



## **North Shore Mountain Bike Association**

### **Trail Project – Concept Plan**

Bobsled Trail  
Fromme Mountain



A plan for restorative measures on Bobsled to improve sustainability and create a consistent user experience in line with defined beginner trail ranking while at the same time, retrofitting the trail to create a barrier free, *All Access* mountain bike trail.

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#### **Prepared for:**

District of North Vancouver

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## Contents

<a href="#">1. Project Overview.....</a>	<a href="#">3</a>
<a href="#">2. Community Engagement.....</a>	<a href="#">5</a>
<a href="#">3. Photos and Trail Description.....</a>	<a href="#">5</a>

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## 1. Project Overview

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### **Vision:**

The original vision and current classification of the Bobsled trail is a beginner/green trail. Some sections of the trail exceed 30% grade for a sustained distance and have eroded significantly (please see accompanying photos at the end of this document). These steep grades are out of character with the “Easy/Green Circle” difficulty rating, defined by IMBA as a 5% average to 15% maximum grade (p. 75 IMBA Trail Solutions).

This project aims to restore eroded sections of trail by realigning two sections to a reduced grade in line with beginner rating, improving and enhancing drainage, and decommissioning the eroded sections.

While correcting these alignment issues to create a consistent user experience in line with difficulty ranking, the NSMBA plans to also retrofit wood bridges on the trail to create an *All Access* trail, providing barrier free access for all mountain bikers including children, beginners and three wheeled bicycles. The material costs required for these retrofits (and realignments) will be taken on by the NSMBA.

The scope and vision of this retrofit may be the first barrier-free *All Access* trail of its kind in the world, ensuring the DNV will not only maintain its Vision to be recognized as one of the most sustainable communities in the world through this restorative work, but also serves the DNV Mission: *We serve our community by providing leadership and outstanding services that maintain and enhance the quality of life for residents of today and tomorrow.* The solutions provided here-in are focussed on long term, sustainable solutions and illustrate a strong value proposition through a collaborative approach leveraging professional leadership and expertise through a combination of paid and volunteer efforts.

### **Work Plan:**

*Please see accompanying pictures in Section 4.*

**Bridge Re-decking:** The NSMBA proposes to widen two bridges on the trail to a width of 48” to accommodate riders with 36” wide three wheeled bikes. The two bridges are 30’ and 40’ in length. Re-decking of bridges will be undertaken by two lead builders with lumber carried to site during public/TAP trail days. Decking and stringers will be provided by the NSMBA.

#### **Bridge Removal:**

1) A 17’ bridge also requires widening and is experiencing drainage issues due to silt infiltration. We propose to remove the bridge and turnpike the area with inside ditching and a culvert for a long term solution.

2) The NSMBA also proposes to remove a bridge with a blind approach that at present requires the rider to turn on wood around a blind corner with a potential fall of 4ft+ on outer edge-poor dynamic for beginner riders in wet conditions. Work to occur in this zone is to remove the feature, build a retaining wall, backfill with rock and cap with mineral dirt for a long term, sustainable solution in line with green ranking.

**Realignment:** The two steep and eroded areas identified are out of character with the green ranking of the trail. Beginner riders may not expect the steep, challenging grades and may find themselves in a situation above their skill level. Re-aligning these sections of trail to a grade in character with the trail ranking will provide a long-term solution to mitigate erosion and match user expectations.

The mid section of trail has a 35% grade followed by an 80 degree turn and the section is now severely eroded. The other steep section of trail is at the exit. A 27% grade exits riders onto a wooden bridge with a 70 degree turn. Traction on the wooden bridge is slick during wet conditions and there have been instances of riders sliding under the hand-rail. The steep grade encourages speed onto a reduced traction surface that then requires a turn: a combination of poor dynamics. The best solution is to realign the exit along a reduced grade, to reduce speed and improve sustainability, straighten the exit on the bridge and eliminate turning on wood while at the same time widen the bridge decking to accommodate new alignment of exit.

The NSMBA proposes to reroute the steep sections of trail through a combination of volunteer labour led by professional, trained builders using TAP trail days and a single public trail day on Nov 3 while having paid builders prep and finish the areas to ensure a quality finished product.

*Drainage/Maintenance:* The NSMBA will correct drainage issues and continue ongoing maintenance & monitoring of the trail through TAP.



Tara Llanes, a North Vancouver resident who will benefit from barrier free access to trails.

*"We serve our community by providing leadership and outstanding services that maintain and enhance the quality of life for residents of today and tomorrow." – DNV Mission*



## 2. Community Engagement

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The work will offer high value leveraging through volunteer labour led by professional NSMBA Trail Builders ensuring quality finished product. Ratio of builders to volunteers is approximately 12:1. Projected volunteer labour contribution is \$8 700. (\$4 200 TAP, \$4 500 Public Trail Day). Having the public take part in this project fosters future stewardship through a sense of ownership. Therefore average labour hourly rates including volunteer leveraging are: \$2.70/hour.

The NSMBA will conduct much of the labour on TAP trail days (2 in total) and an NSMBA Public Trail Day on Nov 3. Specialized work (re-decking, new stringer installation) will be conducted by lead NSMBA builders and all projects will be led by trained, professional Lead Builders. NSMBA Program Manager will oversee project management.

## 3. Photos and Trail Description

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### Task 1 - Bridge Re-decking



#### 40 foot bridge

**Proposal:** Widen decking to 48". Material provided by NSMBA. After lifting existing decking the NSMBA will determine need to replace stringers. New stringers will be provided by NSMBA.



### 30 foot bridge

**Proposal:** Widen decking to 48". Material provided by NSMBA. After lifting existing decking the NSMBA will determine need to replace stringers. New stringers will be provided by NSMBA if necessary.

## Task 2: Re-alignment of Steep, Eroded Trail



### Mid Section

**Issue:** Steep section - mid section of trail exceeds defined green ranking of 5-15% max grade. Grade in this section is 35%.

Severe erosion combined with steep grade are out of character with a beginner trail. Dirt has eroded approximately 2 feet below holding root at top of photo creating a drop. This section is technically black diamond ranking. The speed and grade are out of character with green ranking and pose a challenge above most beginner riders considering there is an 80 degree turn that follows the run out in this steep section.

**Solution:** Realign section to lessen grade to 15% avg grade. Decommission existing eroded section.





Close up of drop in mid section.



Wider view of drop in steep mid section.



Final pitch at exit of trail.

### Exit

**Issue:** 27% grade at exit. Severe erosion combined with steep grade lead to high user impact on trail tread and increased speeds as riders exit the trail. The exit bridge has limited traction in wet conditions and presently has a 70 degree turn riders must negotiate.

**Solution:** Realign section to reduce grade to less than 15% and re-deck bridge to accommodate new alignment and remove the existing mandatory turn on wood.





New proposed alignment.

### Task 3: Structure Removal and Replacement



#### Blind Corner

**Issue:** Blind entry onto bridge. Necessity to turn on wood surface that is not insloped against rider force. Challenging dynamic for beginner riders in wet conditions with 4 foot fall on outside edge.

**Solution:** Replace with retainer, in-slope turn and backfill/cap with mineral dirt to create a sustainable solution in line with trail ranking.





### **17' bridge**

**Issue:** Dirt has eroded down the trail and covered bridge. Drainage issue at base of bridge due to sediment infiltration.

**Solution:** Turnpike, inside ditch and culvert for a sustainable, long term solution that corrects drainage issue.