LAKE COUNTRY MOUNTAIN BIKE PARK

Concept Design, Development & Management Plan

July 2023

LAKE COUNTRY
Life. The Okanagan Way.

rcs+

Territorial Acknowledgement

We acknowledge that the District of Lake Country, including the proposed Lake Country Mountain Bike Park, is within the unceded territory of squilx"/syilx (Okanagan) peoples. We recognize the importance of doing our best to build respectful relationships that contribute to stewarding the land and waters in the community with integrity and consideration for future generations.

Acknowledgements

Building this plan was a team effort, just like bringing the plan to life will be. The consulting team would like to graciously acknowledge and thank the many individuals and organizations who participated in the planning and engagement process. Your vision, ideas, and feedback throughout were foundational to this plan.

We would also like to acknowledge the extensive support and direction provided by the District staff team throughout the process, including:

- Steve Petryshyn, Parks & Landscape Planner
- Matt Vader, Director of Parks, Recreation & Culture

Preparation of this report required a tremendous amount of effort, and it would not have been possible without you.

Thank you!

Executive Summary

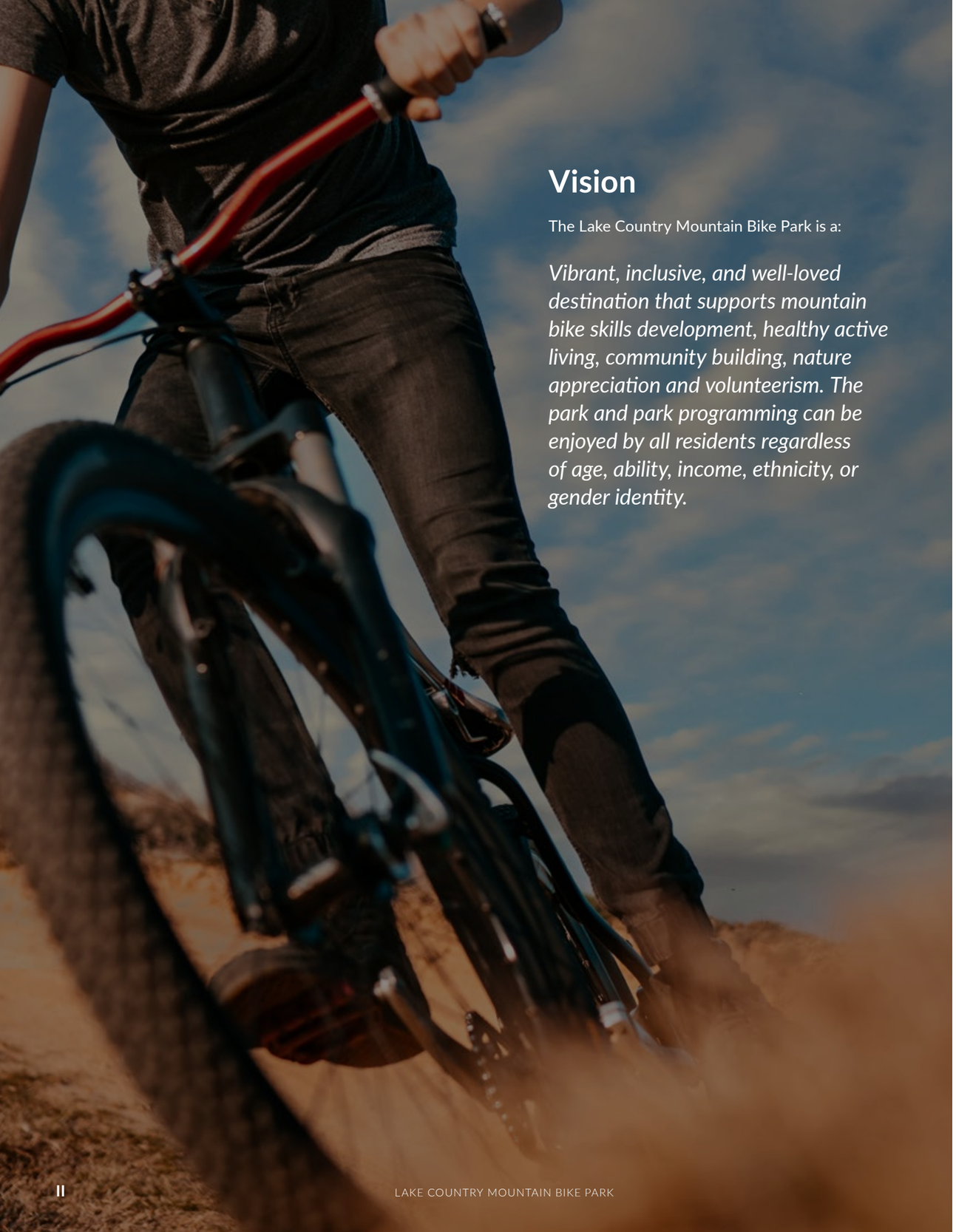
Mountain biking can drive significant health, community, economic, and environmental benefits for those that take part directly in the activity and communities that invest in and enable the activity to flourish.

The region surrounding the District of Lake Country contains many well-established mountain bike networks. However, the District itself does not provide any significant mountain bike opportunities for its residents especially for those who are new to or looking to grow their mountain biking skills. Recognizing this recreation gap, the District identified 10.91 ha of land on the north side of Okanagan Center Road W and Tyndall Road to develop the District of Lake Country Mountain Bike Park.

Initiated in November 2022, and developed in collaboration with stakeholders, the purpose of this plan is to:

- Define the vision, principles, and desired conditions for the park.
- Develop a concept design for the park.
- Identify the policies and strategies that will guide the management and operation of the park.

Development of this plan was undertaken in accordance with the **Visitor Use Management Framework**. Readers are encouraged to review the plan in its entirety to fully understand the future of the mountain bike park and its management.



Vision

The Lake Country Mountain Bike Park is a:

Vibrant, inclusive, and well-loved destination that supports mountain bike skills development, healthy active living, community building, nature appreciation and volunteerism. The park and park programming can be enjoyed by all residents regardless of age, ability, income, ethnicity, or gender identity.

Target Riders & User Objectives

The Lake Country Mountain Bike Park is to provide quality mountain bike experiences for visitors of all abilities. The park's target visitors are:

Riding Style

- Enduro / all mountain riders
- Adaptive mountain bikers
- Seeking a mix of flow and technical trail

Not targeting dirt jump or skate-park style riding

Income

- All income levels, with a focus on supporting low income and barrier facing residents

Type of Use

- Visitors seeking spontaneous and programmed use

Age

- All ages, with a focus on youth (8-20) and families

Experience, Skill, Ability

- Beginner to intermediate riders
- Inclusive for adaptive recreation

Progressive trails and features will support advanced to expert riders but the park is not targeting these riders.

Length of Outing

- *Visitors seeking part day riding experience*

Gender

- All genders, with a focus on supporting growth of female participation

Visitor Origins

- Primarily residents of the District

Attracting and supporting use by residents across the Okanagan region is of secondary priority.

In addition to mountain bikers, the park will be designed and managed to support:

- Pedestrians, cycling commuters, and leisure cyclists with safely traversing through the site, both east-west and north-south, to connect to other trails or active transportation infrastructure outside the park.
- Walkers and hikers interested in accessing and experiencing the views from key viewpoints within the park (e.g. lower and upper vistas).
- Non-riding family members of riders (e.g. younger and older siblings, parents) to enjoy the site while their family member rides.

The park, its trails and its features will be deliberately designed to deliver the following user objectives:

- Fun & Playfulness
- Technical Challenge & Skill Development
- Exercise & Physical Activity
- Socializing
- Connection with Nature

Design, Construction & Management Principles

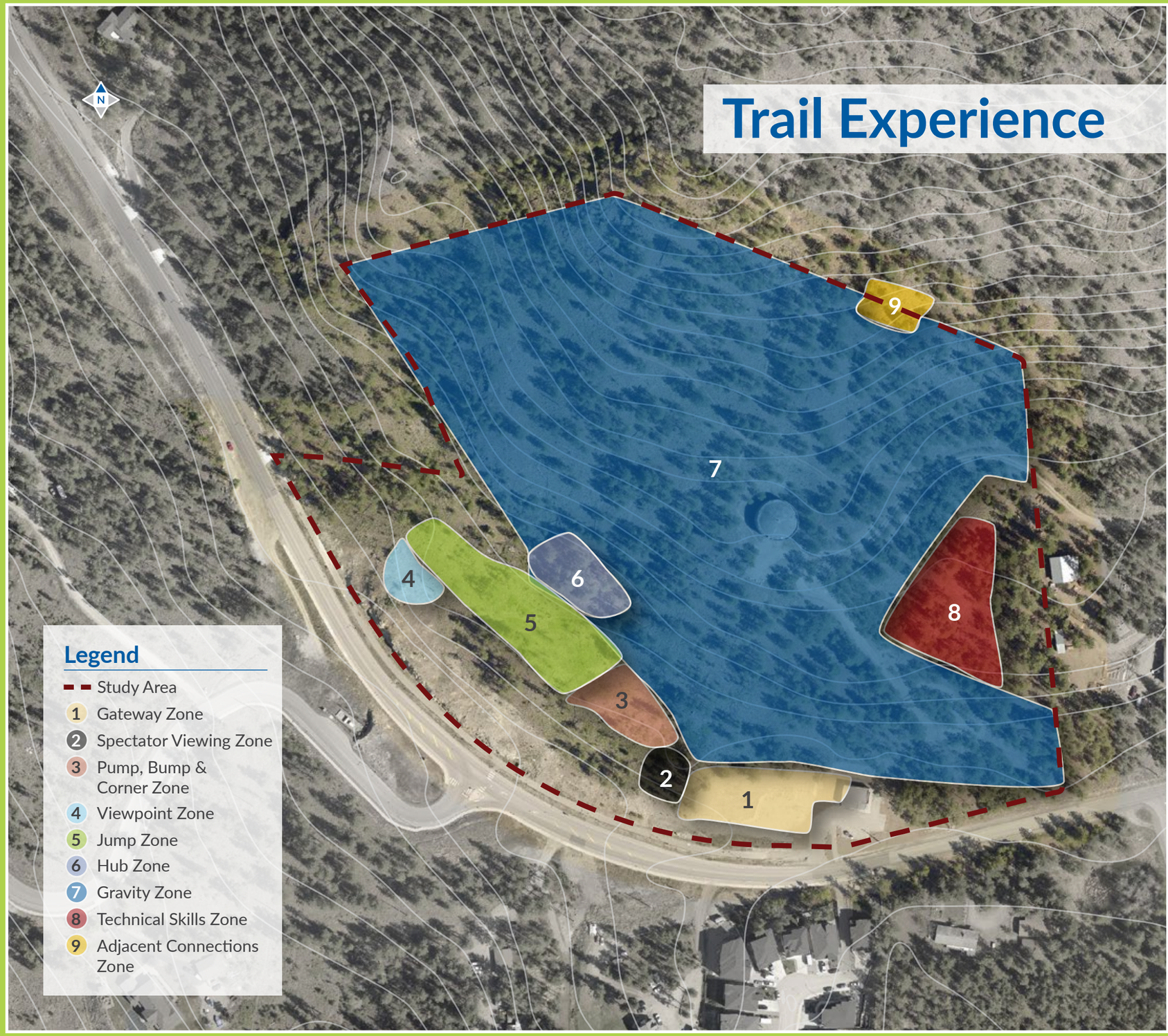
The following principles will guide the design, construction, and management of the park:

- A Quality Build & Quality Experiences
- Variety & Progression
- Visitor Comfort & Convenience
- Accessibility & Inclusion for All Riders
- Connectivity to Adjacent Trails & Neighbourhoods
- Protection, Celebration & Enhancement of the Park's Sensitive Features
- Embrace and Reflect the Natural Aesthetics of the Park and Surrounding Lands
- A Memorable Gateway Experience to the Park and the Neighbourhood
- Stewardship & Partnerships
- Good Neighbour
- Active Management & Maintenance

Visitor Experience Zones & Concept Plan

Visitor Experience Zones

To ensure the park provides visitors with a diversity of mountain biking opportunities, 9 visitor experience zones have been established to illustrate where each of the desired riding opportunities and visitor experiences will be prioritized and delivered.




Gateway Zone


Spectator Viewing Zone


Viewpoint Zone


Pump, Bump, & Corner Zone


Jump Zone


Hub Zone


Gravity Zone


Technical Skills Zone


Adjacent Connections Zone

Concept Plan

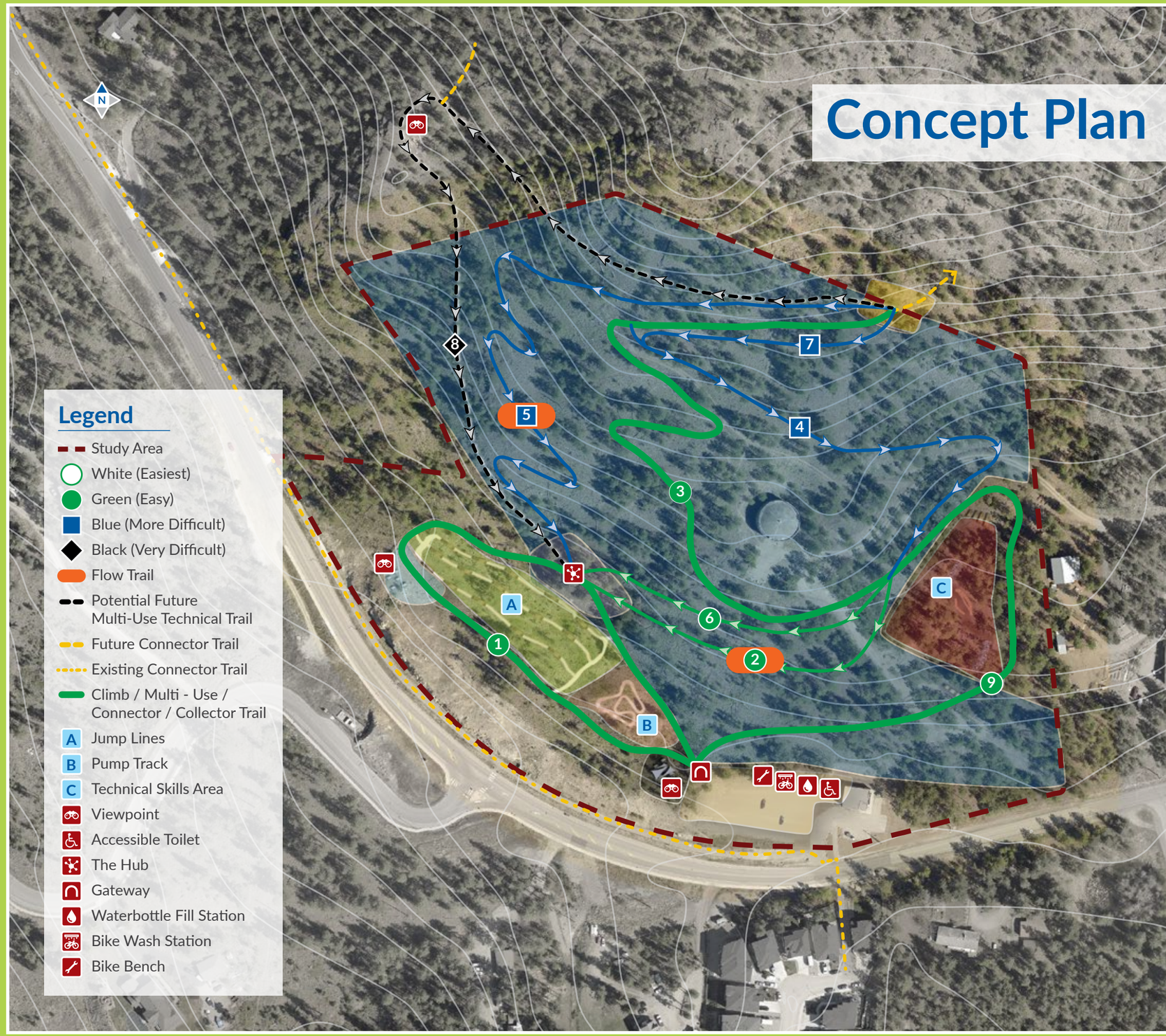
The following map further translates the direction set by the visitor experience zones and presents the concept plan for the park. This concept is intended to provide the necessary vision and direction required to inform the detailed design phase of the park development process.

Park and Visitor Management Guidance

The plan provides guidance to the District and its partners regarding:

- Operational model for the park
- Risk management
- Signage
- Inspections and maintenance
- Visitor education
- Compliance assurance and bylaws
- Site activation and programming
- Marketing and promotion
- Special events and commercial use
- Adjacent lands
- Data and monitoring

In keeping with the visitor use management framework, the plan also contains a performance monitoring framework with indicators, thresholds and triggers that should be used by the District and its partner to enable evidence based and informed operational and management decisions. The plan also outlined the next steps in the park development process.




Gateway Zone


Spectator Viewing Zone


Viewpoint Zone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1 Introduction

1.1 Purpose

Initiated in November 2022, and developed in collaboration with stakeholders, the purpose of this plan is to:

- Define the vision, principles, and desired conditions for the park.
- Develop a concept design for the park.
- Identify the policies and strategies that will guide the management and operation of the park.

1.2 Planning Area

While the region surrounding the District of Lake Country contains many well-established mountain bike networks (Kalamalka Lake Provincial Park, Ellison Provincial Park, Predator Ridge, Silverstar Mountain Resort, Knox Mountain Park, Gillard, Rose Valley Regional Park, Smith Creek) the District itself does not provide any significant mountain bike opportunities for its residents.

In response to resident demand and the start up of the Lake Country Riders, the District identified 10.91 ha of land on the north side of Okanagan Center Road W and Tyndall Road to develop the District of Lake Country Mountain Bike Park. Currently, the park consists of two lots 1) Lot A (Plan KAP90966, PID 028-245-237) (6.01 ha) and Lot A (Plan KAP26628, PID 005-069-661) (0.42 ha). A third lot north to the north of the park may be dedicated to the park in the future (Lot 1, Plan KAP92504, PID 028-363-965) (4.5 ha) and has been incorporated into this plan.

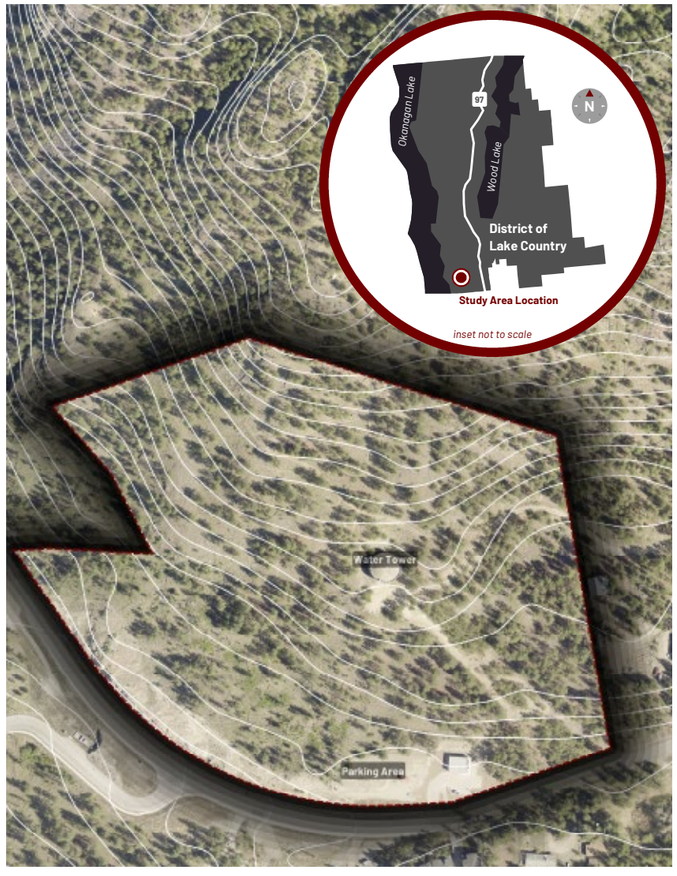


Figure 1. Planning Area

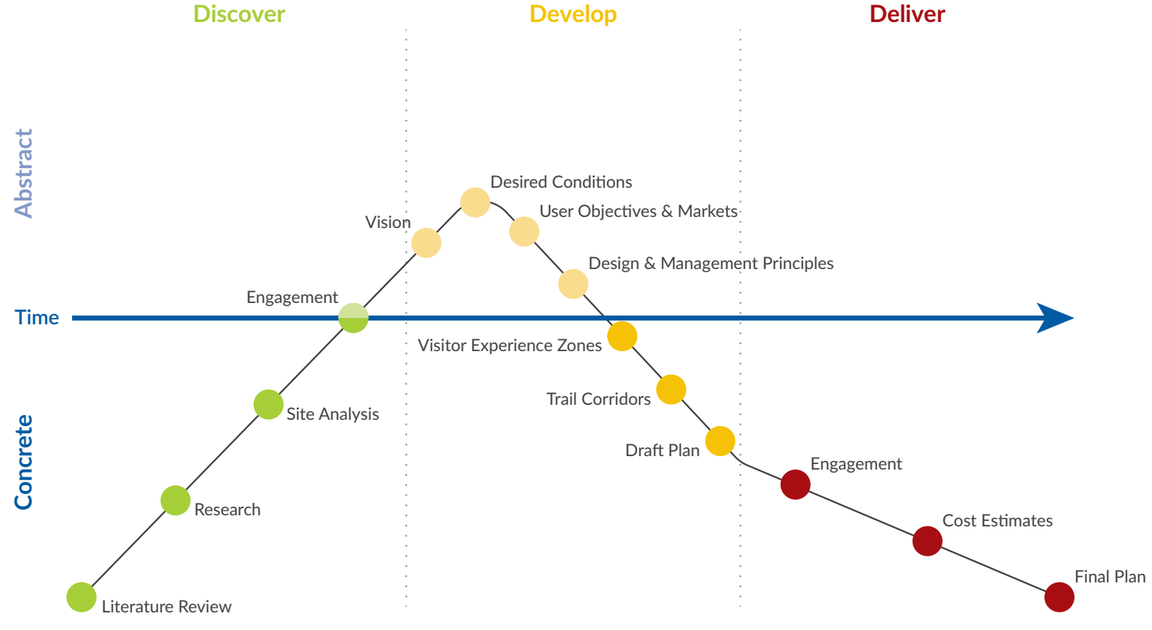
1.3 Planning Process

The planning process was delivered in three phases: 1) Discover, 2) Develop and 3) Deliver.

