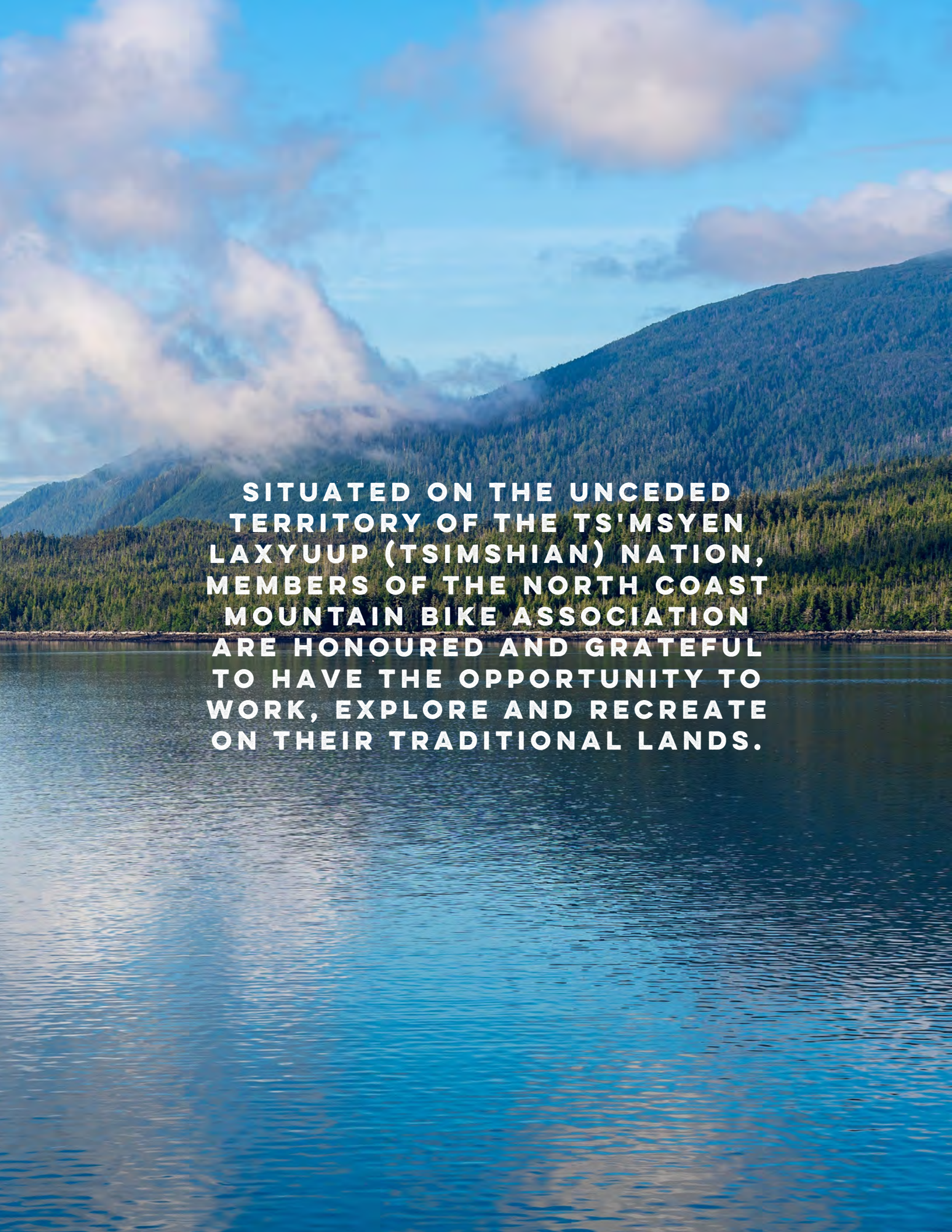


A photograph of a gravel trail winding through a dense forest. The trail is made of dark grey gravel and is flanked by lush green ferns and other forest plants. Tall, thin trees line the path, creating a canopy overhead. The lighting is soft, suggesting a slightly overcast day.

MASTER TRAILS PLAN
NORTH COAST MOUNTAIN BIKE
ASSOCIATION





**SITUATED ON THE UNCEDED
TERRITORY OF THE TS'MSYEN
LAXYUUP (TSIMSHIAN) NATION,
MEMBERS OF THE NORTH COAST
MOUNTAIN BIKE ASSOCIATION
ARE HONOURED AND GRATEFUL
TO HAVE THE OPPORTUNITY TO
WORK, EXPLORE AND RECREATE
ON THEIR TRADITIONAL LANDS.**



The North Coast Mountain Bike Association would like to recognize the support of the following project supporters:



Supported by the Province of British Columbia through the Rural Economic Diversification and Infrastructure Program



Alta Gas



Northern Savings
Credit Union



Prince Rupert Regional
Community Fund



OzCan
Plumbing Ltd.



Rotary Club of
Prince Rupert



Prince Rupert
Lions Club

CONTENTS

Acknowledgement

Executive summary

1.	Methodology	2
2.	Key Findings	3
2.1	Background Review	3
2.2	Engagement	4
2.3	Professional Observations	4
3.	Trail Development Recommendations & Phasing	6
3.1	Trail Development Zones	6
3.2	Implementation Recommendations	15
3.3	Phasing	18
4.	Trail Management and Maintenance	19
4.1	Trail Maintenance	19
4.2	Asset Management Plan	20
4.3	Risk Management	21
4.4	Statistics and Growth	21
4.5	Commercial Use	22
4.6	Organizational Structure and Public Funding	23
4.7	Fundraising	23
5.	Destination Marketing	24
5.1	Regional Context	24
5.2	Riding in Prince Rupert	24
5.3	Tourism Opportunities for Mountain Biking in Prince Rupert	24

Appendix A Signage Typology

EXECUTIVE SUMMARY

Established in 2019 the North Coast Mountain Bike Association (NCMBA) advocates for responsible cycling access in the Prince Rupert Area. In 2025 the NCMBA received funding to develop a Master Trails Plan that will help the organization prioritize trail development based on community desires, feasible terrain, and government support. This Master Trails Plan will kick off the NCMBA's trail development initiatives, clarifying direction and galvanizing action.

The primary outcome of this Master Trail Plan is to identify areas in and around Prince Rupert that are suitable for developing mountain bike trails. Other critical outcomes include identifying and prioritizing mountain bike infrastructure needs and wants of the community, phasing the development plan, and designing and cost estimating for a first project.

Based on the community parameters, a number of potential sites were identified for development:

- 1. Westview School and Moresby Park** Conveniently located at an old school in the City of Prince Rupert, and surrounded by steep slopes that reduce the likeliness of residential or industrial development, this area is already used for informal mountain bike trail development.
- 2. Wantage Road** Currently the location of some more advanced mountain bike trails this area has moderate slopes and the historic use of an alpine ski area, while still being proximal to the residential community.
- 3. Tall Trees** This hiking trail ascends Mt. Hayes from the north and has seen improvements in the past decade to make it more sustainable. It also connects with the proposed Cloudberry Trail. A small network is possible in this area and could be expanded to include more advanced trails in the future.
- 4. Diana Lake** An existing, popular recreational area for Prince Rupert residents, this provides an opportunity for additional recreation in an established area.

What the community wants



A network of 10 km within 10 minutes of town.



Beginner and intermediate level trails



Cross-country style mountain bike trails



Other amenities, including: an asphalt pump track, natural area skills park, dirt jumps and gravel trails.

