**.[2]

City of Burnaby Plans

- *Burnaby Mountain Conservation Area Community Plan (1976)*
- *Burnaby Parks Regulation Bylaw (1979)*
- *Burnaby Animal Control Bylaw (1991)*
- *Official Community Plan (OCP) (2014) (Burnaby 2050 – OCP Update Currently in Progress)*
- *Management Plan for Burnaby Mountain Conservation Area (2000)*
- *Connecting Burnaby – Burnaby Transportation Plan (2021)*
- *Mountain Air Bike Skills Course Redevelopment Plan (2024)*
- *Environmental Condition Assessment – Burnaby Mountain Conservation Area (2019)*
- *Burnaby Responsible Consumption of Alcohol in Parks Bylaw (2024)*
- *Burnaby Urban Forest Strategy (2024–2040)*



Municipal and Regional Governments' Plans

- *Metro Vancouver's Sustainable Transportation Study (2023)*
- *Metro Vancouver's Sustainability Scholars Study – Factors Influencing Travel Mode Decisions to Access Regional Parks in Metro Vancouver (2023)*
- *TransLink's Burnaby Mountain Gondola (2021)*

Simon Fraser University (SFU) Plans

- *Active Transportation Connection (2023)*
- *Stormwater Management Strategy Implementation Plan (2017)*
- *The Campus Plan, SFU Burnaby 2065 Campus Master Plan (2020)*

Government of BC Regulations

- *BC Water Sustainability Act and Regulations*
- *BC Wildlife Act*
- *BC Major Projects Inventory*
- *Heritage Conservation Act*

Government of Canada Regulations

- *Migratory Birds Convention Act (1994)*
- *Species at Risk Act SC (2002)*
- *Fisheries Act*

2 The Background Technical Report for Burnaby Mountain Trail Plan can be read on the City of Burnaby's website at https://www.burnaby.ca/sites/default/files/acquiadam/2024-04/Draft-Burnaby-Mountain-Background-and-Field-Review.pdf.

The guiding policy document most specific to Burnaby Mountain Park is the Conservation Covenant which states:

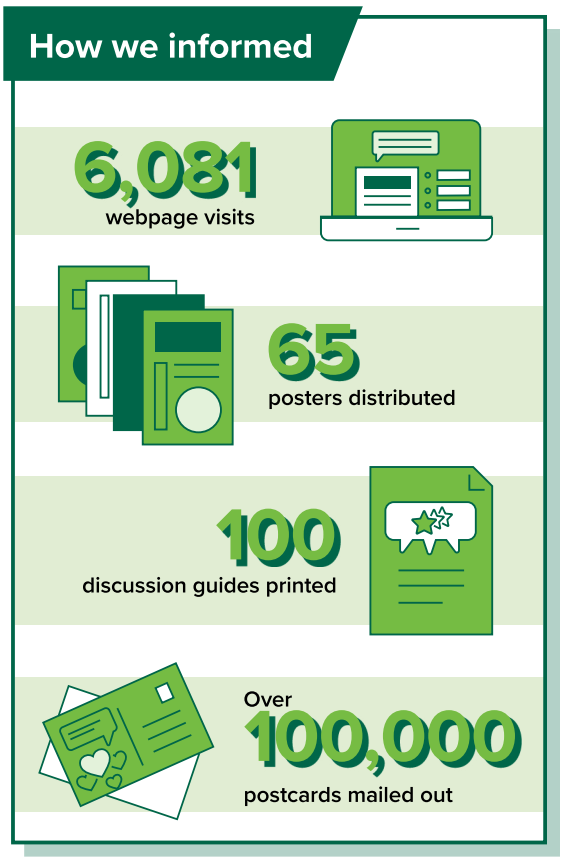
> "The Burnaby Mountain Conservation Area will be conserved in native forest cover and enjoyed through a system of public trails and related support facilities. Conservation area management will directly reflect the intent and principles of the City's Environmentally Sensitive Areas Strategy [...] The Conservation lands will be managed to achieve the protection and enhancement of habitat for birds, animals, and fish in balance with trail-oriented and other recreational activities appropriate to the natural setting."

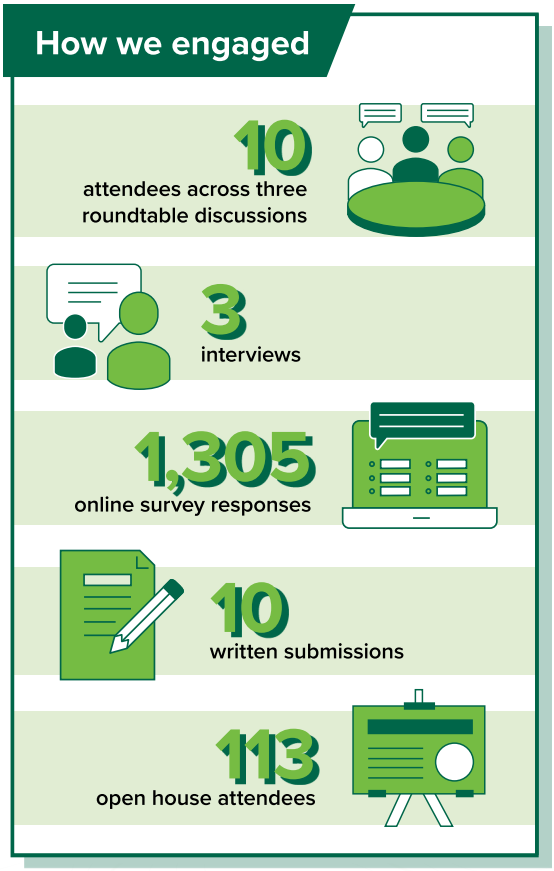
The long-term development and management of the Park has adhered to these legal, regulatory policies and adopted plans.

3.2 Community Engagement

The community engagement process aimed to gather feedback on site use and establish common ground for input from both recreational trail user groups and conservation interest groups. The city-wide surveys and community workshops, as well as engagement with Host Nations, user groups, interested parties, and the public, were critical components in ensuring a wide spectrum of interests were heard. Throughout the engagement process, Host Nations have not been able to fully engage on all aspects of the Plan. The initial community engagement included a dedicated project webpage with an online survey, public open houses, postcard mailouts to raise awareness of the study, and roundtable discussions with key interested parties and engagement with Host Nations. The feedback from all engagement activities is summarized on the following page.

> The full results of the community engagement process are available in the **What We Heard Report**.[3]





3 The What We Heard Report for the Burnaby Mountain Trail Plan can be read on the City of Burnaby's website at https://hdp-ca-prod-app-burnaby-yourvoice-files.s3.ca-central-1.amazonaws.com/4617/2780/6193/Burnaby-Mountain-Trail-Management-Plan-What-We-Heard-Report.pdf

The highlights of what we heard through the communication process have been summarized and grouped into three areas:

Recreation Interests

- More trail maintenance and improvements, including general upkeep, drainage and erosion management.
- More amenities like washrooms, garbage and recycling bins, and water fountains.
- More directional and wayfinding signage–maps, trail markers, and signs.
- Overall support for specific user-designated trails.
- Expanded trail networks, with more mountain bike trails, hiking trails, and accessible trail options.
- A desire for more bylaws and rule enforcement.

Conservation

- Concerns over loss of wildlife and disruption of wildfire corridors and habitats.
- General concerns about off-leash dogs and the need for more dog-friendly areas.
- Concerns over damage to soil and vegetation.
- Address invasive species like ivy and blackberry.
- Higher buffers on riparian zones to keep streams cool.
- Work with partners like the BC Conservation Fund, BC Parks Foundation, the Province of BC, and Host Nations, to tackle biodiversity loss.
- Explore ways to include planting native and medicinal plants in landscape projects.
- Create a sense of stewardship and care through environmental restoration and land-based learning at Burnaby Mountain Park.
- Implement processes that strengthen existing tools and resources to prioritize the protection of archaeological sites.

Community Connection

- More volunteer and community group involvement.
- More informational and educational signage (e.g., wildlife alerts and information, trail use, and etiquette).
- Opportunities for partnerships, funding support, and physical work.
- A desire for volunteer and/or educational programs for Host Nations' youth groups.
- A need to establish stronger community advocacy through environmental groups.
- Incorporate the City's territorial acknowledgement and Host Nations' languages into park signage.
- Raise the visibility of Host Nations' connections to the land and resources, while supporting access to places of cultural significance.

3.3 Current Trail Inventory and Environmental Assessments

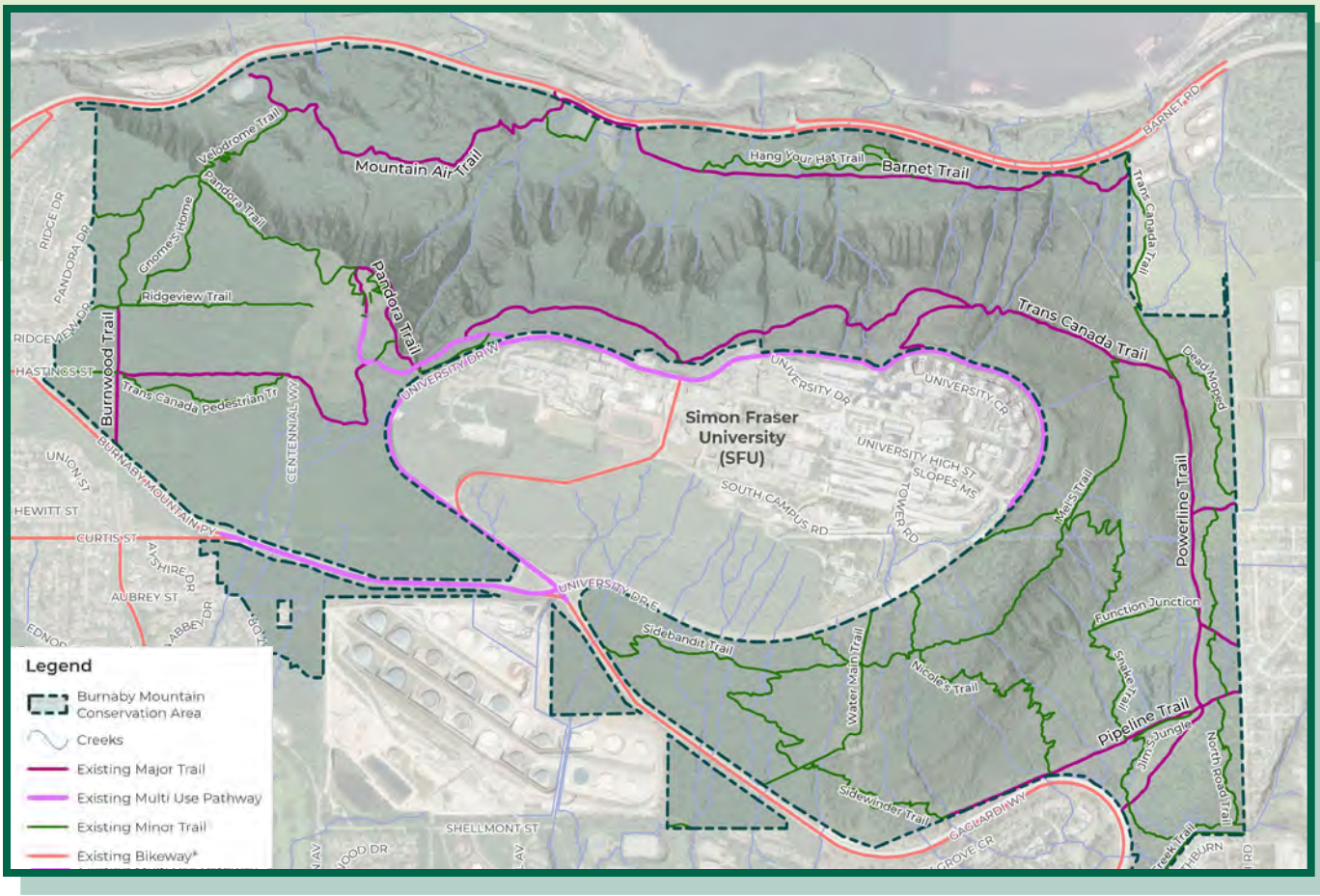


Figure 6. Map of Formal Trails

3.3.1 Current Trail Inventory

Figure 6 illustrates the current trail system on Burnaby Mountain Park. The system is an expansive 35-kilometre network of three trail types, described in **Table 3**. Trails vary in width and surfacing and are intended to accommodate pedestrians and mountain bikers to varying degrees. In addition to the formal trail system, many rogue trails appear through the forest.

Conditions along formal trails vary significantly by type and location. Common issues observed throughout the area include erosion, pooling water, and significant root exposure. The mountain bike and hiking trails on the southeast side of the study area, known for their steep, technical terrain, were found to have more issues than other parts of the network, likely due to movement across soft soil conditions.

In contrast, the wider multi-use and dual-use pathways, including notable ones like the Trans Canada Trail, appeared in relatively good condition, with some sections showing signs of recent refurbishment at the time of assessment. Overall, the multi-use and dual-use pathways throughout the study area were in better condition than the more specialized hiking trails, reflecting the different levels of maintenance and usage they experience.

The informal rogue trails are estimated to be 40 kilometres. They are unmapped and represent large tracks of systems that are not maintained. These trails cause extensive damage to drainage and the root zones of trees, and have the greatest need for removal and remediation.

Table 3. Current Trail Metrics

Trail	Trail Type[4]	Length (m)
Barnet Trail/Cougar Creek	Multi-Use	3,760
Bike Park Trail	Multi-Use	270
Burnwood Access	Multi-Use	470
Cardiac Hill	Multi-Use	390
Centennial Reservoir Trail	Multi-Use	280
Dead Moped	Multi-Use	700
Elephant Ridge Trail	Multi-Use	280
Function Junction	Multi-Use	420
Gear Jammer Trail	Multi-Use	950
Gnome's Home Trail	Multi-Use	570
Hang Your Hat Trail	Multi-Use	870
Hydro Access Road	Multi-Use	150
Jim's Jungle	Multi-Use	1,030
Mel's Trail	Multi-Use	2,010
Mountain Air Trail	Multi-Use	1,290
Nicoles Trail	Multi-Use	1,320
North Road Trail	Multi-Use	760
Old Gas Station Trail	Multi-Use	20
Pandora Trail	Multi-Use	1,730
Pipeline Trail	Multi-Use	720
Poplar Trail	Multi-Use	240
Power Line Trail	Multi-Use	760
Ridgeview Trail	Pedestrian Only	790
Sidebandit Trail	Multi-Use	790
Sidewinder Trail	Multi-Use	2,260
Lower Snake Trail	Multi-Use	540
Trans-Canada Trail	Multi-Use	6,640
Trans-Canada Trail (Pedestrian Only)	Pedestrian Only	730
University Drive Multi Use Trail	Multi-Use	1,950
Upper Cut	Multi-Use	380

4 Multi-use trails are for pedestrians, hikers, mountain bikers, and on-leash dogs.

Trail	Trail Type[4]	Length (m)
Velodrome Trail	Pedestrian Only	790
Water Main Trail	Multi-Use	820
Total Multi-Use Network		**33 km**
Total Pedestrian-Only Network		**2 km**
Total Network		**35 km**



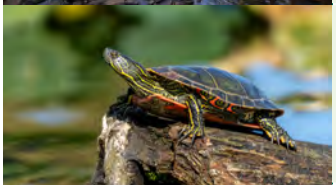
3.3.2 Environmental Conditions Assessment

Environmental Conditions Assessments are undertaken approximately every five years. These generally illustrate areas under stress and help guide the best way to protect and manage the natural habitat. Between the most recent environmental reports undertaken in 2019 and 2024, the Park has seen a mix of improvements and continued degradation.

Erosion is a significant concern within Burnaby Mountain Park, with the most severe impacts observed along the southeastern trails. Despite improvements to trails and the environment since 2019, erosion remains a prominent issue throughout the Park.

Some areas have seen additional trail maintenance, while others have deteriorated. Recent deterioration stemmed from a combination of increased usage during the COVID-19 pandemic and reduced levels of maintenance. The results of the 2024 assessment are found in **Appendix A: Environmental Report.** The locations of environmental concern are shown in **Figure 7**, with details of concerns listed in **Table 4**.

Table 4. Areas of Environmental Concern

Area of Concern		Details
	Soil Erosion	Soil erosion was identified as the greatest threat to the species at risk and their associated habitats within the Park. Soil erosion can damage and have a detrimental knock-on effect on vegetation, wildlife, surface water, and public safety. The southeastern area shows substantial damage, likely due to a combination of rainfall, mountain biking usage, and pedestrian traffic. In steeper areas on the mountain's northern side, water runoff can rapidly accelerate erosion, leading to soil loss, vegetation degradation, and increased sedimentation on trails.
	Vegetation Impacts	High trail use has a significant impact on the vegetation throughout Burnaby Mountain Park. The forest lacks mid-story vegetation, which is often a sign of heavy use and is correlated with the presence of unauthorized trails. A lack of vegetation can cause trails to widen beyond intended limits. Invasive species also thrive in disturbed environments, where there are multiple opportunities for seed transfer.
	Unauthorized Trails	Unauthorized trails significantly degrade the already-sensitive habitat. It was noted that efforts have been made to prevent users from entering these trails by using woody debris piles, fences, and signs. Fences were found to be most effective, but they still required a high level of maintenance and repair due to vandalism.
	Human Presence in Sensitive Ecosystems	Frequent human presence on trails can disturb amphibians, increasing stress levels. Some species may alter their behaviour, breeding patterns, or feeding habits in response to constant human disturbance, which can have long-term consequences for their populations.
	Protection of Creeks	As creeks intersect trails at several cross-sections throughout the mountain, it is important that they are protected from further degradation or contamination. There were several instances in which boardwalks, barriers, culverts and pipes were degraded and were no longer in working condition.
	Species at Risk	There are currently 17 species at risk found within the Park, all of which could be impacted by the trail systems if left unmaintained. Some species at risk include the western painted turtle and Roell's brotherella moss.