The **Discover** phase included assembly and review of all relevant background information, research, desktop and field site analyses and stakeholder engagement. The phase provided a strong familiarity with the site, site characteristics, constraints and opportunities and stakeholder demand and ideas about the future of the site.

During the **Develop** phase, the project team utilized the engagement learnings and findings from the background review and site analysis to draft a vision, desired condition statements, and design and management principles for the park. User objectives and the target markets were defined in keeping with engagement insights and market research. Visitor experiences zones were spatially delineated to provide development and management direction for the site and to articulate the mountain bike infrastructure and visitor amenities that are envisioned in each zone. Trail management objectives (TMO) were prepared, and conceptual trail corridors were identified in the Gravity Zone for each TMO. All work was assembled into a draft concept design and management plan.

The **Deliver** phase, which is currently underway, involved District staff and stakeholder review and input on the draft plan. Edits to the draft plan were undertaken, Class D cost estimates were developed, and the final plan was prepared.



1.4 Engagement

Engagement was a fundamental component of the planning process. Stakeholder organizations, District staff and individual with technical mountain bike knowledge, knowledge of the site, and/or connections with prospective future users of the park helped to shape the direction set in this plan.

A two staged engagement process was utilized to inform the plan:

Stage 1 – Visioning & Direction Setting Workshop & Online Survey

Stage 2 – Draft Plan Review & Input Survey

A summary of input received through the engagement process is provided in Appendix C.

Who Participated?

As illustrated in Table 1, a total of 18 people representing a wide range of interests took part in the planning process.

Table 1. Engagement Participation

Engagement Participants	Stage 1
District of Lake Country Parks & Recreation Advisory Committee	1 participant
Elevation Outdoors	1 participant
George Elliot Secondary School (Youth)	2 participants
Lake Country Cycle	1 participant
Lake Country Riders	5 participants
Macdonald Communities Limited	1 participant
Mountain Bikers of the Central Okanagan	2 participants
North Okanagan Cycling Society	2 participants
District of Lake Country Staff	3 participants

In addition to those that participated, the following organizations were invited but declined or were unavailable:

- CRIS Adaptive Adventures
- Kelowna Area Cycling Coalition
- Kootenay Adaptive Sport Association
- Walk Around Lake Country

2 Benefits of A Mountain Bike Park

Mountain biking can drive significant health, community, economic, and environmental benefits for those that take part directly in the activity and for the communities that invest in and enable the activity to flourish.

A mountain bike park provides the fertile ground to grow these benefits.

Quality of Life & Health

- Improve physical and mental health and reduce health care costs.
- Build positive self-esteem and confidence.
- Increase social interaction and connection.
- Enhance individuals' sense of achievement.
- Provide opportunities for skill development, challenge and competition, achievement, and leadership.
- Attract youth into healthy active lifestyle.

Community

- Strengthen family relationships as families ride together.
- Build community and friendships as the riding community expands and residents meet each other on the trail.
- Elevate resident awareness and community pride as riders become stewards of their trails and ambassadors for their community.
- Mobilize volunteerism and passion for parks and trails.

Economic

- Help communities attract and retain employers and skilled labour seeking lifestyle communities.
- Stimulate increased visitor spending through mountain bike tourism in the local economy – especially important in rural areas.
- Grow and diversify local economies through tourism, gear purchase and services.
- Create new direct and indirect jobs as new enterprises are developed to support mountain biking and mountain biking infrastructure.

Environmental & Cultural

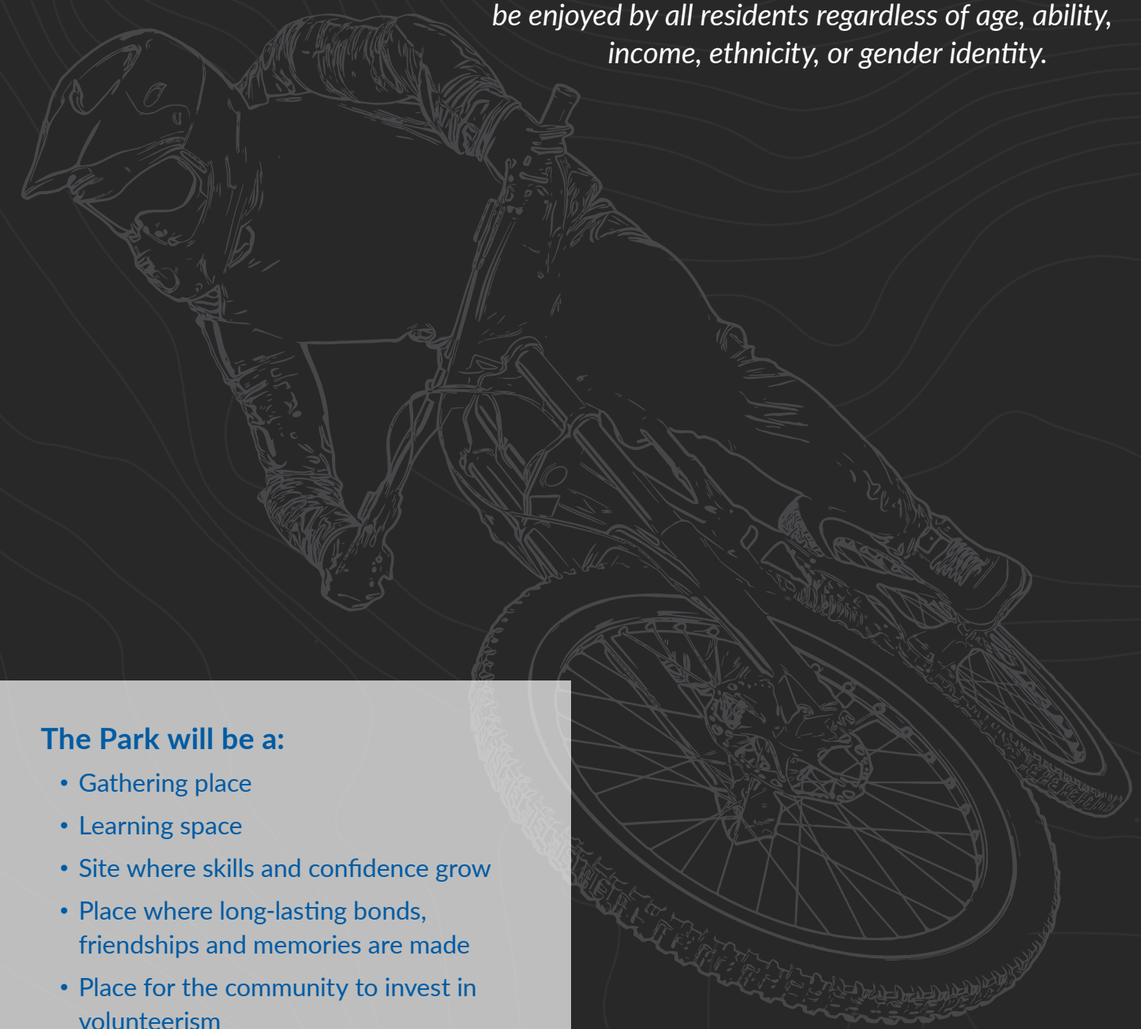
- Deepen rider's understanding and appreciation of the unique indigenous and non-indigenous history, culture, and heritage in regional parks.
- Build a strong culture of conservation and appreciation of nature as riders learn about and appreciate the wildlife, ecosystems, and ecosystem processes in regional parks.
- Raise the profile of and local advocacy for parks as riders establish deeper connections to the parks.
- Improve the management of recreational use and mitigate impacts from recreational use by attracting visitors to high quality, sustainably designed trails which will help to keep riders out of, off, or away from sensitive areas.

3 Vision, Target Riders & Desired Conditions

3.1 Vision

The Lake Country Mountain Bike Park is a:

Vibrant, inclusive, and well-loved destination that supports mountain bike skills development, healthy active living, community building, nature appreciation and volunteerism. The park and park programming can be enjoyed by all residents regardless of age, ability, income, ethnicity, or gender identity.



The Park will be a:

- Gathering place
- Learning space
- Site where skills and confidence grow
- Place where long-lasting bonds, friendships and memories are made
- Place for the community to invest in volunteerism

3.2 Target Riders & User Objectives

The primary goal of providing the Lake Country Mountain Bike Park is to provide quality mountain bike experiences for visitors of all abilities. **This is achieved by:**

1. Understanding our target riders and their user objectives. While mountain biking and hiking are the "activities" visitors may choose to engage in at the park, the reasons they participate in these activities are what's known as their "user objectives". Meeting a user's objectives are at the core of providing quality trail experiences.
2. Recognizing that the manner in which the park and its trails and features are designed is foundational to satisfying user objectives. The park and its network of trails and features must be meticulously designed and maintained to deliver the desired mix of riding styles at the right mix of technical difficulties and with the right mix of comfort and convenience amenities. The fundamental focus of the District and its network of partners is to create and maintain the conditions that allow all target visitors to meet their user objectives.

The primary focus of the District and its partners is to create and maintain the conditions that allow visitors to meet their user objectives.

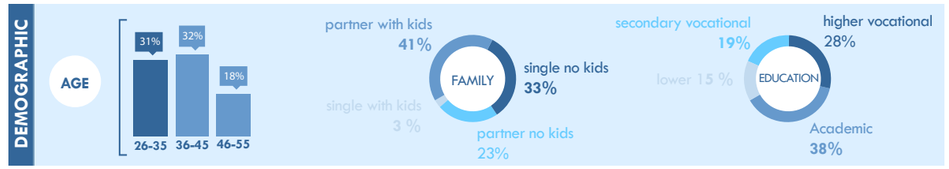
3.2.1. Mountain Biker Characteristics

To begin, lets look at who mountain bikers are.

Literature from the International Mountain Bike Association[i] and the Mountain Bike Tourism Association of BC[ii] provide helpful insights into the demographic and demand characteristics of mountain bikers.

This literature indicates that:

- Mountain biking participation is about half that of hiking participation, but much larger than other trail activities[iii]
- The male to female participation ratio is 9:1 but, female participation is growing significantly.
- 41% of mountain bikers are from family households with kids, while 59% are from households without kids.
- 47% make $100k or more. 84% make above $50k.
- 84% of riders ride between 10-30km / day.
- Local riders rider, on average, 2.5 hours per outing while tourism based riders ride over 4 hours per outing.
- Enjoying nature, escaping everyday life, and excitement are top reasons for mountain biking.



REASONS TO RIDE

1. TO ENJOY NATURE
2. TO ESCAPE EVERYDAY LIFE
3. FOR EXITEMENT
4. TO IMPROVE SKILLS
5. SOCIALIZING, HAVING FUN

82% MOST RIDING TIME IS SPEND ON LOCAL & REGIONAL TRAILS (UP TO 50 KM)

93% IT IS IMPORTANT TO HAVE THE OPPORTUNITY OF RIDING SINGLETRACK

DID YOU KNOW . . .

We are good for **82,8 rides per year,** spending more than **215 hours** on the saddle. We're riding all year long, an average of **6,9 times per month** with a duration of **2h36.** The average age is **24 years** We **love all kind of outdoor** activities. Top 3 of other sports practiced by mountain bikers: hiking (56%), alpine skiing / snowboarding (46%) and (trail) running (33%)

TRAIL PREFERENCE

1. SINGLETRACK (NATURAL SURFACE, WIND AROUND OBSTACLES)
2. MORE DIFFICULT TRAILS WITH NATURAL OBSTACLES AND TECHNICAL TRAIL FEATURES
3. FLOW TRAILS (LITTLE PEDALING & BRAKING, ROLLING TERRAIN, PREDICTABLE SURFACES)

TYPE

- 63% ENDURO
- 52% TRAIL
- 36% XC / MARATHON
- 21% FREERIDE / DH

Photo Source: Kootenay Adaptive Sport Association

A recent **survey** of approximately 300 respondents was undertaken by the North Okanagan Cycling Association; the results provide further insights about local riding demands, including:

- The most desired trail types are a) trails that are 50/50 flow / tech trails (43%), technical single track (20%), mostly flow with a little tech (15%), mostly tech with a little flow (14%), flow trail (machine built, very smooth) (5%).
- 52% of respondents ride 3-4 times / week, 39% of respondents ride 1-2 times per week, and 9% ride 5 or more times per week.
- Trail style, location, and the versatility (diversity) from ride to ride are the motivating factors for why respondents chose their preferred riding network.

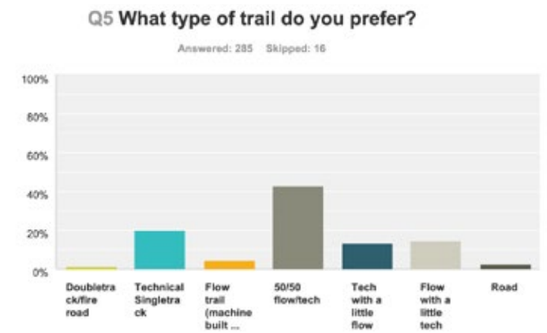


Figure 2. Trail Type Preferences - NOCS Survey

3.2.2. Target Visitors

Now, lets look at who the target visitors are for the park.

As a mountain bike park, the primary target visitors are mountain bikers. But identifying the target visitors goes deeper. It is necessary to deliberately ask and answer clearly:

- What riding styles?
- What ages of riders?
- What level of skill, experience, and ability?
- What length of experience?
- Where will riders come from – the District, the Region, the Province?

Reflecting on these questions, the Park's target visitors are…

Riding Style

- Enduro / all mountain riders
- Adaptive mountain bikers
- Seeking a mix of flow and technical trail

Not targeting dirt jump or skate-park style riding

Experience, Skill, Ability

- Beginner to intermediate riders
- Inclusive for adaptive recreation

Progressive trails and features will support advanced to expert riders but the park is not targeting these riders.

Income

- All income levels, with a focus on supporting low income and barrier facing residents

Type of Use

- Visitors seeking spontaneous and programmed use

Age

- All ages, with a focus on youth (8-20) and families

Length of Outing

- *Visitors seeking part day riding experience*

Gender

- All genders, with a focus on supporting growth of female participation

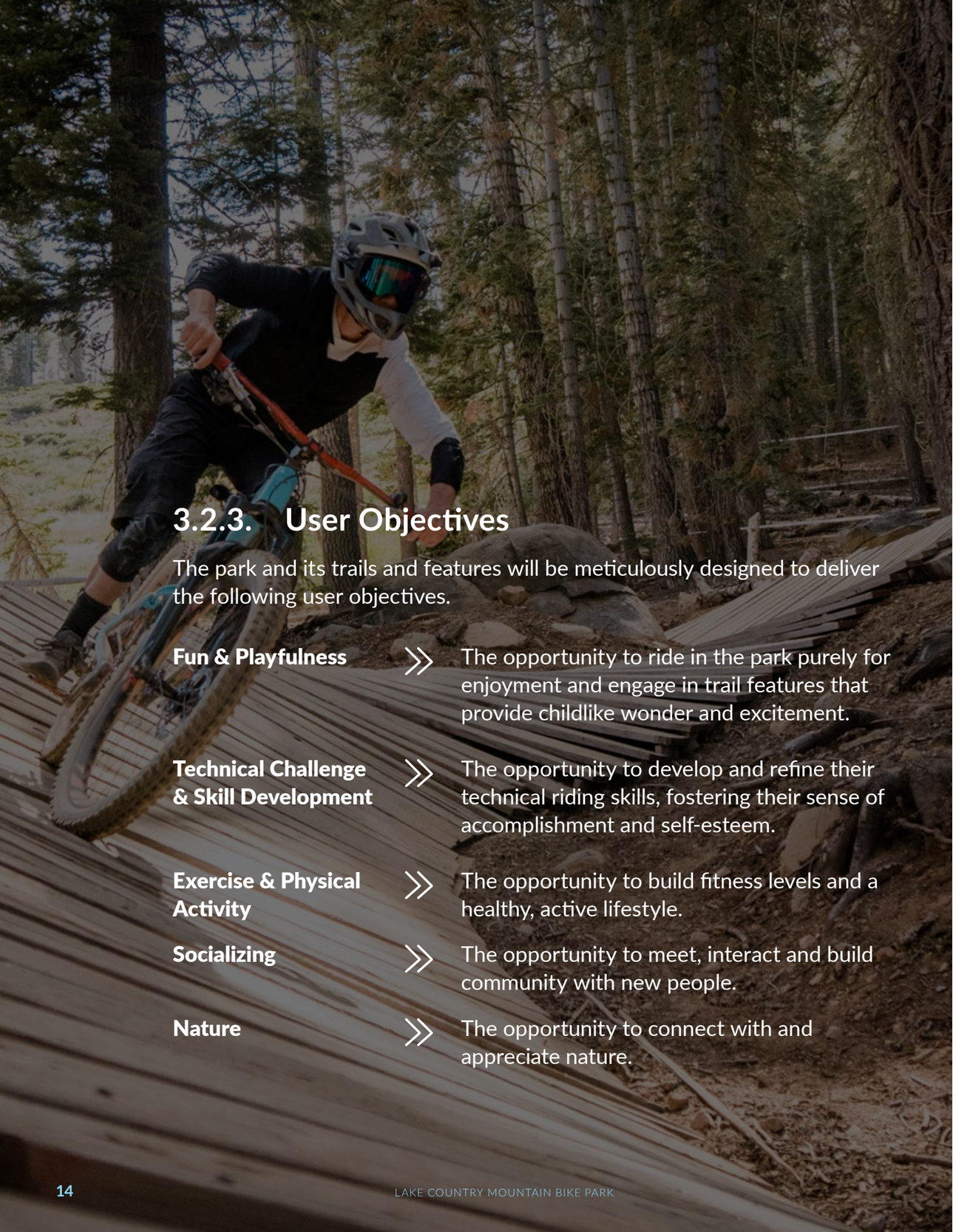
Visitor Origins

- Primarily residents of the District

Attracting and supporting use by residents across the Okanagan region is of secondary priority.

In addition to mountain bikers, the park will support:

- Pedestrians, cycling commuters, and leisure cyclists with safely traversing through the site, both east-west and north-south, to connect to other trails or active transportation infrastructure outside the park.
- Walkers and hikers interested in accessing and experiencing the views from key viewpoints within the park (e.g. lower and upper vistas).
- Non-riding family members of riders (e.g. younger and older siblings, parents) to enjoy the site while their family member rides.



3.2.3. User Objectives

The park and its trails and features will be meticulously designed to deliver the following user objectives.

Fun & Playfulness — The opportunity to ride in the park purely for enjoyment and engage in trail features that provide childlike wonder and excitement.

Technical Challenge & Skill Development — The opportunity to develop and refine their technical riding skills, fostering their sense of accomplishment and self-esteem.

Exercise & Physical Activity — The opportunity to build fitness levels and a healthy, active lifestyle.

Socializing — The opportunity to meet, interact and build community with new people.

Nature — The opportunity to connect with and appreciate nature.

3.3 Desired Conditions

Desired conditions are clearly articulated statements that paint a clear vision of the visitor experience, environment, community, and partnership conditions that the District and stakeholders are working to achieve and / or maintain in the park. The strategies and actions outlined in this plan have been deliberately developed to help achieve or maintain these conditions and the status of each should be monitored over time.