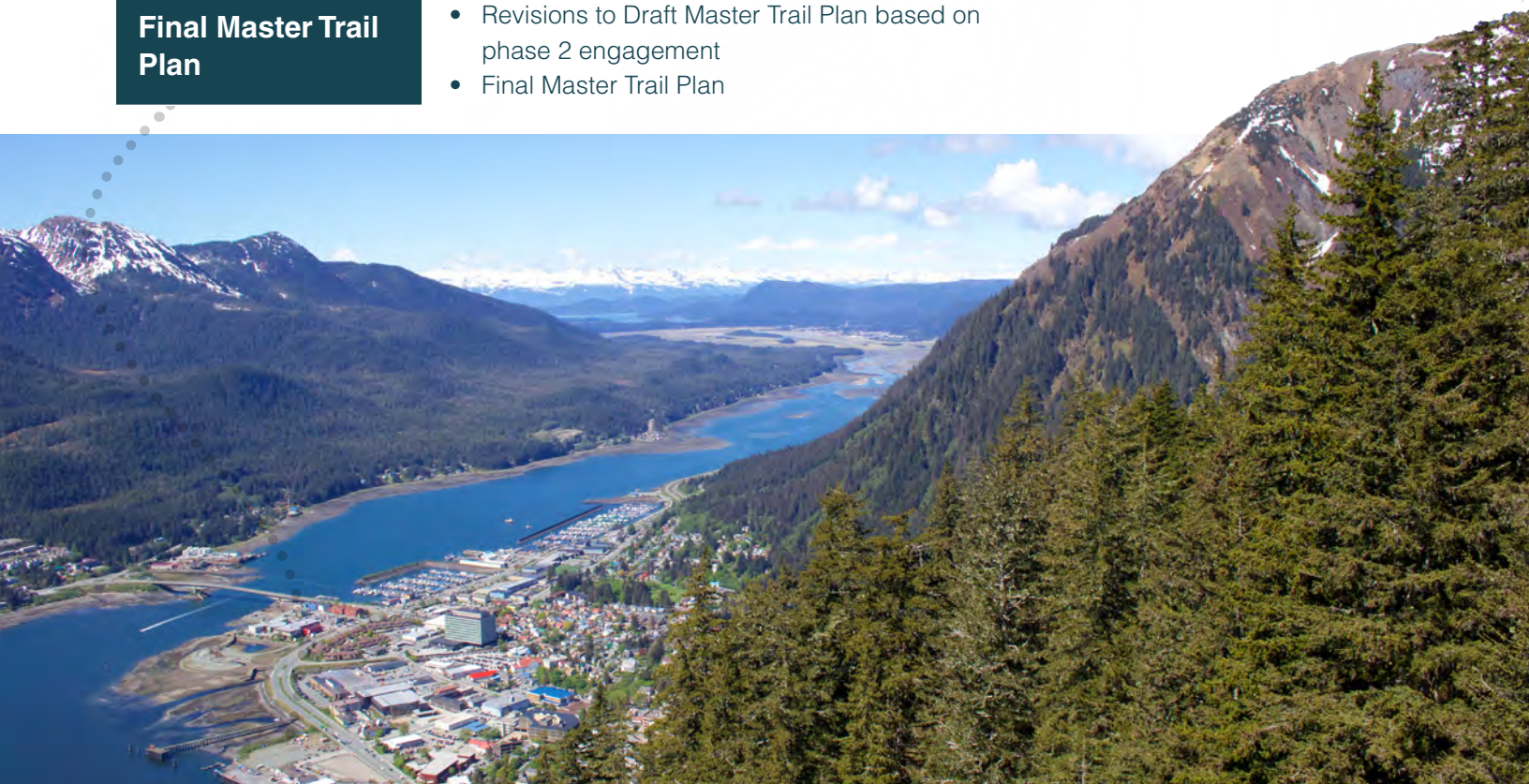
While none of these areas can easily sustain 10-20 km of trail, they can provide a small network that is close to residents for easy use, maintenance and development of the riding community.



1. METHODOLOGY

Master Trail Plans are built on a solid foundation of community and interest holder insights, background plans and supporting studies, and observations by trail professionals. The development of NCMBA's Master Trail Plan followed the following steps

Background Review	• Compilation of background documents • Review and summary of documents with key findings • Supplementary Report: Background Review
Engagement (Phase 1)	• Development of detailed Engagement Plan • Community survey • Targeted interest holder interviews • Supplementary Report: What we Heard Report
Professional Observations	• Desktop compilation and review of geophysical and spatial data • Review of community insights • Three site visits to investigate high potential areas • Supplementary Report: Assessment Report
Draft Master Trail Plan	• Compilation of findings from foundational reports / supplementary reports • Drafting and revisions of Master Trail Plan • Review of Master Trail Plan with NCMBA and one round of revisions
Engagement (Phase 2)	• Targeted interest holder interviews for feedback on Draft Master Trail Plan • Summary of findings
Final Master Trail Plan	• Revisions to Draft Master Trail Plan based on phase 2 engagement • Final Master Trail Plan



2. KEY FINDINGS

2.1 Background Review

The Background Review (Supplementary Report) summarizes the findings from seventeen guiding documents in the Prince Rupert area. Points of note include:

- Mountain biking in Northwestern BC is called out as an area of development and priority in various management plans and tourism and destination development strategies.
- Prince Rupert is identified as an area in which year-round tourism development is an opportunity, due to the temperate climate.
- Kaien Island Trail Enhancement and Recreation Society (KITEARS) has a trail network master plan that focuses on multi-use and active transportation routes. KITEARS was formed to support the City of Prince Rupert with trail development and recreation enhancement. NCMB and KITEARS have a positive and collaborative relationships with aligned goals.
- The City of Prince Rupert (CoPR) is supportive of trail and recreation development but is not allocating funding to support community led initiatives. Trails and recreation are highlighted as important for quality of life of residents through the strategic plans, parks and recreation plan, transportation plan, the vision document and the Official Community Plan. All trails on CoPR land must be approved by the CoPR. There is an informal application process for trail development and requests are reviewed on a case-by-case basis. The CoPR is not allocating funds for trail development, planning, design or maintenance.
- The existing “Red Light District” trail network was assessed by McElhanney in 2022 for Recreation Sites and Trails BC. The area was deemed “feasible” for trail development



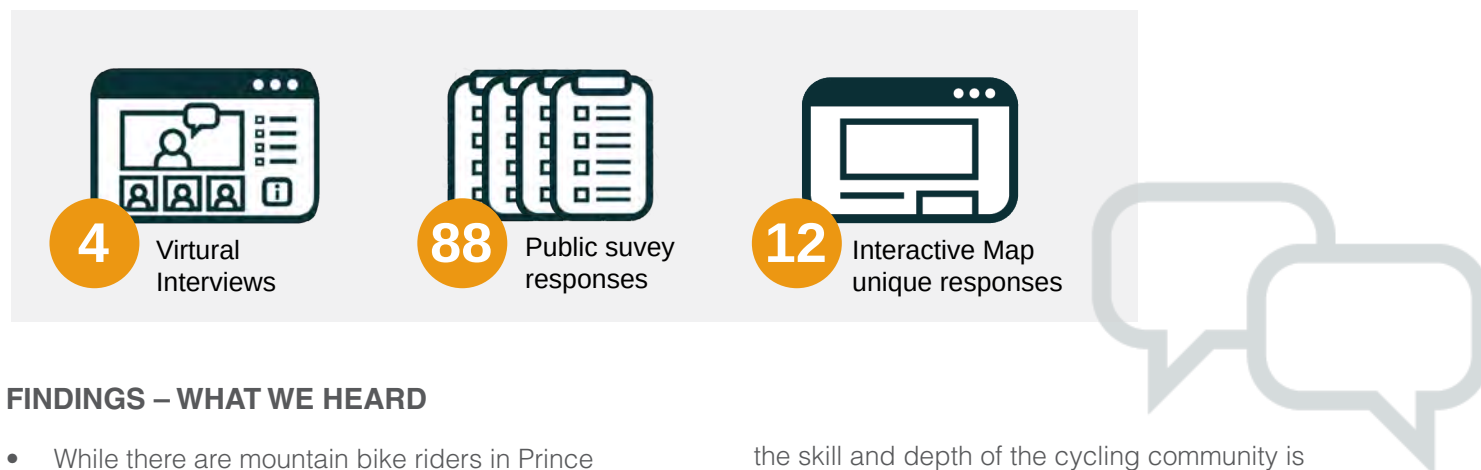
but also highlighted as challenging and expensive construction and maintenance conditions due to the climate and ground conditions. The existing trails do not meet the Whistler or IMBA standards for trail difficulty/design so adjustments and improvements will be necessary for liability reasons. Recreation Sites and Trails BC is the approving authority for this area of crown land.