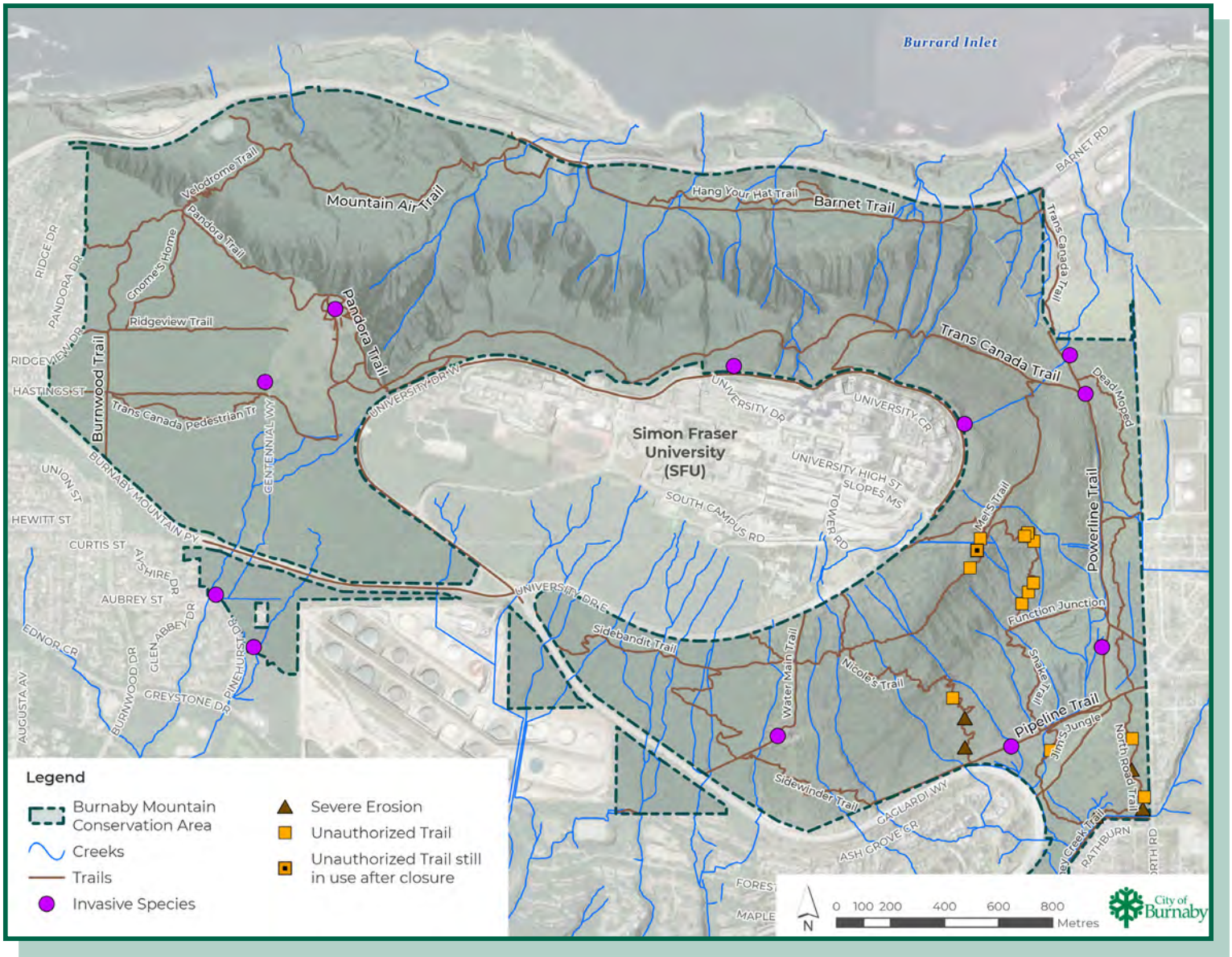


Figure 7. Areas of Environmental Concern

4.0 Trail Management Plan Framework

The Burnaby Mountain Trail Management Plan framework comprises one vision, two strategies and seven key actions. The strategies and actions have evolved through extensive background research, technical field analysis, and community input.

> The vision for the Burnaby Mountain Trail Management Plan is to **establish a safe, sustainable trail system that supports recreational activities while protecting and conserving the natural ecosystems within the Park**.



Strategy #1: Trail Management

Maintain the Existing Trails System

Action 1: Continue trail maintenance, including measures to protect environmentally sensitive habitats, and provide safe routes for recreational hiking and biking.

Action 2: Manage rogue trails via removal.

Action 3: Upgrade and add trail amenities to meet basic safety needs, including signage, garbage removal, seating, and rest areas.

Reconstruct Trails in the Poorest Condition

Action 4: Prioritize trails for reconstruction.

Action 5: Reconstruct trails to appropriate design standards for trail uses.



Strategy #2: Connect to the Community

Action 6: Build community relationships.

Action 7: Enhance communication systems.

The following sections describe the strategies and key actions within each strategy.

4.1 Strategy #1: Trail Management

City staff teams undertake regular annual maintenance practices, minor repairs, and trail reconstruction to keep the trails in a safe and stable condition.

The trail maintenance practices strive to:

- Provide safe trail bed and trail amenities to correct unsafe trail conditions;
- Provide clean conditions for users;
- Correct unsafe (natural and man-made) conditions affecting the trail; and
- Reconstruct trails that are in the poorest condition.

The actions identified below detail current maintenance practices and proposes new approaches to reconstruction projects for the 15-year plan.

Action 1: Trail Maintenance

Regular inspections and maintenance activities are conducted by City staff. General activities involve debris cleanup, minor repairs or replacements, removal of unsafe structures and natural hazards, and inspection of trees, retaining walls, rails, and subbases. The frequency of these activities is outlined in **Table 5**.

Maintenance levels vary across different trail types and facilities. High-use, major trails and trailheads require more frequent maintenance. Smaller, minor trails and trailheads require a lower level of service inspection.

Table 5. Burnaby Mountain Park Trail and Trailhead Maintenance[5]

Maintenance Type	Trail Type	Season	Frequency of Activity
Trail Maintenance			
Ensure trails are safe and in a fully functional condition.	All Trails	Year-Round	Monthly
Ensure trails are free of encroaching vegetation, windfall, tree limbs and rocks that may pose a hazard.	All Trails	Spring, Fall	Annually
Clear trails of invasive species.	All Trails	Fall	Annually
Ensure the tread surface of the trail provides a stable walking and biking surface.	All Trails	Fall	Annually
Ensure trails are free of litter, garbage and other debris.	All Trails	Year-Round	Monthly
Ensure culverts, bridges, waterbars and ditches are clear to ensure proper drainage.	All Trails	Spring, Fall	Annually
Inspect for major damage or degradation that will involve repairs.	All Trails	Early Spring	Annually
Repair structures such as stairs, bridges, culverts, fencing or viewing platforms.	All Trails	As Required	As Required

5 If the TransLink gondola or other access improvements to Burnaby Mountain are approved, trail management needs and services should be reassessed and adjusted accordingly.

Maintenance Type	Trail Type	Season	Frequency of Activity
Washroom Maintenance			
Maintain safety and full functionality of outhouse buildings and fixtures.	Major Trailhead	Year-Round	Weekly
Repair or replace any damaged components (e.g. doors, roof, walls, floor, hinges, seat, etc.)	Major Trailhead	Year-Round	As Required
Keep outhouses and fixtures clean and sanitary.	Major Trailhead	Year-Round	Weekly
Supply toilet paper and deodorant blocks as required.	Major Trailhead	Year-Round	Weekly
Keep the area surrounding the outhouse free of debris.	Major Trailhead	Year-Round	As Required
Signage Maintenance			
Ensure signs are in good condition and maintained in a firm vertical position with correct orientation.	All Trails	Spring, Fall	Annually
Replace or repair all signs and posts with a new signage system.	All Trails	Year-Round (as budget permits)	Ongoing
Remove all unauthorized signage.	All Trails	As Required	As Required
Garbage and Recycling Maintenance			
Empty garbage containers before they become overfull.	All Trails	Year-Round	Weekly
Ensure all garbage containers are functional and in good condition with a fully enclosed lid.	All Trails	Year-Round	As Required
Keep garbage containers clean and sanitary and wash them as required.	All Trails	Year-Round	As Required
Replace non-serviceable garbage containers.	All Trails	Year-Round	As Required
Install bear-proof containers.	All Trails	Year-Round	As Required

Additional Measures Supporting Trail Function

In addition to regular maintenance, staff employ a variety of interim measures to support trail function and conservation. Additional details on trail development and upkeep are outlined in **Appendix B: Checklist for Building and Sustaining Resource.** The best practices listed below are careful repair responses to drainage and erosion issues:

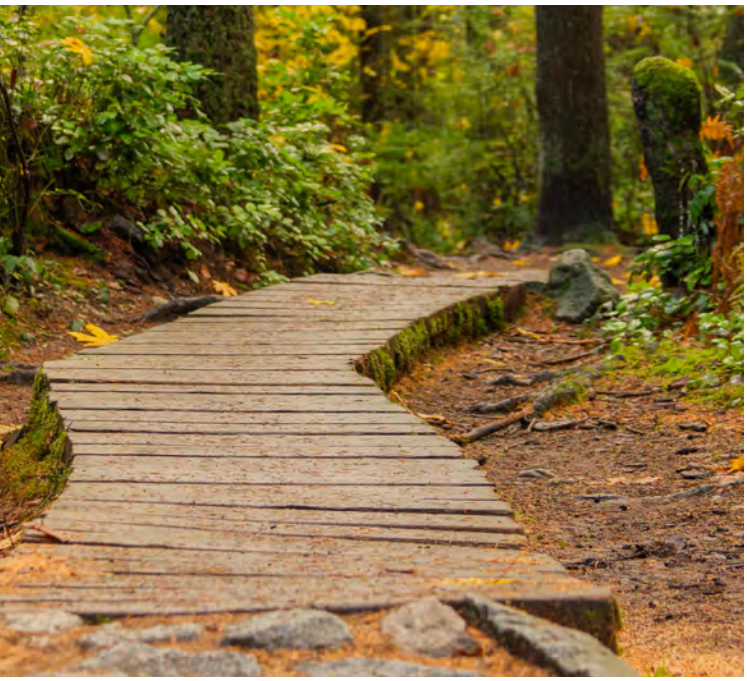
- Avoid steep gradients that lead to erosion;
- Use switchbacks and increase the length of trails to minimize steep inclines, reducing the risk of water damage and soil loss;
- Include boardwalks over sensitive habitats;
- Use gradual contour trails that allow water to flow gently off the trail in thin sheets rather than concentrating and eroding the trail surface; and
- Harden tread surfaces on high-use trails.

Groundwater Management

Water control measures help prevent excess water from pooling or eroding trails, which can damage soil and native vegetation. By directing and dispersing groundwater appropriately, these systems reduce the risk of sediment runoff into streams and other sensitive habitats, preserving water quality and the ecological health of these areas. Staff have installed bioswales, rain gardens, and water bars in various locations to direct runoff.

Installation of Boardwalks

Boardwalks have been employed to take trail users through sensitive areas and wetlands without directly impacting the ground. Elevated walkways prevent trampling of sensitive plants and soil compaction, preserving the natural habitat for wetland species. Boardwalks are designed to match site conditions when wetland habitat areas become susceptible to vegetation trampling or the spread of invasive species. Boardwalks provide a method to channel foot traffic along a single route and prevent the spread of invasive seeds that are often attached to shoes and clothing.



Trail Rerouting

Trail rerouting is a temporary measure to relocate trails to stable terrain. Trail rerouting can occur in response to erosion from water runoff, to protect exposed tree roots, to address deadfall from windstorms, to safeguard significant habitats, or to mitigate general degradation. Rerouted trails may have fencing, signage, and on-site digital notification to inform users.

Closure of Trails

Trail closure (temporary or permanent) is an approach taken when there is a safety risk for the user groups that cannot be addressed immediately. Temporary closures are often immediate and in response to the need to repair or remove unsafe rogue trails established by the public. Long-term closures occur rarely, when extensive works requiring major capital investment are required. When closures occur, staff install site signage and fencing, along with posting a website notification to inform the public.

In June 2024, the Velodrome trail was closed and will remain closed until a reconstruction plan is approved and funded. Additionally, Jim's Jungle Trail and the southern portion of the North Road Trail exhibit an extremely high degree of erosion, root disturbance, and side tracks, which impact nearby wetland areas. The extreme erosion on this trail is being monitored, and it has a high chance of triggering a trail closure.

Action 2: Manage Rogue Trails

Rogue trails are illegal and appear in the Park's forested area. These trails sometimes seek to avoid wet zones or downfall, and sometimes go further to create jumps and extreme trail-riding experiences. Rogue trails do not generally meet safety standards and cause extensive damage to tree roots, drainage systems, and protected habitats.

The presence of rogue trails generally indicates trees have been removed or that tree roots have been exposed, and that regrading has occurred. Each trail situation is unique. The approach to rogue trails includes removal and restoration.

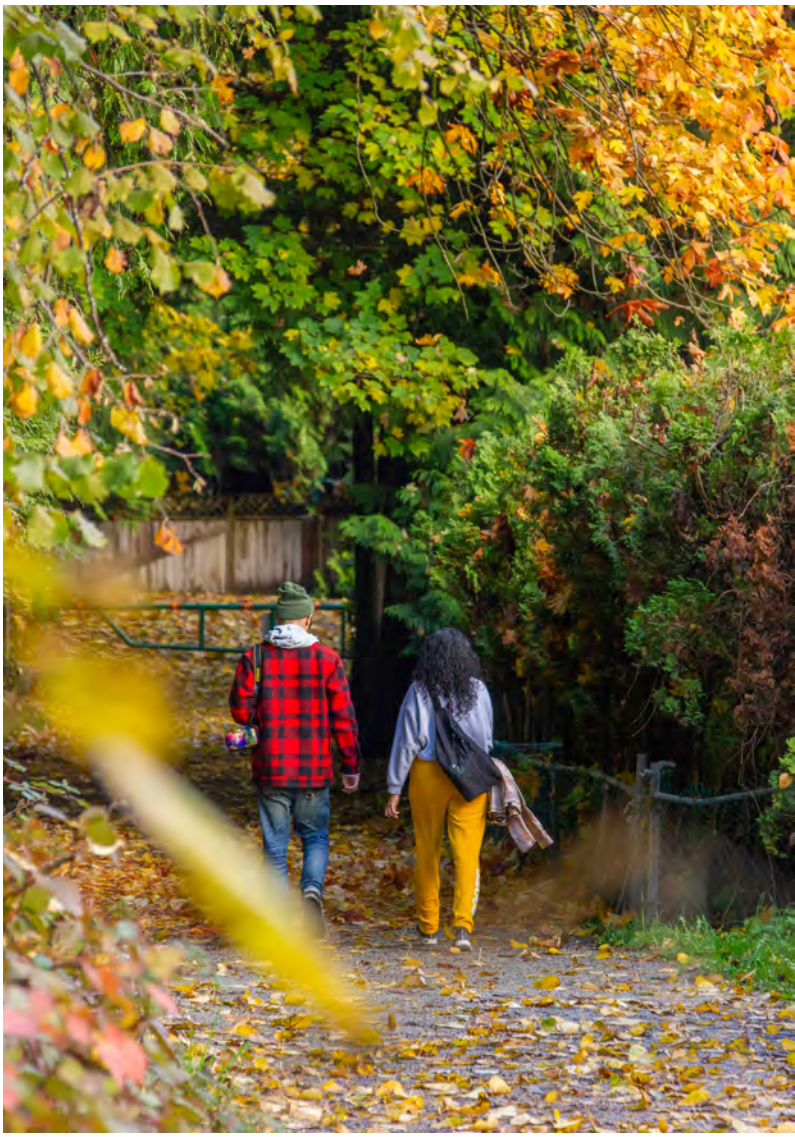
The City has recognized the strong community desire for trails and jumps that appeal to challenge riders. Strategic investment has been made to rebuild and expand the Burnaby Mountain Bike Skills Course on the north side of Burnaby Mountain to take pressure off the conservation area and meet the needs of riders looking to develop their skills. The Bike Skills Course needed updating, and the reconstructed amenity will reopen in late 2026. The redeveloped facility will offer a range of experiences from beginner riding loops to flow lines with jumps, as well as a new pump track area. The facility provides a family-friendly and social gathering space for riders and spectators.

Action 3: Upgrade Trail Amenities

Amenities that support the trail system include signage, seating/rest areas, garbage receptacles, and washrooms. Burnaby Mountain Park's trail amenities have many standards established and reflect the addition of components over time.

Community feedback highlighted the need for more amenities along trails and at trailheads throughout Burnaby Mountain Park to enhance user experience and safety. Concerns about accessibility, safety, and guidance along the forested trail system can be significantly improved by modernizing and upgrading the wayfinding and informational signage systems along trail routes. Signage systems with QR Codes linking to emergency or interpretive information could enhance visitor the experience. The type and level of amenities upgrades need to vary by trail type, with major trails offering more facilities and minor trails focusing on clear signage and wayfinding.

The replacement of trail amenities includes benches, bear-proof garbage cans, and signage. New amenities should continue to use the new City standards. The replacement of foot bridges, boardwalks, railings, and washrooms would be custom-designed to accommodate specific trail circumstances.



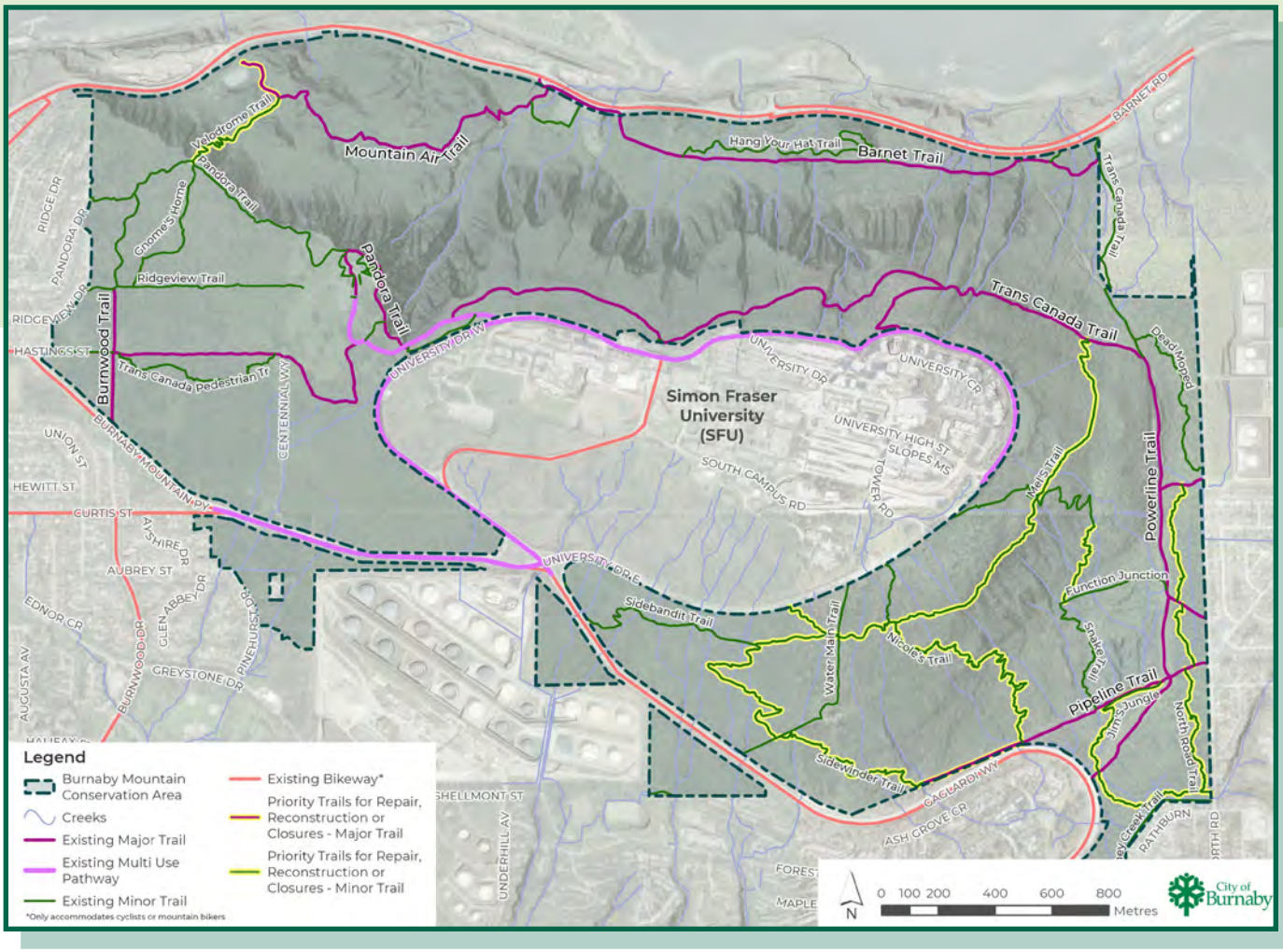


Figure 8. Map of Priority Trails for Repair, Reconstruction or Closures

Action 4: Trail Reconstruction

In the summer of 2024, 35 km of trail were evaluated through a spatial desktop exercise as part of the Burnaby Mountain Trail Management Plan study. **Figure 8** illustrates the seven trails covering approximately 8.5 kilometres of the network that are in the poorest condition and require reconstruction. All these trails are classified as moderate to high-use by Park visitors, with half of them offering high connectivity by linking to four or more other trails.