Visitor Experience

- The park provides visitors with access to a variety of mountain bike focused experiences including mountain bike optimized freeride / flow and technical trails, dirt jump lines, pump track and technical skills zones that satisfy rider desires for fun, playfulness, challenge, fitness, socializing and connecting with nature. Trails and riding zones enable beginners and intermediate riders to progress their skills and more advanced riders to enjoy their experience.
- The park and its trails and riding zones are inclusive and enjoyed by people of all ages, abilities, and socio-economic characteristics from across the District.
- Year-round, non-mountain bike focused visitors enjoy their experience connecting through the park along the multi-use trail(s) to the District's pathway system and to the park's viewpoints.
- High quality, mountain bike focused, and inclusive visitor infrastructure and amenities support the comfort and convenience needs of all park visitors.
- Visitors are respectful of each other's use of the park, compliant with the rules of the park and do not engage in behaviours that threaten the park's ecological values or relationships with adjacent landowners (e.g. trespass).
- Public safety incidents at the park are limited as visitors arrive at the park prepared, follow onsite guidance and education, and ride within their abilities.
- A broad range of events occur in the park each year to broaden participation in and deepen passion for mountain biking and being active outdoor.

Environmental

- Vegetation disturbance and trampling beyond established trail treads and designated gathering / viewing areas is avoided within the Bluebunch wheatgrass – rough fescue ecosystem communities (polygons 1, 5, 7, 10) in the park and minimized elsewhere throughout the park.
- Mature trees and identified wildlife trees are retained and provide functional habitat for foraging, shelter, perching and nesting.
- Occupied badger dens and burrows are identified, protected, and free from disturbance or damage from trail development and trail use of the park.
- Hibernacula and foraging areas for the Western Rattlesnake and Great Basin Gopher Snake are identified, protected, and free from disturbance or damage from trail development and trail use of the park.
- Human wildlife conflicts (e.g. rattle snakes) in the park are avoided.
- The presence and extent of regionally and provincially listed noxious weeds are controlled and, ideally, reduced.
- Construction of unauthorized trails and technical trail features does not occur anywhere on site.

Community

- The park is a welcomed and community supported public asset by residents in both the immediate adjacent neighbourhoods and across the District.

Collaboration & Partnerships

- Stakeholders and visitors to the park are active stewards and partners in the maintenance, management, and promotion of the park.

3.4 Design & Management Principles

In alignment with the desired conditions, the following principles will guide the design, construction, and management of the park.

A Quality Build & Quality Experiences

- Focused first and foremost on providing a quality mountain biking experience, the park, including all trails, features, and amenities, is to be designed and constructed in accordance with the appropriate best practices and, where available, design guidelines.
- The planning, design, construction and management of the park is to consider and account for anticipated implications of climate change (e.g. extreme events, changing usage patterns etc.).

Variety & Progression

- Provide a variety of warm season mountain biking experiences including gravity, jump, pump / bump and technical skills development.
- Provide a variety of trail styles (technical, freeride / flow) organized into a “hub and stacked loop” network that utilizes the unique terrain and space available.
- Provide a variety of technical difficulties and opportunity to support progression for beginners and intermediate riders. Trails and features will be designed to support progression from beginner through to advanced (double black diamond) riders. Most trails and features will be concentrated in blue level of technical difficulty with both green and black diamond trails and features to enable progression. Limited double black diamond trails and/or features will be provided, and Proline trails and features will not be supported in the park. To the extent feasible, filter / qualifiers are to be constructed at the start of blue and black rated trails.
- Trails design will follow the “3-seond rule” ensuring the integration of diverse terrain and technical trail features to provide an engaging riding experience.
- A diverse variety of mountain bike programs will be supported in the park.

Provide Amenities to Support Visitor Comfort & Convenience

- Provide appropriate amenities in appropriate locations to support the needs of both mountain bikers as well friends and families who come to the park to observe the riders.
- Adequate parking is to be provided on site to support visitors needs and minimize off-site parking conflicts, impacts, and safety concerns.

Accessibility & Inclusion for All Riders

- Opportunity for adaptive mountain biking will be provided.
- Visitor amenities will be universally accessible, suitable for aMTBs (e.g. washrooms), and gender neutral.
- Programming and partnerships will be established to improve access and minimize barriers to enjoying the park for people of all abilities.

Connectivity to Adjacent Trails & Neighbourhoods

- Multi-use trails will allow walkers, commuters, and leisure cyclists to connect between adjacent neighborhoods and the District’s multi-use pathway system in all seasons.
- All park visitors (mountain bikers and non-mountain bikers) will be enabled to access the incredible viewpoints in the park.

Protection, Celebration & Enhancement of the Park’s Sensitive Features

- Disturbance of the red-listed Ponderosa Pine - Bluebunch Wheatgrass – Rough Fescue ecosystem on site is to be minimized to the footprint required to facilitate the provision of a quality mountain bike trail system and associated amenities.
- To the greatest extent possible, important habitat features (e.g. mature trees (60cm DBH), wildlife trees, talus / rock outcrops, badger dens, coarse woody debris) on-site will be retained, protected during trail development, and management actions will be applied to mitigate impacts from trail use.
- Onsite landscaping will utilize native plantings and materials and work to create micro habitats (e.g. pollinator) and support storm water management where possible.
- Feasible opportunities to restore or enhance ecologically sensitive features and functions will be taken.
- Site servicing and amenities should incorporate low impact design principles and green power sources to the extent feasible.
- Where feasible, public art and Indigenous art should be integrated throughout the park to elevate the visitor experience, improve education, and support truth and reconciliation. If supported by Indigenous leaders, Indigenous place naming, trail naming and interpretation will be integrated on site.

Embrace and Reflect the Natural Aesthetics of the Park and Surrounding Lands

- The design of site amenities (colours, materials) will be inspired by and work to integrate with the colours, materials, and visual context of the park’s landscape.
- To the extent possible, site amenities and infrastructure should be visually screened or integrated into the site to maximize the natural views from the road into the site and from the site out over the valley.

A Memorable Gateway Experience to the Park and the Neighbourhood

- Provide a context appropriate, appealing gateway park feature that creates a memorable and distinct entry to the park while also creating an appealing entry feature for the neighbourhood.
- Ensure the park’s parking lot and streetside boundary are appropriate landscaped to maintain an appealing view into the park from Okanagan Centre Rd.

Stewardship & Partnerships

- Volunteerism, stewardship, and partnerships will be actively supported in the maintenance and programming of the park.

Good Neighbour

- While maximizing the potential of the park, buffers between the trail alignments and homes on adjacent properties are to be used to mitigate potential conflicts between park use and adjacent private land use.

Active Management & Maintenance

- Industry best practices will be followed in the inspection and maintenance of the parks, its trails, and features.
- Infrastructure and servicing needed to support maintenance activities (e.g. water, onsite equipment storage) will be provided.
- Visitation will be actively managed to ensure enjoyable and positive mountain bike experiences and to limit undesirable ecological and visitor experience impacts, visitor conflicts and impacts to adjacent landowners.
- Industry best practices will be applied to manage risk and provide a safe and enjoyable mountain bike experiences.
- As a valued community recreation asset, the park should be built and operated in a manner that is aligned with the District’s long-term capital and operational budget forecasts.

4 Site Analysis

4.1 Onsite & Adjacent Land Use

The park is situated in amongst two significant urban residential growth areas – Lakestone development (about 1,000 homes planned) to the north and McCoubrey Plateau (about 650 homes planned) to the south. The park is bordered on the north-eastern and western boundaries by private land. The adjacent north-eastern private land parcel contains an easement that allows for a single public trail to travel through the parcel. Private land parcels directly north of the park are being developed in accordance with the Lakestone Master Plan which identifies future uses of these lands as a combination of residential subdivision, parks, and open space. The Master Plan signals that the development's nature trail system is intended to connect to the park's trail system. These lands contain suitable terrain for further mountain bike trail development and incredible viewpoints and any potential expansion would be planned collaboratively with Macdonald Properties.

Once built out, the nearby developments, together with existing nearby residential neighbourhoods, are likely to drive significant "hyper-local" visitation to the park as well as through the park as residents look to move between the Lakestone development and McCoubrey Plateau area and connect to the District's planned future muti-use pathway system which is anticipated to be built along Tyndall Road and Okanagan Centre Road with connection to the town centre / main street.

The site contains an existing water tower and multiple water infrastructure related easements. Trail and visitor infrastructure is to avoid the water tower site. Water infrastructure easements can be crossed by trails, but no permanent or major infrastructure is to be developed on any of the easements.

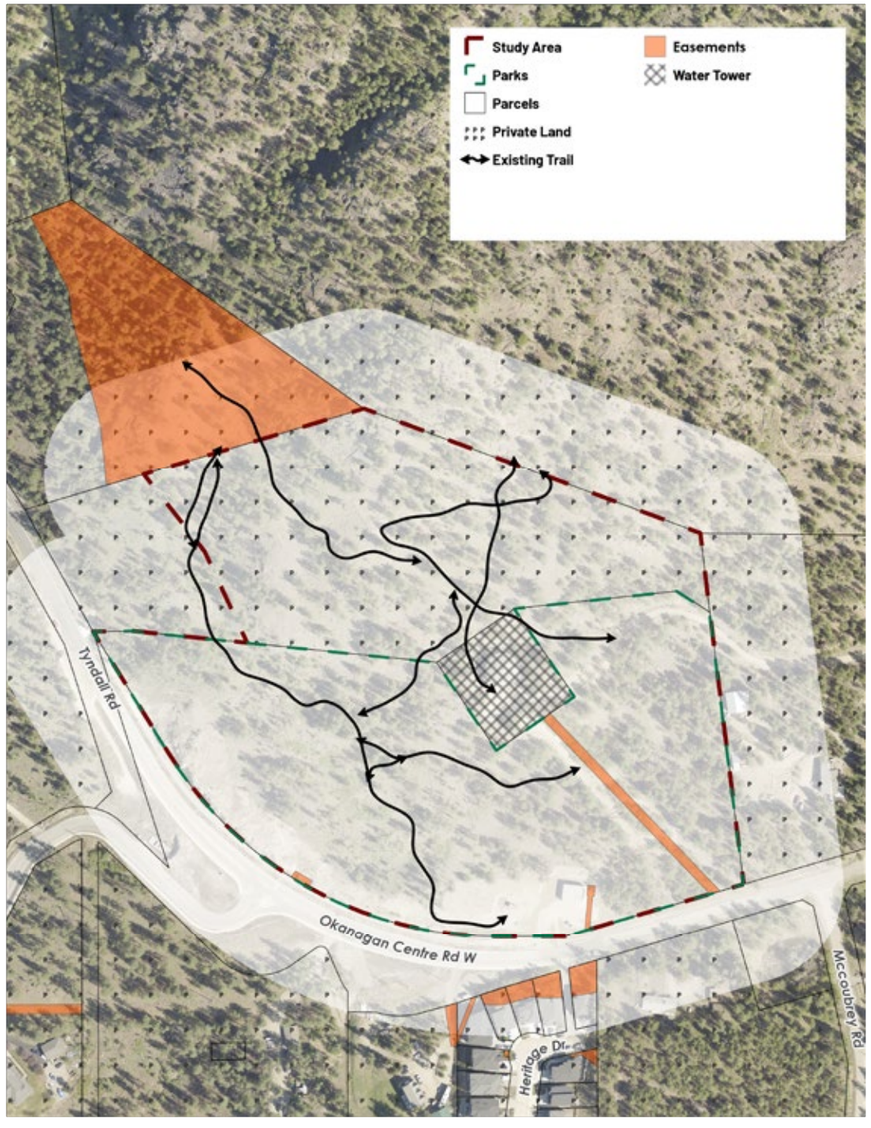


Figure 3. Onsite & Adjacent Land Use

4.2 Environmental Values

The park is situated within the Okanagan variant Very Dry Hot subzone of the Ponderosa Pine biogeoclimatic zone. This zone is the driest forested zoning in the province. Winters are mild and summers are very hot. To inform planning and design of the site, the District retained Ecoscape Environmental Consultants in November 2022 to complete an environmental survey of the park.

Ecosystems

Ecosystem communities occurring on site include (Figure 4):

- Ponderosa Pine – Bluebunch Wheatgrass – Rough Fescue (Red-Listed) (ecosystem polygon 1, 5, 7, 10)
- Ponderosa Pine – Red Three-awn (Blue Listed)
- Ponderosa Pine – Bluebunch Wheatgrass – Cheatgrass (Blue Listed)
- Ponderosa Pine – Bluebunch Wheatgrass – Idaho Fescue (Blue Listed)
- Bluebunch Wheatgrass – Balsamroot (Blue Listed)
- Talus
- Rural
- Urban

Species & Ecosystems at Risk

No red or blue listed vegetation species were report on site though only a limited vegetation survey was undertaken.

While not confirmed by on site inventory, data from the Conservation Data Centre suggests that the following at risk wildlife species or species habitat may be present on or near the park:

- American Badger
- Western Screech Owl
- Great Basin Gopher Snake (ecosystem polygons 3, 4, 6)
- Western Rattlesnake (ecosystem polygons 3, 4, 6)

Important Habitat Features

Other important habitat features inventoried in the park include:

- Talus slopes & rocky outcrops
- Mature veteran trees (>60cm DBH)
- Wildlife trees & snags
- Coarse woody debris

Environmentally Significant Area Ratings

Identified ecosystem polygons were ranked on a scale from 1-4 according to their relative environmental sensitivity. Sensitivity criteria including habitat availability, rare and endangered species occurrence potential, landscape condition, successional stage, regional rarity, relative biodiversity, level of disturbance, edge effects and cumulative impacts.

ESA – 1: Locally and provincially significant ecosystems, sensitive habitat, extremely rare and / or areas of critical important to rare wildlife species. Avoidance and conservation of the ESA should be the primary objective.

ESA – 2: Moderate local and provincial significance, uncommon and important to rare species. Avoid development if possible. If development is pursued, portions should be retained and integrated to maintain the contiguous nature of the landscape. Some impacts to this ESA can be offset by habitat improvement to the remaining natural areas found on site.

ESA – 3: Low to moderate conservation values. Impacts from development should be offset by habitat improvements in other more sensitive areas on site.

ESA – 4: Little or no value or important as wildlife habitat.

ESA Value	Percentage of Park (%)
1	0%
2	76.2%
3	11%
4	12.8%
Total	**100%**

Exotic Species

Multiple exotic plant species, including provincially (Diffuse Knapweed) and regionally noxious species (Sulphur Cinquefoil) were observed on site.

Figure 4. Environmental Values

4.3 Site Topography & Soils

Site topography and grades were mapped using LiDAR data with 1 m contours. Slopes on the site varied greatly, with several low-angle benches at the base of the slope and west side of the site and the remainder of the site was generally steep with slope angles between 30% and 100%. Steeper slope areas were generally associated with rock outcroppings and talus slopes, which were observed throughout the site. Slopes 10-35% are of greatest suitability for the gravity zone and technical skill zone. Slopes of 0-5% are most suitable for all of trail experience zones identified for the park (e.g. gateway and parking, jump, pump and bump, spectator viewing).

Based on review of existing trail and other disturbances throughout the park, soils appear to largely consist of mineral soil overburden which is generally sandy and silty with angular cobbles.

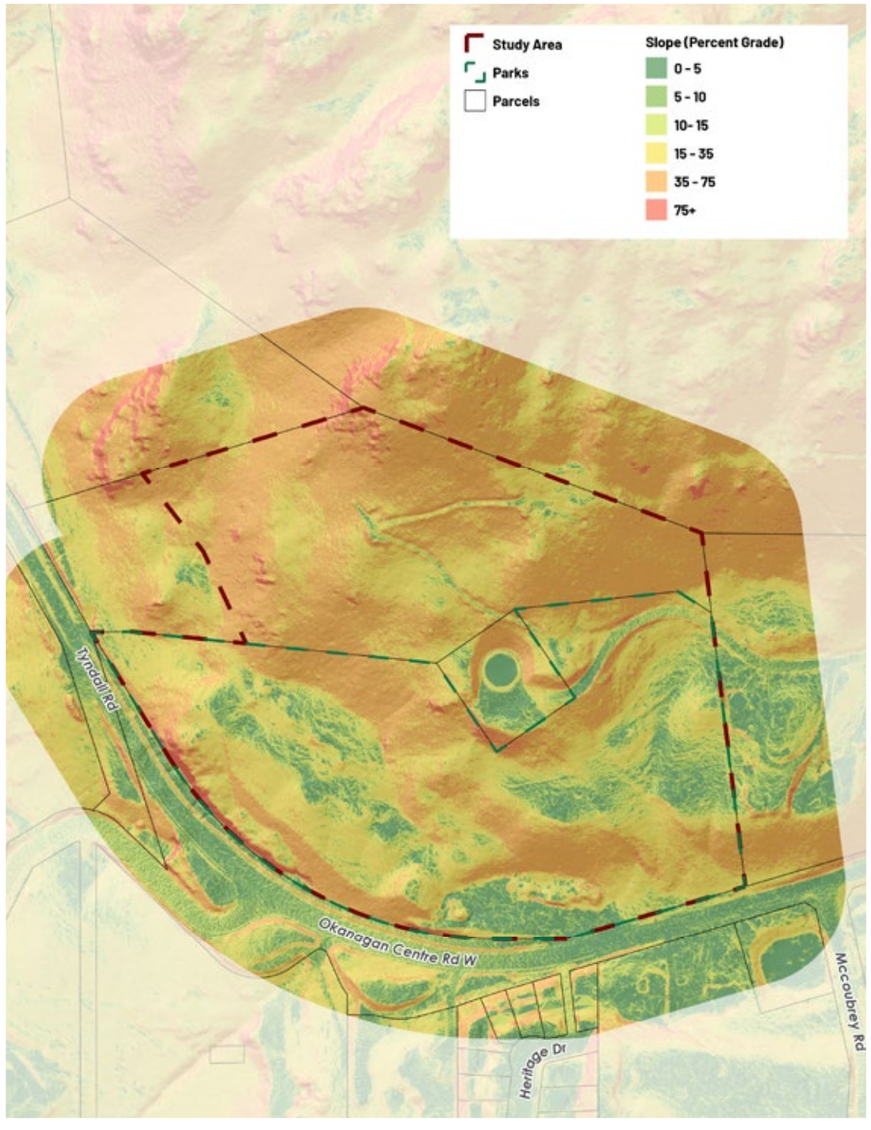


Figure 5. Slope Analysis

4.4 Positive & Negative Control Points/Areas

The preliminary design considered the following physical and administrative positive and negative control points/areas and no-go areas. No-go areas are to be avoided during design. Negative control points / areas are to be avoided to the extent possible while positive control points are sites or areas that the trails should be sited within or through. Assignment of the above were informed through field assessment and through the environmental survey undertaken by Ecoscape.

Administrative/Property Boundaries

- No-go Areas
  - » The existing water pumphouse at the base of the slope, the water tower mid slope, and the adjacent private property.
  - » Minimal ground disturbance work permitted on the water line right-of-way below the water tower (e.g. trails may cross, but no excavation or addition of soil for TTFs).
  - » 15 m buffer of adjacent private land parcel boundaries.

Physical Terrain Attributes

- Negative Control Points/Areas:
  - » Steep side slope areas <70% grade.
  - » Rock outcropping or shallow bedrock areas for proposed bench cut trails, except if to be used for TTFs.
- Positive Control Points/Areas:
  - » Natural Viewpoints
  - » Low-angle benched areas for bike park components of the design.
  - » Side slopes less than 45% for ease of bench cut trail construction and likely deeper mineral soil overburden compared to steeper slope areas.

Environmental Features

- Negative Control Points / Areas
  - » ESA 2 - polygons 1 (northwest portion), 3, 5, 7
    - – Polygons 1 (southern portion), 4 and 10 are ranked ESA 2 which would ideally be avoided but, given the limited size of the site and the areas suitable for trails, development in these ESA polygons can not be avoided.
  - » Wildlife trees
  - » Talus / rocky outcrop slops if snake hibernacula confirmed.
  - » Badger burrows and dens.

4.5 Site Viewsheds

The park will serve as a gateway to communities located on and accessed from Okanagan Centre Road and Tyndall Road. As illustrated is Figure 6, much of the park is within the viewshed of the road.