- First nations play a significant role in land management on the North Coast and the importance of working in harmony with First Nations is highlighted throughout the background documents. NCMB has a letter of support and evidence of consultation and relationship building with the Metlakatla. Archaeology information, including culturally sensitive areas have been identified for many areas on Kaien Island.
- Diana Lake Provincial Park has a dated Management Direction Statement (2000) that prohibits off-road mechanical use. However, recreational trail use and development is not included in the management direction at all. Most of the Park is zoned “Natural Environment” which can allow for both motorized and non-motorized recreation. The Park is identified as a primary recreation area for local residents.

2.2 Engagement

Results of the engagement activities are detailed in a What we Heard Report (Supplementary Report). The report was shared with the NCMBA for review and comment prior to development of this Master Trails Plan. Key findings from the first phase of engagement are highlighted below.

ENGAGEMENT SNAPSHOT



FINDINGS – WHAT WE HEARD

- While there are mountain bike riders in Prince Rupert, few ride their bikes in or near Prince Rupert, most travelling to locations within 2 hours of Prince Rupert. Contrarily, those who are not mountain bikers primarily recreate on trails in or near Prince Rupert.
- Most of the mountain bikers surveyed self-identify as being of an intermediate or advanced skill level and preferring enduro-style riding. However, the majority of survey responses suggest that cross country or road/gravel trails of a beginner or intermediate level of difficulty are most important to develop. This shows that the opportunity to grow the skill and depth of the cycling community is important.
- Survey participants are hoping for 10-20 km of trails to be developed in or near Prince Rupert. Most would drive 10-20 minutes to ride easy trails, or 30-45 minutes for intermediate trails. More advanced trails allow for a longer drive time. Survey participants indicated they'd drive up to 20 minutes a couple times a week to ride purpose-built mountain bike trails.
- Other cycling amenities that scored high importance include an asphalt pump track, natural area skills park, dirt jumps and gravel trails.

2.3 Professional Observations

The Assessment Report (Supplementary Report) summarizes the findings from technical desktop and field review of thirteen potential trail development zones in and around the Prince Rupert area. The potential trail development zones were identified through the public engagement, input from NCMBA, and/or areas of existing trails or roads. Points of note include:

- Prince Rupert has one of the wettest climates in western Canada with over 2600 mm of rain per year and 236 days per year with measurable precipitation.
- Soils in the area are generally poor and unfavorable for natural-surfaced trail construction. Typical conditions include thick organic veneer overlying shallow bedrock. Isolated areas of glaciomarine and/or colluvium soils are noted on surficial geology maps, but are not widespread enough to be shown at the map scale.



- The field review generally confirmed the desktop climate and surficial geology review. Ground conditions in most areas reviewed were considered not feasible to marginal for mountain bike trail development.
- Most existing trails and other built trail infrastructure observed during the field review was in poor to completely failed condition. Examples included washouts, damaged boardwalks and bridges, failed culverts or other drainage

infrastructure, impassable trail tread due to deep organics, mucking, cupping, and steep grades.

- Existing trails in the region that were in fair condition included Tall Trees and Butze Rapids trails. As examples for the types of design and construction that may work in the area, fair-condition sections of these trails both were aligned on mellow slopes (<20% grade), used raised tread construction with imported materials, had maximum trail grade of 10%, had minimal watercourse crossings, and minimal built infrastructure.
- The top areas identified as marginally feasible to feasible for mountain bike trail development included Moreseby School, lower slopes of Tall Trees trail, toe of Mt. Hays slope along Wantage Road, Red Light District, and Diana Lake Provincial Park. Refer to maps in the Field Assessment Report for specific locations of each zone.
- Areas considered feasible are likely to be extremely expensive and difficult to design and construct by traditional methods for mountain bike trails due to extensive rock cut/removal, drainage, crossing structures, and imported materials required. Because of this, the trail types and experiences that are likely to be feasible to create are unlikely to meet expectations of users when compared to other nearby and well-known mountain bike trail networks. The types of trail suitable for these areas are likely to be low-vertical relief, short, and rolling. The trail tread will be smooth due to imported materials, so frequent imported-material technical trail features (TTFs) to add challenge.
- Areas not considered feasible for mountain bike trail development included Mount Hayes, Seal Cove/Shwatlans Road, Butze Rapids, Oliver Lake, Kinsmen Trail area, Skip Mountain, Work Channel (Lachmac FSR), and Arrowhead Lakes. Refer to maps in the Assessment Report for specific locations of each zone.

3. TRAIL DEVELOPMENT RECOMMENDATIONS & PHASING

3.1 Trail Development Zones

The trail development recommendations for NCMBBA focus on providing a conceptual design and roadmap for development in each of the trail development zones identified as technically feasible. The concept designs in this report are very broad and based on a rapid field assessment to consider feasible locations.

3.1.1 Westview School / Moresby Park

Westview School / Moresby Park is considered the most technically and administratively feasible area for trail development that would most closely meet the public's desires as identified through engagement. This area currently has formalized multi-use trails managed by the City of Prince Rupert and several informally developed short mountain bike trails. Due to its positive terrain and drainage attributes and its location within a residential area, it provides the best opportunity of the available zones to develop a progressive, natural-surface mountain bike trail network.

Primary Land Manager	City of Prince Rupert
Key Stakeholders	First Nations, School District 52
Staging Area and Access	Existing parking lots for closed school can be converted to trail staging area. Other access points are available from existing City trails in the area and adjacent roads. Minimal investment in staging areas and access required for this zone.
Network Description and Experience	This zone is conceptually designed around a small knoll with relatively dry conditions and visible mineral soil to use for natural surface trails. It builds upon the existing informal trails in the area and takes advantage of existing access points and infrastructure. The proposed network would include short technical-flow and/or flow trails most closely resembling natural surface mountain bike trails in other parts of northwestern BC. Though short, users would be able to complete multiple laps and/or connect with the existing multi-use trails in the area to extend ride time. The resulting user experience would be a very small progressive network where users could practice and develop technical skills required to visit other trail networks throughout the province. It would be particularly geared towards youth riders due to the easy access in a residential area.
Trails	1 x green climb, 3 x short downhill specific trails (green, blue, black), 1 x full length blue. Downhill trails are located on small knoll that appears to be suitable for natural surfaced trails with some to minimal imported materials required which will be optimal for technical trails compared to other development zones. Climb trail and full-length blue will require raised tread and imported material construction.
Order of Magnitude Cost Estimate	\$625,000 for 2.5 km of new trail and 2 km of upgraded existing trail.
Map Reference	Westview School / Moresby Park