To create a timeline for the trail reconstruction program, a phased implementation program is recommended. To create a general order for the works under consideration, a project prioritization system was developed using a point system. Within the system, each trail segment in the poorest condition was evaluated against three key criteria to develop a total score. The resulting high scores ranked the projects at the top of the prioritized list for reconstruction. The criteria used in the evaluation included:

1. The trail location in the overall network;
2. The level of use on the trail; and
3. The current trail condition.

The overall score and resulting prioritization order for reconstruction are shown in **Table 6**.

Table 6. Priority Trails for Repair, Reconstruction, or Closures

Priority Ranking	Trail Section	Length (km)	Connectivity (20) High (20) Medium (10) Low (5)	Trail Use (30) High (30) Moderate (20) Low (10)	Condition (50) Closed (50) Poorest (30) Poor (20) Fair (10) Good (0)	Score of 100*
1	Velodrome Trail	0.80	Low	Moderate	Closed	75
2	North Road Trail	0.75	Medium	High	Poorest	65
3	Jim's Jungle	1.00	Medium	High	Poorest	65
4	Nicoles Trail	1.30	Medium	High	Poorest	65
5	Mel's Trail	2.00	High	High	Poor	60
6	Sidewinder Trail	2.25	High	High	Poor	60
7	Upper Cut	0.40	Low	High	Poorest	60
	Total	**8.50km**				

* In cases where rankings are tied, priority is given to shorter trails based on length.

Appendix C: Trails Condition Ranking outlines the scoring for all 35 existing trails in Burnaby Mountain Park.

Factors such as the pace of deterioration on all trails, trail safety concerns, the importance to user groups, and available funding will change over time. Therefore, an annual review and reprioritization are recommended. The results will inform the annual capital work plan.



Action 5: Applying New Design Standards

The trail reconstruction goal is intended to bring the overall trail system to a safe and stable condition over a 15-year period. While much of the investment is in annual operating, the capital reconstruction component of the works presents an opportunity to rebuild trails with new typologies and additional amenities to serve both today's needs and the forecasted growth.

Over the past two decades, many of the original dirt trails have been rebuilt for hiking; however, with the advent of mountain biking and increased demand overall, it is evident that trail dynamics are insufficient to meet today's use demands. As trails are being reconstructed, consideration has been given to four new trail typologies: major trails, minor trails, mountain bike trails, and multi-use pathways. The following trail typologies and their cross-sections would be applied when reconstruction projects are initiated in the capital reconstruction program.

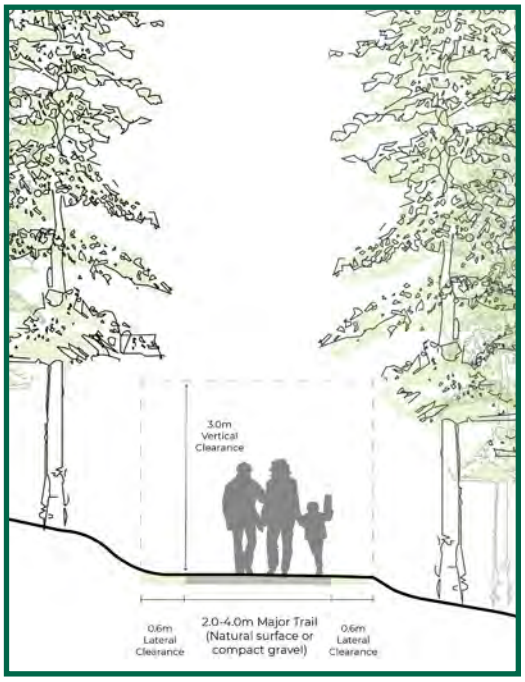
Major Trails

Major trails serve a variety of users: walkers, joggers, mountain bikers, and dog owners. Major trails are designed to accommodate steady two-way traffic while maintaining environmental sustainability. **Table 7** outlines key design standards, including trail dimensions, surface materials, and supporting amenities. This helps ensure safety, comfort, and ease of access for all users on major trails. Major trails carry large numbers of people through Burnaby Mountain Park, which is designed with inclusivity and safety principles in mind. Trail surfacing is intended to be robust enough to withstand high traffic and require little maintenance.

Table 7. Major Trails

Major Trails	
Uses	Steady two-way traffic, walking, jogging, general passage by all ages, mountain bikers and dogs on leash
Width	2.0 m to 4.0 m wide, with 0.6 m lateral clearance on each side
Vertical Clearance	3.0 m
Trail Surface	Compacted natural surface tread or gravel surface; trailheads may include asphalt or concrete paving, depending on the trail and amenities
Potential Amenities	Washrooms (outhouses), wayfinding kiosk, benches, trail signage, garbage and recycling bins, dog bag dispensers
Potential Infrastructure	Culverts, waterbars, bridges, boardwalks

Figure 9. Cross-Section for Major Trails



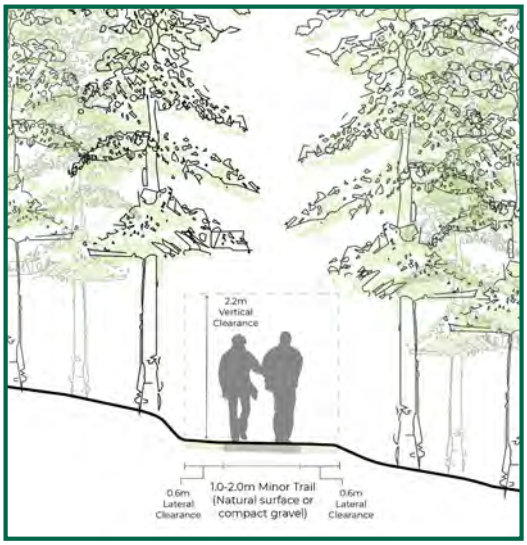
Minor Trails

Minor trails still serve a variety of users, such as walkers, joggers, mountain bikers and dog owners (unless otherwise specified), but they are narrower than major trails. **Table 8** outlines key design standards, including trail dimensions, surface materials, and supporting amenities, to ensure safety, comfort, and ease of access for all users on minor trails.

Table 8. Minor Trails

Minor Trails	
Uses	Two-way traffic, walking, jogging, general passage by all ages, mountain bikers and dogs on leash (unless otherwise specified)
Width	1.0 m to 2.0 m wide, with 0.6 m lateral clearance on each side
Vertical Clearance	2.2 m
Trail Surface	Compacted gravel surface or natural surface tread; may include constructed bank corners
Potential Amenities	Trail signage and wayfinding
Potential Infrastructure	Culverts, waterbars

Figure 10. Cross-Section for Minor Trails



Use on select minor trails will evolve as the trail network is repaired and selectively expanded.

All minor trails will remain open to hikers and cyclists. In select cases where parallel mountain biking facilities are added, minor trails will transition to hiking only.

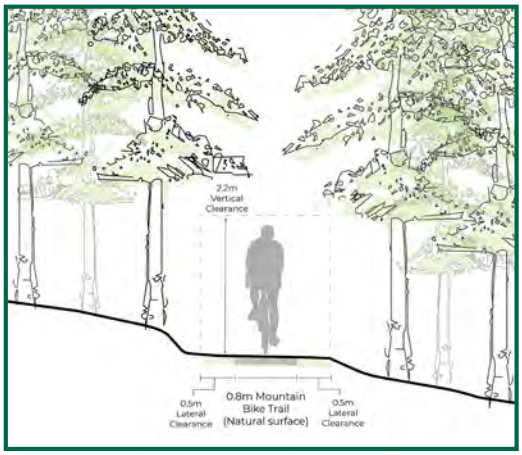
Mountain Bike Trails

Mountain biking trails with one-way traffic and natural surface tread are designed solely for mountain bikers. **Table 9** outlines key design standards, including trail dimensions, surface materials, and supporting amenities, to ensure safety, comfort, and ease of access for all mountain bike users. These trails will primarily be downhill directional trails and may include beginner-oriented technical trail features (TTFs), such as rollovers or bridges.

Table 9. Mountain Biking Trails

Mountain Biking Trails	
Uses	One-way traffic, mountain bikers
Width	0.8 m wide, with 0.5 m lateral clearance on each side
Vertical Clearance	2.2 m
Trail Surface	Natural surface tread; may include constructed bank corners
Potential Amenities	Trail signage and wayfinding
Potential Infrastructure	Culvert, waterbars, and technical trail features

Figure 11. Cross-Section for Mountain Biking Trails



Multi-Use Pathways

Multi-use pathways are designed to serve various users (e.g., walkers, joggers, mountain bikers and dog owners) and accommodate steady two-way traffic on paved asphalt or compacted gravel surfaces. The chart below outlines key design standards, such as trail dimensions, surface materials, and supporting amenities, to ensure the safety, comfort, and ease of access for all users on multi-use pathways. Multi-use pathways for Burnaby Mountain Park are proposed around University Drive and are intended to enhance the safety of the Park's interface with SFU. These will require a combination of the road shoulder and on-street space.

Table 10. Multi-Use Pathways

Multi-Use Pathways	
Uses	Steady two-way traffic, walking, jogging, general passage by all ages, mountain bikers and dogs on leash
Width	3.0 m to 4.0 m wide, with 0.6 m lateral clearance on each side
Vertical Clearance	3.0 m
Trail Surface	Asphalt or compacted gravel surface
Potential Amenities	Wayfinding kiosk, benches, trail signage, garbage and recycling bins, dog bag dispensers
Potential Infrastructure	Culverts, waterbars, bridges, boardwalks

Figure 12. Cross-Section for Multi-Use Pathways



Next Steps

The trail system is assessed through regular routine maintenance practices, and efforts are focused on keeping the system functional and safe. To maintain the extensive trail system, an annual budget of $450,000 (2026) is required.

As the condition of the trail system continues to deteriorate and the trail use continues to rise over time, the occasional trail closure and movement from trail maintenance to full reconstruction are anticipated. Currently, 8.5 km of trail needs to be reconstructed over the next 15 years. The annual review and prioritization process for reconstruction is intended to **support informed decision-making on the selection of trail projects for reconstruction**.

4.2 Strategy #2: Connect to the Community

Connecting the City with the community is a high public priority. Existing and future relationships with Host Nations, volunteers, and the broader public highlight opportunities for actions to further strengthen these meaningful connections.

Host Nations

Burnaby Mountain is located within the unceded, ancestral, and traditional territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), səlilwətaɬ (Tsleil-Waututh), and kʷikʷəƛ̓əm (Kwikwetlem) peoples, who have lived on and stewarded these lands for thousands of years.

Burnaby Mountain is historically known in Sḵwx̱wú7mesh sníchim as Lhuḵw'lkuḵw'áyten, meaning “where the bark gets peeled in the spring.”[6] The həńq̓əmińəḿ name is currently unknown. The mountain was an important harvesting, hunting, and spiritual site for Indigenous communities, and is still a place of cultural significance with archaeological sites throughout the area.[7] Families gathered seasonal foods, including berries, medicinal plants, and cedar bark, using managed harvesting practices shaped by deep ecological knowledge. Colonization, logging beginning in the early 1900s, and land alienation disrupted traditional resource areas, yet community members still maintain strong cultural and spiritual connections to these lands. More recently, the area became a park (1957) and conservation land (1995), and in 2025 Simon Fraser University opened the First Peoples’ Gathering House, developed collaboratively with the Host Nations.

Throughout the engagement process, Host Nations have not been able to fully engage on all aspects of the Plan.

Volunteers

Several volunteer groups are currently engaged in stewardship and advocacy activities and regularly report back to the City. Various groups have expressed strong interest in expanding their involvement in stewardship activities within Burnaby Mountain Park, including supporting the City with ecological monitoring, reporting, and advocacy. Volunteer groups already play a critical role in the long-term sustainability of the trail system and natural environment through two primary programs: the Invasive Species Management Program and Trail Maintenance Days. These programs are scheduled by City staff and approved through the Parks, Recreation and Culture Committee (PRCC) and City Council. It focuses on invasive species removal, native plant restoration, and trail bed reconstruction to address erosion and infrastructure needs, particularly on mountain bike trails. However, coordination of all volunteer roles is essential to ensure activities are safe, appropriate, and aligned with City priorities.

6 SFU (n.d.). Lhuḵw’lhuḵw’áyten (Burnaby Mountain, Burnaby, B.C.). Simon Fraser University. Retrieved from https://www.sfu.ca/brc/our-work/imesh-mobile-app/coast-salish-place-names/squamish/lhukw-lhukw-ayten.html#:~:text=Lhu%E1%B8%B5w'lhu%E1%B8%B5w'%C3%A1yten%2C%20%E2%80%9C,mats%2C%20clothing%2C%20and%20rope.

7 Burnaby Village Museum (2026). Indigenous History in Burnaby - Resource Guide. City of Burnaby. Retrieved from https://www.burnabyvillagemuseum.ca/assets/Resources/Indigenous%20History%20in%20Burnaby%20Resource%20Guide.pdf

Currently, a single staff member manages volunteer scheduling and primarily supports the two strongest programs, limiting the ability to grow and diversify stewardship work. Expanding coordination capacity and adopting a more structured approach will help integrate emerging stewardship groups, strengthen existing programs, and ensure all volunteer activities align with annual maintenance plans and environmental objectives. A summary of the active stewardship and volunteer programs is provided below.

Table 11. Volunteer Organizations and Programs

Name	Organization Overview	Programs & Events
Burnaby Mountain Biking Association (BMBA)	The BMBA is a trail association that aims to promote the establishment and preservation of a mountain bike trail network on Burnaby Mountain. The association works under the supervision of the City of Burnaby.	The BMBA hosts Trail Days, which invite community members to Burnaby Mountain Park to perform maintenance and upgrades on the trails. Volunteers work to restore trail segments with armouring and drainage improvements. On average, there are four trail day sessions taking place annually, with approximately 17 to 25 volunteers participating in each.
Burnaby Mountain Preservation Society (BMPS)	The Society advocated for the creation of the Burnaby Mountain Conservation Area. The BMPS Goals are to promote public awareness of the conservation area and to advocate for best practices in mitigating the environmental stressors.	*This group works independently with activities recorded by staff.*
Streamkeeper Programs	Volunteer streamkeeper groups serve as caretakers for Burnaby's waterways through litter removal, stream clean-up efforts, habitat enhancement projects, salmon fry releases, storm drain marking and collecting environmental data.	Active streamkeeper and watershed stewardship groups near Burnaby Mountain Park include the Eagle Creek Streamkeepers, Silver Creek Streamkeepers and Stoney Creek Environmental Committee.
Volunteer Groups for Invasive Species Removal	Various volunteer groups in Burnaby work to remove invasive species from Burnaby Mountain Park.	*Invasive Species Council of BC* inventory invasive species for future removal. Streamkeeper groups remove invasive species from the Park's waterways. An annual work program for general interest groups participation in invasive removals is organized by City staff.
Citizen Scientist Programs	The federal government's Citizen Scientist Program is set up to allow visitors to contribute to scientific knowledge of the Park.	Volunteers record plant and animal observations on platforms like the iNaturalist app. Recorded sightings of endangered species are utilized by researchers to track their locations and assess threats.

Action 6: Build Community Relationships

Actions that can be undertaken to strengthen community connections include engagement activities with the Host Nations and with general volunteer groups. The following actions are recommended:

- **Ensure City and volunteer initiatives respect cultural values,** ecological knowledge, and areas of sensitivity.
- **Incorporate traditional knowledge and Host Nations' interests in the development of programs** such as invasive species removal, trail interpretation, restoration methods, and trail stewardship guides.
- **Collaborate on training materials** for volunteers that incorporate Host Nations' ecological knowledge, cultural protocols, and stewardship practices.
- **Provide opportunities for Host Nations-led programming**, such as cultural walks, educational sessions, or youth stewardship projects.
- **Integrate traditional knowledge and Host Nations' interests into restoration work**, including plant species selection, seasonal timing, and practices that reflect Indigenous knowledge systems.
- **Implement a standard partnership model for volunteers** by adopting a consistent partnership agreement to define roles, expectations, liability requirements, and reporting procedures for all volunteer and stewardship organizations.
- **Diversify volunteer opportunities** by developing additional roles, such as Trail Ambassadors, to support trail etiquette education, visitor guidance, minor maintenance tasks, and hazard reporting. Identify volunteer-appropriate activities that complement staff-led work without compromising safety.
- **Enhance restoration and monitoring practices** with standardized methods for tracking invasive species removal, monitoring site recovery, and guiding ecosystem replanting. Encourage participation in Citizen Scientist initiatives to support biodiversity data collection.
- **Improve reporting and feedback tools** by providing simple mechanisms, such as digital forms or mobile reporting tools, for volunteers to submit observations on trail conditions, environmental concerns, and safety issues.

Action 7: Enhance Communication Systems

Communications on topics such as trail conditions, trail closures, volunteer events, and annual achievements by volunteers and partners can be strengthened through a variety of printed and digital channels. Additional on-trail education featuring interpretive signage, including local ecological information, can also be supported through improved web-based resources and on-site signage. A communications strategy would improve prioritization of initiatives and identify resources and partners to enable the recommendations listed below. This would align communications initiatives with volunteer efforts to create a comprehensive approach to engaging the community and enabling stewardship opportunities.

Topics for discussion may include proposed physical changes to trails, accessibility and adaptive measures, the placement of signage, seating, and amenities, the review and development of interpretive and wayfinding content, protocols for trail closures and project notifications, and systems for trail safety and issue response.

Additionally, enhancing communication through the City's website and other online channels will help showcase stewardship successes and share volunteer stories. This will build community awareness, celebrate contributions, and provide timely updates on trail conditions, closures, and volunteer opportunities.

