Tai Lam Mountain Bicycling Trail Study
Executive Summary

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1 Introduction

1.1 Overview

The Agriculture, Fisheries and Conservation Department of the Hong Kong SAR Government retained the Trail Solutions program of the International Mountain Bicycling Association to study existing and proposed trails for mountain bicycling, and associated facilities, within Tai Lam Country Park. This report is the result of that investigation. The plan development involved several phases: stakeholder participation, site evaluation, trail assessment, and recommendations for trail and facilities enhancements to reduce user conflict, reduce natural resource impacts, and provide better trail experiences for country park users.

1.2 Study Objectives

The objectives of this study are as follows:

- Assess existing and proposed routes for mountain bicycling
- Make recommendations for trail enhancements to make trails sustainable and enjoyable for users
- Meet with stakeholders to discuss potential improvements and concerns
- Assess feasibility of creating a beginners' training ground

1.3 Acknowledgements

Trail Solutions wishes to thank the following agencies and organizations for their assistance in executing this study:

- Agriculture, Fisheries and Conservation Department (AFCD)
- AFCD Field Staff – Twisk, Sham Tseng and Tai Tong Management Centres
- Hong Kong Mountain Bike Association
- Cross-country HK Ltd.
- Hong Kong Hiking Association
- Scout Association of Hong Kong
- Action Asia Foundation
- The Hong Kong Federation of Countryside Activities
- Friends of the Country Parks Hiking Club
- Hong Kong Marathon Pro
- Hong Kong Cycling Association
- Hong Kong Cycling Alliance
- Tin Fu Tsai Village
- Tsing Fai Tong Village
- Sham Tseng Village

2 Tai Lam Study

2.1 Concerns

As mountain bicycling has become popular in Hong Kong there has been a steady increase in the number of mountain bicyclists in country parks. At present, ten areas in country parks with a total trail length of 110 km have been designated as "mountain bike trails". Mountain bicycling in Country Parks is controlled under Regulation 4 of the Country Parks and Special Areas Regulations (sub. Leg. A of Country Park Ordinance, Cap 208 of Hong Kong Laws), any person interested in cycling on the designated mountain bike trails in country parks can apply for a permit from the Country and Marine Parks Authority. No permit fee is required. At present, there are about 7,000 valid permits.

Over the past several years, several concerns have arisen regarding mountain bicycling use in country parks. This study hopes to address the immediate concerns regarding existing and selected proposed trails and facilities at Tai Lam Country Park.

2.1.1 Increasing use

Mountain bicycling use in the country park has grown dramatically in recent years. This increase in use provides another opportunity for residents and visitors to experience natural and recreational resources within the country parks. However, it also creates added pressures on a trail system not designed with this use in mind. Mountain bicyclists are increasingly asking for specific trail features and facilities to accommodate their use.

2.1.2 Conflict on trails

As use has increased, so have concerns about potential conflicts and injuries on trails. While there have been few records of actual conflict and/or injury, the fear of conflict is high, even among fellow cyclists. In particular, there are concerns about downhill-style riding, where typically steeper trail grades, bike features, and rider protective gear (e.g. full-face helmets and body armour) create an intimidating setting for hikers and villagers.

2.1.3 Conflict on roads

User conflict regarding mountain bicycling in the country park is not limited to trails. Villagers are concerned about encountering cyclists on country park roads (forest tracks) while driving to and from their homes, and with cyclists riding through villages. Additionally, public road use is affected by the increasing use, particularly shuttle vehicles letting out riders at trailheads (e.g. at the top of Route Twisk) and retrieving riders in villages and along Water Supplies Department (WSD) roads. These concerns stem primarily from concerns for safety with vehicle interactions, but also congestion.

2.1.4 Impacts to natural resources

The highest purpose for Country Parks is conservation. Recreational use is also part of the mission of Country Parks and serves long term goals of educating the public about natural environment, providing health and fitness opportunities, and, ultimately, creating stewards to support and protect the country parks for the generations to come. Trail use is compatible with conservation goals when trails are in sustainable alignments and see regular maintenance. Trails that are not sustainable or maintainable create undue impacts to natural resources, often in the form of erosion, soil compaction, and trampling of vegetation.