North Coast Mountain Bike Association

Westview School / Moresby Park Trail Concept



Trailhead

Legend

Roadway	
Existing Trail	
Access Road	
Zone Boundary	
Viewpoint	

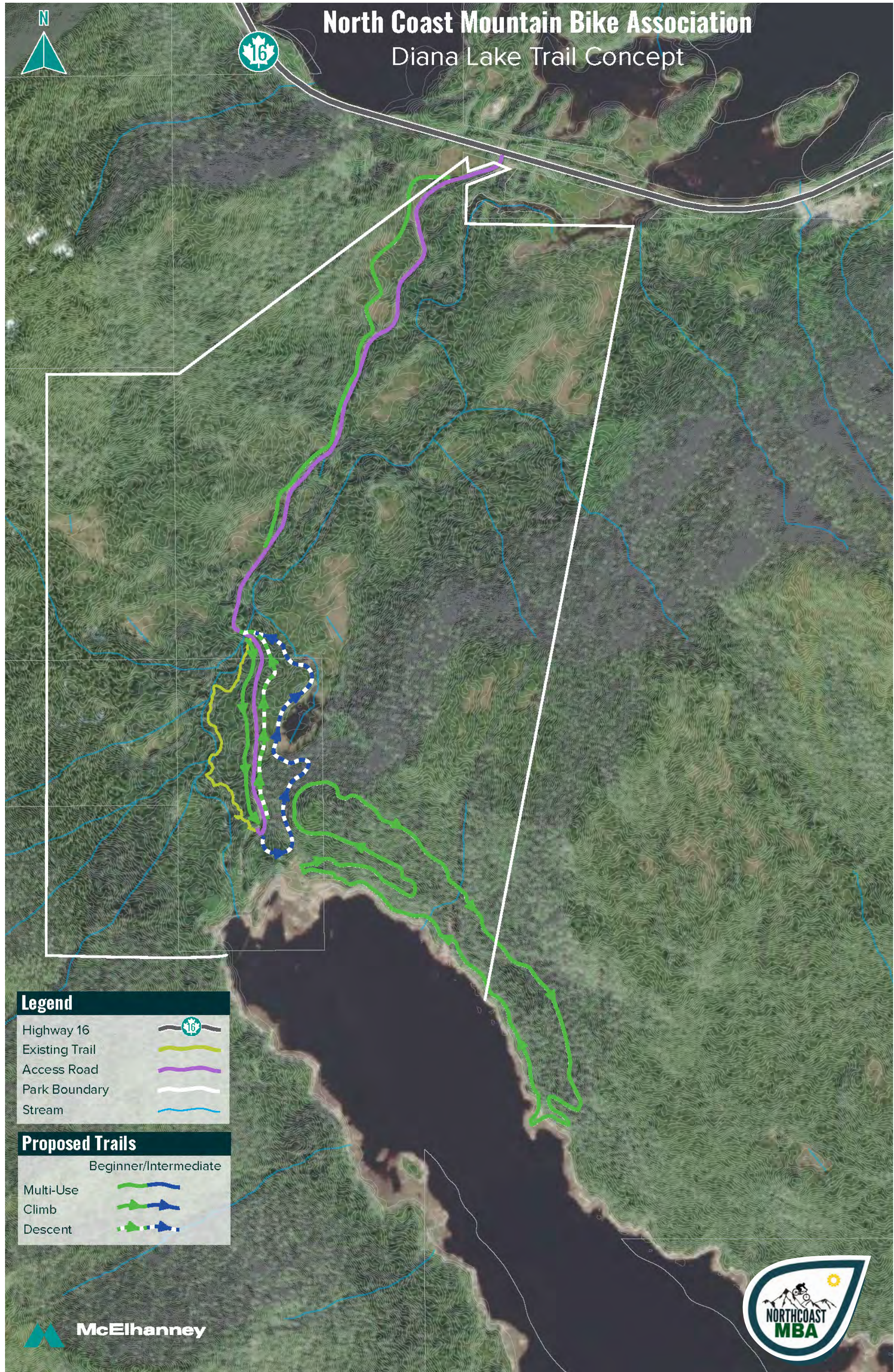
Proposed Trails

Beginner/Intermediate/Advanced	
Multi-Use	
Climb	
Descent	

3.1.2 Diana Lake

Diana Lake Provincial Park has small areas of terrain favourable for mountain bike trail development. The land manager (BC Parks) has indicated it is open to exploring the potential for trails in the park, and the terrain in the area is suitable for raised-tread trails with imported materials. The main attraction of this site is the potential uninterrupted length of trail that could be constructed in the area relative to other the other zones. It also leverages the existing recreational use of the park and existing infrastructure for staging, access, and trailheads.

Primary Land Manager	BC Parks and Recreation Sites and Trails BC
Key Stakeholders	First Nations, City of Prince Rupert
Staging Area and Access	The existing park has adequate road access, parking, washrooms, and amenities to support the addition of the trail network. No further investment required beyond updated signage and trailhead information. The park is open from June 1 - September 15, annually. Additional off-highway parking near the access gate may be required to support off-season use of trails.
Network Description and Experience	The proposed network layout at Diana Lake makes use of the technically feasible terrain features and natural beauty of the lake to create the longest trail experiences proposed in this plan. The main trails are centered around the existing day use area of the park and include 2 downhill specific trails with a climb and a loop to a viewpoint on the lake. The resulting trail experience will provide primarily smooth, imported surface trails with views of Diana Lake and downstream wetlands. Though these trails may not meet the needs of more advanced riders, they will fit within the context and purpose of the Park and will be supplemented by other trails and existing park amenities. The park is open from June 1 - September 15, annually. Additional off-highway parking near the access gate may be required to support off-season use of trails. (hiking, waterfall viewing, picnic sites, day use shelter, and swimming).
Trails	1 x multi-use trail parallel the road to increase non-motorized connectivity between Highway 16 Green and blue flow (primarily imported gravel) downhill trails with climb trails parallel upper road. Green directional loop on lower slopes and lakeshore to viewpoint.
Order of Magnitude Cost Estimate	\$700,000 to \$2,000,000 for 7 to 10 km new trail construction.
Map Reference	Diana Lake



N



North Coast Mountain Bike Association

Diana Lake Trail Concept

Legend

- Highway 16 
- Existing Trail 
- Access Road 
- Park Boundary 
- Stream 

Proposed Trails

Beginner/Intermediate

- Multi-Use 
- Climb 
- Descent 

3.1.3 Tall Trees

The terrain around the lower slopes of the existing Tall Trees trail was identified as feasible for further trail development. The conceptual network for this area leverages the existing trail with improvements and upgrades for uphill mountain bike traffic and then adds several downhill options. This will be a small network, but in combination with one or more of the other trail development zones will supplement the overall trail experiences available in Prince Rupert.

Primary Land Manager	Recreation Sites and Trails BC
Key Stakeholders	First Nations, City of Prince Rupert, Private Landowners (cell tower)
Staging Area and Access	The existing staging area at Tall Trees trail is current undersized for current use. Expansion would be required to facilitate further trail development at this location.
Network Description and Experience	The lower section of Tall Trees trail accesses suitable terrain for additional trails of similar construction methodology. Based on this, a small network of downhill primary mountain bike trails is proposed utilizing the existing Tall Trees Trail as a multi-use route for 2-way pedestrian use and uphill only mountain biking. By leveraging this existing infrastructure, there is additional space on suitable terrain for downhill focused trails. The resulting trail experience will provide primarily smooth, imported surface trails with through beautiful coastal forest. With future connectivity to the proposed Cloudberry trail, this network will fit within the overall recreation objectives for the region and may provide future opportunities for further expansion of more challenging trails further up the eastern slopes of Mount Hays.
Trails	Upgrade and convert existing Tall Trees to a multi-use trail for 2-way pedestrian and uphill only mountain bike use. This includes re-alignment of the first 500 m of the trail to reduce the grades to 5-7% average. Three new downhill mountain bike trails, primarily constructed with imported materials. Two of the trails are full length (green and blue), and a shorter black option is proposed from the blue trail. These trails could be detailed designed as flow trails or technical trails with imported TTFs to add challenge – this decision should be made in the context of which other zones are developed concurrently or prior to this zone.
Order of Magnitude Cost Estimate	\$300,000 - \$800,000 for up to 4 km of new construction and 500m of existing trail upgrades. \$100,000 - \$250,000 for staging area development.
Map Reference	Tall Trees



North Coast Mountain Bike Association

Tall Trees Trail Concept

Legend

Highway 16	
Existing Trail	
Access Road	
Convert to Multi-Use	
Future Cloudberry Trail	
Decommission Trail	

Proposed Trails

	Beginner/Intermediate/Advanced
Multi-Use	
Climb	
Descent	

Convert existing Tall Trees trail to beginner multi-use (MTB uphill use only)

Re-route start of existing trail to 5-7% grade

Primary Staging Area



3.1.4 Wantage Road

A portion of the toe of the north-facing slope of Mount Hays along Wantage Road was identified as favourable for mountain bike trail development. The extents of the area proposed for use are between Hays Creek to the west and the hatchery to the east. This zone is conveniently located within riding or short driving distance from most residential areas of Prince Rupert. Combined with the favourable terrain and forest type and the existing mountain bike trail in the area, this zone is recommended as a high priority for trail development.