Public communications could be improved through the following initiatives, and could be compiled into a communications strategy, which would reflect these priorities:

Improve Online Information and Alerts

Develop a centralized, real-time online alert system that provides up-to-date information on wildlife activity, trail closures, and maintenance work. Support this with an interactive trail map and coordinated updates across the City's website and social media channels. Ensure on-site signage provides complementary safety information, rerouting directions, reporting options, and project updates.

Annual Reporting and Recognition

Prepare an annual summary of partner activities and volunteer contributions. Share results publicly and recognize contributions to strengthen community engagement and highlight stewardship successes.

Expand On-Trail Education and Interpretation

Install updated interpretive signage that reflects Host Nations' connections to their territories. Incorporate seasonal content and wildlife-related updates where relevant, and align on-site messaging with online educational resources.

Provide Clear Accessibility Information

Offer detailed and accessible trail descriptions, including grades, surfaces, barriers, and amenity locations. Ensure this information is updated regularly online and included on trail maps to support inclusive trail use.

Promote Volunteer and Stewardship Efforts

Highlight volunteer achievements and stewardship stories through City communication channels to foster community involvement and increase awareness of ongoing initiatives that support trail health and user experience.

Next Steps

The next steps for strengthening community connections and improving communications on Burnaby Mountain Park is to focus on expanding coordinated volunteer engagement, enhancing cultural collaboration, and improving public access to timely information. This includes developing a more structured volunteer framework that aligns stewardship activities with maintenance priorities, creating new roles such as Trail Ambassadors, and ongoing engagement with Host Nations to guide stewardship, cultural learning, and interpretive content. At the same time, communications will be improved through real-time online updates on trail conditions, wildlife activity, and maintenance work; annual reporting and recognition of volunteer contributions; clearer accessibility information; and that reflects Host Nations' connections to their territories. These actions, together with additional capacity to manage volunteers and communications, will strengthen safety, cultural understanding, ecological resilience, and community participation.

5.0 Path Forward



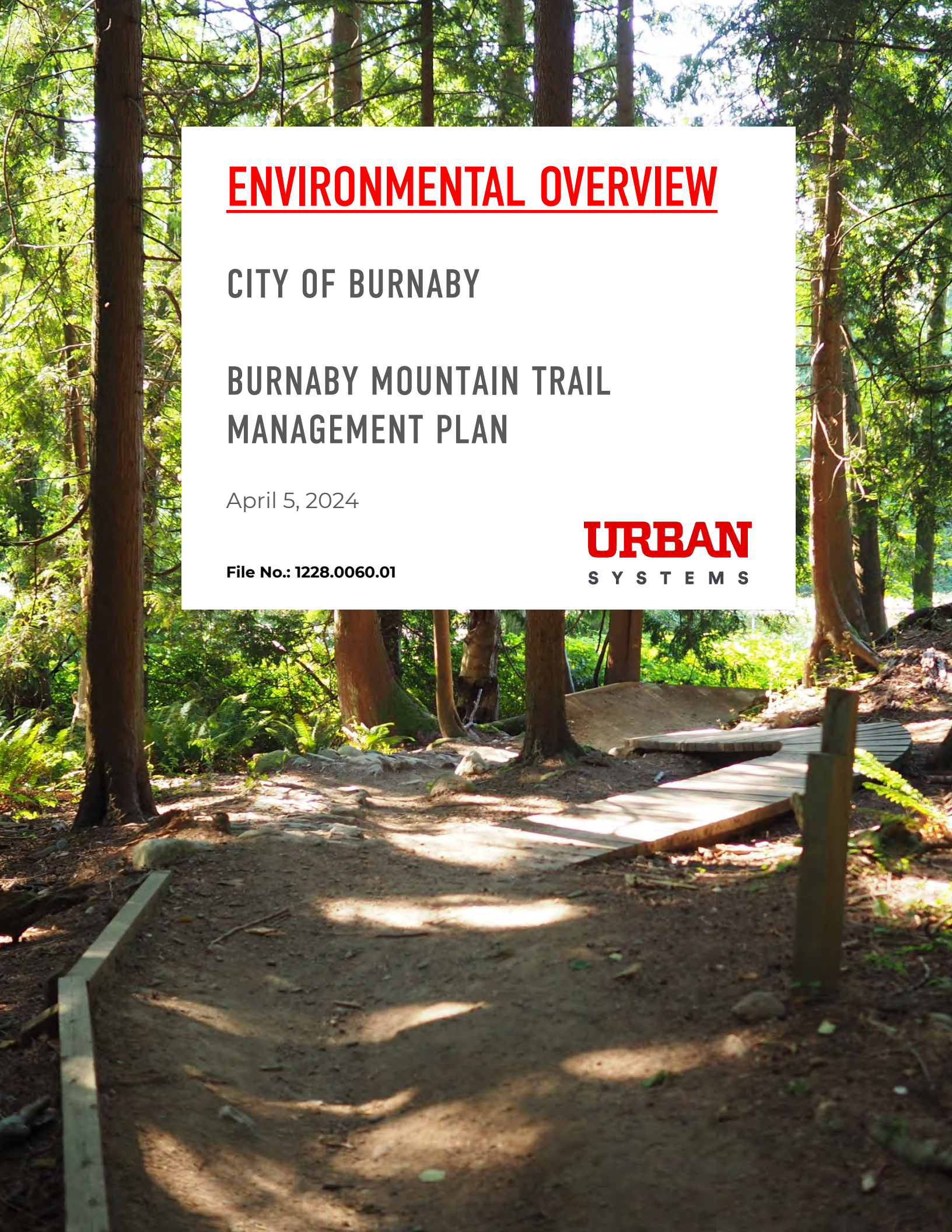
Looking ahead, Burnaby Mountain Park will continue to serve residents of the City of Burnaby and the Metro Vancouver region. The BMTMP provides a broad description of the trail network. The plan identifies one vision, two strategies, and seven actions to reach the vision. The BMTMP has specifically addressed the need to restore, maintain and rebuild the system that exists in the park today. It has not addressed the desire for trail expansion, which is listed in **Appendix D: Trail Expansion Suggestions**.

The annual maintenance plan to keep existing trails at a safe and stable service standard level is currently supported by operational funds. However, due to the age of infrastructure and increased trail use, the replacement and capital reconstruction of select trails and associated amenities will be required over the next 15-year period. Within this plan, the sections in the poorest condition have been prioritized for capital reconstruction consideration. The City will continue to review the priority plan annually to ensure projects are in keeping with changing site conditions, including trail degradation, safety concerns, environmental changes in sensitive areas, community use, and available funding.

The Burnaby Mountain Park trail system is a community asset supported by stewards and community groups vested in both recreation and conservation. Building community connections and steward group participation to assist with trail maintenance and protect the environmentally sensitive areas of the Park is an area of growth potential over the next 15 years. Community feedback reconfirms that the public is looking for opportunities to participate in these programs.

Burnaby Mountain Park trails service will continue with the vision of providing a sustainable trail system that supports recreational activities while protecting and conserving the Park's natural habitats.

Appendix A



ENVIRONMENTAL OVERVIEW

CITY OF BURNABY

BURNABY MOUNTAIN TRAIL MANAGEMENT PLAN

April 5, 2024

File No.: 1228.0060.01

URBAN SYSTEMS

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Known contaminated sites can have various negative impacts on a forest ecosystem. Contaminants, such as pollutants and hazardous substances, can affect soil, water, vegetation and overall health of the ecosystem. In respect to the BMCA, there are a number of negative effects contaminants can have on the environment: 16
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1.0 INTRODUCTION

1.1 BACKGROUND

Burnaby Mountain is located north of Burnaby City and holds the largest recreation nature space for local residents. Before the mountain became a conservation area, it historically operated as a logging mill in 1903. After the development of Simon Fraser University in the 1960s (SFU), which is still situated at the top of Burnaby Mountain, the 820 acres of land which sits below the campus was transferred to the City of Burnaby (the City). That land is now known as the Burnaby Mountain Conservation Area (BMCA), which is home to a variety of diverse habitats and ecosystems.

The City is responsible for maintaining the natural environment found within BMCA and aims to highlight areas of immediate concern or in need of restoration or protection. However, as the area is used by a wide variety of users (hikers, bikers, dog walkers, etc.), the environmental needs of the park can often conflict with the users' needs. Therefore, the City is preparing a Trail Management Plan to properly inventory the current park use and condition and provide direction for improving and managing authorized trails to meet the needs of various user groups while balancing the need for conservation.

This Environmental Overview will act as an assessment of the valued components and natural assets that make up the BMCA., and help guide how best to protect and manage the natural habitat. Conservation should be prioritized to sustainably manage the natural assets for years to come.

SCOPE OF ENVIRONMENTAL OVERVIEW

This environmental overview is based on a site visit, desktop study and site photos and includes:

- A description of the proposed project site, including geographic setting and site topography;
- Regulatory considerations that include legislation and policies containing environmental direction and potential requirements that may be relevant to the project;
- A description of the environmental setting, including valued ecosystem components such as vegetation, surface water and fisheries resources, groundwater, wildlife, species at risk and critical habitat, if any;
- Research of provincial and federal sources to determine rare element (species) occurrences and known contaminated sites that could arise from past use and pose a risk to human health or the environment;
- A site visit conducted by Zoe Tarren, USL on September 21 2023; and
- Recommendations to avoid and/or mitigate potential adverse impacts. Recommendations will include site-specific recommendations and general best management practices.

1.2 INFORMATION SOURCES

Information gathered for this environmental overview was sourced from the following databases:

- BC Conservation Data Centre;
- BC Habitat Wizard;
- BC iMap;
- BC Online Contaminated Sites Registry;
- BC Species and Ecosystems Explorer;
- COSEWIC Species Status Reports;
- Federal Species at Risk Recovery Strategies and Management Plans;
- Site visit conduced on September 29 2023 by Zoe Tarren, Urban Systems, and
- Treasury Board of Canada Contaminated Sites Inventory website.

2.0 REGULATORY CONSIDERATIONS

BMCA falls under multiple provincial, federal and local legislation and policies. However, the project does not detail any specific activities, which may trigger certain laws. The list below details the main policies, which should be considered when managing the BMCA.

2.1 FEDERAL LEGISLATION AND POLICIES

2.1.1 MIGRATORY BIRDS CONVENTION ACT, 1994 (S.C. 1994, C. 22)

Most migrating birds found in Canada are protected under the Migratory Birds Convention Act (MBCA). This Act and its complementary Regulations ensure the conservation of migratory bird populations by regulating potentially harmful human activities. The Migratory Bird Regulation (2022) prohibits the damage, destruction, removal or disturbance of the nests of all migratory birds when there is a live bird or viable egg or if the nest was built by a species that is listed in Schedule 1. Schedule 1 lists 18 migratory bird species whose nests are known to be reused in subsequent years by migratory birds. The nests of these 18 species are protected year-round until the nest remains unoccupied by a migratory bird for the period of time designated in Schedule 1 (12, 24 or 36 months, depending on the species).

The time clock for this waiting period starts when Environment and Climate Change Canada receives notification via the Abandoned Nest Registry. Nests for which a notification has been received continue to be protected against damage, destruction, disturbance or removal during the designated waiting period.

If the nest of a bird listed on Schedule 1 is not present, impacts to migratory birds, their nests, eggs, and young can be avoided by conducting land clearing activities outside of the nesting season for birds. The nesting season for most bird species in the Lower Mainland is late March to mid-August. Species, including raptors, owls, and great blue heron commence nesting earlier. Should land clearing activities occur during the nesting season, a qualified environmental professional should be engaged to ensure that birds and their nests are not adversely affected.

2.1.2 SPECIES AT RISK ACT (S.C. 2002, C. 29)

The federal Species at Risk Act (SARA) provides protection to endangered or threatened organisms and their habitats. This legislation applies to all federal land, to migratory birds and all aquatic species as defined in the Fisheries Act, wherever they are found. Although SARA prohibitions are automatically imposed on federal lands, the intent of SARA also applies to provincial crown and private lands. SARA encourages provincial and Indigenous governments to cooperate to protect wildlife in Canada.

Critical habitat for two species (Roell's brotherella and western painted turtle) listed on Schedule 1 of the SARA is identified in the project area and the vicinity of the project.

2.1.3 FISHERIES ACT (R.S.C., 1985, C. F-14)

The Fisheries Act provides a framework to manage and control Canada's fisheries, as well as to conserve and protect fish and fish habitat, including pollution prevention. Under the Act, activities other than fishing that result in the death of fish and/or activities that may result in the harmful alteration, disruption or destruction of fish habitat are prohibited.

Projects with the potential to adversely impact fish and/or fish habitat and with a project scope that is not covered under the standards and codes of practice should be reviewed by Fisheries and Oceans Canada (DFO) through the Request for Review process. This applies to work in or near water bodies that are frequented by fish and any other areas which fish depend on directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas, including any waterbody that is connected to fish-bearing waters at any time of the year. The review will determine if the project requires authorization under the Fisheries Act.

Any improvements to infrastructure located near the creeks and tributaries within the BMCA may trigger the Fisheries Act, and a request for review/Fisheries Act Authorization may be required.

2.2 PROVINCIAL LEGISLATION AND POLICIES

2.2.1 BC WATER SUSTAINABILITY ACT AND REGULATIONS (SBC 2014, C 15)

All water in BC, including land below the high-water mark of a waterbody, is owned by the Crown on behalf of the residents of the province. *For any changes in and about a stream, an application under Section 11 of the Water Sustainability Act (WSA) is required.*

2.2.2 BC WILDLIFE ACT (RSBC 1996, C. 488)

The Wildlife Act governs the protection and management of wildlife in BC. The Act defines wildlife as all native and some non-native amphibians, reptiles, birds, mammals and fish. The Wildlife Act protects virtually all vertebrate animals from direct harm, except as allowed by regulations (e.g., hunting or trapping). In BC, 158 wildlife species and sub-species are considered candidates for endangered, threatened or vulnerable status. The Act deals with the protection and maintenance of suitable habitat and the conservation of wild species, in particular, those species that may be at risk of extinction, as well as nesting birds, their nests and their eggs. Section 34 of the Wildlife Act prohibits possessing, taking or

destroying (i) a bird or its egg, (ii) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl, or (iii) the nest of a bird not mentioned in (ii), when the nest is occupied by a bird or its egg unless authorized under permit. By conducting vegetation and ground disturbance activities outside of the nesting season for birds, a proponent is often able to maintain compliance with respect to Section 34 of this Act. In addition, ensuring construction activities do not harm vertebrate animals will help maintain compliance with this Act.

Any vegetation management or removal of hazardous trees throughout the BMCA may require a nesting bird survey to ensure protected species are not adversely affected.

3.0 THE PROJECT

3.1 SITE DESCRIPTION

Burnaby Mountain provides panoramic views of the surrounding area, including Burrard Inlet, downtown Vancouver, and the North Shore Mountains. The BMCA is located below Simon Fraser University and is made up of sloped trails, forested land, manicured parkland, tributaries, and creeks. The diverse land is managed and owned by the City of Burnaby. The conservation area offers a range of recreational activities for visitors. This may include hiking trails, viewpoints, picnic areas, and opportunities for outdoor sports. The goal is to allow people to enjoy nature while promoting conservation efforts. Burnaby Mountain is home to diverse ecosystems, including forests and wildlife. Conservation initiatives are in place to protect the natural environment and maintain the area's ecological balance.

3.2 PROJECT DESCRIPTION

The Burnaby Mountain Conservation Area (BMCA) is the largest public park and recreation area within the City of Burnaby. It provides a wide resource of recreational activities to both residents of Burnaby and attracts visitors from all over greater Vancouver. The City of Burnaby Parks, Recreation and Cultural Services department has initiated the re-assessment of Burnaby Mountain trail use, hoping to preserve the environment while protecting the natural habitat.

The City, particularly its Parks, Recreation, and Cultural Services department, has been involved in efforts to assess and manage the trail system on Burnaby Mountain. This includes initiatives to preserve the environment for future generations and protect the natural habitat. Urban Systems has been engaged to reassess the natural assets within BMCA and help develop and implement a new Trail Management Plan. This environmental overview assesses the natural assets and highlights areas of concern.

3.3 LAND USE

The project area is located in within the City of Burnaby, on the unceded territories of the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh (Squamish), Sel̓íl̓witulh (Tsleil-Waututh), and Kwikwetlem (kwikwəƛ̓əm) Nations. The BMCA is dedicated to the conservation, recreation, and education of Burnaby Mountain. Conservation efforts aim to maintain biodiversity and preserve the ecological integrity of the mountain. The area also holds cultural or historical significance, for example, the Centennial Rose Garden commemorates Canada's centennial in 1967, and the Kamui Mintara (Playground of the Gods) sculpture which were created by Japanese sculptors Nuburi Toko and his son, Shusei; these works of art commemorate the goodwill between Burnaby and its sister city, Kushiro, Japan. These features aim to educate the public and honour the park's history.

Burrard Inlet

BARNET RD

Simon Creek

Nicholl Creek

Cameron Creek

Cougar Creek

Trans Canada Trail

MALIBU DR

SIERRA DR

INLET DR

BRAESIDE DR

PANDORA DR

RIDGEVIEW DR

RIDGE DR

PANDORA ST

UNIVERSITY DR W

UNIVERSITY CR

UNIVERSITY HIGH ST

SLOPES MS

SOUTH CAMPUS RD

TOWER RD

UNIVERSITY DR E

CENTENNIAL WY

BURNABY MOUNTAIN PY

AUBREY ST

BURNWOOD DR

GLEN ABBEY DR

PINEHURST DR

KEYSTONE DR

Transmountain Burnany Terminal

GAGLARDI WY

SHELLMONT ST

ARDEN AV

MEADOWOOD DR

Eagle Creek

Silver Creek

ASH GROVE CR

FOREST GROVE DR

RATHBURN DR

NORTH RD

Stoney Creek

BLAINE AV

Legend

- Parks
- Burnaby Mountain Conservation Area
- Rights of Way
- Parking
- Burnaby Mountain Bike Skills Park
- Railway
- Gondola Route
- Transmountain Burnany Terminal
- Trans Canada Trail
- Dual Use Trail (Pedestrian/ Cycling)
- Multi Use Trail (Pedestrian/ Cycling/Equestrian)
- Pedestrian Only Trail
- Urban Trail (Asphalt Multi Use)
- Urban Paths
- Bikeway
- Cycle Road
- Shoulder Bike Lane
- Waterway
- Retention Pond

0 125 250 500 M

N

Scale: 1:12,000

4.0 DESCRIPTION OF THE ENVIRONMENT

4.1 TOPOGRAPHY

Land within BMCA has a diverse topography with elevation ranging from approximately 77 m to 370 m above sea level (Google Earth, 2023). The mountain features include sloping terrain with steep slopes, and drop offs, especially on the northern side. Most of the mountain is comprised of recreational areas such as trails, parkland and playgrounds. Simon Fraser University campus is situated at the top of the mountain and is not a focus point of this investigation.

4.2 CLIMATE

The climate of the area can be generalized using the Biogeoclimatic Ecosystem Classification system. This system is used by natural resource practitioners within the province of British Columbia to describe general terrestrial ecosystem characteristics throughout the province, including regional vegetation, as well as biological, geographical and climatic characteristics. The project area is located in the Coastal Western Hemlock dry maritime biogeoclimatic sub-zone (CWHdm). CWH occurs at low to middle elevations, mostly west of the coastal mountains, along the entire British Columbia coast (Meidinger and Pojar, 1991).