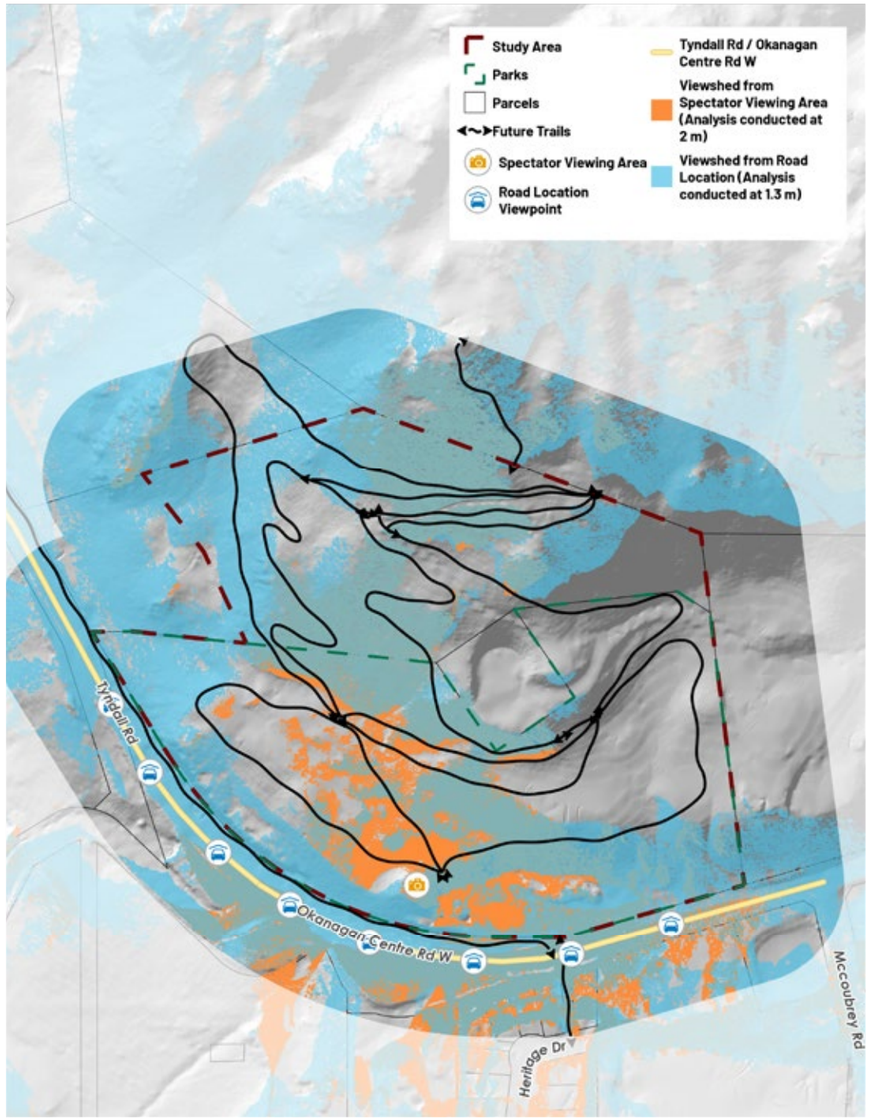


Figure 6. Viewsheds from Okanagan Centre Road & Spectator Viewing Area

5 Concept Plan

5.1 Visitor Experience Zones

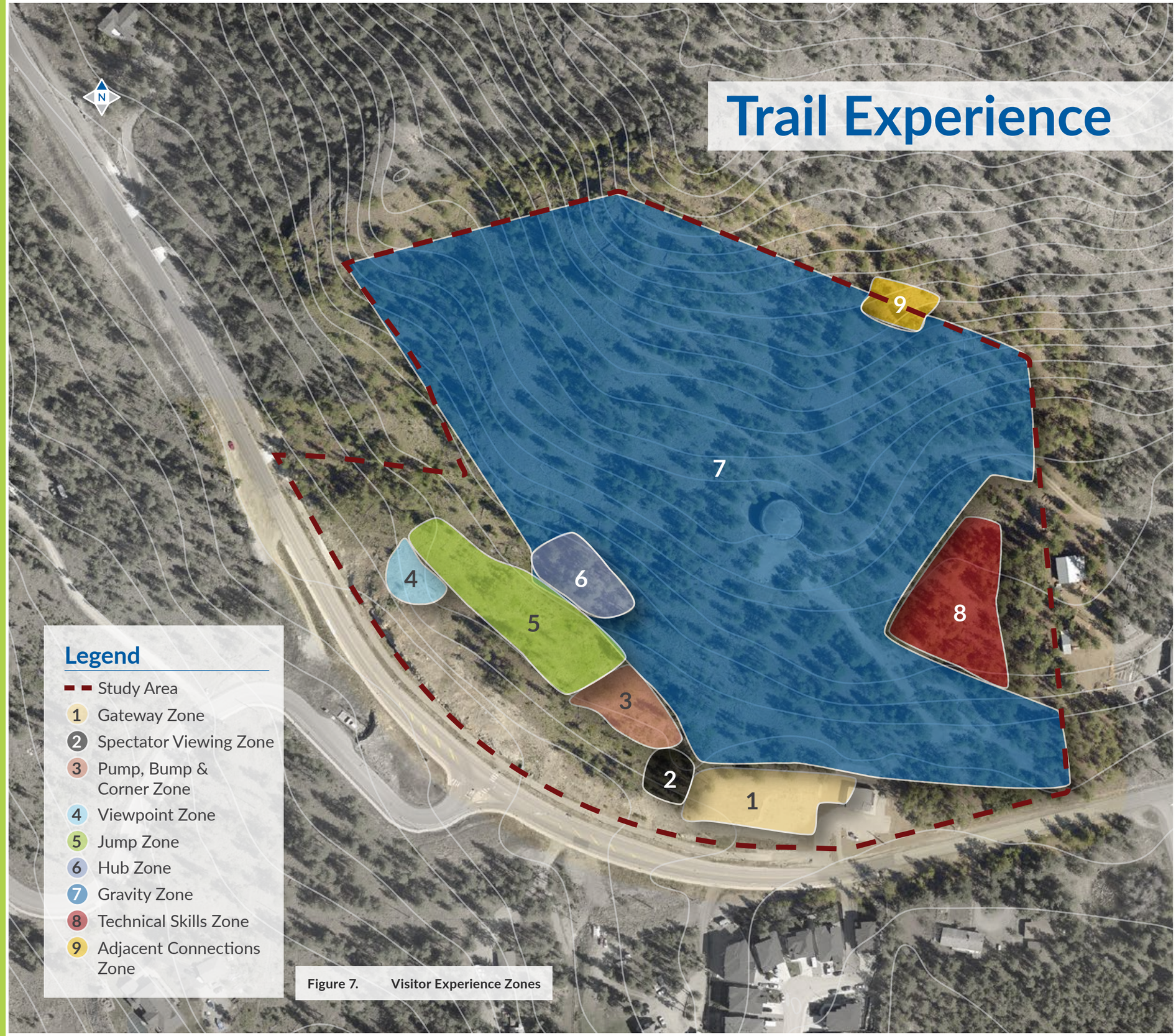
As set out in the desired conditions, the park is to provide visitors with a diversity of riding opportunities.

As illustrated in Figure 7, nine visitor experience zones have been established to illustrate where each of the desired riding and visitor experiences will be prioritized and delivered. The zones include:

- Gravity Zone
- Jump Zone
- Pump, Bump & Corner Zone
- Viewpoint Zone
- Technical Skills Zone
- Hub Zone
- Spectator Viewing Zone
- Gateway Zone
- Adjacent Connections Zone

The zones have been established with consideration to the capability of the terrain to support the desired riding experiences and with consideration of known environmental and adjacent land use values. The intent and a description of each zone as well as the visitor and maintenance amenities envisioned in each zone are outlined in the following sections.

Trail Experience



Legend

- Study Area
- 1 Gateway Zone
- 2 Spectator Viewing Zone
- 3 Pump, Bump & Corner Zone
- 4 Viewpoint Zone
- 5 Jump Zone
- 6 Hub Zone
- 7 Gravity Zone
- 8 Technical Skills Zone
- 9 Adjacent Connections Zone

Figure 7. Visitor Experience Zones


Gateway Zone


Spectator Viewing Zone


Viewpoint Zone


Pump, Bump, & Corner Zone


Jump Zone


Hub Zone


Gravity Zone


Technical Skills Zone


Adjacent Connections Zone

5.1.1. Gravity Zone

Intent

- To provide a mix of flow and technical natural surfaced trails that support progressive skill development for youth and beginner to intermediate riders and provide opportunity for adaptive mountain biking (aMTB).
- To enable a relatively easy ascent to the free-ride and technical trails.
- To connect non-mountain biking visitors through the park on a safe multi-use trail (climb trail).
- To connect all visitors, mountain bikers and non-mountain bikers, to the upper viewpoint.

Description

The Gravity Zone makes up most of the sloped portion of the park above the lower benches (Figure 7). Given the small size of the site and the technical and steep nature of the terrain, a stacked loop concept for the proposed trail network was selected. The stacked loop design is based on the concept that the higher/further a user rides into the network, the more technically challenging the trails become. The easiest trails are located closest to the trailhead and lowest down on the slope for ease of accessibility and reflecting the reality that beginners will stay close to the gateway zone. Riders seeking more challenging trails will need to work harder to access those trails. Since the loops are "stacked", they can be combined to form different riding experiences from top to bottom to allow for variety despite the short distance and vertical relief of this site. In some places, the trails cross the climb trail and, in some cases, the layout has planned for a more technically challenging trail to transition into a less technically challenging trail at the downhill side of the climb trail. In these instances, features that reduce the speed of riders approach the climb trail are to be integrated to drop rider speed before reaching the climb trail crossing and / or transitioning to a lower technical difficulty trail.

As illustrated in the park concept map (Figure 9), the trail layout for this zone includes:

- One 1 km main climb route which will accommodate 2-way multi-use and throughfare connectivity with future and existing Lakestone trails and pathways outside of the park.
- One 630 m top-to-bottom mountain bike optimized technical trail of blue to green challenge level.
- One 800 m top-to-bottom mountain bike optimized flow trail of blue challenge level.
- Two lower beginner / green challenge level trails that are easily accessible with just 20m elevation gain.
- One 500 m top to bottom multi-use technical trail for mountain biking and pedestrian use that accesses an upper mountain viewpoint (this trail is not to be optimized for mountain biking).

Flow Trail Precedents

Technical Trail Precedents

Gravity Zone

The technical and flow trails will be designed in a “stacked” format (most difficult portions at the top) and each difficulty segment will contain a trailhead / access point enabling riders to progress their skills overtime without having to commit to an overly difficult trail. Exiting trails and technical trail features that have been informally developed but are not being integrated into the designated trail system, will be closed and restored / removed, including informal trails that exist outside of, but lead into, the park boundary.

Adaptive mountain bike design criteria are to be incorporated into the blue and green flow trail segments following the Kootenay Adaptive Sport Association’s (KASA) **Adaptive Trail Standards** (2020). Layout and construction of these trails must be completed by a professional trail designer or design-build contractor and should carefully consider the turning radius, corner shape, and TTF spacing as per the guidelines for the difficulty of each trail specified in the TMO (see Appendix A). aMTBs may access other trails as well; however, they are likely to be classified as double black difficulty aMTB and may not be suitable for all equipment due to trail tread width, TTFs, and/or trail tread conditions intended to add difficulty for regular MTBs. Any aMTB-specific trails should be signed in accordance with KASA standards with a dual rating (one for aMTB and one rating for MTB). Trailhead kiosk signage should indicate that any trail not rated specifically for aMTB access has not been designed or constructed to aMTB specifications, but users may access them at their own risk.

Skill filters, also known as qualifier obstacles, should be integrated at the starting of each blue and black diamond trail segment. Filters are a high-skill low consequence feature that demonstrates the difficulty of the upcoming trail. Filters allow enthusiasts to self-determine whether they have the abilities to navigate the trail and its typical features before becoming too committed. Filters should be signed to make visitors aware that the filter is representative of the forthcoming trail.

Figure 8. Skill Filter / Qualifier Example at Trailhead

Visitor & Maintenance Amenities

- Trailhead signage.
- Water source for trail wetting and maintenance.

Technical Trail Features

Technical trail features (TTFs) are natural or constructed obstacles that are purposefully integrated or built into a trail and require riders to negotiate them. TTFs help to deliver and satisfy user objectives. The following TTF’s are envisioned on the technical and flow trails:

Technical Trails	Flow Trails
• Rock garden • Rock rolls • Drops	• Table top jumps • Step up or step down jumps (no gaps) • Roller • Double roller • Natural surface berm • Wooden berm / wall ride

The following TTFs are NOT envisioned to be included in the gravity zone:

- Gap jumps of any kind (all features should be rollable at low speeds).
- On-off jump features.
- Wooden features constructed out of untreated lumber.

TTF Guidance

- The technical difficulty of TTFs should match the assigned technical difficulty of the trail. Given the short length of trails, optional lines for TTFs of a higher level of difficulty are not recommended. Instead, users seeking more advanced trails/features will achieve this by utilizing the higher difficulty sections at the top of the stacked loop network.
- TTFs whose technical difficulty are rated higher than that of the trail on which they occur should be identified with appropriate signage and symbology.
- TTF’s that provide higher risk and consequence for injury (e.g. gap jumps, step ups, step down, drop) should be identified with appropriate signage and symbology.

5.1.2. Jump Zone

Intent

To support the progressive development of rider jumping skills.

Description

A mountain bike focused Jump Zone was identified by stakeholders as the highest priority component of the site. The most suitable topography and site conditions for a jump zone was the lower bench area at the base of the slope and west of the parking lot (Figure 7). This area is sloping down from west to east for about 150 m in length and has the least cross-slope of the entire site. There were signs of shallow bedrock throughout the area, so it is likely the site will need to be graded and features constructed using imported materials.

The Jump Zone should include an elevated start zone and at least 3 lines of progressive difficulty tabletop jumps, ranging from beginner to advanced and a mulch jump for learning and practicing tricks. Mulch jumps have soft mulch material placed on the landing and are a great place for riders to progress skills and practice tricks with a reduced risk of injury. Stakeholder preference was for jumps to be shaped and designed with a focus towards mountain bikes (not BMX or dirt jump bikes).

The Jump Zone should be designed and constructed by a specialty design-build contractor with extensive experience in this type of work. Due to the extremely dry local climate, larger jumps are to be constructed with prefabricated ramps that will be more durable and require less ongoing maintenance and will help to ensure the design specifications of the ramps are retained over time.

Landscaping and vegetation plantings should be used on the southern boundary of the jump zone to help screen the zone from the Okanagan Centre Rd West and maintain the visual appeal looking up slope from the road.

Visitor & Maintenance Amenities

- Jump zone entry signage
- Water source for jump wetting and maintenance

Progressive Jump Lines – Intermediate (Blue) Tabletop & Advanced (Black Diamond) Gap Jump Lines

Example jump line with 4 progressive difficulty options and prefabricated ramps for larger jumps

Example mulch-landing jump.

Beginner (Green) Jump Zone Line

Prefabricated Tabletop Jumps

Prefabricated Tabletop Jump

Prefabricated Gap Jump

Prefabricated Gap Jump

Wall Ride on Advanced Jump Line

5.1.3. Pump, Bump & Corner Zone

Intent

To enable riders (children) on smaller bikes (run bikes, striders, small-wheeled pedal bikes) to develop cornering, weighting and unweighting, and positioning skills to maintain momentum and speed through corners and rollers.

Description

The zone will include a set of small dirt rollers and berms designed to be ridden without pedalling. “Pump” describes the technique of generating momentum on a bike without pedaling. This track(s) should include one or two small loops where kids can be introduced to mountain biking without having to access the more challenging areas of the park. The space should facilitate room for parents to support introductory riding on the track(s).

Landscaping and vegetation plantings should be used on the southern boundary of the jump zone to help screen the zone from the Okanagan Centre Rd West and maintain the visual appeal looking up slope from the road.

Visitor & Maintenance Amenities

- Pump zone entry signage

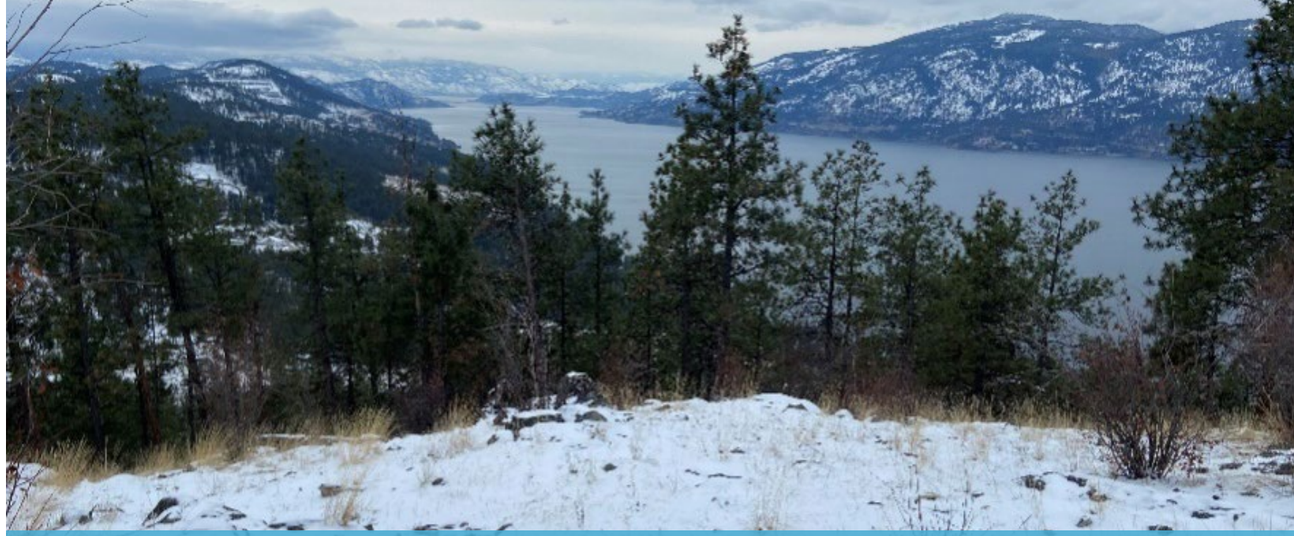
Pump, Bump & Corner Zone

Pump Track Integrated Through the Trees – Fort Tuthill Bike Park

Pump Track Integrated Through the Trees – Fort Tuthill Bike Park

Pump Track Rollers – Sedona Bike Park

Pump & Corner – Minturn Bike Park



5.1.4. Viewpoint Zone

Intent

» To enable all visitors, mountain bikers and those hiking / walking, to enjoy the spectacular views of the lake and valley.

Description

The viewpoint zone will be a destination for all visitors to the park, mountain bikers and hikers alike. It will be designed to provide a powerful and memorable place to rest and connect with nature, appreciate the spectacular scenery, and learn about natural and Indigenous heritage of the park, the lake and the Okanagan Valley. It is likely to become one of the most photographed areas of the park and representation of the what the park has to offer.

Visitor & Maintenance Amenities

- Benches
- Interpretive signage
- Surfacing
- Bike parking

5.1.5. Technical Skill Zone

Intent

To support the progressive development of riders' technical skills and ability to negotiate technical trail features that will be encountered on the trails throughout the park and in other riding areas throughout the region.

Description

A technical skill zone was identified as the second highest priority element for the park. The most suitable terrain and location for this zone would be on the relatively flat bench located on the east side of the site below the water tower (Figure 7). This area is relatively clear and has a slope on the north and east sides of about 2-5 m height to allow for roll-ins to features or landing for drops. It is also located at the top of the beginner-difficulty portion of the stacked loop gravity trails, so it will provide an opportunity for riders to practice skills before proceeding higher in the park to more difficult trails.

Features to be included in the zone include:

- Set of 3 progressive drops (green, blue, black diamond) constructed on the slope on the north and/or east side of the zone. Drops should make use of the natural terrain and should be constructed using durable materials wherever possible (e.g. pre-fabricated ramps or imported rock/concrete panels over rough carpentry wood).
- Several skinnies and ladder features on the flat southern portion of the zone, constructed from prefabricated ramps and durable materials such as steel.
- Rock garden (climbing and descending) on the northern/eastern sloped portions of the zone that represent difficulty on the Blue and Black tech trails. Rock may need to be imported from other areas of the site or offsite due to lack of local availability.
- Rock roll.
- A unique feature, such as an up-and-over ramp.

Visitor & Maintenance Amenities

- Technical skills track zone entry signage
- TTF difficulty rating signage

Technical Skill Zone

Multi Feature Technical Skills Zone

Progressive Drops with Difficulty Rating Signage

Rock Roll with Constructed Approach

Progressive Skinnies

Rock Garden Examples. Rocks are placed in a rough and uneven manner to create technical challenge

Prefabricated Ramps

Roller Coaster

5.1.6. Hub Zone

Intent

To provide a place for riders to meet, regroup and rest at the bottom of trails before reclimbing.

To provide a natural place for socializing and story sharing.

Description

The Gravity Zone trails are laid out to finish at a single treed Hub Zone at the base of the trail network. The Hub Zone is intended to be a shaded gathering space where riders can re-group at the end of a run and take a break before moving onto the next activity. This is a key decision point that has trail connectivity to the climb trail for the Gravity Zone or Technical Skill Zone as well as a link to the Jump Zone or back to the staging area. This area should include basic rider amenities as well as wayfinding signage assisting users making these decisions.