Primary Land Manager	City of Prince Rupert
Key Stakeholders	First Nations, Wantage Road industrial users
Staging Area and Access	There is a small existing staging area near the hatchery that is inadequate for further trail development in the area; however, this can remain in use as a secondary staging area for this zone. A new staging area is recommended at the existing cleared and relatively flat area near the base of the old Mount Hays ski lift. Works to improve the staging area include clearing, grading, surface hardening with new gravel, delineation, and installation of trailhead amenities. This zone is also relatively accessible from town and existing and planned active transportation within the City, thus making it another ideal location to meet the needs of the community.
Network Description and Experience	The terrain on the lower north-facing slope of Mount Hays generally appears suitable for mountain bike trail development. Approximately 50 to 100 m vertical elevation is available across the site on terrain suitable for trail development. This network has been conceptually designed to take advantage of the available terrain and vertical drop available. The east side of the site will provide 2 downhill trails that are likely to be the longest and best user experience out of those proposed in this plan. The west side of the site will provide rolling loops with options for blue and green riders with a more cross-country style of riding.
Trails	East end: Upgrade and maintain existing Six Souls trail (black DH). Add a dedicated blue climb trail to access Six Souls and a new blue DH. Central: A 2-way green trail is proposed to connect the east and west ends of the site on the limited available terrain. Future design work should focus on determining if two trails are possible here to avoid 2-way traffic. If so, the trails should be designed directionally to provide an optimized experience in each direction. West end: One new green XC loop with a blue XC trail bisecting the loop. This area should use available terrain and elevation as much as possible to extend ride time, provide technical challenge, and potentially create a loop long enough for cross-country Olympic style racing. Alternatively, a portion of the west end could be used for a mountain bike skills park, if desired. The slopes are relatively mellow with flatter areas available and smaller deciduous trees, which would be ideal for jump lines and TTFs.
Order of Magnitude Cost Estimate	\$450,000 to \$950,000 for up to 6 km of new trail construction and 500m of upgrades to existing trails. \$100,000 to \$250,000 for staging area development.
Map Reference	Wantage Road



North Coast Mountain Bike Association

Wantage Road Trail Concept

Secondary
Staging Area



"Six Souls"
MTB Trail

Legend

Roadway	
Existing Trail	
Access Road	
Stream	

Proposed Trails

Beginner/Intermediate/Advanced	
2-Way	
Climb	
Descent	

Primary Staging
Area

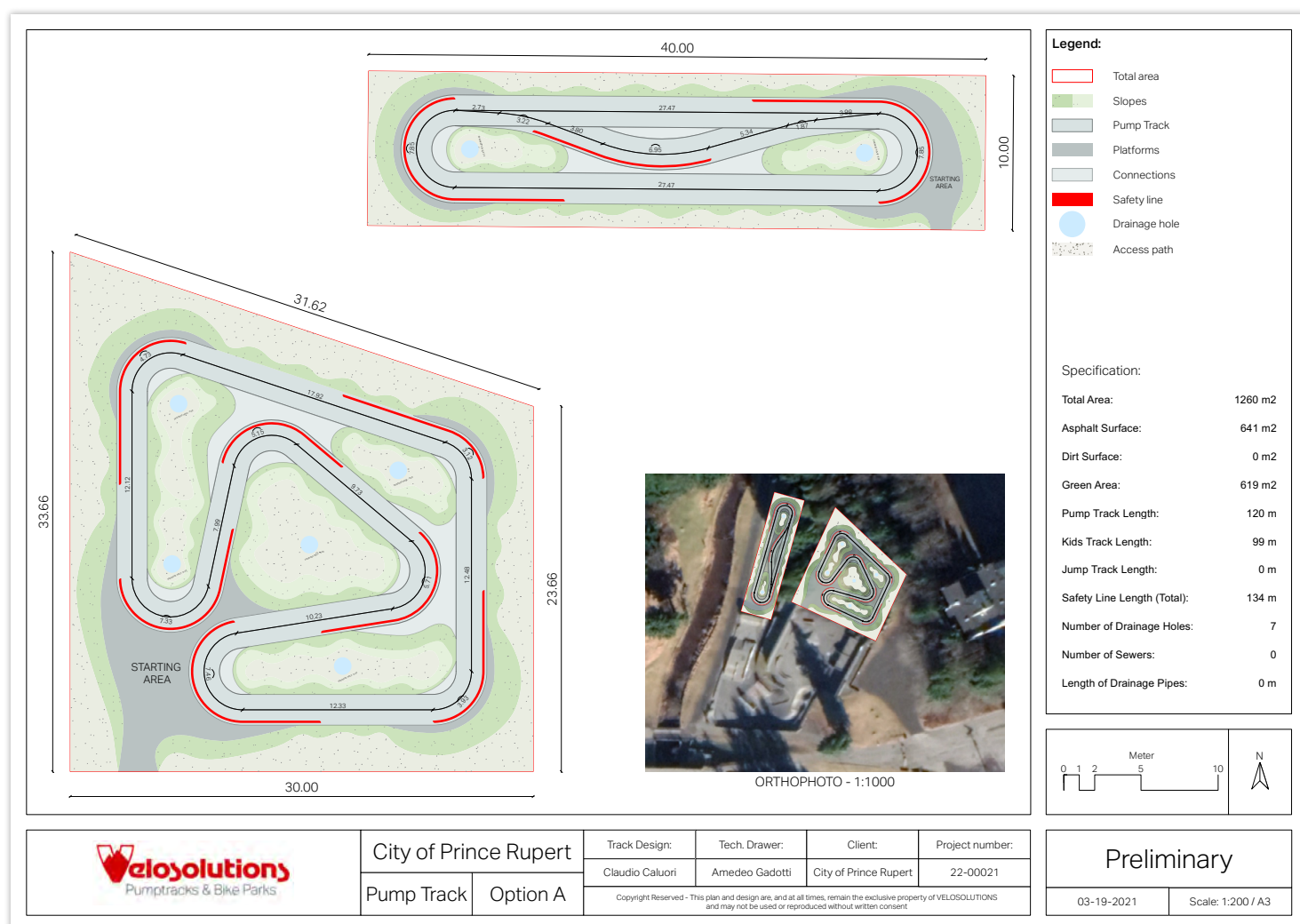


3.1.5 Pump Track

NCMBA has been conducting planning, preliminary design, and fundraising for an asphalt pump track located in McClymont Park for several years. The project has been supported by the City of Prince Rupert and Velo Solutions has completed conceptual design of a small track.

Given the wet climate and difficult construction conditions on most mountainous areas around Prince Rupert, an asphalt pump track in an urban park setting is considered a high priority piece of cycling infrastructure for the community. It is likely that the track would be able to be used nearly year-round due to the typically above freezing weather. Compared naturally or imported surface trails, the asphalt track would be usable in wet conditions and would require significantly less maintenance.

The NCMBA has received a quote a builder that the development will cost approximately \$350,000. Fundraising is ongoing but nearing completion.



3.2 Implementation Recommendations

3.2.1 Trail Development Process

Prior to construction, each phase will need to complete the typical steps of the trail project lifecycle. Following review and approval of this plan by stakeholders, each zone would then be ready for further design and assessment. This involves:

Preliminary Design – Preliminary design should be performed by a trail professional who is experienced with the guidelines and standards in this report as well as the local conditions in the Prince Rupert area. This work should include further ground truthing and refinement of trail alignments, field mapping of alignments, development of Trail Management Objectives (TMO) and Design Briefs for each trail based on site-specific condition, and rough grade flag marking of alignments.

Assessment / Permitting & Approvals – proposed zones and trail alignments should formally be submitted to Land Managers and stakeholders following preliminary design. Further assessments of alignments and areas may be required to address environmental, archaeological, and social concerns for each trail or network. Specific assessment requirements are typically determined by the Land Manager during permitting/approvals process. Qualified professionals should be retained in each discipline required.

Detailed Design - Detailed design should be performed by a trail professional who is experienced with the guidelines and standards referenced in this report. This could be a trail design consultant through a design-bid-build project execution model or by a professional trail building contractor through a design-build process (see Section 4.4 for more details). As with any other piece of civic infrastructure, careful planning and monitoring is required for successful construction. The detailed design and construction for each phase should include the following:

- Grade and/or pin flag layout of each trail and finalization of trail-specific TMOs;
- Signage plan;
- Construction planning, permits, and approvals;
- Procurement documentations;
- Construction management and reviews; and,
- As-built mapping and project closeout.



3.2.2 Relevant Standards and Guidelines

The proposed development zones generally occur on land managed by the City of Prince Rupert or the provincial government (Recreation Sites and Trails BC or BC Parks). The City of Prince Rupert does not have standards and/or guidelines for trail development applicable to mountain biking. In lieu of jurisdiction-specific standards and guidelines, industry best practice documents commonly used by most jurisdictions in British Columbia, including Crown Land areas managed by Recreation Sites and Trails BC (RSTBC) are recommended. To align all three of the main land managers in this plan, the documents for mountain bike trail planning, design, construction, and operations/maintenance recommended are:

- Whistler Trail Standards (2001);
- International Mountain Bike Association (IMBA) Trail Solutions (2004);
- Chapter 10 of RSTBC Recreation Manual; and,
- RSTBC Schedule F Operational Standards – Mountain Bike Trails (typically included with Partnership Agreements).