The CWH is, on average, the rainiest biogeoclimatic zone in BC. The mesothermal climate is described by cool summers and mild winters (Meidinger and Pojar, 1991). Climate Normals data from the Burnaby Simon Fraser station show August and July to be the warmest months, with a daily maximum 21.2°C and a daily average of 17.2°C, and December to be the coldest month, with a daily minimum of 0.8°C, and a daily average of 2.9°C. November is the wettest month, receiving an average of 284 mm of precipitation with an annual average of 1,667 mm. Only about 5% of the total precipitation falls as snow (Environment and Climate Change Canada, 2020).

4.3 VEGETATION

The CWH climate provides one of the most productive forest regions in Canada. Common tree species found within the dry-maritime subzone include Douglas-fir, western hemlock, western and red cedar; shrubs within the subzone also include step moss, sword fern, vine maple and bracken fern (Meidinger and Pojar, 1991).

Due to the historical logging of Burnaby Mountain in the 1940's, the natural forest composition has changed, and what was once filled with western hemlock, western red cedar and Douglas fir trees, is now dominated by deciduous species. Tree species found within the park include red alder, western hemlock, vine maple, western dogwood, and bigleaf maple. The understory is compromised of a number of native shrubs, including salmon berry, vine maple, sword fern and red elderberry. However, there is also a high presence of invasives, which include Himalayan blackberry, Japanese knotweed, bohemian knotweed, spurge laurel, scotch broom and Himalayan balsam.

4.4 GEOLOGY AND SOILS

According to the BC Geological Society, the representative age of the bedrock geology within the project area are from the Eocene period, with the rock type listed as undivided sedimentary rocks (BC Government, MapPlace2). The Soil Order Map of Canada lists the soil order (broadest grouping and which reflects the climate and landscape characteristics associated with the different regions in Canada) as 75% Podzolic, 15% Luvisolic and 10% Gleysolic (SLC Web Map Application, n.d.).

4.5 SURFACE WATER AND FISHERIES RESOURCES

There are several creeks and tributaries which run on both the north and south sides of Burnaby Mountain. The tributaries along the north side are all unmapped watercourses. However, according to the City of Burnaby's open data portal, they are known as Simon Creek, Nichols Creek, Submarines Creek, Crab Creek, and Cougar Creek (Figure 4.1). These creeks and tributaries run down the mountain's northern slope and feed into the Vancouver Harbour. The topography on the north side is extremely steep, with the highest point measuring 360 m asl, dropping to 80 m asl in just 600 m. There are no known fisheries resources pertaining to these waterways. However, the extreme grade of the waterways is likely to cause high water velocity, creating natural fish barriers. There are three main creeks on the south side of BMCA, all of which feed into Burnaby Lake, which is situated 3.6 km south of BMCA (Habitat Wizard, 2023):

4.5.1 STONEY CREEK

Stoney Creek is a first order stream with a total mapped length of 3.02 km and is formally mapped south of the BMCA, within the residential area (IMap BC, 2023). However, it has a number of tributaries which originate within the BMCA. These tributaries begin south of University Drive and intersect with Mel's Trail, Sidewinder South Trail, Pipeline Trail and Jim's Jungle Trail, all within the southeastern portion of the BMCA. The creek is fish-bearing and provides habitat to numerous species, including Coastal cutthroat trout, coho salmon, pacific lamprey, rainbow trout, nooksack dace, threespine stickleback, chinook salmon and signal crayfish (Habitat Wizard, 2023)

4.5.2 SILVER CREEK

Silver Creek is an unmapped creek which originates within the Simon Fraser University Campus, specifically within Naheeno Park. There are no mapped fisheries data for Silver Creek; however, based on the condition of the creek, there is a high potential for it to be fish-bearing (Habita Wizard, 2023). The creek also crosses a number of trails, including Sidewinder and Side Bandit trails.

4.5.3 EAGLE CREEK

Eagle Creek is a first order stream with a mapped length of 3.33 km (IMap BC, 2023). A number of stream surveys have been undertaken on the creek, in which the following fish species were identified: coastal cutthroat trout, threespine stickleback, brassy minnow, chinook salmon, coho, salmon, lamprey, prickly sculpin, rainbow trout and signal crayfish (Habitat Wizard, 2023). Similar to Stoney Creek, the mapped stream originates within Squint Lake Park, southwest of the BMCA. The creek is fed by tributaries which

run within the southwestern corner of BMCA and flow underneath the Centennial Way Road and Nature Trail.

4.6 GROUNDWATER

A search for groundwater wells on IMap BC showed no wells within the project area or within 200 m of the project boundary (IMap BC, 2023).

4.7 CULTURAL RESOURCES AND ARCHAEOLOGY

A search of the Integrated Land and Resource Registry (ILRR) records was conducted on September 5, 2023. The ILRR provides information on various legal interests on provincial Crown land and private land, where available, including tenures, regulated uses, sensitive occurrence records such as archaeological sites, land and resource use restrictions, and reservations. For the purposes of the environmental overview, the search was conducted to determine sensitive records that may indicate cultural resources and archaeological sites.

Due to the large size of the conservation area and its location within the unceded territories of the Musqueam, Squamish, Tsleil-Waututh and Kwikwetlem Nations, the cultural and archaeological history is diverse. The search results indicated sensitive records located within the BMCA. If any significant trail maintenance or excavation activities are planned within the area, an archaeologist should be consulted to ensure known sites are not disturbed.

4.8 WILDLIFE

Wildlife species characteristic of the various habitats within the CWH biogeoclimatic zone are described in Meidinger and Pojar (1991). It notes that wildlife common to urban areas within the Lower Mainland include the rock dove, house sparrow, European starling, crested myna, gray squirrel, roof rat, Norway rat, and house mouse. Native species that have adapted to urban habitats include the black-tailed deer, coyote, striped skunk, raccoon, little brown myotis, herring gull, common nighthawk, barn owl, and barn swallow. These species are more abundant in areas that are interspersed with parks, gardens, and native forests (Meidinger and Pojar, 1991).

Several passerine birds were encountered during the site visit on September 21 2023, including olive-sided flycatcher, American crow, song sparrow, Steller's jay, and various warbler and wren species. A previous site visit with the City of Burnaby staff confirmed that black bears have been recorded within the park and often frequent the trail system.

4.9 SPECIES AT RISK

Species at risk are ranked and listed by both federal and provincial government agencies. The federal and provincial species at risk ranking processes are discussed in the following sections.

4.9.1 FEDERAL SPECIES AT RISK ACT

Under the Species at Risk Act (SARA), species ranking is conducted by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), established under Section 14 of SARA. COSEWIC is a

committee of experts that assesses and designates, under Sections 15 to 21 of the SARA, those wild species of animal, plant or other organisms that are in danger of disappearing from Canada. COSEWIC status categories are Extinct, Extirpated, Endangered, Threatened, Special Concern, Data Deficient, and Not at Risk. COSEWIC species assessments are then reviewed under SARA, and a decision is made on whether to accept the assessment and add the species to the SARA Schedule 1 or not.

Schedule 1 of the SARA is the official list of species that are classified as Extirpated, Endangered, Threatened and of Special concern. To ensure the protection of species at Risk, SARA contains general prohibitions that apply to endangered, threatened or extirpated species listed on Schedule 1. While the prohibitions do not apply to species of special concern, protection may be provided provincially or under regional management plans. Species on Schedules 2 and 3 of the SARA are not protected under the Act but have been assessed by COSEWIC and may eventually be listed under Schedule 1.

Under SARA's general prohibitions, it is an offence to:

- Kill, harm, harass, capture, or take an individual of a species listed in Schedule 1 of SARA as endangered, threatened or extirpated;
- Possess, collect, buy, sell or trade an individual of a species listed in Schedule 1 of SARA as endangered, threatened or extirpated; and
- Damage or destroy the residence (e.g., nest or den) of one or more individuals of a species listed in Schedule 1 of SARA as an endangered or threatened species or as an extirpated species if a recovery strategy has recommended the reintroduction of the extirpated species into the wild in Canada.

4.9.1.1 Critical Habitat

Critical habitat is identified for species listed as Endangered or Threatened under SARA and is defined under section 2 of the Act as: "the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species."

Under SARA, it is illegal to destroy any part of the critical habitat of any listed endangered species or of any listed threatened species – or of any extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada if:

- the critical habitat is on federal land, in the exclusive economic zone of Canada or on the continental shelf of Canada;
- the listed species is an aquatic species or
- the listed species is a species of migratory birds protected by the Migratory Birds Convention Act.

4.9.2 PROVINCIAL SPECIES AT RISK

The BC Conservation Data Center (CDC) tracks and categorizes species according to their conservation status in BC. Provincially, the CDC assigns a provincial rank or listing of 'Red' or 'Blue' or 'Yellow' to a species based on its status within BC. The rankings or provincial listing categories described below highlight the wildlife and plant species as well as natural plant communities that require special attention. The CDC listing is an advisory and management tool, not a legal designation in the province.

- **Red:** any indigenous species, subspecies or plant community that is extirpated, endangered, or threatened in BC. Extirpated elements no longer exist in the wild in BC but do occur elsewhere.

Endangered elements are facing imminent extirpation or extinction. Threatened elements are likely to become endangered if limiting factors are not reversed.

- **Blue**: any indigenous species, subspecies or community considered vulnerable (special concern) in BC. Vulnerable elements are of special concern because of characteristics that make them particularly sensitive to human activities or natural events. Blue-listed elements are at risk but are not extirpated, endangered or threatened.
- **Yellow**: Indigenous species that are not at risk in British Columbia.

4.9.3 SPECIES AT RISK SEARCH METHODOLOGY

To determine potential species at risk and or wildlife species of management concern that may occur within the project area, the following information review was conducted:

- Three area-based searches were conducted using the BC Conservation Data Centre (CDC) Species and Ecosystems Explorer tool to identify species that may occur within the South Coast NR Region, Chilliwack NR District, and Coastal Western Hemlock Biogeoclimatic Zones.
- All species with legal protection listed under the BC Wildlife Act, Species at Risk Act, the Forest and Range Protection Act, and species without legal protection (species listed on the BC Conservation Data Centre's Red and Blue lists) were considered in this methodology. The list of species was then refined to identify species with the potential to occur within or near the study area based on species' known distribution and if habitat required by a species is available within the study area.
- SARA critical habitat mapping was reviewed to determine species with mapped critical habitat within the study area. Map layers are from DataBC.
- Mapped element occurrences (red and blue-listed species) were reviewed using BC's Conservation Data Centre iMap web application. Species with occurrences within or near the study area were included. Species occurrences are based on sightings that are reported to the provincial database. The BC Conservation Data Center illustrates these occurrences using polygons that reflect locational uncertainty associated with the source data and are represented with varying-sized circles.

Species at Risk and/or wildlife species of management concern are assigned a rank of **high**, **medium**, **low**, or **nil** for the potential to occur in the project area based on occurrence records, known habitat associations and professional experience (i.e., familiarity with habitat requirements and distribution of the species. Presence ratings are based on the following definitions developed by senior technical expert/ biologist J Hobbs Ecological Consulting (Hobbs, 2019):

- **High**: current understanding of the species' range and/or known species habitat associations suggests that the species is expected to occur in the project area regularly and in densities that would be expected to occur in provincial benchmark habitats. (The provincial benchmark is the highest capability habitat for a particular species in the province, against which all other habitats for that species are rated).
- **Medium**: current understanding of the species' range and/or known species habitat associations suggests that the species is expected to occur in the project area on a temporary or regular (i.e., predictable seasonal basis and in densities that facilitate persistence of a functional population within the project area.
- **Low**: current understanding of the species' range and/or known species habitat associations suggests that the species is unlikely occur within the project area with regularity or in adequate density to facilitate a functional population. Several ecological life-requisite stages would be

challenged based on existing habitat conditions in the project area and/or connectivity with larger, more contiguous occurrence of the species.
- **Nil**: current understanding of the species' range and/or known species habitat associations suggests that the species is not expected to occur in the project area. Species occurrence in the project area would be considered accidental.

4.9.4 SPECIES AT RISK SEARCH RESULTS

In total 17 species were identified to be of conservation concern [i.e., listed by either or each of the SARA, the BC Conservation Data Centre (CDC), the BC Forest Range Practices Act (FRPA), or the BC Wildlife Act (WA) with potential to occur within the project area. This includes:

- 5 species with **high** potential to occur,
- 7 species with **medium** potential to occur, and
- 5 species with **low** potential to occur.

There is one documented occurrence of species at risk within the project area for Roell's Brotherella (BC CDC). Publicly available critical habitat and BC CDC species occurrences are illustrated in **Figure 4.1.**

Species at risk that are assigned a rank of high, medium or low are presented in **Table 4.1.**

Critical Habitat

Species with mapped critical habitat within the study area include:

- Roell's Brotherella, and
- Western painted turtle – Pacific Coast population.

Table 4.1: Species at Risk and Wildlife Species of Management Concern Search Results Summary for Burnaby Mountain

COMMON NAME	SCIENTIFIC NAME	TAXON	STATUS UNDER SARA	PROVINCIAL STATUS	PREFERRED HABITAT	POTENTIAL TO OCCUR IN PROJECT AREA[1]
Coastal tailed frog	*Ascaphys truei*	Amphibian	Special Concern	Yellow	Typically occurs in non-fish bearing, permanent, cold, fast flowing mountain streams that flow over rocky substrate.	Inaturalist occurrence along Eagle Creek tributaries. Prefer non-fish bearing creeks, most likely would be found within the fast-flowing tributaries on the northern side of Burnaby Mountain. **Potential to Occur**: **Low**
Western toad	*Anaxyrus boreas*	Amphibian	Schedule 1 – Special Concern	Yellow	Associated with watercourses and wetland habitats for breeding. Often disperse to a variety of terrestrial habitats outside of breeding season.	Lacking breeding habitat, prefer deep pools of slow flowing water. May forage within the forested area. **Potential to Occur**: **Med**
Northern red-legged frog	*Rana aurora*	Amphibian	Schedule 1 – Special Concern	Blue	Terrestrial stages are associated with streams, ponds or marshes. Can also be found far from water, living in moist forests. Breeding habitat includes permanent and ephemeral bodies of water.	Most likely present within the southern tributaries and creeks which are associated with permanent waterways. **Potential to Occur: Med**
Band-tailed pigeon	*Patagioenas fasciata*	Bird	Schedule 1 – Special Concern	Blue	Nests in natural and human-made habitats including edges and openings in mature coniferous, mixed and deciduous forests, city parks, golf courses. Various forest types and structural stages are used, particularly those with Douglas-fir, Sitka spruce, western redcedar, western hemlock and red alder. May prefer mature, closed canopy coniferous forest. Overwinter in both deciduous and coniferous woodlands, favouring open woods where berries and oak acorns occur.	Likely to forage within the project area, with the potential to use trees for nesting. **Potential to Occur: High**
Barn owl	*Tyto alba*	Bird	Schedule 1 - Threatened	Red	Open foraging habitat with an abundance of primary prey (voles and mice) such as agricultural fields, rough pasture, hayfields, and grassy roadsides. Roost in dense conifers, buildings, hollow trees, nest boxes and occasionally on the ground in tall grass. Breeding requires protected cavity nesting sites.	Likely to use cavities with trees as nest sites, may nest within SFU campus and use BMCA to forage due to abundance of prey species. **Potential to Occur: Low**
Barn swallow	*Hirundo rustica*	Bird	Schedule 1 – Threatened	Yellow	Nests in barns or other buildings, under bridges, in caves or cliff crevices. Forages in open areas, frequently near water.	Suitable nesting habitat along ROW/ Utility corridors. Burnaby Mountain Park provides good foraging habitat. **Potential to Occur: Med**
Common nighthawk	*Chordeiles minor*	Bird	Special Concern	Blue	Nests in a wide range of open, vegetation-free habitats including sand dunes, beaches, logged areas, forest clearings, rocky outcrops, rock barrens, prairies and pastures.	May nest in ditches along the ROW / utility corridors. **Potential to Occur: Med**
Evening grosbeak	*Coccothraustes vespertinus*	Bird	Special Concern	Yellow	Open forests dominated by Douglas-fir, bigleaf maple, paper birch, arbutus, red-osier dogwood, vine maple and other species where it forages on berries and seeds. Usually nests in large mature and mixed forest habitats.	Abundance of suitable nesting trees within BMCA. Douglas-fir, Bigleaf maple, and vine maple are all present. **Potential to Occur: High**
Great blue heron, fannini subspecies	*Ardea herodias fannini*	Bird	Special Concern	Blue	Nests colonially, often in forests away from human disturbances. Can use contiguous forest, fragmented forest and solitary trees for nesting. Tree species include red alder, black cottonwood, bigleaf maple, Sitka spruce, and Douglas-fir. Foraging habitat includes aquatic areas such as tidal mudflats, riverbanks, lakeshores and wetlands up to 0.5 m in depth. Estuaries and eel grass beds are important foraging areas. Fallow agricultural fields are used for winter foraging. Require forage within 3-10 km of nest.	Due to the location close to the harbour, herons may use trees within BMCA for perching and nesting. **Potential to Occur: Med**
Olive-sided Flycatcher	*Contopus cooperi*	Bird	Schedule 1 – Special Concern	Yellow	Breed and forage within open forested areas. Prefer the use of tall trees for perching and foraging within a site. Habitats may include, natural forest openings, or logged/burned areas.	Likely to forage and nest within the forested habitat. **Potential to Occur: Med**

[1] Based on the rating system developed by J Hobbs Ecological Consulting Ltd. that is defined in section 3.8.3 of this report.