During detailed design and construction, existing trees in this area should be retained wherever possible to provide shade.

Visitor & Maintenance Amenities

- Wayfinding signage
- Benches
- Bike repair stand
- Air pump

Hub Zone tree coverage to be retained as much as possible to provide shade

5.1.7. Spectator Viewing Zone

Intent

- Provide comfortable area for family and non mountain bikers to view the jump lines.
- Provide a comfortable area for visitors to enjoy the spectacular southern views of the valley and lake.
- Support park programming by providing a gathering and seating area for instruction.

Description

The spectator viewing zone (Figure 7) is a slightly elevated parcel overlooking the jump and pump, bump and corner zones to the northwest and providing quality views of the valley and lake to the south. Close to the gateway zone and amenities, the spectator viewing zone will allow parents, family members and friends to comfortably observe riders in the jump and pump, bump, and corner zones and to wait for riders to complete their time at the park. It will also provide a close viewpoint for photo taking for non-riding visitors. The zone will support group-based park programming providing shade and seating for instructional, lunch and resting. The site will be designed to minimize disruption of the viewshed from the road looking up the hillside and will be oriented to optimize views into the jump and pump, bump, and corner zones and out over the lake.

Visitor & Maintenance Amenities

- Shade structure (e.g. shade sails, natural colour)
- Universally accessible picnic tables / seating
- Wildlife proof and universally accessible waste receptacles

Spectator Viewing Zone

Shade Sails

Shade Structure at Sedona Bike Park

5.1.8. Gateway Zone

Intent

- Establish a memorable first impression and sense of arrival for visitors to the park and to the neighbourhood.
- Provide comfort and convenience amenities to support spontaneous and programmed use of the park and ensure visitors have access to critical information about the park.
- Create a structured approach to visitor parking.

Description

The Gateway Zone is located on the flat area at the existing site entrance just east of the water treatment building (Figure 7). The Gateway Zone will provide visitors with a memorable sense of arrival to the park while also creating a broader sense of arrival to the larger Lakestone neighbourhood. The paved parking lot and delineated parking stalls will ensure an organized and efficient approach to parking and limit on-street parking nearby while an effective signage strategy will ensure that visitors have access to all essential information about the park, its trails and features to allow visitors to have a safe, enjoyable, and compliant park visit. To elevate the visitor experience and support park programming, the Gateway Zone will also provide visitors with a range of comfort and convenience amenities such as potable water, toilets and bike servicing, cleaning, and repair. This zone will also house the park / trail maintenance equipment in a secure, semi-permanent maintenance building providing convenience for maintenance crews. The zone will contain landscaping that beautifies the parking area in a way that integrates with the surrounding landscape, retains mature tree cover, utilizes native plantings, and creates microhabitats and manages stormwater run-off.

Visitor & Maintenance Amenities

- Gateway feature
- Paved parking lot with delineated parking stalls
- Maintenance equipment storage
- Kiosk signage
- Trailhead signage
- aMTB friendly and gender-neutral vault toilet building
- Wildlife proof and universally accessible waste and recycling receptacles
- Potable water fountain / water bottle / bladder refill station
- Bike repair station
- Bicycle pump
- Bike wash station
- E-bike charging stations
- Bicycle parking and locking
- Native, drought tolerant plantings and beautification

Gateway Feature

Bike Wash Station

Bike Repair Station

Water Fountain / Water Bottle / Bladder Refill Station

Bicycle Pump

E-Bike Charging Station

5.1.9. Adjacent Connections Zone

Intent

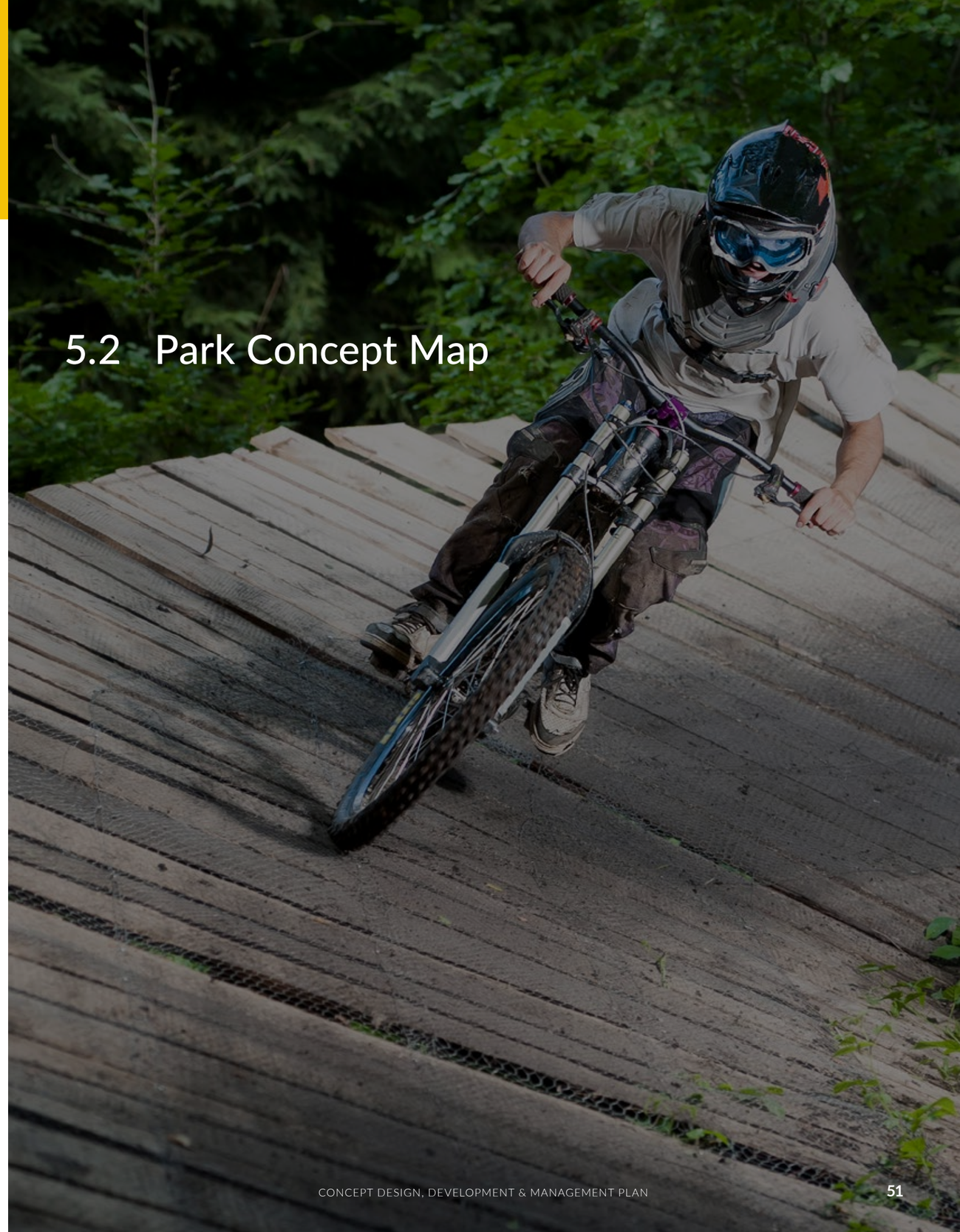
- Provide an organized location to connect adjacent trail systems to the park and enable seamless connectivity through the park for all visitors.
- Serve as a hub to connect mountain bikers arriving at the park from the north with the mountain bike optimized trails.

Description

At the northern boundary of the park, the Adjacent Connections Zone is the location where future formalized multi-use trails, developed as part of the Lakestone development, will enter the park and enable both mountain bike and non-mountain bike visitors to traverse through the park. This zone will be designed to welcome visitors to the park and to provide visitors with essential information about the park, its trails and features to allow visitors to have a safe, enjoyable, and compliant park visit.

Visitor & Maintenance Amenities

- Kiosk signage
- Trailhead signage
- Benches



5.2 Park Concept Map

Concept Plan

Legend

- Study Area
- White (Easiest)
- Green (Easy)
- Blue (More Difficult)
- Black (Very Difficult)
- Flow Trail
- Potential Future Multi-Use Technical Trail
- Future Connector Trail
- Existing Connector Trail
- Climb / Multi - Use / Connector / Collector Trail
- A Jump Lines
- B Pump Track
- C Technical Skills Area
- Viewpoint
- Accessible Toilet
- The Hub
- Gateway
- Waterbottle Fill Station
- Bike Wash Station
- Bike Bench

Figure 9. Potential Concept Plan


Gateway Zone


Spectator Viewing Zone


Viewpoint Zone


Pump, Bump, & Corner Zone


Jump Zone


Hub Zone


Gravity Zone


Technical Skills Zone


Adjacent Connections Zone

6 Park & Visitor Management Guidance

6.1 Operational Model

As a new park, it is essential to decide, and document, the operational model that will be used to operate the park. The District will remain the owner of the land and all fixed assets and infrastructure in the park. While most parks in the District are owned and operated directly by the District, the mountain bike park will operate differently.

The need for a different operational model reflects the reality that this park will contain a mix of general park amenities as well as mountain bike optimized trails and features. The District recognizes that the provision of a safe and quality mountain biking experience is dependant on ensuring the right expertise and the right capacity is established to design, construct, and maintain the mountain bike optimized trails and feature in the park. While the District has extensive expertise in design, operations and maintenance of general park amenities, its experience, expertise, and capacity with mountain bike optimized trails and features is limited. The District also understands and recognizes that the Lake Country Riders (LCR) and potentially other clubs are keen to have a role in the programming and operations of the park as they look to build mountain biking in the District.

Actions

1. Understanding that the District is ultimately responsible for ensuring the delivery of a safe and quality park experience, the District should operate the park through a “mixed” or “blended” operational model. Such a model functions based on the clear identification and articulation of the roles and responsibilities for each operational task (see section 6.1.1).
2. Recognizing the diverse interests in the park (e.g Multiple mountain bike clubs, multiple recreational uses, adjacent developers, adjacent landowners, environmental), the District should consider formalize a process and approach for the Lake Country Riders to provide park staff with advice on the detailed design, construction and management and operations of the park.

6.1.1. Roles and Responsibilities

In keeping with the operational model described above, the following table outlines the intended roles and responsibilities between the District, contractors, and local mountain bike clubs (clubs).

Responsibility – Operational Task		Role	
		Lead	Support
Design & Construction	MTB optimized trail & TTF design	MTB Specialist - Contractor	District, LCR
	MTB optimized trail & TTF construction	MTB Specialist - Contractor	District, LCR
	General park and visitor amenities and infrastructure design	Contractor, District	LCR
	General park and visitor amenities and infrastructure construction	Contractor, District	LCR
Inspection & Maintenance	Routine & non-routine inspection	MTB Specialist - Contractor	N/A
	Maintenance planning & scheduling	MTB Specialist – Contractor, District	LCR
	Maintenance of MTB optimized trails, TTF, jump zone, skills zone, pump zone	MTB Specialist - Contractor	LCR
	Non-routine maintenance & capital replacement of MTB optimized trails, TTF, jump zone, skills zone, pump zone	District, MTB Specialist - Contractor	LCR
	Routine maintenance of gateway and viewing zone and general park comfort and convenience amenities	District	N/A
	Non-routine maintenance & capital replacement of gateway and viewing zone and general park comfort and convenience amenities	District	LCR
	Capital replacement / asset management planning	District, MTB Specialist – Contractor	LCR
Volunteer Management	Volunteer recruitment, training & management	LCR	DLC
	Volunteer trail maintenance days	MTB Specialist – Contractor, LCR	DLC
Park / Visitor Programming	Program planning	District, Partners	LCR
	Program delivery	Partners	District
Visitor Information, Education, Marketing & Promotion	Park website, mobile application data validation & updates (TrailForks)	District	LCR
	On-site visitor education / stewardship events / days	District, LCR	N/A
	Park and park program promotion & marketing	District	LCR
Visitor Management	Policy, standards, guideline & bylaw development	District	LCR, Public
	Permit issuance (e.g. special events, commercial use)	District	N/A
	Visitor / public complaints	District	N/A
	Compliance patrols & enforcement	District	N/A
Environmental Initiatives	Habitat improvement, restoration & invasive species control	District, ENGO	N/A
Data Collection & Monitoring	Visitation & Visitors	District	N/A
	Capital & Operational Investments	District	N/A
	Volunteer Investment	LCR, District	N/A
	Environmental Features	ENGO, QEP	District

6.1.2. Volunteers

Through the engagement process, it was clear that there is interest and a role for volunteers in the park. However, and in keeping with the park management model outlined above, most engagement participants indicated that core operations of the park should be the responsibility of the District and that the operation of the mountain bike park should be approached similar to how other District recreation facilities are operated. The District supports the engagement of volunteers in the park and recognizes the important role volunteers play in the development and delivery of recreation opportunities and experiences in the District. At the same time, the District recognizes that volunteer efforts in operations such as trail and park maintenance can come with risk and liability exposure for both the District and volunteer organizations. Volunteers will make important contributions to the park, but the District must ensure that volunteers are actively trained, properly equipped, readily identifiable (e.g. volunteer t-shirt), and effectively managed to the same standard as would be applied to District staff when volunteering. The District also understands that an effective park volunteer program requires dedicated staff time and resourcing to manage and support which is also fundamental to ensuring volunteer satisfaction and retention.

Actions

1. The District should develop a volunteer program policy to corporately formalize the volunteer program, outline the tasks that the District will engage volunteers in, required volunteer training for each task, staff accountability for administering the volunteer program, program funding, volunteer insurance coverage, and processes for volunteer attraction processes, recognition, and retention.
2. Once the volunteer policy and program is in place, the District should work with Lake Country Riders and other interested organizations and individuals to implement the volunteer program.

Challenge, adventure, and risk are motivators

for many mountain bikers and critical to the visitor experience. Removing risk and challenge is not necessary and would be inappropriate. However, appropriately planning for and effectively managing risk is essential.

6.2 Risk Management System

Risk management is a systemized approach and process used to incorporate safety into the park experience and minimize the adverse effects of accidents. Mountain biking and trail use comes with inherent risk. Accidents and injuries at the park are anticipated as a result of the inherent risks involved with mountain biking and trail use.

A comprehensive Risk Management System is critical to reducing the likelihood of accidents and injuries and to ensuring the District is meeting its duty of care owed to visitors as set out in the *Occupiers Liability Act*.

The risk management system applied in the park should involve:

- Determining staff accountability and responsibility for implementation of risk management and ensuring adequate resourcing and budget to manage the park.
- Identifying and evaluating risk exposures.
  - » Hazard identification and risk assessment analysis
- Developing policies, procedures and risk mitigation strategies including but not necessarily limited to:
  - » Design standards, Trail Management Objectives, trail classification & technical difficulty ratings
  - » Visitor information system
  - » Signage system including clear identification of the trails as “Recreational Trails”
  - » Park inspection and maintenance program, including record keeping
  - » Volunteer management and training program
  - » Emergency response planning
  - » Accident reporting and analysis system
- Implementing the risk management policies, procedures, and mitigation strategies
- Monitoring results and regularly reviewing the risk management approach and adjusting if needed.

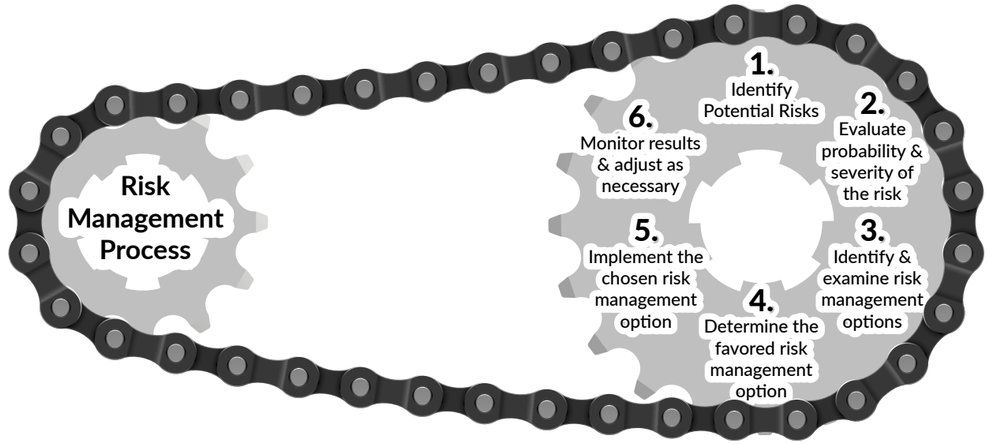


Figure 10. Risk Management Process

While risk management can not prevent all accidents from occurring, good risk management can help to limit the number and severity of accidents and control exposures to loss for the District.

Actions:

1. A professional mountain bike trail and park designer and builder should be retained to ensure that mountain bike optimized trails, technical trail features and other park infrastructure are designed, constructed, and maintained in accordance with industry best practices and, where they exist, standards.
2. Upon completion of the park construction, the District should undertake *a Hazards Identification and Risk Assessment* to identify potential risks and evaluate their probability, severity of occurrence and to identify specific risk mitigation measures that are not already addressed in this plan. A Risk Management Policy for the park should be established and responsibility for implementing, monitoring, evaluating, and reviewing the policy should be assigned to the appropriate District staff member.

3. The District should establish a comprehensive multi-component "Visitor Information System" to ensure riders and other park users receive the information they need, when and where they need it, to establish informed consent and assumption of risks and to improve the likelihood of an enjoyable, safe, and compliant park experience. The visitor information system should be developed to reach visitors at all steps in the visitor experience cycle, from trip planning, to arriving at the park to travelling the trails and areas within the park. At minimum, the visitor information system should include:

   » **Trail Management Objectives**– Trail Management Objectives (TMO), including the clear classification of each trail, will be established and approved for each trail in the park. TMOs will be used to confirm the trail classification, assign intended technical difficulty rating, define permitted and prohibited uses, define the trail design parameters and document other key information (see Appendix A) about each trail. TMOs will be used to ensure the physical characteristics of each trail remain aligned with that trail's approved TMO. The trail design parameters established in the TMO should be communicated to park visitors via the park webpage, mobile device applications (e.g. TrailForks) and on in-park signage.

   » **Trail Classification** – Each trail in the park will be classified as being either a a) non-motorized mountain bike optimized trail or b) non-motorized multi-use trail. Each trail will be assigned a technical difficulty rating using an industry standard trail rating system (e.g. Canada West Ski Areas Association bike Park Rating System). Further, each trail will be identified as being a a) Technical or b) Freeride / flow trail based on the trail's design and intended experience. Trails designed to support adaptive mountain biking will be further designated as "aMTB". Any aMTB-specific trails should be signed in accordance with KASA standards with a dual rating (one for aMTB and one rating for MTB). Trailhead kiosk signage should indicate that any trail not rated specifically for aMTB access has not been designed or constructed to aMTB specifications, but users may access them at their own risk. Finally, where relevant, trails intended to serve as "up only / climb trails" or "down only" trails will be clearly communicated. The above classification information will be communicated to visitors via the park webpage, online mobile device applications (e.g. TrailForks) and through trailhead signage.

Freeride / Flow Trails

Freeride trails (marked with an orange oval around the difficulty symbol) are typically machine-cut and contain human-made features. Trails are enhanced with technical trail features such as dirt jumps, ride-on features, narrow surfaces, wallrides, berms and other natural or constructed features. Jumping skills are required.

Technical Trails

Technical trails are designed to embrace the rugged shape and terrain of the park, utilizing natural terrain. Routes are typically hand-built and feature natural technical trail features such as rocks, roots, logs, drops, jumps and other constructed features that require technical riding skills. Technical trails are identified by just their difficulty symbol. Jumping skills may be required.

   » **District Bike Park Webpage** – In addition to basic trip planning and promotional information, the District should develop a bike park specific webpage which should contain informed consent, assumption of risk and safety messaging that reiterates and is consistent with trailhead signage. The website should also contain an orientation guide that provides visitors with guidance on how to enjoy the park safely, encouragement to "pre-ride, re-ride, and free-ride", risks associated with using the park, how to ride smart, introduction to the trail type and difficulty ratings and the TTF ratings and progression (see Figure 11), permitted and prohibited uses of the trails, gear / equipment needed to enjoy the park safely, and the mountain bikers responsibility code of conduct (see Figure 12). An example riders guide can be found here: **Whistler Mountain Bike Park Orientation Guide**.

   » **Trailhead / Entry Area Exclusion of Liability Assumption of Risk Signs** – To ensure visitors are aware of, provide informed consent and assume the risks, "Exclusion of Liability and Assumption of Risk" signs should be included at the trailhead / entry area that all riders / users will pass through.