Although not yet completed or in use at time of this report, McElhanney is aware that RSTBC was in process of updating trail difficulty rating standards, trail management policies, and signage standards during completion of this project. It is likely that this change in standards does not materially change the recommendations of this report; however, the difficulty rating of some specific trails and/or features may need to be revised based on the new standards if and when they come into force for RSTBC partnership agreements.

3.2.3 Staging Areas

Staging areas are the main access and parking areas for each network and are critical to user management and experience. All of these trails areas are up to 5 km from residential areas in Prince Rupert, therefore it is expected that even local trail users may prefer to drive to the trailhead. Use of existing staging areas and proposed new areas have been provided for each trail development zone in this plan. Detailed planning and design are required as the next step as each site is developed.

Detailed design of the staging area lot should consider inclusion of amenities such as:

- Parking;
- Washrooms or pit toilet;
- Gateway signage or information kiosk;
- Tool storage area for trail maintenance (seacan, shed, etc.).



3.2.4 Signage

Signage is a critical component of risk management and user experience for the proposed trail network. During detailed design of the proposed trail networks, a comprehensive signage plan must be included that addresses wayfinding and experiential needs for users as well as risk management measures for NCMBA and its land management partners. Signage typology is included in Appendix B.

Signage standards for graphic design and specific content typically vary by jurisdiction. The recommendations provided in Table 4 align with typical risk management and best practices of the industry for public access trails in British Columbia. For the specific case of this project, the City of Prince Rupert does not have specific mountain bike trail signage, and it is likely the private landowners also do not have adequate guidelines. Recreation Sites and Trails and BC Parks have standards for wayfinding signage, but not other types specific to mountain biking. In lieu of these jurisdiction specific standards, it is recommended that NCMBA and its land manager partners consider the recommendations of this report and adopt a style, symbology, and risk management content from a publicly available system such as Recreation Sites and Trails BC standards or typical signage used by Canadian



bike parks and ski resorts which is available from www.inter-mtn.com.project, the City of Prince Rupert does not have specific mountain bike trail signage, and it is likely the private landowners also do not have adequate guidelines. Recreation Sites and Trails and BC Parks have standards for wayfinding signage, but not other types specific to mountain biking. In lieu of these jurisdiction specific standards, it is recommended that NCMBA and its land manager partners consider the recommendations of this report and adopt a style, symbology, and risk management content from a publicly available system such as Recreation Sites and Trails BC standards or typical signage used by Canadian bike parks and ski resorts which is available from www.inter-mtn.com.

3.2.5 Project Execution Models

Recreation 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 recreation 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. Additionally design-bid-build is more effective where the proponent (NCMBA) requires professional input to complete design and/or detailed studies ahead of procurement. In a design-build situation, both design and construction are

completed by the same entity or partnership. This approach is suitable for complex or speciality work which requires creative solutions, such as designing high-level trails, bike parks, or pump tracks. This method allows owners to procure a specialty contractor to provide unique and creative solutions following an overarching plan. However, it typically requires project permits/approvals to be in place prior to procurement and requires additional effort for the Owner to manage the project.

For this project, it is recommended that NCMBBA evaluate the most effective approach for each individual project it executes. In general, if project approvals are in place prior to procurement, then design-build procurement of a professional trail building contractor will likely be the most efficient execution model. This may further help with pricing and construction methodology due to the extremely difficult terrain of the project area. However, where detailed design (pin flagging) is required for land manager approvals, environmental or archeology studies, it is likely that a design-bid-build process using a trail design specialist and a separate professional trail building contractor to execute may also be effective. Furthermore, individual engineered components of the project staging areas) would be most appropriate to complete via design-bid-build.

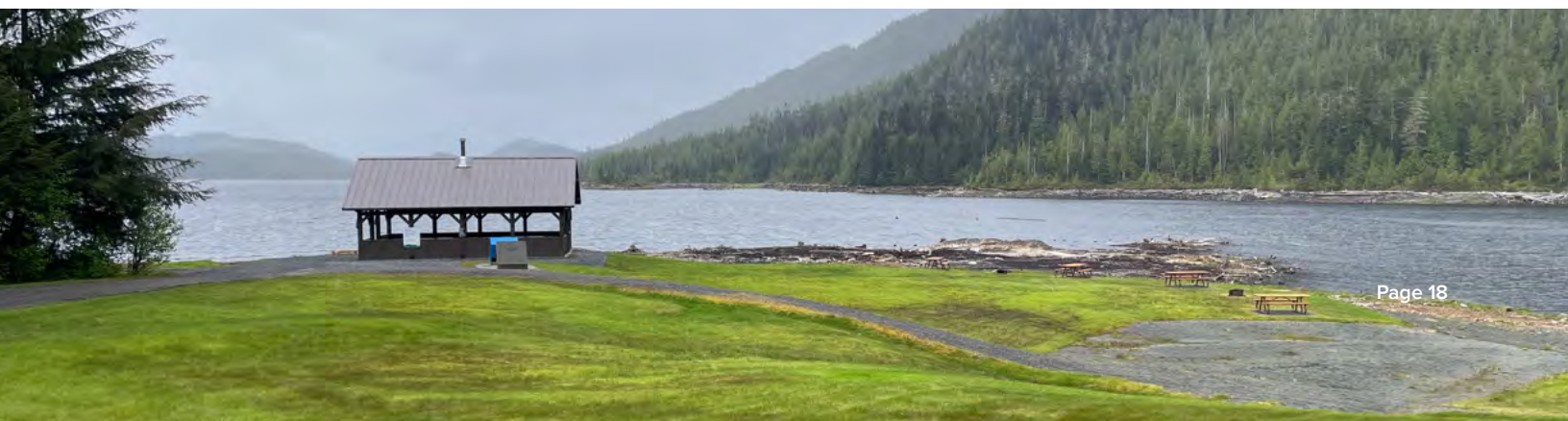
3.3 Phasing

While there are many factors that may influence the sequence in which the trail zones are developed in Prince Rupert, the ideal order of development is:

1. **Pump Track** - fundraising for the asphalt pump track is already well underway and the community is both excited and anticipating the addition. The pump track will provide an extra amenity to support trail use and the riding community as the trails are developed.
2. **Westview School / Moresby Park** – this location is ideal for community riding. Located in town it will be more accessible by more riders. While the network is not extensive it will be easier to develop and maintain.
3. **Wantage Road** – similar to Westview, this location's proximity to the population makes it more likely to see higher use and more frequent maintenance.
4. **Tall Trees** – slightly more removed from the population base, Tall Trees is rated third priority for development. It will be an important future area of development as there is more available terrain for advanced trails as this plan eventually needs to be refreshed and expanded.
5. **Diana Lake** – is a very desirable location but approval for trail development through BC Parks is likely to be a longer process so this project will be pursued administratively until an opportunity for development arises. The NCMBBA is committed to working in partnership with BC Parks to establish a small network at Diana Lake.

Further Development

The trail development concepts outlined in this plan focused on the community stated desires for trails that are near to the population core and geared toward developing a mountain biking culture in Prince Rupert. As the community develops the skill, capacity and ridership, more trail development will become necessary, including more advanced trails. Future Master Trail Plans, refreshments of this Plan, or ad hoc trail development, may use the Assessment Report (Supplementary Report) to support future objectives and trail development.



4. TRAIL MANAGEMENT AND MAINTENANCE

4.1 Trail Maintenance

Trail maintenance is an important part of any trail network. Trail maintenance activities within a mountain bike trail network include removal of fallen or hazard trees, tread maintenance and addressing erosion or other water issues. Infrastructure on trails, including culverts, rock armoured features and bridges or technical trail features require additional maintenance and inspections.