COMMON NAME	SCIENTIFIC NAME	TAXON	STATUS UNDER SARA	PROVINCIAL STATUS	PREFERRED HABITAT	POTENTIAL TO OCCUR IN PROJECT AREA[1]
Peregrine falcon, anatum subspecies	*Falco peregrinus anatum*	Bird	Special Concern	Red	Nesting typically occurs on rock cliffs and crevices above lakes or river valleys where abundant prey is nearby.	Active hunter within residential areas and resides in river valleys. Could use trees within the northern side, for perching and hunting. **Potential to Occur: Low**
Dun skipper	*Euphyes vestris*	Bird	Schedule 1 – Threatened	Blue	Occupy a variety of habitats including: forest comprised of Douglas-fir, below open, sparsely vegetated cliffs and hillsides comprised of Douglas-fir and bigleaf maple; open moist to dry meadows; open deciduous woods and areas adjacent to swamps and streams. Also, disturbed sites including roadsides, railways, rights-of-ways and ditches. Dun skipper appears to favour nectar plants such as spreading dogbane, and alfalfa. The dun skipper flight/ breeding period in BC is from mid-May to mid-August.	Wide variety of habitat present throughout BMCA, suitable tree species (bigleaf maple/Douglas-fir), meadows and open spaces available. **Potential to Occur: High**
Little brown myotis	*Myotis lucifugus*	Mammal	Schedule 1 – Endangered	Red	Bats overwinter in hibernacula habitat such as a cave or mine. Maternity colonies often exist in warm sites such as attics of buildings and under bridges, in rock crevices, or tree canopy, will use bat boxes. Found in deciduous and coniferous forests, prefers old forests (increased snag availability for roosting). Forages over water on insects.	May utilize snags in the project area for maternal colonies. May use trees or nearby buildings for roosting. However, most likely forage closer to open water. **Potential to Occur: Med**
Pacific water shrew	*Sorex bendirii*	Mammals	Endangered	Red	Riparian areas in coniferous or deciduous forests in the Fraser Valley as far east as the Chilliwack River Valley. Associated with skunk cabbage marshes, red alder riparian habitat and dense, wet forests of western red cedar. Has been captured in non-forested grassy habitats bordering ditches and sloughs.	Low quality habitat. Project area has patches of wetland with suitable forest canopy. Historical occurrences of pacific water shrew. **Potential to Occur**: **Low**
Nooksack dace	*Rhinichthys cataractae - Chehalis lineage*	Ray-finned fish	Schedule 1 – Special Concern	Blue	Require habitat that is cold, clean and connected. Habitat must provide cover for shelter and the right requirements for breeding and rearing young, while connected habitat allows this migratory species to move between the areas it needs to complete its life cycle. Generally restricted to interior drainages.	Recorded population within Stoney Creek. **Potential to Occur: High**
Western painted turtle	*Chrysemys picta pop. 1*	Reptile	Schedule 1 – Threatened	Red	Highly aquatic and are found in shallow waters of ponds, lakes, oxbows, and marshes, in slow-moving stream reaches, and in quiet backwater sloughs of rivers. Habitat contains muddy substrates with emergent aquatic vegetation, exposed vegetation root mats, floating logs, and open banks. Nesting habitats are on land adjacent to aquatic foraging habitat, usually within 200 m of the water body.	Within mapped critical habitat (CDC). No mapped occurrences within the BMCA. However, mapped occurrences are south of the conservation area. **Potential to Occur**: **Low**
Roell's brotherella	Brotherella roellii	Plant	Schedule 1 – Endangered	Red	Cool, humid mixed deciduous and conifer, second growth forests on stream terraces, swampy floodplains, and occasionally in ravines and creeks. The primary substratum include alder, big leaf maple, dogwood trees, rotten logs and stumps.	CDC mapped occurrence south of University Drive East ROW. Suspected to be isolated population. Critical habitat. **Potential to Occur: High**

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U:\Projects_VAN\1228\0060\01\D-Design\GIS\Projects\Pro_Projects\2024-01-18_1228_0060_01_Burnaby_Mtn_Trails.aprx\Fig4.1_Species_at_Risk



City of Burnaby

Burnaby Trail Management Plan

Species at Risk

Legend

- Burnaby Mountain Conservation Area
- Parcels
- Railway
- Trails
- Waterway
- Bald Eagle Nest

Critical Habitat

- Roell's Brotherella Moss
- Western Painted Turtle Pacific Coast population



0 100 200 300
Meters

N

Coordinate System:
NAD 1983 UTM Zone 10N

Scale: 1:14,000
(When plotted at 11"x17")

Data Sources:

- Data provided by CDC, NRCan, DataBC, Google Earth

The accuracy & completeness of information shown on this drawing is not guaranteed. It will be the responsibility of the user of the information shown on this drawing to locate & establish the precise location of all existing information whether shown or not.

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URBAN SYSTEMS

FIGURE 4.1

5.0 CONTAMINATED SITES

Known contaminated sites can have various negative impacts on a forest ecosystem. Contaminants, such as pollutants and hazardous substances, can affect soil, water, vegetation and the ecosystem's overall health. With respect to the BMCA, there are a number of negative effects contaminants can have on the environment:

5.1.1 SOIL CONTAMINATION

Soil contaminants can affect its composition and fertility, leading to a decline in the growth of native vegetation and disrupting nutrient cycling.

5.1.2 WATER CONTAMINATION

Contaminated sites have the potential to release pollutants into nearby water bodies through runoff or leaching through groundwater. This water pollution will adversely affect aquatic ecosystems, like wetlands, streams, and creeks, which in turn can negatively impact any organisms that rely on water sources.

5.1.3 VEGETATION DAMAGE

Plants, including trees, can absorb contaminants from the soil, leading to damage or potential death. The contaminants impact photosynthesis and nutrient uptake, which is essential for plant health. This can result in reduced forest canopy cover and a decline in overall vegetation diversity.

5.1.4 IMPACT ON WILDLIFE

Herbivores and omnivores may ingest contaminated plants or water sources, which may lead to health issues and population declines.

5.2 PROVINCIAL CONTAMINATED SITES REGISTRY

A search of the BC Online contaminated sites registry was conducted on July 10, 2023. There are two known provincially registered contaminated sites within the search area. The recorded details of the contamination sites are listed in Table 5.1 below.

Table 5.1 – Contaminated sites listed from west to east within the project boundary.

SITE ID	ENV SITE ID:	LOCATION	NAME	DESCRIPTION
17084	69328132	122° 55' 36.80" 49° 16' 25.80"	Settling Pond	Settling Pond at Gaglardi Way
4942	69325825	122° 55' 23.84" 49° 17' 14.15"	Burnaby Mountain Outdoor Target Range	N/A

Note that 'N/A 'refers to information that is not available from iMapBC.

5.3 FEDERAL CONTAMINATED SITES INVENTORY

A search of the Treasury Board of Canada's Federal Contaminated Sites Inventory website was conducted on July 5, 2023. The search indicated that no known federally registered contaminated sites exist within the project area or within 200 m of the project boundary.

6.0 NATURAL ASSETS EFFECTS ASSESSMENT

6.1 VALUED COMPONENTS

Valued Components (VC) are elements of the natural and human environment that are considered to have scientific, ecological, economic, social, cultural, archaeological, historical or other importance. VCs vary by project to reflect the nature of the project's potential effects. For the purposes of this assessment, the VCs are based on the potential effects of activities associated with the overuse of the trails within the BMCA and their current condition.

The following valued components are identified:

The following valued components are considered in this environmental overview:

- Environment
    - Vegetation
    - Geology and soils
    - Surface water and fisheries resources
    - Groundwater
    - Wildlife
    - Species at Risk
    - Cultural Resources and Archaeology
- Health and Safety
    - Noise

An in-person site visit was conducted on Friday, September 29, 2023, to assess the trail conditions and how these valued components are impacted by the daily use of the trails. The assessment was built upon the conditions assessment conducted by Dillon Consulting Ltd. in 2019. However, since 2019, a number of upgrades have been addressed by both volunteer groups and the City. Before the in-person visit, desktop sources were utilized to assess areas of high concern to of ecological importance. Trail footage captured by bike on September 20 by Jack DeSante, Urban Systems Planner, was also reviewed to eliminate any trails which were not of concern.

The assessment was conducted on foot by Zoe Tarren, Biologist, Urban Systems. The following trails were either walked fully or partially (through connectors):

- Dead Moped Trail
- Gnomes Home Trail
- Jims Jungle Trail
- Upper/ Lower Gear Jammer
- Mel's Trail
- North Road Trail
- Nicoles Trail
- Pandora Trail
- Power Line Trail
- Ridgeview Trail
- Upper Cut
- Lower Snake Trail

Tabel 5.1 describes the current impacts to the valued and diverse habitat found within Burnaby Mountain and the trail systems' effects on the VCs.

Table 5.1: Potential Environmental Effect on Valued Components

VALUED COMPONENT	HIGH TRAIL USE IMPACTS/STRESSORS	TRAILS OF CONCERN	LONG TERM IMPACTS
Vegetation	• Off trail disturbance. • Spread of invasive species. • Erosion from bike/foot/dog use. • Erosion from high rainfall. • Permanent loss of vegetation (grasses, deciduous trees and shrubs) and vegetation potential. • Removal of topsoil.	• Jims Jungle. • North Road Trail (Southern portion). • Upper Cut. • Mel's Trail. • Nicole's trail. • Unauthorized Trails.	• Dogs may create alternate paths, contributing to trail widening and soil erosion. • Uncontrolled dogs may chase wildlife, causing stress and potential harm to vegetation. • Unauthorized trails have a high impact on vegetation. • Dogs, humans, and bikes can inadvertently transport seeds of invasive plants, contributing to their spread. • Trail development can lead to habitat fragmentation, isolating plant populations and affecting biodiversity. • Bike tires can compact the soil, affecting root systems and water infiltration.
Geology and Soils	• Erosion and impaction from bike/foot/dog use. • Erosion from high rainfall. • Erosion from detention pond release. • Removal of natural topsoil and ecosystem. • Disturbance of tree root systems.	• Jims Jungle. • North Road Trail (southern portion). • Upper Cut. • Mel's trail. • Nicoles Trail. • Unauthorized Trails.	• Dogs digging or running off-trail can disturb the soil, potentially exposing geological features and affecting soil structure. • Human, animal and bike use can increase the risk of soil erosion, particularly in areas with loose soils or slopes. • Human footsteps can compact the soil, potentially affecting soil structure and reducing its ability to absorb water. • The high erosion can alter natural drainage patterns, potentially impacting the distribution of water across the landscape. • Tree roots are typically covered by soil and organic matter, providing protection and moisture. This layer is crucial for nutrient retention, water absorption, and root growth. As soil erodes, it takes away the essential organic matter and nutrients that trees rely on for proper development and function. This can increase the risk of the tree leaning or falling, especially during adverse weather conditions such as heavy rain or strong winds.
Surface water	• Contamination from erosion. • Introduction and spread of invasive species. • Litter and dog use. • Alteration of creeks and tributaries.	• Poplar Trail. • Mel's Trail.	• Dog waste, if not properly managed, can contribute to water pollution, as fecal matter may introduce bacteria and nutrients to surface water. • Dogs playing in or along the water may contribute to bank erosion, especially in areas with softer soil. • Improper disposal of litter, including plastic bottles and food wrappers, can lead to water pollution. • Foot, bike and dog traffic can increase soil erosion on trails, and sediment from eroded trails may end up in nearby water bodies, impacting water quality. • Trails can alter natural drainage patterns, affecting the flow of water to surface water bodies. • Frequent human and pet presence near water bodies can disrupt aquatic habitats, potentially affecting fish and other aquatic species.
Groundwater	• Contamination from erosion. • Litter and dog use.	• Unauthorized Trails.	• Trails, especially those with impermeable surfaces, can alter the natural infiltration rates of water into the soil, potentially affecting groundwater recharge. • Contaminants from dog waste, human activities, or biking can potentially be transported to groundwater if not managed properly. • Erosion on trails can lead to an increased number of pools in the trail which can be a health and safety risk to users.
Species at risk and wildlife	• Noise Disturbance. • Loss of Vegetation. • Loss of nesting habitat.	• Unauthorized Trails.	• Detailed in table **Section 5.2.**

VALUED COMPONENT	HIGH TRAIL USE IMPACTS/STRESSORS	TRAILS OF CONCERN	LONG TERM IMPACTS
Cultural Resources and Archaeology	• Erosion • Disturbance/removal of heritage archaeological resources due to erosion • Disturbance of significant sites through trail maintenance or unauthorized excavation.	• Unauthorized Trails.	• Dogs digging or trampling in archaeological sites may lead to the disturbance of artifacts, features, or cultural deposits. • Unauthorized digging or exploration by humans may result in the disturbance or removal of archaeological artifacts, structures, or deposits. • Trails passing through or near archaeological sites require special consideration to minimize impacts on cultural resources.
Noise	• Nesting birds and bats • Human safety – bear attractants	• Unauthorized Trails.	• Frequent barking and other vocalizations from dogs can disturb wildlife, potentially causing stress and impacting behavior. • Wildlife may avoid areas with high levels of dog-related noise, altering their habitat use and potentially affecting population distribution. • Noise disturbances during the breeding season can disrupt nesting birds and other wildlife, potentially leading to nest abandonment or reduced reproductive success. • Persistent noise can lead to habituation in some species, while others may experience chronic stress, potentially impacting overall health and survival (specifically in relation to bear behaviour).
Invasive Species	• Spread of invasives	• All.	• Dogs may transport seeds of invasive plants on their fur, paws, or through feces, contributing to the spread of invasive species. • Humans can carry seeds of invasive plants on their clothing, shoes, or equipment, facilitating the spread of invasive species. • Biking activities can dislodge seeds from invasive plants, potentially facilitating their spread along trails.

6.2 POTENTIAL EFFECTS TO SPECIES AT RISK

Species that were given a potential presence rank of **high**, **med**, or l**ow** in **Table 5.2** are considered in more detail below to assess how trail use may affect the individual wildlife groups.

The species biophysical attribute requirements are described below. The potential for species to experience project-related effects are classified into four categories defined below as per definitions developed by species at risk technical expert/ biologist J Hobbs Ecological Consulting (2019). In this assessment, the 'project-related activities' refer to high trail use by pedestrians, cyclists and dogs.

- **High**: Anticipated activities will permanently damage or destroy habitat (i.e., remove habitat) required by species to meet life requisites OR anticipated activities will result in permanent alienation of habitat as a result of prolonged disturbance (i.e., due to changes in levels of human activity, light or noise).
- **Medium**: Anticipated activities will degrade habitat (i.e., negatively alter habitat) required by species to meet life requisites OR anticipated activities will result in temporary alienation of habitat as a result of short-term disturbance (i.e., due to temporary changes in levels of human activity, light or noise).
- **Low**: Anticipated activities will alter the habitat required by species to meet life requisites. In this case, the effects of habitat alteration may be challenging to quantify but are suspected to be slightly negative or benign. Also rated as Low if anticipated activities may result in temporary alienation of habitat as a result of short-term disturbance (i.e., due to temporary changes in levels of human activity, light or noise).
- **Nil**: Anticipated activities will *not* negatively alter the habitat required by species to fulfill key life requisites. In this case, the effects of habitat alteration or alienation may be challenging to quantify but are suspected to be neutral or positive.

Table 5.2. Potential for Project Related Effects on Species At Risk

SPECIES	POTENTIAL SPECIES	POTENTIAL FOR PROJECT-RELATED EFFECTS	THREAT
Amphibians	Coastal tailed frog Western toad Northern red-legged frog	**High**	• Amphibians are generally sensitive to changes in their environment. Increased sedimentation and changes in water quality caused by erosion can stress amphibian populations, making them more susceptible to diseases and other threats. • Amphibians often rely on specific vegetation types for shelter, breeding, and foraging. Erosion can lead to the loss of vegetation; the loss of these features can directly impact their ability to find suitable habitats. • Compaction can negatively impact the forest floor, disrupting the microhabitats crucial for amphibians, especially those that depend on leaf litter or loose soil for shelter and breeding.
Birds	Band-tailed pigeon Barn owl Barn swallow Common nighthawk Evening grosbeak Great blue heron Peregrine falcon Olive-sided fly catcher	**Med**	• Erosion can alter the landscape and potentially expose bird nests to increased predation or environmental stresses. • Changes in the physical structure of the environment may make nests more vulnerable and affect the breeding success of ground-nesting birds. • Trails can act as pathways for predators or disrupt nesting sites directly. • The presence of humans, pets, or off-road vehicles near nesting areas can lead to abandonment of nests or increased vulnerability of eggs and chicks to predation. Some bird species may avoid areas with high human activity, which can limit their access to essential resources. • Trails can contribute to changes in water runoff patterns, potentially leading to localized flooding or drying of certain areas. This can affect the availability of wetland habitats for birds that depend on them for feeding and breeding.
Bats	Little-brown myotis	**Med**	• Increased erosion can affect the stability of trees and structures used by bats as roosting sites. Soil loss and changes in the structural integrity of trees may lead to the collapse of roosts, displacing bat colonies. • Trails may pass near or through areas where bats roost. Frequent human presence and disturbance along trails can disrupt bats during their roosting periods, potentially leading to abandonment of roost sites. • Trails may be accompanied by increased human activity, including artificial lighting and noise. Bats are sensitive to disturbances during their nocturnal activities, and excessive light and noise along trails can disrupt their echolocation and foraging behaviors. • Erosion can contribute to sedimentation in water bodies, potentially impacting the quality of water sources used by bats for drinking and hunting insects.
Fish	Nooksack dace Federally protected salmonid species	**High**	• Sediment can also carry pollutants, nutrients, and other contaminants that can harm fish and their food sources. • Sediment deposition in streams and rivers can alter the physical structure of aquatic habitats. Fine sediment can fill in gravel beds used by fish for spawning, reducing the suitability of these areas for reproduction. • Trampling of vegetation, soil compaction, and disturbance to streamside vegetation can negatively impact fish habitat, especially for species that rely on specific conditions for breeding and shelter. • Changes in the landscape due to erosion can influence streamflow patterns. Increased runoff and alterations to natural drainage can lead to fluctuations in water levels and velocities, impacting fish migration, spawning, and the availability of suitable habitats. • Trails can serve as pathways for the unintentional introduction of invasive species by bikers, bikers or dogs. Invasive species can disrupt the balance of aquatic ecosystems and have detrimental effects on native fish populations.
Butterfly	Dun skipper	**Low**	• The physical presence of trails may disrupt butterfly movement patterns and contribute to habitat fragmentation. • Erosion can lead to changes in soil composition and affect the types of plants that grow in an area. Butterflies often rely on specific plant species for nectar, food for larvae (caterpillars), and as host plants for egg-laying.
Reptiles	Western Painted Turtle	**Med**	• Erosion can alter the availability and condition of suitable nesting sites for reptiles. Some reptile species, such as turtles, rely on specific soil conditions for nesting, and changes in soil structure can impact their reproductive success. • Trails can disrupt the natural vegetation cover that provides shade and temperature regulation.
Vegetation	Roell's brotherella	**Med**	• Critical habitat falls within BMCA, root exposure through erosion has the potential to impact the survival of Roell's brotherella. • The removal or destruction of natural habitat features (e.g., vegetation, substrates) causes destruction of critical habitat by degrading the suitability of microhabitat conditions (shade, humidity, moisture, local hydrology) and/or the availability of growing surfaces required by the species (trees, logs, stumps) (Government of Canada, 2021).

5.0 NATURAL ASSETS EFFECTS RESULTS

Following the site visit and desktop results, the main valuable components which are under unique stress throughout the mountain have been summarized below. Further site photos can be found in **Appendix A.**

5.1 EROSION

There is a high level of erosion within the park. However, it is especially prevalent within the southeastern trails. Significant improvements were seen throughout the park compared to the Dillon report from 2019. For example, it was previously suggested to improve and maintain Cardiac Hill Trail and the access routes along the north side of University Drive East. However, there were no significant signs of stress on the natural environment. Meanwhile, the southern segment of the conservation area has significant damage. This is suspected to be caused by a mixture of rainfall, bike use and pedestrians.

Alongside degradation and vegetation impacts, erosion poses a significant health and safety risk to park users. Tree roots are heavily exposed within the southern portion of the park, and these create a treacherous environment for hikers and dog walkers and increase the risk of hazardous or fallen trees.