   » **Mountain Biker's Responsibility Code** – A Code of Conduct outlining visitor (mountain biker and other users) responsibilities should be developed and installed at the trailhead / entry area to the park and promoted on the park website and promotional materials (see Figure 12).

Figure 11. Technical Trail Feature Ratings and Progression

Figure 12. Example Mountain Biker's Responsibility Code

- » **Decision Point & Trail Marking Signage**– Signage communicating information such as permitted / prohibited uses, equipment checklist, trail type (freeride, technical) and technical difficulty ratings, technical trail feature identification, technical trail feature difficulty ratings and intersections will be provided at decision making points (e.g. trailheads, junctions) throughout the park to allow visitors to make informed decisions about the appropriateness of the trail or feature for their abilities and desired experience. See section 6.3 for further guidance on the park signage program.
- » **Hazard Identification and Warning Signs** – Known permanent and temporary natural or human caused hazards will be signed to provide notice to visitors. See section 6.3 for further guidance on the park signage program.

4. The District will implement a regular inspection and maintenance program to assure that risks are identified and that the trails, TTF's and park features remain in line with the established TMOs and other relevant design guidance. See section 6.4 for further guidance on the inspection and maintenance program.
5. A mechanism and process that enables visitors to easily report trail, technical trail feature and general park condition concerns and maintenance requirements should be established and promoted to visitors at the park and through the park webpage. Visitor submitted condition and maintenance reports should be integrated into and logged in the inspection and maintenance system for review, prioritization, and resolution by parks operations staff / contractors.

6. The District should establish a mechanism that enables visitors to report accidents and a process that ensures reported accidents are reviewed and analysed to determine if changes to park conditions are required to mitigate future accidents. In addition to visitor reporting, regular efforts should be made to obtain emergency response call information from BC Ambulance and / or the District Fire Department. Information about the location of the accident, potential cause of the accident, type of injury should be documented, tracked and reviewed with operations staff. Measuring and tracking the location, frequency and severity of accidents will help in determining which risks are of greatest concern and will enable the District to continually improve the park's risk management system.
7. The District's parks team should work with the District Fire Department and BC Ambulance Service to prepare an Emergency Response Plan for the park. The response plan should establish pre-plans outlining where major trauma injuries are most likely, how responders will stage and access these trails and technical trail features, and how they will extricate patients from the park. The plan should also ensure that the Fire Department has the appropriate equipment and training required to effectively respond to and transport patients from the trails to BC Ambulance.

6.3 Signage

Appealing, well-designed, and well-placed signage provides a welcoming and informative environment for visitors. A well-designed signage system helps to ensure visitors have the information they need, when the need it, to make informed decisions, be responsible, and remain compliant with rules of the park.

Signage is a fundamental component of the risk management system and is also critical to backstopping and enabling compliance assurance and enforcement actions. While necessary, it is important to ensure that signage does not become cluttered and that it does not detract from the recreation setting.

Actions:

1. In accordance with the planning guidance below, the District will develop a comprehensive signage plan for the park as part of the park's detailed design process. The detailed plan will specify the location, type, content, and design and construction details of all signage and will adhere to the signage guidance outlined in the following sections.
2. The District will establish and maintain a sign inventory for the park. The inventory will photo document and spatially identify the location, sign type and date of installation.
3. The District should work through a formal process with the local mountain bike clubs and, if interested, First Nations, to establish names for the park and each trail in the park. If desired by First Nations, trail names should recognize, respect, and utilize First Nation place naming and include a territorial acknowledgement.

6.3.1. Sign Guidance

Sign Family

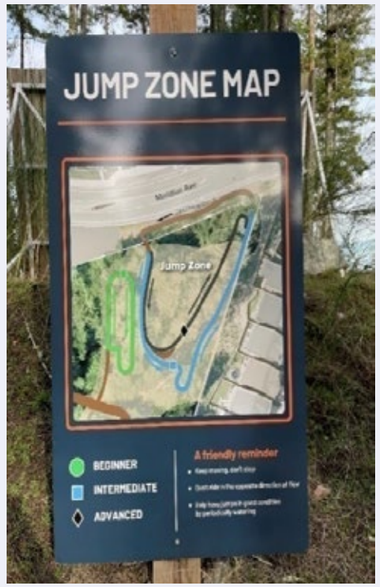
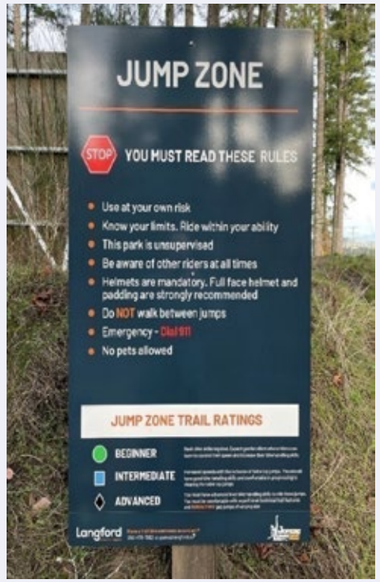
The following family of signs should be integrated into the signage plan.

Sign Type	Sign Precedent	Typical Location	Typical Content
Park Gateway		Entrance to the park from access road.	• Park Name
Visitor Experience Zone Gateway ***(Optional)***		Entrance to gravity, jump, skills, pump track visitor experience zones.	• Visitor experience zone name

Sign Type	Sign Precedent	Typical Location	Typical Content
Kiosk	   	Gateway Zone at main entrance into trail system.	• Park Name • Indigenous Place Name & Territorial Acknowledgement • Exclusion of Liability & Assumption of Risks • Map of trails & zones by trail type & difficulty rating • Trail type definitions (technical, freeride, adaptive) • Difficulty rating symbols & descriptions (MTB & aMTB) • Technical trail feature symbols & description • Amenity symbols & locations on map • Park hours • Permitted / prohibited activities • Park rules • Trail condition / status slider • Code of conduct • Ride Smart content • Leave No Trace • Trail Forks QR code • Emergency number & GPS coordinate • Wildfire reporting • Reporting maintenance / condition concerns & reporting accidents • District & partner logos (should be designed to be interchangeable)

Sign Type	Sign Precedent	Typical Location	Typical Content
Trail Progression		Gateway Zone at main entrance into trail system on or adjacent to Kiosk.	• Trail type symbology (Freeride, Technical) • Technical difficulty ratings • List trails names by trail type and difficulty rating
Trailhead		Individual trailheads & intersections.	• Trail name • Map & You Are Here pin (optional) • Trail difficulty rating • Permitted / prohibited activities • Trail type (technical, freeride, adaptive) • Designated direction of travel (where its not two way) • Cautions (e.g. two traffic pass with caution, yield hierarchy instructions) • GPS location (optional) • Do Not Enter – when at bottom of down only trails

Sign Type	Sign Precedent	Typical Location	Typical Content
Skills Zone Entry		Entrance to skills zone.	• Risk warning • Safety practices • Rules of use • Progression recommendation • Equipment requirements • Technical difficulty ratings with descriptions • Emergency number
Skills Zone Technical Feature		Entry / start of TTF.	• Risk warning • Feature type • Technical difficulty ratings • Progression & technique recommendations • Emergency number

Sign Type	Sign Precedent	Typical Location	Typical Content
Jump Zone Entry	 	Entrance to jump zone.	• Risk warning • Map of jump zone and lines • Safety practices • Rules of use • Progression recommendation • Equipment requirements • Technical difficulty ratings with descriptions of of each line • Emergency number

Sign Type	Sign Precedent	Typical Location	Typical Content
Jump Zone Trail Marker		At jump lines / trail intersections	• Jump line name • Technical difficulty rating • Directional arrow
Technical Trail Feature	  	Approximately 10m before TTFs that are rated more difficult than the rating of the trail or that have higher risk or consequence for injury.	• Caution statement • TTF symbol & description • Technical difficulty • Ride around direction if ride around provided
Exit Only – Downhill Only Trail		Bottom of down hill only trails at trail merger with collector trail	• No entry symbol • Downhill trail only description

Sign Type	Sign Precedent	Typical Location	Typical Content
Caution / Warning		Approximately 10m in advance of any hazards or temporary changes in trail conditions.	• Caution statement • Hazard symbol or description
Trail Merge		Approximately 10m before merger of two trails. Installed in all directions for merging trails	• Caution statement • Trail merge icon and / or description
Emergency Access		Start of designated emergency access trails / routes as identified in emergency response plan	• Emergency access statement • Wayfinding direction
Interpretive	Various types.	Viewing Zone, Gateway Zone and sites of interpretive importance.	• Indigenous • Ecological / natural feature • Trail construction & maintenance • Other topics of relevance

Difficulty Rating Symbology

Advising visitors of the technical difficulty of trails and technical trail features is fundamental to helping visitors identify the trails and features that are suitable for their abilities and desired experience. These ratings are also a fundamental component of the risk management system.

- The technical difficulty of park trails and features will be rated and communicated to visitors using industry standard trail difficulty rating symbols and, where appropriate, associated descriptions (Figure 13).
- aMTB-specific ratings will be rated and communicated to visitors using industry standard trail difficulty rating symbols (such as KASA).
- Technical difficulty symbols and, where appropriate, descriptions will be integrated into kiosk, trailhead, and technical trail feature signs as well as mapping.

Figure 13. **Technical Difficulty Rating Symbols & Descriptions**

Permitted & Prohibited Use Symbology

Clearly communicating which activities are and are not permitted in the park and on each trail within the park is a fundamental component of the visitor information system, the risk management system and is essential to helping visitors remain compliant with park rules. It is also fundamental to enabling compliance assurance actions when required.

The activities that are permitted (green circle) as well as those that are prohibited (red circle with slash) in the park and on each trail will be clearly communicated on park kiosk and trailhead signage using standard symbology as illustrated in Figures 14 and 15.

Figure 14. **Permitted Use Symbology Examples**

Figure 15. **Prohibited Use Symbology Examples**

Technical Trail Feature Symbology

Identifying the location, type, and technical difficulty of higher consequence TTFs informs riders of what is ahead, allows them to make an informed decision about the appropriateness of the feature for their ability and provides them sufficient time to choose to avoid the feature if they wish.

- TTFs whose technical difficulty are rated higher than that of the trail on which they occur should be identified with appropriate signage and symbology (Figure 16).
- TTF's that provide higher risk and consequence for injury (e.g. gap jumps, step ups, step down, drop) should be identified with appropriate signage and symbology (Figure 16).
- TTF warning signage, where used, should be installed a minimum of 10m in advance of each TTF and in a location that provides adequate sight line and stopping distance before each TTF.
- While not anticipated on site, if ride arounds or optional lines are provided, these should be identified with appropriate signage and symbology (Figure 16).

Figure 16. Example TTF & Ride Around Symbology

Material & Colour Guidance

Careful selection and consistent application of sign material and colour palettes can ensure signage adds visual appeal and enhances the visitor experience, ensure signage integrates with and compliments the surrounding landscape while also ensuring universal recognition, familiarity, and attention is paid to the signage by park visitors.

- Sign materials should reflect the natural characteristics and materials of the site, while adhering to existing District sign design guidance where it exists.
- The colour palette utilized in signage should reflect the natural colour palettes from the site as well as any District corporate sign design guidance where it exists. Recognizing the desire to ensure signage is complimentary to the natural characteristics of the site, standardized colour palettes should be followed for warnings (yellow), regulatory (black, red), and emergency related signage and messaging.

Siting Guidance

Appropriate siting of signage can greatly enhance the effectiveness of the signage messaging, improve visitor decision making, while also elevating the visitor experience, their sense of arrival and the perception that the park is well managed and cared for. Poor siting of signage can create visitor safety concerns and additional risk exposure.

- The park gateway feature should be installed, and careful attention must be paid to the siting and design of the gateway feature to ensure it serves as both a welcoming and recognizable sense of arrival to the park but also to the local neighbourhood.
- To provide sufficient time for riders and other visitors to recognize what is ahead and make informed decisions, on-trail signage should be installed a sufficient distance ahead of decision points. The speed with which visitors are travelling should be considered when determining the siting distance.
- On-trail signage should be sited outside of trail tread and travel corridor and the fall zones along the trail and around TTFs. Careful attention needs to be given to ensure installed signage does not create additional risk to trail users in areas where there is greater risk for crashes (e.g. high speed zones, corners, TTF fall zones, etc.).
- Signage should be sited where they will be free from obstructions such as tree branches, tall grasses, large boulders etc.
- All efforts should be taken to avoid over signing and sign clutter.

6.4 Inspections & Maintenance

No different than restrooms, picnic tables, waste receptacles, parking lots or sport courts, the natural surfaced trails and the natural and built TTFs in the park should be recognized as District infrastructure that is to be inspected and maintained according to a pre-planned frequency.

Consistent inspection and a well-resourced maintenance program will improve visitor safety, sustain a quality visitor experience, prolong the useful life of the bike park, protect the District's investment, and reduce capital costs over time, while managing risk and liability. The important consideration for maintenance is to be able to provide safe and sustainable mountain biking without compromising the exciting and challenging character of the trails that are core to a quality mountain biking experience.

Inspection is the process of systematically reviewing the park's trails, TTFs and infrastructure to identify and document deficiencies and / or deviations from the TMOs and/or design and construction standards. Maintenance is the process of undertaking routine activities to keep the park and its trails, TTFs and infrastructure in line with the TMO's specified in this plan and at or near their original construction standards. Maintenance planning is the process of reviewing the results of inspections, prioritizing the order in which routine activities, and identified deficiencies will be addressed and committing the resourcing to implement the plan.

Actions:

1. In keeping with the guidance provided in the following sections, the District will develop an Inspection and Maintenance Policy and Guidelines to guide the inspection and routine and non-routine maintenance activities in the park.
2. Recognizing that the District's operations staff do not specialize in design, construction and maintenance of mountain bike trails or mountain bike parks, the District may procure a contractor with specialization in mountain bike trail, mountain bike park and technical trail feature construction and maintenance to maintain the mountain bike optimized trails and TTFs in the gravity zone, jump zone, technical skills zone, pump track zones in the park.
3. The District's operations staff will maintain the general park amenities in the gateway and viewing zones and other comfort and convenience amenities in the other zones.
4. The District will prepare, or work with their contractor(s), to prepare and implement annual maintenance plan and schedule for the park.

Routine Maintenance Activities

- Tread repair (brake bumps, ruts, minor erosion etc.)
- Jump repair
- Trail / TTF / Jump watering
- Tread / jump shaping
- Tread / jump compaction
- Trail / TTF raking / sweeping
- Clearing drainage features
- Removing soil on periphery of trail treads that prevent water from leaving the trail
- Closure of unauthorized trails / features
- Vegetation management / brushing / pruning
- Replacing decking on wooden features
- Hazard tree identification
- Fallen tree removal
- Signage cleaning and replacement
- Landscaping, mowing
- Trash removal & litter clean-up
- Cleaning graffiti
- Restroom cleaning
- Parking lot grading
- Painting / staining of infrastructure

Non-Routine Maintenance Activities

- Infrastructure replacement
- Trail regrading & new trail construction
- Drainage reconstruction
- Jump line reconstruction
- TTF reconstruction
- Invasive species control
- Habitat enhancement / restoration

5-10%

The proportion of capital budget should be allocated annually to maintenance and inspections.

6.4.1. Inspection & Maintenance Guidance

Annual Budget

Budgeting for inspection and maintenance activities on an annual basis is crucial to success of the park. The annual costs for inspection and maintenance will vary over the lifespan of the facility (e.g. increasing with age) and will also vary through the phased development of the facility. Based on other comparable facilities, the District should expect to plan and budget to spend approximately 5 to 10% of the capital value of the facility on an annual basis for maintenance and inspection activities and should contribute annually to a capital replacement fund for end of life asset replacement.

Prioritizing Maintenance Activities

Determining which identified deficiencies receive priority can be challenging, but it is essential. A clear process and criteria for making these decisions is needed.

- The following prioritized maintenance objectives could be used by the District and its maintenance contractor(s) to evaluate and prioritize identified maintenance deficiencies:
  - » Minimize visitor and employee safety hazards & threats to the District's investment in park assets.
  - » Maintain public access & visitor experience.
  - » Protect the natural and cultural resources in the park.
  - » Cosmetics & aesthetics.
  - » Elevate the convenience of access for the public and staff.

Inspection Schedule & Inspection Triggers

All trails, features, amenities, and infrastructure should be regularly inspected. These routine inspections should be undertaken in accordance with a standardized inspection check list.

- The District and / or its maintenance contractor should undertake regular inspections of the park, including trails, features, and all amenities. Inspections should occur at minimum on an annual basis and/or upon a key inspection trigger. When received, visitor maintenance reports / complaints should be evaluated against the prioritized maintenance objectives to determine whether immediate inspection is required or whether the complaint can be inspected during the next regularly scheduled inspection cycle.
- The District should determine whether the park's multi-use trail will be maintained in the winter and the extent of winter operations for the park. These decisions should be documented in the maintenance policy.

Situation may arise that trigger the need for an immediate inspection of the park and its trails, features, amenities, and infrastructure. Inspection triggers that the District should consider using include, but are not necessarily limited to:

- Seasonal change.
- Significant increase in visitation.
- Major wind / rain / snow events.
- Prolonged periods of drought (requires more frequent inspection if trails / features are not being wetted).
- Fire / Wildfire .
- Public / user report / complaint about visitor or staff safety or damage to ecological or cultural resources
- Reported safety incident / accident.
- Other major events the District is aware and can be reasonably expected to warrant inspections.

Record Keeping

Record keeping will help to ensure that the maintenance schedule is being implemented and identified maintenance deficiencies are being addressed. Record keeping is also an essential component of the risk management system.

- The District and its maintenance contractor(s) should establish an inspection and maintenance log database to track when inspections occurred, user condition reports were received, the deficiencies that were identified, how deficiencies and routine maintenance tasks were prioritized and when and what action was taken to address the deficiency and / our routine maintenance tasks.

6.5 Visitor Education

Common Barriers to Responsible Visitor Behaviour

- Ignorance & misinformation
- Poor skills
- Bad habits
- Perceived social norms
- Competing attitudes
- Site design & lacking infrastructure

As a highly visited recreational resource, it is likely that the park will experience undesirable impacts to the trails and features, the visitor experience and to ecological and cultural resources. It is also likely that visitor conflicts and public safety incidents will emerge and may potentially grow. Visitor impacts are often the result of undesirable visitor behaviours. Most often, undesirable visitor behaviours occur because visitors are uninformed and / or unskilled about responsible behaviours, have bad habits or, in some cases, are careless.

Visitors impacts that are the result of uninformed, unskilled, bad habits and / or careless behaviours are well suited to be addressed through an effective visitor education programming. Visitor education is much less successful at addressing visitors who simply do not care. Though more heavy-handed approaches such as enforcement can change behaviours in the immediate short-term, long-term changes in visitor attitudes and skills are better created through education.

An effective visitor education program will be fundamental to ensuring the park is well managed. Further, the District recognizes that the visitor education program should focus on the following three core components:

1. Ride Smart

- Helping visitors understand the different trail types in the park – technical, freeride, adaptive.
- Helping visitors understand the technical difficulty ratings.
- Ensuring visitors understand the need to “Pre-ride, re-ride, then freeride”.

2. Leave No Trace Skills & Ethics

- Helping visitors understand and apply the 7 principles of Leave No Trace to ensure responsible recreation behaviours.

3. Park Rules

- Ensuring visitors are aware of park rules.

Leave No Trace Canada

Actions

1. The District should adopt Leave No Trace as the educational program for promoting responsible recreation behaviours in the park.
2. The District should provide Leave No Trace “Trainer” training for park staff and club members that will be involved in stewardship messaging to ensure they have the skills and knowledge to educate visitors on responsible recreation.
3. The District and Clubs should work together to deliver in-park education events to educate visitors on Leave No Trace and park rules during peak visitation periods.
4. Ride Smart and Leave No Trace principles should be integrated into in-park signage, the park’s webpage, distributed through the park’s social media channels, and integrated into the Park Orientation Guide.

6.6 Compliance Assurance & Bylaws

Compliance assurance is a necessary management focus and is essential to supporting the implementation of this plan, the sound management of the park and to providing a quality and safe visitor experience.

The District recognizes that, to recreate responsibly within the park, visitors must first be aware of the appropriate behaviours and the rules, they then need to understand them and the rationale behind them, they then need to accept the rules and then commit to following the rules and responsible recreation practices. It is at this final stage that responsible recreation behaviour occurs. Recognizing that this is the first mountain bike park in the District, the District should implement a phased-in approach to compliance assurance and enforcement of park rules that is based on the Compliance Pyramid model (Figure 17). In line with the Compliance Pyramid, enforcement should be used to supplement and backstop the District's visitor education efforts. Further, the District should ensure that the park regulation and fees bylaw contains the provisions needed to support the effective management of the park.