A simple trail maintenance policy should be developed as part of a formal agreement for trail management between the NCMBA and the applicable landowners. This policy should include things like:

- Inspection frequency (recommend once per year in the spring)
- Maintenance frequency (recommend “as needed” within a month following inspection or reported hazards on trail, relative to risk associated with hazard or issue)
- Documentation and forms to record trail inspection and maintenance activities



Basic trail infrastructure, such as the trail tread, corners, and rock features, can last for decades with only routine maintenance when designed and constructed properly. Technical trail features, such as jumps, berms and wooden features require a higher level of service. Lips of jumps can be damaged by weather or inexperienced riders, wood features degrade with environmental inputs, and berms can be degraded without proper compaction. Technical features also require skilled maintenance to repair or improve due to the nuances associated with mountain biking and the risk associated with the consequences of poor maintenance.

For budgeting purposes, the costs of trail maintenance can range from 2-8% per year of the original capital cost of the trail development. The major variables for trail maintenance include the climate, soil types, quality of design and construction, number of TTFs, and volume of use. For example, a trail with many wooden features and only a small amount of use will require a fair amount of oversight, while a trail that's regularly used and has no features will require less maintenance. The noted climate and geological challenges in Prince Rupert area will result in a higher cost of maintenance than a typical trail network in British Columbia, and the annual cost may exceed 8%.

4.2 Asset Management Plan

Asset management plans outline the various assets managed by an organization, with their maintenance schedule and replacement horizon. A basic asset management plan should be maintained for the trails and trail infrastructure in this plan. An example of an asset management plan is provided in Table 1.

Maintenance is an important part of risk management and applies to the Occupiers Liability Act as outlined in Section 4.3. Should an accident or incident occur that results in a lawsuit against the landowners or trail managers, inspection and maintenance records will be reviewed for compliance between what is agreed upon and what is completed. As such, it is typically recommended that a low threshold for inspection and maintenance be set for most trails, especially in cases where volunteers are responsible for the work, to ensure they can be accomplished. Examples of trail inspection and maintenance standards for Parks Canada are found here: <http://parkscanadahistory.com/publications/trail-classification-system-e.pdf>



Feature #	1	2
Feature Type	Trail Tread	Bridge
Feature	Blue trail no technical features.	Bridge on Blue Trail.
Inspection Frequency	Yearly, spring	Yearly, spring
Inspection Detail	Review trail for pooling water, signs of erosion, fallen trees.	Review bridge for scouring of abutments, rotten wood in structure, other degradation
Maintenance Frequency	As needed	As needed
Maintenance Detail	Address items in inspection detail.	Address items in inspection detail.
Replacement Horizon	N/A	15 years – 2039
Replacement Detail	Consider replacing sections of trail susceptible to annual maintenance.	Replace structure and abutments if necessary. As built diagrams located on dropbox.
Annual	\$100	\$500 to replace rotten wood.
Replacement Cost	\$40 / m	\$120 / m (engineering required for spans over 10m).



Table 1 - Example Asset Management Plan

4.3 Risk Management

Trail operators use risk management to identify and control potential dangers on their trails and minimize the negative effects of accidents. Engaging in trail-based recreation inherently involves various levels of risk for enthusiasts. However, how trails are planned, designed, maintained, managed, and communicated can either increase or decrease the risk for enthusiasts and the legal exposure for trail operators.

The Occupiers' Liability Act (OLA) governs the legal responsibilities of property owners or occupiers towards individuals who enter their premises. According to the OLA, all trail operators have a responsibility to provide a reasonable "duty of care" to facilitate the safety of trail users. The act states that an occupier (like a trail operator) can be held liable for damages in case of death or injury to a user resulting from the occupier's deliberate or grossly negligent conduct. "Deliberate" conduct involves intentional actions to cause harm, while "reckless" conduct implies serious negligence on the part of the trail operator.

As noted above, the basic duty of care disallows deliberate or grossly negligent conduct. This is a very low hurdle and was written to better allow the creation of recreational trails on private land across Canada. Essentially, unless an owner or occupier had an intent to do harm or an awareness that harm may accrue from their actions, it is difficult to prove negligence.

It's important for trail operators to recognize, however, that a higher duty of care is owed to children and in cases where fees are charged for admittance or use. Children may be less aware of dangers along a trail and may have difficulty making reasonable choices to avoid those dangers. Admission fees suggest that a higher level of maintenance and operation is provided and thus incur a higher duty of care. Club membership fees, when not a prerequisite for using a trail or facility, have typically not been looked upon as admission fees.

Trail operators need to be aware that anyone who suffers damages while using a trail has the right to file

a civil case against the trail operator. To safeguard against such legal challenges, it's crucial for a trail operator to consistently demonstrate that:

- **Design and Construction Adherence:** The trail and its infrastructure adhere to industry best practices in design and construction.
- **Effective Inspection System:** A robust system is in place for inspecting trails. This includes documenting findings and promptly addressing any unsafe conditions discovered during inspections.
- **Clear Communication:** Ensure that the level of challenge posed by the trail and the frequency and intensity of inspections are clearly communicated to trail enthusiasts. This transparency is essential for users to make informed decisions about their participation.

By maintaining these practices, trail operators not only enhance the safety of their trails but also establish a defensible position in the event of legal challenges, demonstrating due diligence in trail management.

4.4 Statistics and Growth

McElhanney recommends setting a baseline of use, tracking rider volumes, user trends, and community needs. There are many ways to track user volumes, many of which are user-friendly and affordable for easy integration into the NCMBA's processes:

- **TRAFx:** An advanced counting system that uses technology to collect, view, and manage ridership data. It counts walkers, hikers, joggers, inline skaters, horseback riders, cyclists, etc. — on trails, paths, and sidewalks. It senses and detects the infrared wavelength that people emit.
- **Membership System:** Many trail networks have affiliated associations that operate through a membership-based system. Annual membership numbers, as well as year-over-year trends, are used to drive decision making based on the needs of the population. Membership dues also have the added benefit of giving back to the trails to support maintenance, expansion, or local events.



- **Annual surveys:** The survey executed as part of this Master Trails Plan and based on the 2021 survey by the NCMBBA can be repeated annually and bi-annually to track rider behaviours and preferences. This is a simple and cost effective way to track use and opinions.
- **Data Purchase:** Trail users will often use data tracking apps, such as Strava, TrailForks, or those linked with their GPS devices, resulting in a large-scale pool of useful information. Data can be extracted and utilized from the pool, gleaned metrics such as frequency, duration, demographics, etc. McElhanney has a data purchase relationship with a reseller and can provide annual visitation reports, demographic and other data on trail users for a small annual fee.

Having metrics and data can be critical in communication, engagement, and decision making while setting NCMBBA up for future opportunities such as trail expansion, partnerships, or additional financial support.

4.5 Commercial Use

While the construction of a new trail network is an ongoing investment, there are ways to leverage the development to offset costs. The following are a few of the common ways to do so:

- **Hosting Events:** Potential events include mountain bike races, trail runs, or cross-country ski loppets in the winter, for which a registration fee for each participant would be required.
- **Lessons and Skills Camps:** The NCMBBA can offer group or private mountain bike lessons at beginner, intermediate, or advanced levels and use the developed trail network as learning terrain. Lesson fees are often lucrative, particularly when offered privately, while also helping build capacity within the local population. Bike shops, gear outfitters, and the tourism association can help promote these services.
- **Commercial Guiding:** Guiding activities can be leisurely, taking clients on a tour of scenic trails, or as educational skill-building opportunities. Offered privately or in small groups, like lessons and skills camps, guiding can serve as a fruitful way to return funds back to the trail network.

Whether the activities noted above are hosted and operated by NCMBBA or other organizations, NCMBBA should request per-user fees for use of the trail systems. These nominal fees can be included in registration rates and applied directly to trail maintenance activities that are a result of the activities.

Depending on capacity and availability, the described commercial tactics can be used in combination throughout the year. A portion of funds raised can be funnelled back into the trail network to cover trail maintenance, and if applicable, future development.

4.6 Organizational Structure and Public Funding

At the time of this plan, there is no formal maintenance or cost sharing agreement between the City, provincial authorities and the NCMBA. In order to best protect all parties, a formal agreement should be drafted and signed. In other jurisdictions, operational or partnership agreements have proven to be the best solution. These agreements outline expectations around:

- **Insurance:** All parties must carry liability insurance and list all other parties as an additional insured.
- **Maintenance Expectations:** Maintenance expectations should be outlined, agreed upon, and included in the formal agreement.
- **Cost Sharing:** There are many successful models for sharing maintenance and operational costs. Some communities operate on a flat rate, while others use a per kilometer rate, based on an established maintenance schedule. Another option is to have a floating maintenance subsidy based on club membership, trail use, or other club operational revenue.