5.1.1 TRAILS OF CONCERN

Figure 6.2 illustrates the main trails of concern throughout the park in relation to habitat degradation and severe signs of erosion leading to habitat loss. The main trails which should be maintained are as follows:

- Jim's Jungle
- Upper Cut
- North Road Trail (the southern portion)
- Mel's Trail
- Nicole's Trail
- Lower Snake Trail
- Upper/Lower Gear Jammer

Nicole's, Jim's, Lower Snake and Mel's Trail are of high concern due to the tributaries intersecting with the trails. High erosion on these trails leads to a significant risk of contamination, reduced water and spawning habitat for fish and altered stream dynamics.

The heat maps created based on the cycling data from Strava and mountain biking data from Trailforks show a strong correlation with the heavily degraded trails within the BMCA (Urban Systems Background Review, 2024). Both heatmaps show a high concentration of use along Gearjammer, Nicole's, Sidewinder, Jim's Jungle, Mel's and the southern portion of North Road Trail. The Trailforks heatmap shows slightly less concentration on Mel's, which would indicate users tend to stick to the southern slopes and less on the connector. This data reinforces the erosion and habitat impact seen throughout the site visit and should indicate the main trails that require frequent maintenance and inspection.

5.2 VEGETATION IMPACTS

As discussed in **Section 5.0**, it is clear that high trail use has a significant impact on the vegetation throughout the BMCA. It is noticeable the forest lacks mid-story vegetation and, in some areas, has very little to no understory. This was often correlated with the presence of unauthorized trails and heavy foot/bike use, causing the trails to widen further than intended.

The utility corridors, such as the Trans-Canada Mountain trail, cause habitat fragmentation and wildlife disruption by disturbing the natural movement of wildlife and seed dispersal. There was also a significant increase of invasive species along the corridors (especially with Himalayan blackberry and English ivy), as invasives usually thrive within disturbed environments with multiple seed transfer opportunities. Some invasive plant species are adapted to edge habitats, thriving in the transitional zone between open areas and the forest.



Utility Corridor located along Pipeline Trail.

5.3 UNAUTHORIZED TRAILS

In an effort to protect the park, the City has mapped the unauthorized trials throughout the project area. These trails significantly impact the environment as they further degrade the already sensitive habitat. During the site visit, it was evident that the unauthorized trails were often in place to act as 'shortcuts' throughout the park and not as 'new trails.' Therefore, these trails do not provide any significant added value to the park but further degrade the natural habitat. It was noted that an effort has been made to stop users from entering these trails using woody debris piles, fences and signs. However, only fences were seen to have any success in effectively closing a trail. Unfortunately, the woody debris and signage are too easy for park users to ignore or remove.

In order to allow the mountain to maintain its natural environment, the number of unauthorized trails will need to be maintained, as they increase the potential for disturbance to nesting birds, bats and other wildlife found throughout the mountain.



Woody debris used as a deterrent for existing side trails.

5.4 HUMAN PRESENCE

Frequent human presence on trails can disturb amphibians, increasing stress levels. Some species may alter their behaviour, breeding patterns, or feeding habits in response to constant human disturbance, which can have long-term consequences for their populations.

5.5 SURFACE WATER PROTECTION

The tributaries and creeks of the BMCA are some of the most valuable assets found throughout the mountain. Creeks create unique aquatic habitats that support a diverse array of plant and animal species, including a number of protected fish species. They are home to various fish, amphibians, insects, and

other aquatic organisms, which contribute to the overall biodiversity of the forest ecosystem. Finally, they also facilitate the transportation of nutrients through the forest and act as natural filtration systems by removing impurities and sediments from water.

As the tributaries intersect the trails at a number of cross-sections throughout the mountain (as seen in **Figure 6.1),** it is important they are protected from further degradation or contamination. There were several instances where boardwalks or barriers were placed in an attempt to divert the public. However, they have degraded and no longer serve the same purpose. There were also a number of crossings where culverts or pipes were no longer in working condition and were embedded under the soil or sediment.

It is suspected that a high volume of sediment enters the tributaries throughout the winter. Therefore, we suggested a management plan is derived to ensure the surface water runoff is appropriately filtered. Management strategies may include increased native plants surrounding both trail and creek edges. This is because species of plants, such as grasses and shrubs with deep root systems, can stabilize the soil and prevent erosion.



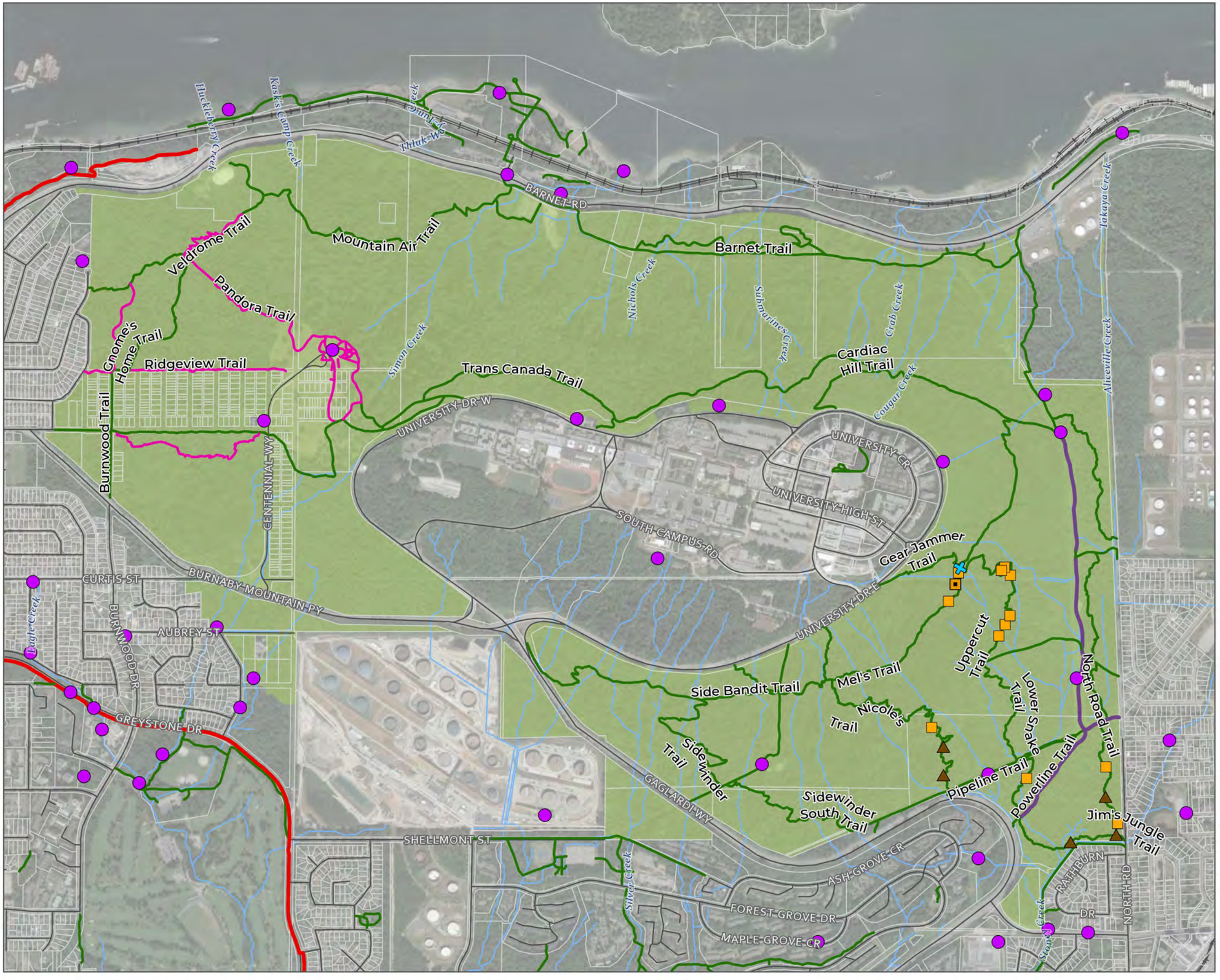
Stoney Tributary at the intersection of Poplar Trail. Signs of woody debris 'fencing' in place.



Degraded culvert under boardwalk. Signs of vegetation damage surrouding tributary and trail.

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U:\Projects_VAN\1228\0060\01\D-Design\GIS\Projects\Pro_Projects\2024-01-18_1228_0060_01_Burnaby_Mtn_Trails.aprx\Fig6.1_Areas_of_Concern



City of Burnaby

Burnaby Trail Management Plan

Areas of Concern

Legend

- Burnaby Mountain Conservation Area
- Parcels
- Streets
- Railway
- Waterway
- Severe Erosion
- Unauthorized Trail
- Unauthorized Trail still in use after closure
- Stream Crossing
- Invasive Species

Trails

- Dual Use Trail (Pedestrian/Cycling)
- Multi Use Trail (Pedestrian/Cycling/ Equestrian)
- Pedestrian Only Trail
- Urban Trail (Asphalt Multi Use)



0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 10N

Scale: 1:14,000
(When plotted at 11"x17")

Data Sources:

- Data provided by NRCan, DataBC, Google Earth

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URBAN SYSTEMS

FIGURE 6.1

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U:\Projects\..VAN\1228\0060\01\D-Design\GIS\Projects\Pro_Projects\2024-01-18_1228_0060_01_Burnaby_Mtn_Trails.aprx\Fig6.2_Environmental_Trail_Assessment



City of Burnaby

Burnaby Trail Management Plan

Environmental Trail Assessment

Legend

- Burnaby Mountain Conservation Area
- Parcels
- Railway
- Waterway

Trails of Environmental Concern

- High
- Medium
- Low
- Other



0 100 200 300
Meters

Coordinate System:
NAD 1983 UTM Zone 10N

Scale: 1:14,000
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Data Sources:

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URBAN SYSTEMS

FIGURE 6.2

6.0 SUMMARY AND CONCLUSION

Due to the wide variety of BMCA users, we understand that protecting the natural environmental within the park poses a number of issues. However, through appropriate engagement and education the preservation of the highlighted valuable components in **Table 5.1** should be the main priority for future conservation efforts. BMCA provides unique and diverse habitat to a variety of different ecosystems and animals. There are currently 17 species-at-risk found within the park, all of which could be impacted by the trail systems, if left un-maintained.

The biggest threat the identified species-at-risk and their associated habitats within the park is trail and soil erosion. It has a detrimental knock-on effect to vegetation, wildlife, surface water and public safety. Below is a summary of the main issues found within BMCA and the recommendations which would help preserve the forest health.

6.1 RECOMMENDATIONS

6.1.1 TEMPORARY CLOSURE OF TRAILS

Closing trails is a common conservation and management strategy employed to aid in ecosystem recovery. Trail closures can be implemented for various reasons, including protecting sensitive habitats, promoting natural regeneration, and allowing ecosystems to recover from human impact. Here are some key reasons and benefits of closing trails for ecosystem recovery.

The southeastern portion of the BMCA is of highest concern for several reasons. First, Jim's Jungle Trail and the southern portion of North Road Trail have an extremely high presence of erosion, root disturbance, side tracks and wetland areas. These trails are close to Stoney Creek, a mapped critical habitat for Western Painted Turtle. The extreme erosion on the trail and the number of unauthorized trails in the area has a high chance of impacting the creek's overall health. Closing the trails or portions of the trail temporarily will allow the native vegetation to recover, spread, and naturally regenerate. Suggested closures for this portion of the park could take place during the western painted turtle breeding season to ensure minimal disturbance to the species. A fence surrounding the creek edge could also be a good management tactic to keep pedestrians and dogs from entering the waterways.

Education and engagement will be the key to a successful closure of trails. Users will naturally be impacted by the loss of certain trails. However, closing trails provide an opportunity for educational outreach. Interpretive signage at trailheads or alternative routes can inform visitors about the reasons for closures, the importance of ecosystem recovery, and their role in minimizing their environmental impact.

Nesting and Breeding Protection: Fences can be installed around critical nesting and breeding areas for certain bird species or other wildlife. This protection helps reduce the risk of disturbance and habitat destruction during vulnerable periods of the breeding season.

6.1.2 REGULAR MAINTENANCE

Regular maintenance of trails within the BMCA is crucial for ensuring a safe, enjoyable, and sustainable outdoor experience for visitors while minimizing the impact on the surrounding environment. Below are some key aspects of trail maintenance which should be considered:

Erosion Control: Implement erosion control measures such as installing water bars or retaining walls where needed to manage water flow and prevent soil erosion. This is particularly important on slopes and in areas with poor drainage.

Vegetation Buffer: Establish and maintain a buffer zone alongside the trails to protect sensitive habitats and prevent unnecessary disturbance to the surrounding vegetation.

Bridges and Boardwalks: Inspect and maintain bridges, boardwalks, and any other elevated structures regularly. Ensure they are structurally sound, free of hazards, and provide safe passage for park users.

Trail Surface Maintenance: Address any erosion issues, repair trail surfaces, and fill in areas where soil erosion has occurred. Proper maintenance of the trail surface helps prevent uneven and hazardous conditions, making the trail safer for users.



Severly degraded culvert in need of repair.



Example of trail restoration, with emphasis on long lasting erosion prevention.

6.1.3 INVASIVE SPECIES MANAGEMENT AND ERADICATION

A long-term plan to control the spread of invasives is required to ensure the protection of the conservation area. The presence of species such as knotweed and Himalayan blackberry causes a huge threat to the natural environment, especially as they can be extremely difficult to remove.

Invasive Species Control: Fencing can be used as a tool to control the spread of invasive plant species. They create a physical barrier and can prevent invasive plants from encroaching on native habitats.

Invasive Species Management Plan: An Invasive Species Management Plan, which identifies all invasives found within the park should eventually be implemented within the park to help identify and control species of concern.

6.1.4 INCREASED FENCES AND PARK PRESENCE

Fences in managed forest areas are often used as a conservation tool to preserve habitats and protect sensitive ecosystems. Fences are already found throughout the BMCA. However, we understand park users have previously vandalized them. The introduction of fences should come hand in hand with increased park presence to reduce the chance for vandalism and increase understanding.

Regular Inspections: Conduct regular inspections of the entire trail system to identify and address potential hazards, such as fallen trees, unstable rocks, or other safety concerns. Promptly address any issues to ensure user safety.

Public Outreach and Education: Engage in outreach and educational efforts to inform trail users about responsible and sustainable practices, such as staying on designated trails, leave no trace values, and wildlife needs.

Water Quality Protection: Fencing along water bodies helps protect riparian zones and maintain water quality. By preventing livestock or human access to stream banks, the risk of erosion, sedimentation, and contamination is reduced, benefiting aquatic ecosystems.

Reintroduction Programs: Fences can be used to create enclosed areas for the reintroduction of endangered or locally extirpated species. These enclosed habitats provide a protected environment for reintroduced animals to adapt and establish populations.

Trail Management: Fencing can help direct human traffic along designated trails, preventing off-trail hiking or biking that could damage vegetation and disturb wildlife. This supports sustainable recreation practices and habitat preservation.

Sensitive Habitat Preservation: In areas with fragile or unique ecosystems, fencing can establish boundaries to prevent unintentional human intrusion. This is particularly important for protecting wetlands, riparian zones, and other sensitive habitats from trampling, soil compaction, and other disturbances.



Fencing located on Pandora Trail.

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Appendix A:

SITE PHOTOGRAPHS



Gear Jammer Trail



Photo 1: Erosion and soil compaction seen on trial, with trail widening on edges.

Gnomes Home Trail



Photo 2: Severe erosion around tree roots



Photo 3: Severe erosion around tree roots

Jims Jungle Trail



Photo 4: Destruction of vegetation and severe erosion on unauthorized trail.



Photo 5: Loss of habitat on unauthorized trail, suspected bike jump. Significant erosion around tree roots



Photo 6: Maintained trail to the left of image and unauthorized trail to the right. Vegeatation damage visible.

Lower Gear Jammer Trail



Photo 7: Erosion and poor trail maintenance. Surface water infrastructure can be seen within the middle of the trail, but fully embedded under the soil on the inlet and outlet.



Photo 8: Mutiple side tracks seen around trees, damage to bark from bikes was visible on the inner tree trunks.

Lower Snake Trail



Photo 9: Severe erosion on trail.Trail widening visible on bottom right hand corner.



Photo 10: Severe erosion on trail, trail widening visible.

Mel's Trail



Photo 11: Severe trail widenening, compaction and erosion from bikes.



Photo 12: Severe trial widening, habitat loss and erosion.

Nicoles Trail



Photo 13: Extreme erosion surrounding tree root system.



Photo 14: Board walk on trail and rocks placed to divert bike/trail users from unauthorized trails.



Photo 15: Erosion and vegetation loss around trail.

North Road Trail



Photo 16: Extreme vegeatation loss due to unauthorized access to forest area surrunding trail. Complete lack of understory vegetation.



Photo 17: Example of lack of understory vegetation caused by erosion.

Ridgeview Trail



Photo 18: Erosion and trail widening.

Appendix B

Checklist for Building and Sustaining Resources

Staff employ a range of measures to support trail function and environmental conservation. The **Checklist for Building Trails and Sustaining Resources** is intended to serve as an ongoing, practical tool to guide City staff in trail upkeep and development over time.

The checklist helps staff plan and implement when developing and maintaining trails. When used collectively, these measures help protect environmentally sensitive areas, implement amenities, expand connectivity, promote inclusivity and safety, and guide community outreach and partnerships.

Checklist for Building Trails

Table 12. Best Practices Checklist for Building Trails

Amenities		
1	Explore potential locations for a fenced-in off-leash dog area within Burnaby Mountain Park.	
2	Identify opportunities for public art that reflects the Host Nations' stories and cultural ties to the landscape.	
3	Install etiquette signage to inform park visitors on the impact of invasive species and effective day-to-day management strategies (e.g. boot cleaning and trail etiquette).	
4	Install clear signage for new user-specific trails, indicating user type and directional flow. Indicate mountain bike trails with signage indicating "Mountain Bike Primary."	
5	Partner with Host Nations to review options for language and cultural acknowledgement on signage, wayfinding, and informational boards across the park.	
6	Place boot-brush stations at trailheads to reduce the risk of visitors inadvertently transporting seeds.	
7	Review the current locations of amenities (i.e., washrooms, garbage/recycling bins, rest zones) for ideal placement and upgrade amenities to improve accessibility, sustainability, and user comfort.	
8	Upgrade trailheads and signage to include location markers, wildlife awareness information, and trail etiquette guidelines across all trail types.[8]	
Connectivity		
1	Conduct a geotechnical analysis to determine optimal routes for new trails to densify the SE zone, as identified in the network map. Once new pathways are established, build out the connections to establish shorter loops and circuits for both hikers and bikers.	