The following management issues should be anticipated and prioritized by bylaw officers and District staff:

- Assuring that only permitted activities occur on each trail in the park.
- Unauthorized trail and TTF building.
- Directional travel
- Off-leash dog use
- Rowdy behaviour
- Alcohol, recreational drugs, illicit drug use
- Vandalism
- Trespass on adjacent private lands
- Unauthorized commercial use and events

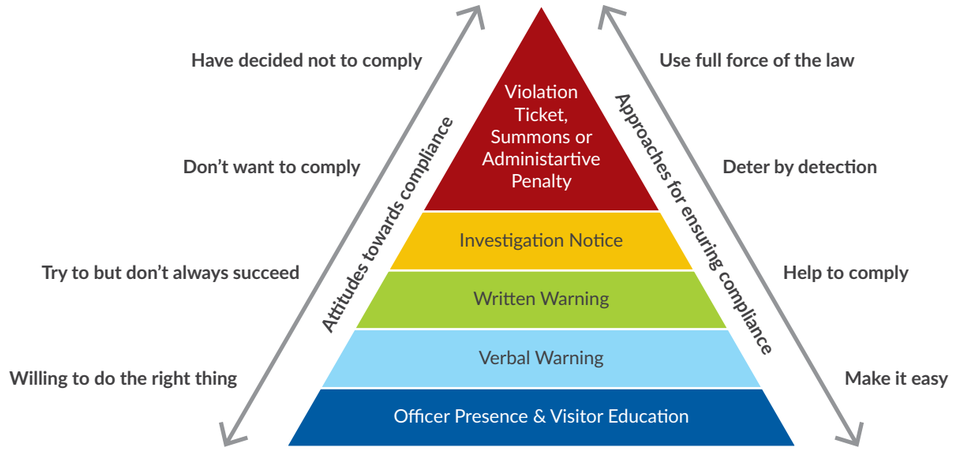


Figure 17. Compliance Pyramid Adapted from John Braithwaite

A phased approach should be taken to assure compliance with park rules:		Compliance & Enforcement Tactics to be Applied					
		Information & education	Officer presence & patrols	Verbal warnings	Verbal warnings	Violation tickets	Summons
PHASE 1	**First Peak Season** Bylaw officers, District staff and mountain bike clubs will focus on providing information and education about the rules, rationale for the rules, and responsible recreation behaviours (Leave No Trace).	●	●				
PHASE 2	**Second Peak Season** Staff should utilize officer presence, verbal, and written warnings along with further education by District staff and mountain bikes clubs to help visitors understand and comply with park rules and apply responsible recreation behaviours.	●	●	●	●		
PHASE 3	**Onwards** Bylaw officers will implement the full suite of enforcement tactics to assure compliance with park rules.	●	●	●	●	●	●

Actions

1. The District should review and update its Parks, Public Spaces and Recreation Facilities Regulations and Fees Bylaw (bylaw 829, 2012) to:
   - » Recognize a “Mountain Bike Park” as a unique District Park to which mountain biking and associated activities is the primary intended use and to designate the Lake Country Mountain Bike Park.
   - » Establish a classification of electric bicycles in accordance with the provincial **“Electric Bicycles (e-bikes) Policy”** and ensure that the District prohibits class 2 and 3 e-bikes from the mountain bike optimized trails and features in the park.
   - » Allow the District to close a feature, trail, zone, or the entire park for reasons identified in this plan (section 6.6.1).
   - » Allow the District to designate a “Dog Walking Trail” within a park without the need to designate the entire park as a “Dog Walking Park”. This will enable residents to connect through the park on the multi-use trail with their dogs on leash. Dogs off leash should be prohibited in the park.
   - » Recognize and require visitors to follow the mountain bike code of conduct while mountain biking in the park.
   - » Address drone use within the park.
2. District bylaw officers should prepare a detailed compliance assurance plan for the park.
3. In accordance with the compliance assurance plan, District’s bylaw officers should undertake regular patrols during the peak season and peak visitation periods to ensure compliance with the District’s Parks, Public Spaces and Recreation Facilities Regulations and Fees Bylaw (bylaw 829, 2012).

Figure 18. Class 2, Throttle Driven, E-Bike at Jordie Lunn Bike Park

6.6.1. Feature, Trail, Zone & Park Closures

Situations may arise where it is necessary for the District to close a feature, amenity, trail, zone, or the entire park temporarily or permanently.

- The District may, at any time, determine that it is necessary to implement closures for any number of reasons including, but not limited to the following.
  - » During feature, trail and / or amenity maintenance and / or construction activities.
  - » Visitor access to a feature, amenity, trail, zone, or the park poses a significant and unacceptable risk to public safety.
  - » Visitor access to a feature, trail, zone, or the park poses a significant risk to environmental and / or cultural resources.
  - » Visitor access may result in unreasonable damage to trail infrastructure (e.g. freeze thaw cycles, wet periods).
  - » Upon discovery, unauthorized trails and / or TTFs will be closed immediately and reclaimed.
- Efforts should be made by the District to notify mountain bike clubs of planned closures as early as possible to enable and support communications with park visitors. In instances of short notice or unplanned closures, the District should notify club’s executive directly and will notify the public as soon as possible through social media, updates to the park’s webpage and updates to mobile device applications (e.g TrailForks). The District should provide the club and the public with the rationale for the closure and, if possible, anticipated duration of the closure.

6.7 Site Activation & Programming

While construction of the District’s first mountain bike park will draw significant attraction from established mountain bikers, this alone will not be enough to meet the District’s desires to grow and diversify the number of residents who participate in mountain biking and can experience the benefits that come from mountain biking.

Deliberate attention to activating and programming the park is needed to ensure that beginners, racialized and equity deserving populations, and residents with disabilities see the park as a safe space to try, learn and participate in mountain biking.

Actions

1. The District should engage mountain bike coaching companies to provide “learn to mountain bike”, “take a kid mountain biking day” and other similar programs to introduce beginners to mountain biking.
2. The District should support partners in organizing equity and inclusion-based mountain bike programming (e.g. LGBTQ+, Women) in the park.
3. The District should directly engage adaptive recreation partners to provide, or support the provision of adaptive mountain biking programs in the park.
4. The District should establish a relationship with adaptive recreation partners to make adaptive mountain bikes and associated equipment available for visitors with disabilities who want to mountain bike.
5. The District should explore opportunities with local Indigenous communities to introduce Indigenous youth and other Indigenous peoples to mountain biking.

6.8 Marketing & Promotion

Marketing, for the purpose of parks, is the process of identifying and understanding the District's target park visitors and getting those visitors interested in and, ultimately, choosing to visit the park. Promotion is the communication activities that are implemented to increase target market awareness of the park and its programs and drive visitation to the park and participation in park programs.

Recognizing that one of the most reported barriers to participation in recreation programs is a lack of information and / or awareness about the programs, strategic marketing and effective promotion are fundamental to ensuring the District's target markets are aware of the park and park programs and further motivated to visit the park and take part in the programs offered within it.

Actions

1. The park and the mountain bike opportunities it offers visitors should be integrated into the District's broader recreation and parks marketing strategy. Consideration should be given to whether a park specific marketing strategy should be developed to ensure marketing efforts are reaching the District's target markets beyond existing avid mountain bikers (e.g. equity deserving populations, Indigenous populations, inclusion). Careful attention should be paid to ensure marketing material illustrates the type of riding and all targeted visitors (e.g. all ages, female, Indigenous, racialized, and adaptive riders) enjoying the park to better ensure marketing appeals to the District's target visitors.
2. The park and any approved in-park programming should be promoted in the District's recreation guide and other marketing channels.
3. The District and clubs should plan and deliver an official park opening event to make District and regional residents aware of the park.
4. The District should engage local influencers and / organizations from key target market groups (e.g. existing mountain bikers, new to mountain biking, equity deserving populations, Indigenous populations) to help promote the park and park programs to their constituents.
5. Facebook, Twitter, and Instagram sites should be established for the park and used to promote the park and park programs and communicate pertinent management information with visitors.
6. The District and the Clubs should work with TrailForks to ensure the park and the trail system is identified, information is accurate, and that the site is regularly updated where necessary.
7. The District should introduce media and host media fam tours of the park to encourage media to feature the park. Press releases should be provided to media outlets to promote the park and park programs.
8. The District should include sanctioned park events and programs in the Community Calendar.

A 2010 study by IMBA found that 60.6% (n= 436) of females believed that the perception of mountain biking as "hard-core" was deterring women from participating.

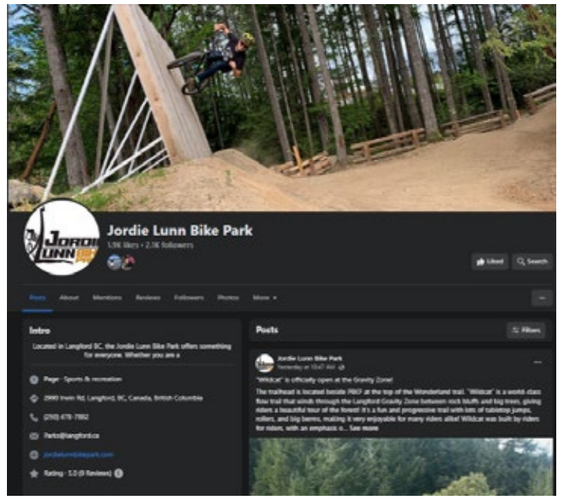


Figure 19. **Jordie Lunn Bike Park & Gravity Zone Facebook Page**

6.9 Special Events & Commercial Use

When well managed, special events and commercial use of the park can help to activate the park, elevate the visitor experience, and provide beneficial visitor services.

These uses, if not well managed, can result in user conflicts, undesirable impacts to ecological and cultural values, increased risk and liability and elevated operational costs. As such, all special events and commercial use of the park require a license to use permit from the District. Special events and commercial use of the park should be considered where and when these events or commercial use will positively contribute to the District's objectives of the park, enhance the visitor experience, and when it can be demonstrated that they will not result is unacceptable public safety, public access, conflicts, ecological, cultural, financial or risk and liability impacts.

Actions

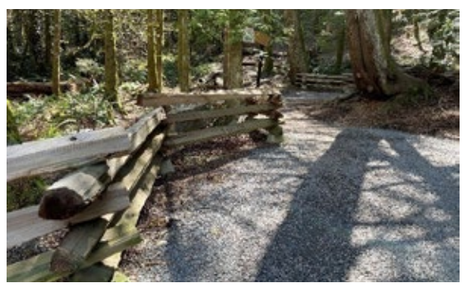
1. The District should develop a Special Events and Commercial Use policy to guide issuance of "License to Use" permits.
2. The District will consider proposals for special events and commercial use in the park where these proposals are in keeping with the objectives of the park and any established District policy.

6.10 Adjacent Lands

Much of the park is bordered by private lands. The District recognizes that there is potential for park use to negatively impact adjacent private lands and landowners through issues such as noise, dust, trespass, parking, and traffic congestion. Similarly, the District recognizes that adjacent private land use can undesirably effect park use and the quality of the park experience. The District is committed to taking a good neighbour approach to management of the park and relationships with adjacent landowners. Proactive efforts will be taken to build and maintain positive relationships with adjacent landowners and to minimize impacts of the park on adjacent landowners and of adjacent land use on the park.

Actions

1. The District will establish and maintain open communications with adjacent landowners about the development of the park, construction and maintenance schedules, special events, and to receive input on and discuss solutions to concerns about visitor management issues in the park that impact adjacent landowners.
2. The District will, where appropriate, install split rail, or similar, park boundary fencing and / or signage to identify and notify visitors of the park boundary and prohibit trespass.



6.11 Data

Good park and visitor use management decisions need to be based on good data and insights (e.g. visitation, visitor behaviours, recreation impacts, environmental values). A commitment to data collection and monitoring allows the District and its partners to transparently and objectively determine whether the desired conditions set in this plan are being achieved and how they are changing over time. Without regular and effective data collection and monitoring, the District and its partners are unable to know whether its management strategies and actions are working, and the desired conditions are being achieved. Data collection and monitoring also provides objective data that can be used to educate visitors and decision makers about the conditions within the park and to justify the benefits of and need for appropriate investment in and resourcing of the park and its management.

Actions

1. The District should implement data collection protocols to understand and monitor visitation volumes, visitation patterns, visitor activities, visitor demographics, visitor origins, visitor satisfaction and other relevant visitor insights. While traffic and trail counters together with intercept surveys are a traditional approach, the District should examine the feasibility of monitoring visitation and understanding visitors through Big Data programs such as Propulso or others.
2. The District should establish efficient systems to enable the tracking and monitoring of operational expenditures, capital expenditures, staff time, contractor time and other volunteer time invested in the park.
3. The District should establish a partnership with a local environmental organization or Qualified Environmental Professional to track and monitor the condition and functionality of environmentally significant features in the park.

7 Performance Monitoring Guidance

In keeping with the Visitor Use Management Framework, the District should monitor change in the following indicators to understand whether the desired conditions and visitor experiences established in this plan are being achieved and whether the applied management actions are being successful. Table 2, identifies the indicators that should be monitored and the thresholds and that will be used to prompt additional management actions. As illustrated in Figure 20, if monitoring suggests that conditions for an indicator are approaching a trigger, the District, with input from the park's advisory committee, will identify further management actions that are required to prevent a threshold from being reached.

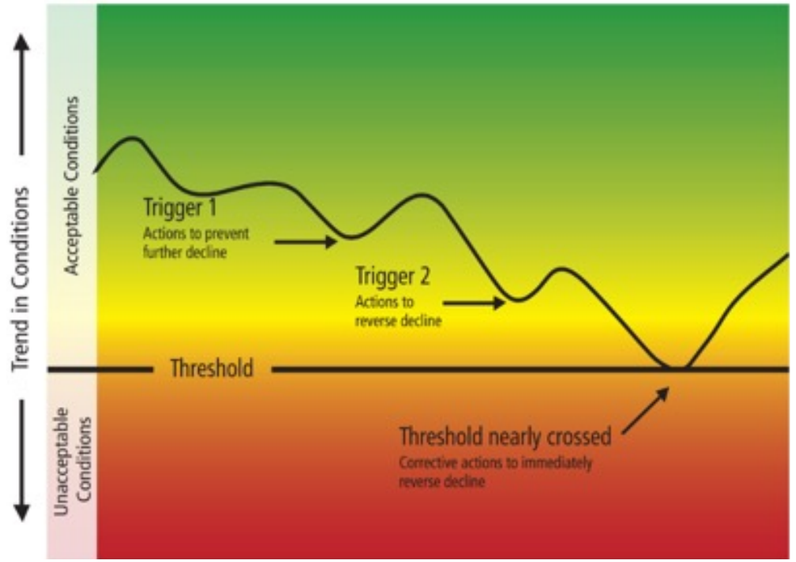


Figure 20. Relationship Between Triggers and Thresholds

Table 2. Indicators and Thresholds

Desired Condition	Indicator	Data Source	Threshold	Trigger
Visitor Experience				
Visitation	Park visits per season	Big Data	10% reduction in average visitation	Visitation reduction – not caused by weather / fire events.
	Socio economic profile of visitors	Big Data	Visitor profile matches profile of the District.	Declining visitation by equity deserving populations.
	# of equity, inclusion and diversity focused events held in the park	Permits	N/A	Decline in EDI events.
Variety	Length of trail by style	Inventory	Per design	N/A
	Length of trail by difficulty	Inventory	Per design	N/A
Quality	Visitor reported satisfaction rate	Visitor Survey	Satisfaction level declines by 5%	Satisfaction level declines by 3%
	Proportion of trail that meets the Trail Management Objectives	Inspection records	10% of the park's trail length does not meet the TMO design parameters.	Increasing trend in the amount of trail in the park that does not meet the TMO design parameters.
	No. of programs delivered in the park.	District permits	Decreasing trend in the number of programs delivered.	Decreasing trend in the number of programs delivered.
	No. of participants in park programs from equity deserving populations.	Program registrations	Decreasing trend in the number of equity deserving participants.	Decreasing trend in the number of equity deserving participants.
	% of trail in good to fair condition.	Trail inventory	95% of trails should be in good condition.	Decreasing condition.
	% of visitor amenities in good to fair condition.	Trail inventory	95% of visitor amenities should be in good condition.	Decreasing condition.
Vandalism	No. of incidents of vandalism	Inspection records	Not available To Be Determined	Number of vandalism occurrences increase by 10%
	Prevalence of litter.	Inspection records	Increasing trend in the amount of litter	Increasing trend in the amount of litter
Conflict	No. of incidents specific to recreation user conflicts reported to the District.	Visitor Reports to District	Increasing trend in the volume of conflict reports	Increasing trend in the volume of conflict reports
	No. of documented complaints from private landowners regarding conflicts with recreational visitors.	Reports to District	Increasing trend in the volume of adjacent landowner complains.	Increasing trend in the volume of adjacent landowner complains.
Stewardship				
Events	No. of Stewardship Days / event organized in the Park per year.	Organizer Report	Less than one event per year	No plans are in place for a stewardship event.
Volunteerism	No. of volunteers that take part in the organized stewardship days.	Organizer Reports	Less than 50 volunteers per year	Less than 50 volunteers per year.
Environmental / Cultural				
Unauthorized Trails	Length of unauthorized trail construction	Inspection records.	Any development of unsanctioned trail.	Any development of unsanctioned trail.
Habitat Features	No. of wildlife habitat features (e.g. dens, wildlife trees) impacted by unauthorized use	Inspection records	Any negative impact to habitat features	Any negative impact to habitat features
Noxious Species	No. / areal extent of noxious species occurrences	Invasive species inventory	Any increase in invasive species presence.	Any increase in invasive species presence.
Public Safety				
Emergency Responses	No. of Ambulance / Fire Department responses to the park for recreation related injuries / medical conditions per year	BC Ambulance Service	Increasing trend in the number of BCAS responses.	Number of BCAS responses does not remain below the 3-year average.
	No. of visitor reported safety incidents per year.	Visitor report mechanism	Increasing trend in the number of BCAS responses.	Any increasing trend in safety incidents.
Fire	No. of visitor caused brush fires in the park per year	Fire Department records	0	Any recreation caused brushfires.

8 Next Steps in the Design & Construction Process

8.1 Phasing of Development

Phasing of construction will primarily depend on:

- Internal budget allocations throughout the project implementation process.
- Grant availability (grants typically have specific criteria that may fit better with a particular portion of the project over another).
- Land availability will also be another consideration in phasing, as the District did not currently have access to the upper portion of the site at the time of preparation of this report.

The following information is provided as general guidance on a logical sequence of phased implementation of the project based on the currently available information. However, it is recommended that the District review new information as it becomes available and adjust the phased implementation plan as required based on the factors described below.

PHASE	ITEMS/ZONES	RATIONALE	NOTES
1	Jump Zone Pump, Bump & Corner Zone Parking Lot	This is a new experience available in the District and is on currently available land.	• Some other visitor amenity zones may also be required (washrooms).
2	Gateway Zone Spectator Viewing Zones	Enhances the visitor experience of Phase 1 infrastructure.	• Not required in this order pending priorities and funding availability. Some Gateway Zone features could be incorporated into other phases as visitation warrants.
3	Lower Gravity Zone Technical Skills Zone Hub Zone	These zones should be constructed in conjunction for contractor efficiency.	• At minimum, climb trail from Lower Gravity Zone is required to access the Technical Skills Zone.
4	Upper Gravity Zone Adjacent Connections	These zones are located on lands that are expected to be acquired by the District in the future and not currently available for development.	• There would be efficiency to construct Lower and Upper Gravity Zones in conjunctions (single contractor).

8.2 Site Transition Considerations

Pending the number of years over which the project is constructed and the adjacent residential development, there will be a period of transition from the current site use to the future use presented in this plan. The site and the surrounding undeveloped properties are currently informally used for hiking, mountain biking, and equestrian use and there currently are minimal visible markers or cues for property boundaries. Some future considerations during site development include:

- Management of unauthorized trail construction either on the site or on adjacent undeveloped properties before they are developed. Lake Country will need to work closely with the Lakestone development to develop a management plan for this transitional period to ensure safe and authorized use of the area.
- Existing trails on the site were generally considered unsuitable for incorporation into the network due to unsafe TTFs, sustainability issues with the trail tread, or trespass on private land. It is recommended that all existing trails and linear disturbances within the project site are decommissioned during the first phase of the Gravity Zone trail development.
- Future planning and design exercises in the Lakestone development should consider additional connectivity for cycling and pedestrian connections to the new proposed bike park area (e.g. Jack Seaton Park).

8.3 Detailed Design & Construction Model

Infrastructure projects are typically executed using either a design-build or a design-bid-build model, each having pros and cons to specific situations. In both cases, it is critical that all design and construction works are completed in general alignment with an overarching master plan to ensure the intent of this report is met.