4.7 Fundraising

With an established and publicly accessible trail system that is recognized by citizens and visitors as an attraction within the City, NCMBA has an opportunity to raise funds through sponsorship and donations. Some mechanisms for fundraising include:

- **Sponsor a trail:** Placing the sponsor name on the trail signs for a year; in return funding will cover parts of maintenance.
- **Sponsor billboards:** Have a sign with all club sponsors at the trailhead, updated annually.
- **Bike Park sponsorship:** Often pump tracks or skills park require some fencing to prevent access or incidents – sections of fence can be “sold” to sponsors for set time periods.



5. DESTINATION MARKETING

5.1 Regional Context

Prince Rupert is located at the northwestern end of Highway 16. The northern Highway 16 corridor has become a development area for mountain biking with exceptional riding hubs developed in Valemount, McBride, Prince George, Vanderhoof, Burns Lake, Smithers, Hazelton, and Terrace, as well as in Gitwinksihlkw. Each of these communities have a variety of riding opportunities and a small riding community. It is common for visitors to Northern BC to ride at a variety of trail systems along the corridor and for residents to travel to neighbouring trail systems to enjoy a day or two of destination riding.

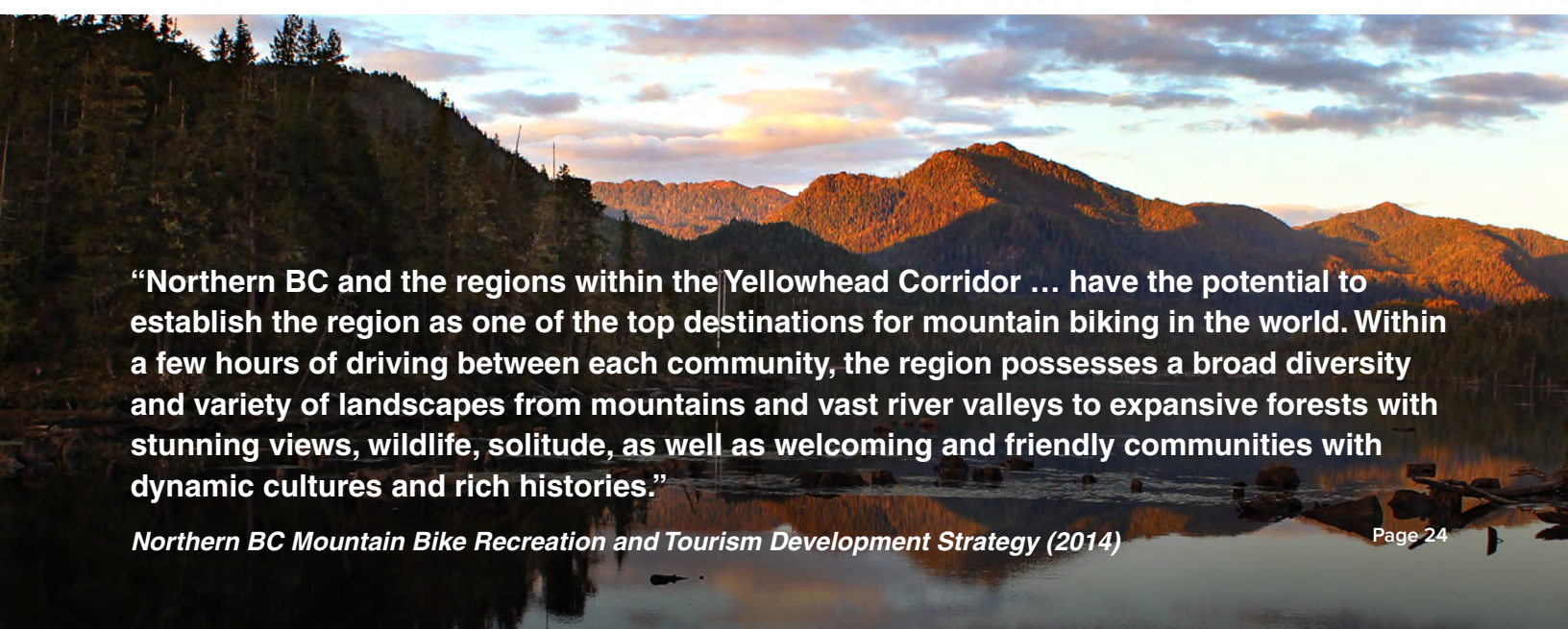
5.2 Riding in Prince Rupert

The terrain proximal to Prince Rupert, combined with the challenging climate, make it costly and difficult to construct and maintain infrastructure. The riding community in Prince Rupert currently maintains and rides a small network of trails near the city and travel further afield to places like Terrace, Smithers and Gitwinksihlkw for additional opportunities.

Given the availability of exceptional trails in the region, in areas where the terrain is much more suitable for trail development, building a destination-sized network is not necessary for Prince Rupert. Providing trail experiences for youths and residents to 'get their fix' on a day-to-day basis, while also having manageable maintenance and construction costs has been framed as the intent for this master trails plan.

5.3 Tourism Opportunities for Mountain Biking in Prince Rupert

Prince Rupert and the NCMBR should position local trails as a cultural and recreational opportunity for visitors to the Northern BC mountain bike scene. The community has many tourism draws, such as the ocean and port, culinary enjoyment, and cultural and historical engagement. Mountain bikers looking for a day off, some time near the ocean, or exceptional seafood will have a place to stay in Prince Rupert while they have an easy day on their otherwise intense vacation. Other visitors to Prince Rupert may try mountain biking on an inviting trail network, between stints on their cruise or fishing vacation, by way of bicycle rentals or guided tours. The proposed trail network within Prince Rupert will be family friendly, and ideal for a less intense day of cycling. It will be an enhancement to the other tourism features in Prince Rupert, rather than the primary draw to the community.



“Northern BC and the regions within the Yellowhead Corridor ... have the potential to establish the region as one of the top destinations for mountain biking in the world. Within a few hours of driving between each community, the region possesses a broad diversity and variety of landscapes from mountains and vast river valleys to expansive forests with stunning views, wildlife, solitude, as well as welcoming and friendly communities with dynamic cultures and rich histories.”



APPENDIX A

SIGNAGE TYPOLOGY

Sign Type	Typical Location(s)	Typical Content	Purpose
Gateway Feature	Staging areas, main trailheads.	- Recreation area name. - Art or other creative installation.	Welcome users to the trail network and provide a showcase feature for the community.
Information Kiosk	Any main access point to the trail network.	- Trail network name - Indigenous Place Name & Territorial Acknowledgement - Exclusion of Liability & Assumption of Risks - Map of trails symbolized by mode, difficult & style - Trail style 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 - Digital map links (if available) - Emergency number & GPS coordinate - Wildfire reporting - Reporting maintenance / condition concerns & reporting accidents	This information must be provided at all major access points to the network so that users understand risks, rules, etiquette, and have the information required to have an enjoyable visit to the trail network.
Trailhead Signage	Individual trailheads and intersections	- Trail Name - Trail difficulty rating - Permitting/prohibited uses - Trail type - Designated direction of travel - Cautions - Do not enter (at bottom of downhill-specific trails)	This information aligns with the information kiosk in terms of what users should expect on a specific trail. It also aids in wayfinding around the network.
Technical Trail Features	Located approximately 10 to 20 m before any TTFs that are rated more difficult than the rating of the trail, or any TTF that has a specific risk or challenge that may result higher consequence injuries. This type of signage should only be used in the above cases as determined by the professional trail designer to minimize signage overload in the trail network.	- Caution statement - TTF symbol and/or description. - Technical difficulty level - Directions to the easier route available	This information aligns with the information kiosk in terms of what users should expect on the trail.
Emergency Access	Start of designated emergency access trails / routes as identified in emergency response plan.	Emergency access statement Wayfinding direction.	Aids emergency responders and users in case of emergency.



**Questions or
comments contact:**

North Coast Mountain Bike Association
northcoastmba@gmail.com