8 For more information on accessibility in the City of Burnaby, visit: https://www.burnaby.ca/explore-outdoors/improving-accessibility

2	Enhance connections to neighbouring communities by adding additional trail entry points and upgrading trailheads to improve accessibility and user experience.	
3	Establish a phased approach to the construction, maintenance, repair, and decommissioning of trails to support long-term sustainability and adaptability of the network, minimizing disruption to park users.	
4	Explore opportunity to transform rogue trails in the southeast corner of the Park and add them to the network plan.	
5	Strengthen links to the surrounding regional transportation and trail networks by upgrading trailheads and wayfinding.	
6	Upgrade major trails and multi-use pathways to enhance connectivity with existing trails, improving network flow and accessibility.	
Environment & Sustainability		
1	Develop strategy documents, such as an Environmentally Sensitive Areas Strategy and Invasive Species Management Plan, to protect and restore Environmentally Sensitive Areas and biodiversity, preventing the loss and encroachment of ecosystems in the Park.	
2	Ensure habitat disruption is kept to a minimum and sensitive ecosystems are protected during the construction of new trails.	
3	Explore creating higher buffers on riparian zones to maintain cool stream temperatures and protect aquatic ecosystems.	
4	Install fencing or strategically placed rocks or logs to prevent people from accessing closed sections, allowing the area to regenerate without further disturbance.	
5	Identify and build bridges and boardwalks in Environmentally Sensitive Areas to protect sensitive ecosystems, habitats, and wetlands.	
6	Monitor disturbed and re-vegetated areas for several growing seasons to ensure that native vegetation grows successfully and that spread of invasive alien species is prevented.	
7	Re-route trails to more stable terrain, avoiding steep slopes or areas with loose soil prone to erosion. On rerouted sections, materials such as gravel, cobbles or boardwalks can be added to stabilize the ground and reduce the impact of heavy foot traffic.	
8	Redesign trails with switchbacks or align them along the landscape's natural contours to reduce slope steepness, slow water flow, and minimize erosion.	
9	Remove invasive plants in the restoration area before revegetation, using techniques such as manual pulling, targeted herbicide application, or root barrier installation as appropriate.	
10	Replant native plant species that are suitable for the existing ecosystem. Replanting native vegetation along closed sections helps stabilize soil, promotes regrowth and deters people from using the area. Native grasses, shrubs and trees can reinforce soil structure and speed up recovery.	
11	Review the design and alignment of trails regularly impacted by erosion. Repair erosion and develop drainage channels in conjunction with trail development by installing waterbars, as well as repair existing culverts and outlets within the trail system.	

12	Upgrade deteriorating or damaged groundwater management systems to improve water control. Installing bioswales, rain gardens or other suitable methods where appropriate can help with natural water filtration.	
13	Work with utilities (e.g., Trans Mountain, Suncor) operating in Burnaby Mountain Park to develop a Memorandum of Understanding (MOU) for ongoing access and use of routes for maintenance and repair work. This includes developing standards for stream and pipeline crossings on a segment-by-segment basis for new trails.	
Inclusivity		
1	Design multi-use or hiking trails with rest points to support inclusivity and user safety for off-trail resting.	
Safety		
1	In pedestrian-only trails, add stairs and bike baffles to encourage pedestrian usage and create a physical barrier for bikers.	
2	Reconstruct existing bike trails to suitable standards for capacity.	
3	Rebuild pedestrian trails to suitable standards for capacity	
View Points		
1	Identify and enhance sites for scenic views and wildlife watching, selectively clearing vegetation where appropriate to improve sightlines.	

Checklist for Sustaining Resources

Table 13. Best Practices Checklist for Sustaining Resources

Community Outreach		
1	Explore online and on-trail communication tools and systems to invite, manage, and celebrate community collaboration, volunteer opportunities, and information updates.	
2	Explore volunteer opportunities for youth to serve as trail ambassadors.	
3	Promote Citizen Scientist Programs to engage residents and park visitors to educate and learn about maintaining Burnaby Mountain Park. This can involve advertising the iNaturalist app to park visitors to record sightings of endangered species.	
Maintenance		
1	Collaborate with utilities (i.e., Trans Mountain, Suncor) operating on Burnaby Mountain Park to develop a Memorandum of Understanding (MOU) for ongoing access and use of routes for maintenance and repair work. This includes developing standards for bridges and structures crossing Right-of-Ways that accommodate equipment for maintenance vehicles.	
2	Coordinate and organize maintenance and repair scheduling into trail-specific mitigation strategies.	
3	Identify key crossings and trail head locations to focus maintenance efforts.	

4	Increase City trail patrols and equipment for oversight and maintenance, and enhance staff presence through inspections, outreach, and education to protect water quality, manage trails, and preserve habitats.	
5	Monitor rerouted trails and closed sections for signs of erosion or illegal use of closed areas. Adjust the management plan according to monitoring data.	
6	Review the need to increase storage areas and workstations for maintenance and consider dedicated spaces for sustainable materials used in trail repairs.	
7	Upgrade existing bridges and structures to allow maintenance vehicles to access trails.	
Trail Closure		
1	For trails that are too damaged to be effectively managed or repaired, permanent closure might be necessary. These closures should be combined with signage to help support public understanding.	
2	In highly sensitive areas, seasonal closures can prevent further erosion, especially during wet seasons when trails are most vulnerable to degradation. For example, any trails near critical habitats (Stoney Creek) should be considered for closure within breeding months.	
3	Temporary trail closures can allow time for vegetation recovery. For instance, closing portions of Jim's Jungle Trail and North Road Trail (southern portion) temporarily will allow native vegetation to recover, spread and naturally regenerate.	
4	Ensure that signage and digital information reflect the temporary or permanent closure of trails to support timely wayfinding and trip planning.	
Funding		
1	Research, apply for, and secure adequate funding to increase staffing resources to build, maintain, and repair trails. This includes exploring the BC Conservation Fund as a means to address biodiversity loss, and federal funding such as the Major Nature Conservation Projects to fund the protection of ESAs.	
Partnerships		
1	Establish partnerships for Host Nations-led stewardship opportunities, including environmental restoration and land-based learning programs to educate the public about Indigenous knowledge and practices related to the environment.	
2	Implement a Standard Partnership Model. Adopt a consistent partnership agreement to define roles, expectations, liability requirements, and reporting procedures for all volunteer and stewardship organizations.	
3	Explore a forum for discussions with Metro Vancouver on Regional Park opportunities for the site.	
4	Develop a shared resource contribution model in coordination with government agencies, neighbouring municipalities, and Host Nations.	
Safety		
1	Maintain adequate sightlines on multi-use and major trails to help users anticipate others and navigate safely.	
2	Develop protocols for trail users to report safety, rogue trails, invasive species, and wildlife sightings.	

Appendix C

Trails Condition Ranking

A total of 35 kilometres of existing trails has been identified in the Burnaby Mountain Park Trail Plan. Each trail is evaluated on its overall score to determine which trails are a priority for reconstruction upgrades. Each trail received a score out of 100 based on three key criteria: 1) the trail's role in the overall network (connectivity), 2) the level of use, and 3) current trail condition.

Trail segments were scored using the following criteria and points:

Connectivity

Established through plan review of trail intersection points

- High Connectivity (Connected to 5 or More Trails) (20 points)
- Medium Connectivity (Connected to 3-4 Trails) (10 points)
- Lowest Connectivity (Connected to 2 Trails) (5 points)

Use of Trails

Established through heat mapping cell phone analysis studies in 2024

- High Use (30 points)
- Moderate Use (20 points)
- Low Use (10 points)

Trail Condition

Established through Park operations site assessments in 2024 and 2025

- Closed (50 points)
- Unsafe (30 points)
- Poor (20 points)
- Fair (10 points)
- Good (0 points)



Table 14. Capital Costs for Trail Upgrades and New Trails

Rank	Facility	Length (km)	Connectivity (Score of 20) High (20) Medium (10) Low (5)	Use of Trails (Score of 30) High (30) Moderate (20) Low (10)	Trail Condition (50) Closed (50) Unsafe (30) Poor (20) Fair (10) Good (0)	Total Weighting (Score of 100)
1	Velodrome Trail	0.80	Low	Moderate Use	Closed	75
2	North Road Trail	0.75	Medium	High Use	Unsafe	70
3	Jim's Jungle	1.00	Medium	High Use	Unsafe	70
4	Nicoles Trail	1.30	Medium	High Use	Unsafe	70
5	Mel's Trail	2.00	High	High Use	Poor	70
6	Sidewinder Trail	2.25	High	High Use	Poor	70
7	Upper Cut	0.40	Low	High Use	Unsafe	65
8	Snake Trail	0.54	Low	High Use	Poor	55
9	Gear Jammer Trail	0.95	Low	High Use	Poor	55
10	Function Junction	0.42	Medium	High Use	Fair	50
11	Pipeline Trail	0.72	High	High Use	Good	50
12	Power Line Trail	0.76	High	High Use	Good	50
13	Pandora Trail	1.73	High	Moderate Use	Fair	50
14	Trans Canada Trail	6.64	High	High Use	Good	50
15	Hydro Access Road	0.15	Low	High Use	Fair	45
16	Poplar Trail	0.24	Low	High Use	Fair	45
17	Stoney Creek Trail	0.51	Low	High Use	Fair	45
18	Dead Moped	0.70	Low	High Use	Fair	45
19	Sidebandit Trail	0.79	Low	High Use	Fair	45
20	Water Main Trail	0.82	Low	High Use	Fair	45
21	Ridgeview Trail	0.79	Medium	Moderate Use	Fair	40
22	Barnet Trail	3.55	Medium	High Use	Good	40
23	Centennial Reservoir Trail	0.28	Low	Moderate Use	Fair	35
24	Burnwood Access	0.47	Low	Moderate Use	Fair	35
25	Gnome's Home Trail	0.57	Low	Moderate Use	Fair	35
26	Old Gas Station Trail	0.02	Medium	Low Use	Fair	30
27	Bike Park Trail	0.27	Medium	Low Use	Fair	30

Rank	Facility	Length (km)	Connectivity (Score of 20) High (20) Medium (10) Low (5)	Use of Trails (Score of 30) High (30) Moderate (20) Low (10)	Trail Condition (50) Closed (50) Unsafe (30) Poor (20) Fair (10) Good (0)	Total Weighting (Score of 100)
28	University Drive Multi Use Trail	1.95	High	Low Use	Good	30
29	Elephant Ridge Trail	0.28	Low	Low Use	Fair	25
30	Cardiac Hill	0.39	Low	Low Use	Fair	25
31	Trans Canada Trail (Pedestrian Only)	0.73	Low	Moderate Use	Good	25
32	Hang Your Hat Trail	0.87	Low	Low Use	Fair	25
33	Mountain Air Trail	1.29	Low	Low Use	Fair	25
34	Cougar Creek	0.21	Low	Low Use	Good	15

In total, the first 7 trails were identified as priorities, representing approximately 8.5 kilometres of the network. All of these trails are classified as moderate to high-use, with half providing medium to high connectivity by linking to three or more other trails.

Appendix D

Trail Expansion Suggestions

The following list identifies locations of interest for future trail expansion. Suggestions were generated through public consultation process and general feedback attained through the City website.

Table 15. Trail Expansion Suggestions

New Trails Options for Consideration	Est. Length (kilometres)
Develop a trail connection between Forest Grove Drive Residential Area and Water Main Trail (South of Gaglardi Way).	0.29
Develop Birch Grove Loop Trail (East of SFU by University High Street).	0.46
Develop a more accessible trail connection within park lands to connect the Trans Canada Trail/Cougar Creek Trail to the Barnet Trail.	0.46
Develop a hikers-only trail in parallel to Nicoles Trail.	0.63
Develop a new trail between Snake Trail and University Drive East.	0.75
Develop Nicoles Trail into a mountain bike-only trail.	0.90
Develop a cross-through trail connecting Water Main Trail to Function Junction.	1.01
Develop a new major trail that parallels University Drive in the Park.	2.00

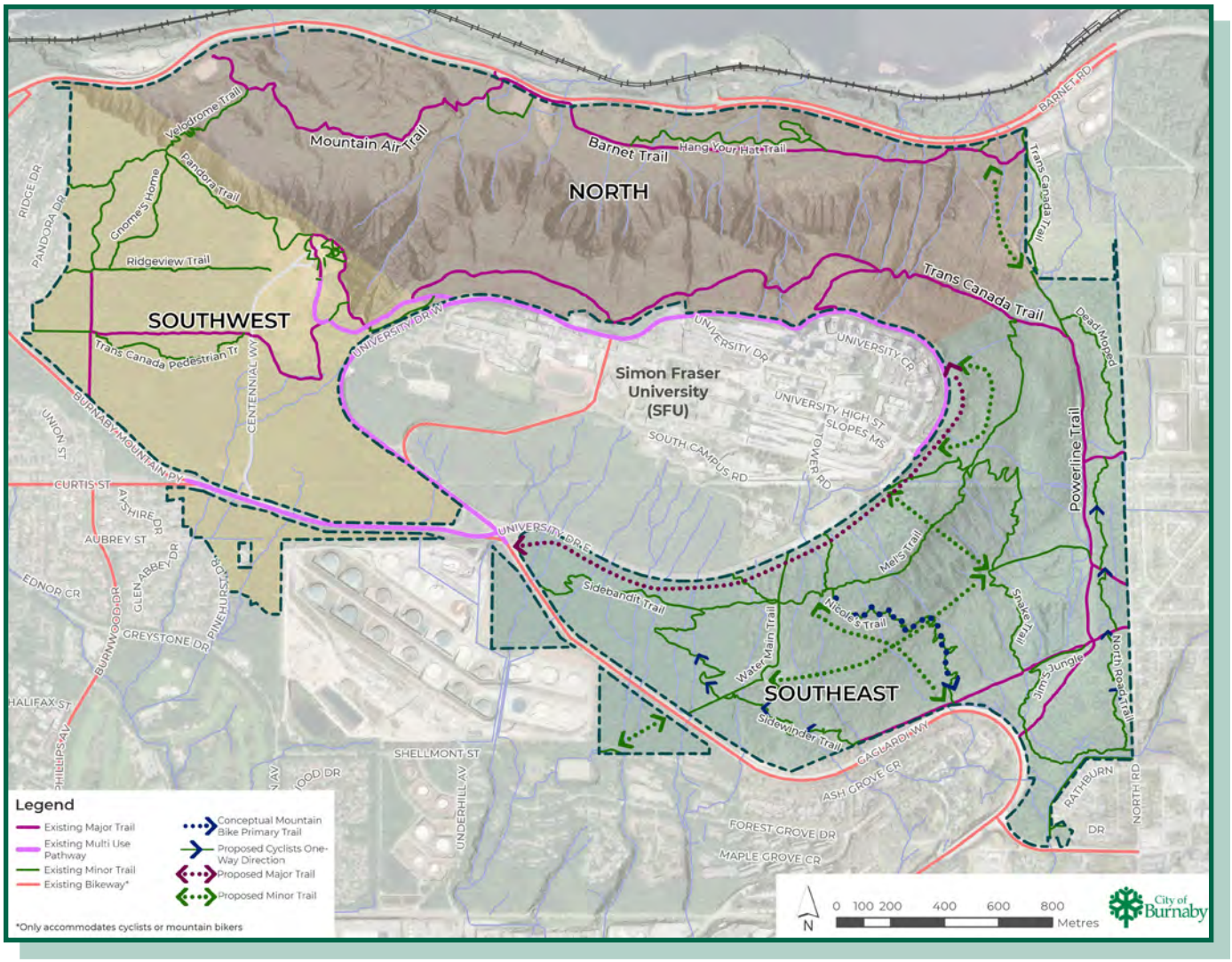
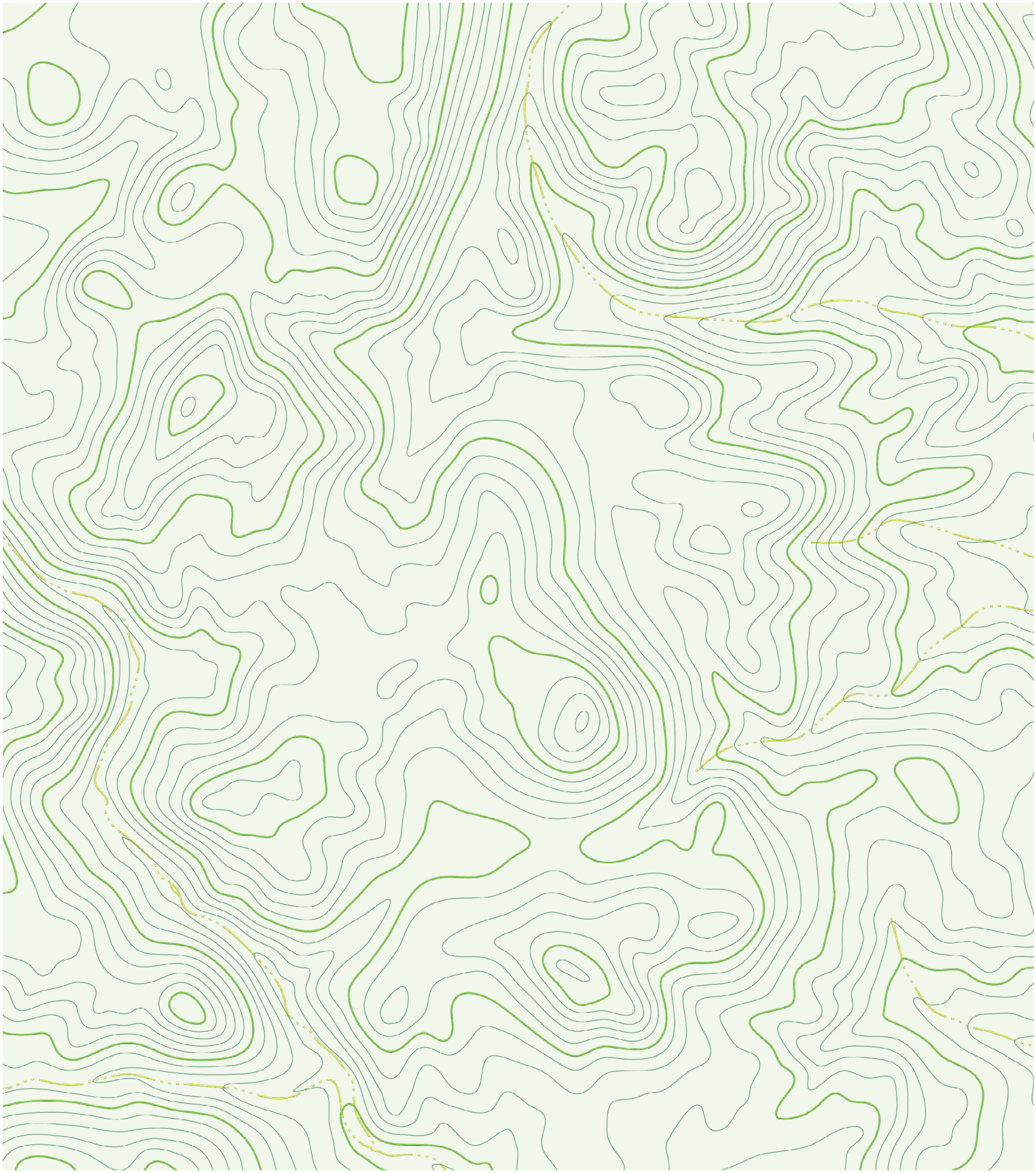


Figure 13. Location of Potential Trail Expansion



Burnaby.ca/BurnabyMountainTrails

City of Burnaby