The design-bid-build model is the typical approach used in municipal infrastructure projects where design is completed by one entity (designer/engineer) and construction contractors then bid on the work and complete construction under a separate contract. This approach is most suitable for common or routine work where designs are technical in nature and/or require quantification for bidding purposes. In a design-build situation, both design and construction are completed by the same entity or partnership (e.g. a specialty pump track or bike park company). This approach is suitable for complex or speciality work which requires creative solutions, such as designing mountain bike infrastructure. This method allows owners to procure a specialty contractor to provide unique and creative solutions following an overarching plan, such as this report.

For this project, a design-build approach is generally recommended for the mountain-bike specific components of this project outlined in this plan, particularly for the gravity zone, pump / bump / corner zone, jump zone, and technical skills zone. Using a design-build approach will allow the Owner to retain specialty contractors with expertise and creativity to bring the concepts presented in this plan to life. For the more traditional civil development and structural components portions of the project (visitor amenity areas, gateway zone, spectator viewing area), a design-bid-build approach would be most suitable so that engineering design can be completed ahead of more readily available civil contractors bidding on and building the projects.

References

i International Mountain Bike Association (2015). European Mountain Bike Survey. Retrieved from **https://www.imba-europe.org/sites/default/files/IMBA_INFOGRAPHIC_final.pdf**

ii Cole. Z. (2015). Demographic and Behaviour / Preference Profile of MTB Tourist. Retrieved from **http://mtbtourismsymposium.ca/wp-content/uploads/2015/10/Profile-of-MTB-Tourist-Zachary-Cole.pdf**

iii Ecoscape Environmental Consultants Ltd. (2022). Summary of Environmental Survey and Associated Findings and Recommendations for the Proposed Bike Park in Lake Country, BC.

9 Appendices

Appendix A: Trail Management Objectives

Phase	Trail #	Name	Trail Description	Difficulty
1	9	Climb Trail (Lower)	Main climb trail for the Gravity Zone starting from the parking lot trailhead. This trail will be wide enough to accommodate 2-way, multi-use traffic with low grades that provide a short, smooth, and relatively easy access for beginners and kids to access the Tech Skills Zone and Green Tech and Flow trails. This trail also provides flow-through access between the future Lakestone development and trails upslope of the park and the Tyndall Road MUP.	Green
1	6	Green Tech	Beginner technical trail that includes no major TTFs, but provides occasional protrustions such as roots or rocks and loose/uneven tread conditions as to provide an introduction to technical riding for beginners riders.	Green
1	2	Green Flow	Beginner flow trail with frequent TTFs such as rollers, exaggerated grade reversals, and/or table top jumps. Although the alignment is short with no major corners required, the alignment should exaggerate grade reversals to provide opportunities for pumping and cornering.	Green
1	n/a	Trail Decommissioning	Decommissioning existing linear disturbances and trails in the entire project area as per map.	n/a
1	1	Collector Loop	Main access to the future jump zone and main collector for the gravity zone back to the climb and/or parking lot. Wide enough to accommodate 2-way, multi-use traffic.	Green
2	3	Phase 2 Climb Trail (upper)	The upper portion of the climb trail will be the same TMO and design criteria as the lower portion (Trail 9). The upper portion will be constructed through to access all trails in Phase 2 and the future potential connection to the Lakestone trail network (by Others).	Green
2	5	Blue Flow	Blue difficulty flow trail with all corners bermed and TTFs such as rollers and table top jumps. This should be the snowcase trail for the park and the longest descent. This trail is aMTB-friendly so no gaps permitted and design/construction should be in accordane with KASA standards.	Blue
2	4	Blue Tech	One level of difficulty up from Phase 1 Green Tech trail. Difficulty should be added through more frequent tread protrusions (roots, rocks), incorporation of any natural rock features encountered, steeper grades and roll-downs, and a faster trail speed.	Blue
2	7	Dark Blue	Another level of difficulty up from Phase 2 Blue Tech trail. Difficulty should be added through more frequent tread protrustions (roots and rocks), steeper grades and roll-downs, and incorporation of any natural rock features encountered. The trail should include at least two drops up to 1 m in height (e.g. still rollable) that are constructed out of locally available rock and soil materials.	Blue
2	8	Multi-use Technical Trail	Black level technical trail that will serve as a rugged multi-use trail for hiking and mountain biking with the primary purpose of accessing the viewpoint on the adjacent private property. This alignment traverses steep side slopes with plenty of cobble, boulders, and bedrock protrusions that should be incorporated to create a technical trail tread that is challenging for riders. The trail should be designed and constructed with a rough and rugged feel to keep mountain bike speeds low due to the multi-use on the trail.	Black

Trail Style	aMTB Rating	Preferred Direction	Tread Width (m)	Average Grade (%)	Max Grade (%)	Tread Surface	Length (m)
Multi-Use	Green	Climb only (MTB/ aMTB), bi-directional pedestrian	2.0	6	10	Smooth mineral soil surface with no protrusions.	435
Technical	n/a	Downhill Only	1.0	8	12	Native mineral soil with occasional protrustions up to 10 cm height.	240
Flow	Blue	Downhill Only	1.5	7	10	Smooth mineral soil surface with no protrusions.	275
n/a	n/a	n/a	n/a	n/a	n/a	n/a	1500
Multi-Use	Green	Bi-directional	2.0	6	10	Gravel surfaced	465
Multi-Use	Green	Climb only (MTB/ aMTB), bi-directional pedestrian	2.0	6	10	Smooth mineral soil surface with no protrusions.	650
Flow	Blue	Downhill Only	1.5	8	12	Smooth mineral soil surface with no protrusions.	800
Tech	n/a	Downhill Only	1.0	10	15	Mineral soil surface with frequent protrusions up to 15 cm. Some loose/ rough sections.	270
Tech	n/a	Downhill Only	1.0	10	20	Mineral soil surface with frequent protrusions up to 15 cm. Some loose/ rough sections.	120
Tech	n/a	Downhill only MTB, bi-directional pedestrian	0.9	12	25	Mineral soil or rock surface, frequent protrusions up to 20 cm.	485

Appendix B: Planning & Design Workshop What We Heard Summary

This plan was shaped with the active input of community members and organizations with topical knowledge, with knowledge of the site, and/or connections with prospective future users of the park.

The following organizations and groups were invited to participate in a facilitated three-hour workshop on November 30, 2022.

Invitee	Workshop Involvement
CRIS Adaptive Adventures	Declined or unavailable
District of Lake Country Parks & Recreation Advisory Committee	1 participant
Elevation Outdoors	1 participant
George Elliot Secondary School (Youth)	2 participants
Kelowna Area Cycling Coalition	Declined or unavailable
Kootenay Adaptive Sport Association	Declined or unavailable
Lake Country Cycle	1 participant
Lake Country Riders	5 participants
Macdonald Communities Limited	1 participant
Mountain Bikers of the Central Okanagan	2 participants
North Okanagan Cycling Society	2 participants
Walk Around Lake Country	Declined or unavailable
District of Lake Country Staff	3 participants

The workshop involved five facilitated exercises designed to solicit focused, detailed input on future park priorities and design.

Exercise 1: User Objectives and Design Principles

User Objectives

Through individual ideation and small-table conversations, workshop participants felt that the park should be incorporate the following objectives for optimized experiences and opportunities.

- **Challenge & Progression:** The park should appeal to and serve a variety of MTB interests and skill levels with progressive challenges and levels of risk
- **Inclusion & Accessibility:** The park should provide a welcoming feeling to all visitors, it should be accessible to a broad spectrum of users and abilities, and it should take care to accommodate the interests of non-riders (e.g. non-ridings parents of users, pedestrians traveling through park)
- **Fun & Playfulness:** The park should be a place where smiles come easily and should be seen as an enjoyable and thrilling local destination.
- **Community & Socialization:** The park should be a natural and welcoming place for the community to come together to meet and participate in unstructured recreation activities, but also to support structured programming, learning, and skill development opportunities.
- **Uniqueness:** The park should facilitate a sense of pride within the community and among its users as an innovative and responsive facility that reflects community character and the opportunity to be part of “something different”.
- **Healthy Lifestyle:** The park should invite and encourage movement, exercise, and fitness as part of an active, healthy lifestyle.
- **Connectivity:** The park should integrate with the surrounding community, and it should support the movement of people to other parks and trails in the area (e.g. Jack Seaton).
- **Nature:** The park and its amenities should respect the natural and environmental features of the area, and it should offer opportunities to be outdoors and to learn and experience things there, including the site’s remarkable SW view.

Design Principles

Through small table discussions, workshop participants emphasized that the following principles should guide the project throughout its planning, development, management, and operation.

4. **Focus on a Quality Build & on Quality Experiences:** The site and amenities should be a “professional” build that is suitable and appealing to riders. It should use durable materials and leading-practice techniques to minimize maintenance (e.g. rock armoring) and mitigate real risks. It should aspire to foster pride within the community and among its users for its quality and uniqueness.
5. **Provide Challenging, Aspirational, & Safe Progression:** The park should be built and managed to provide enjoyable, progressive opportunities for full spectrum of riders that inspire skill development, but also incorporate leading safety practices and risk mitigation approaches.
6. **Ensure Community Focus:** The site should welcome and accommodate families and users of various abilities and demographics. As a site for gathering, hanging out, and being active, it should be open year-round, respect neighbouring developments, support the ability to offer programming, and it must connect with adjacent areas.
7. **Incorporate Sustainable Practices & Respect Environmental Function:** To the greatest extent possible, any built amenities should limit their impact to the site’s environmental function and values. Key features, such as wildlife trees, should be respected and retained, and sustainable building and operational practices should be incorporated that anticipate climate change impacts and that incorporate natural terrain features and materials.
8. **Incorporate Natural Aesthetics:** The park should have aesthetics that integrate with the surrounding environment and surrounding developments. It should not have garish colours or palettes, and where possible, it should build on Lake Country’s reputation for art and creativity (e.g. incorporate local art and design).
9. **Financial Responsibility and Sustainability:** As a valued community recreation asset, it should be built and operated in a manner that is within long-term capital and operational budgets.

Exercise 2: Target Riders & Site Users

In a plenary facilitated session, workshop participants discussed who the park and its amenities should have in mind throughout the design and build. Participants felt appealing opportunities should exist for spectrum of riders, but that the design, build and operation of the site should offer optimized opportunities that are particularly well-suited for users that are:

- Local youth between the ages of 8 and 20 (approximately).
- All genders (participants wanted to see emphasis on being welcoming and inclusive for female riders)
- Independent or minimally dependent (i.e. can generally make their own way to the site, ride without supervision).
- Self-motivated to advance their own skills or Interested in programming for skill development (e.g. Intro courses and workshops).
- Spontaneous and/or seeking unstructured recreation opportunities.
- Attracted to risk.
- From a range of incomes.
- More interested in “MTB” rather than “dirt-jump” or “skate-park” style of riding.
- Interested and capable of riding intermediate to intermediate+ terrain.

In addition, participants felt that planning and design emphasis was needed to ensure opportunity for:

- Pedestrians, trail riders and leisure cyclists to traverse through the site both east-west and north south.
- Local residents interested in experiencing the views from key viewpoints on the site (e.g. lower and upper vistas).
- Riding and non-riding family members of primary riders (e.g. younger and older siblings, parents) to enjoy the site.
- Group programming and instruction.

Exercise 3: Experience Zones

To provide priorities and specific direction for site design, participants generated the following list of components (i.e. experience zone) that should be incorporated into the site to appeal to and serve park users. They then prioritized these components and generated ideas of what they could/should include.

Priority	Component / Experience Zone	Desirable Elements, Amenities & Attributes
1	Jump Zone	• MTB focus w. full progression • Variety of dirt jumps • Gap jumps with alternative routing • Step ups; downs • Tabletops • Doubles • Right/left hand hips • Wall rides • Mulch jump • Wood features (pucker pads, whale tails, progressive wood ramp drop, bonner log)
2	Technical Skills Zone	• Progressive elements » Skinnies » Log rides » Teeter totter » Drops » Rolls; rock rolls, • Rock garden (Macaskill style) • Trials area (even if very small) • Arch • Suspension bridge ramp • Technical uptrack (skill builder) • Unique features/design » Finish wood carpentry » Technical skinny garden » Large feature (perhaps vehicle?)
3	Gravity Zone *(see exercise 4 for additional detail)*	• High-quality uptrack • Tech & flow trails with progression • Flow trails – abundant berms, rock armoured • ATMB friendly • Downhill trail • High-speed trail • Dual slalom • Rock lines; fall lines • Wall ride (unique) / steep berm • Use of local terrain (e.g. rocks)

Priority	Component / Experience Zone	Desirable Elements, Amenities & Attributes
4	Visitor Amenity / Maintenance Zone	• Monument (curb appeal) • Site lighting • Shade • Electricity, water, sewage services • Parking • Rest/Leisure areas » Ensure available for both riding and non-riding users » Washroom » Garbage » Drinking water station » Gazebo(s) » Umbrellas » Picnic tables » Benches » Optimized SW viewpoints » Spray/cooling feature • Programming area (rider focused) » Covered/shaded structure » Washroom » Kitchen (BBQ, fridge, sink, serving area) » Drinking water station » Locked equipment/supplies storage » Seating / benches » Bike related – Secure storage – Racks – Work stands – Tool tree/stand (pump, common tools) – Work bench – Rinse/wash station • Signage » Welcome kiosk » Site/wayfinding maps » Expectations, rules, regulations » Interpretive signage (site, history, view, environment) » Directional • Site maintenance area » Secure storage for primary equipment/tools. » Water/ wash area » Materials storage/disposal (e.g. soil, lumber, refuse)
5	Pump Track* **Given the site's spatial constraints, participants noted that larger versions of this component may be better located elsewhere in the region (e.g. larger, flatter areas)*	• Suitable for new, very young riders • Consider paving for durability • 2-3 green and blue tracks allowing progression • Locate in flat area; potentially locate intermediate skills in middle
6	Conservation Zone	• Protect and isolate key environmental attributes
7	Connections Corridor	• Ensure E-W and N-S connectivity for pedestrians, trail cyclists, leisure cyclists and other permitted uses

Exercise 4: Gravity Zone Trails

To help clarify what types of trails and what levels of difficulty would be most appropriate in the park's gravity zone, participants generated the following input in a dotmocracy exercise. Participants felt the there should be a variety of trail types with an emphasis on intermediate and expert level trails.

Trail Difficulty	Flow Trail	Tech Trail	Adaptive MTB
Green	1	-	4 (borderline blue)
Blue	10	5	2
Black	9	8	-
Double-Black	3	2	-

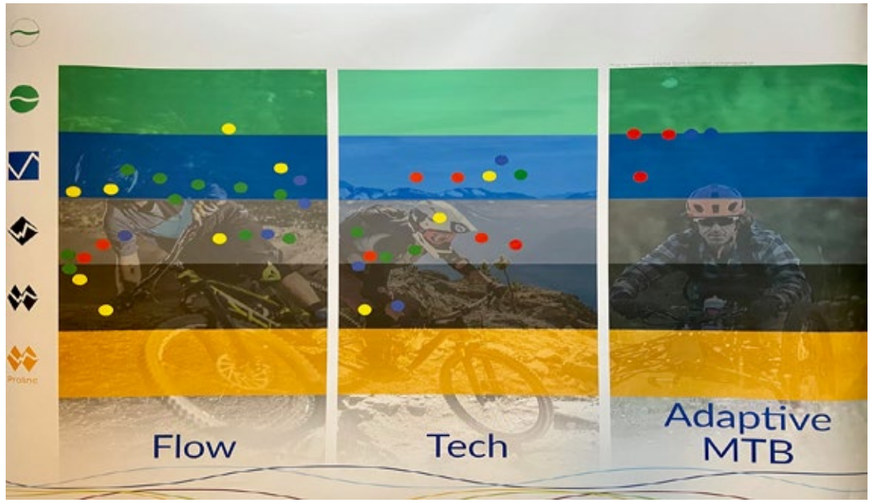
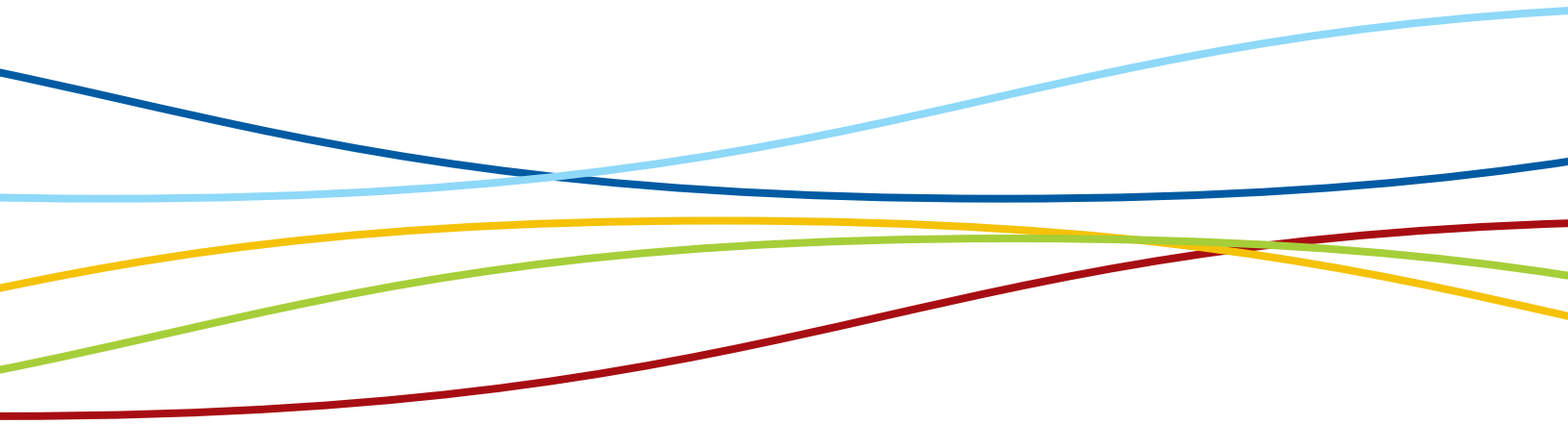


Figure 21. Dotmocracy distribution of desired trail types and difficulty

Exercise 5: Follow-up Survey

Nine participants completed a follow-up survey which explored several park management topics in more detail.

1. **Programming and Services:** Like other recreation facilities, participants envisioned the site being used for various skill development opportunities (e.g. camps, workshops, clinics, "learn to sessions") as well as, potentially, for small-scale events. They saw these sessions being led by the District (e.g. similar to existing programming offered at existing sites) and/or by partnering with non-profit organizations. Caution was vocalized about how and when for-profit organizations might be able to access the site out of concern for equitable access. To support these kinds of initiatives, potable water, washrooms, first aid amenities, electricity, ability to secure bicycles, and a sheltered gathering/programming space were seen as important.
2. **Priority Visitor Impact and Management Issues:** Potential for litter, vandalism, drug/alcohol, noise, garbage, unauthorized trail building, theft, and overcrowding were concerns vocalized. Establishing and upholding a "stewardship" culture to help establish and maintain a high bar for responsible use was seen as being very important (e.g. the norms of park users should help others to use it responsibly). Appropriate engineering and infrastructure such as lighting, waste receptacles, clear signage, and locked access were seen as priority management approaches, followed by security efforts including patrols and electronic monitoring.
3. **Risk and Liability Issues:** Injuries are likely to occur. It is important to use good design, clearly state the risks and limits of liability with good signage, incorporate good sightlines, and to adopt industry best practices. The park must be well-maintained, be regularly inspected, have a means to report and respond to issues, and easily accommodate emergency responders. The District should also obtain qualified legal advice on its liabilities. Potential for wildfire should also be considered.
4. **Operations, Maintenance, and Programming:** Most respondents saw active roles for the non-profit sector and volunteers but felt that core operations should fall within the scope of the District (like other recreation facilities) to ensure continuity of service. Some duties, like garbage and washroom upkeep, should fit well with general District operations, but is important to ensure that people knowledgeable in MTB trails are providing oversight/guidance to inspections and maintenance. This could occur with improved training of staff or contracted services and be augmented with volunteers. Programming was very much seen as an opportunity to involve other organizations.
5. **Specific Roles:** Lake Country Riders was seen as having an active and core partnership role in the operations, maintenance, and some programming at the park. Accessibility organizations, like Elevation Outdoors, were seen as important partners for some camps and clinics. Other organizations could help with promotion and messaging. The Indigenous Youth Mountain Bike Program was also identified as an organization with potential for strong involvement.
6. **Training, Capacity, and Support:** All involved with maintenance (including volunteers) should have access to appropriate levels of training commensurate with their responsibilities (e.g. techniques, procedures). A regularly offered orientation to the park should also be offered to new users, as well as clinics/camps for skill progression.
7. **Other Thoughts & Suggestions:** Participants emphasized the need for the park to blend with the surrounding natural environment (including some rehabilitation to the parking area), to be well-connected from a cycling perspective to other parks in the District, and to ensure that Indigenous interpretive signage is incorporated into the site.



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