Increased use by cyclists on existing and non-designated trails highlights and exacerbates these concerns.

2.2 Study Scope

In an effort to address these concerns, Trail Solutions has been retained to assess and make recommendations for enhancements to selected trails and facilities. For this study, existing named hiking-only trails were not considered for assessment as potential mountain bicycling trails. Additionally, new routes and field delineation for reroutes were also not part of the scope of this study. This is not a country park-wide master plan, but a concerted first step in addressing the needs of mountain bikers, reducing impacts to natural resources, and addressing the concerns of other country park users and villagers. This study hopes to provide recommendations for meaningful improvements in the near-term.

2.2.1 Existing trails and proposed routes

Existing mountain bike trails and four proposed routes (see Sections 3.4 and 4.2 for details of the proposed routes) were assessed, and proposed enhancements recommended. All existing and proposed routes were field assessed for feasibility and, as appropriate, recommendations made for improvements.

2.2.2 Non-named existing routes

There are numerous existing, non-named trails connecting to the existing mountain bike trails and proposed routes, some more used and defined than others. A few of these alignments were scouted for potential use and some may be recommended for use, based upon their map alignment and/or field evaluation, as appropriate trails for use as connectors and reroutes.

2.2.3 Training Ground Area: location and general features

Locations to site a beginner skills area or "training ground" were evaluated. Site criteria and recommendations for site location are included in this report.

2.3 Stakeholder Engagement

Two formal meetings were held with groups representing trail users to provide information on the study, to gather input on the current situation regarding user experiences and conflict, and to collect feedback regarding potential routes and improvements. Representatives from various trail user groups were interviewed including: hikers, bikers, runners, events promoters, and dog walkers.

2.3.1 Hiker Concerns

Hiking representatives generally were supportive of sharing trails with cross-country bikers. Their greatest concern was with downhill riders on hiking trails regarding safety; there was interest in having trails for downhill riders separated from hiking trails. Many expressed concern about user etiquette for all users: hikers, runners, and bikers. They made suggestions that a user education campaign be launched and were supportive of a volunteer patrol.

2.3.2 Mountain Biker Concerns

Mountain bikers were supportive of sharing trails, but wish to see separate, directional trails for downhill riding. They expressed several concerns over the safety of the existing trails and roads and a desire to provide a wider range of trail experiences, particularly for beginners.

2.3.3 Villagers

A meeting with village representatives from Tin Fu Tsai and Tsing Fai Tong was held at AFCD Sham Tseng Management Centre in the morning of the 18th of January 2011. Trail Solutions consultants, along with AFCD staff joined with several village representatives to discuss their concerns and answer questions about mountain bicycling in the Country Park. While generally supportive of mountain bicycling on natural surface trails, village representatives expressed great concern about safety of bicycles and vehicles on roadways. Poor sightlines, fast travel, and steep road grades were all cited as contributing factors.

3 Assessment

3.1 Sustainable Trails

A sustainable trail balances many elements, addressing both environmental and social impacts. It has very little impact on the environment, resists erosion through proper design, construction, and maintenance, and blends in with the surrounding area. A sustainable trail also appeals to and serves a variety of users, adding an important element of recreation to the community. It is designed to provide enjoyable and challenging experiences for visitors by managing their expectations and their use effectively. Further details and descriptions of sustainable trail principles are found in: *Managing Mountain Bicycling, Chaper 5: Mountain Bicycling and the Environment* (IMBA, 2007), and in *Technical Memorandum: Section 3.2: Trail Design, Mountain Bicycling Trail Networks in South Lantau: Feasibility Study* (draft document, CEDD, 2010).

3.2 Methodology

All trails were surveyed at least once by foot or bicycle, and most trails were surveyed using both means. GPS tracks, waypoints, field locations, and associated notes were captured for each trail segment. Representative photos were captured to illustrate described segment characteristics.

3.2.1 Assessment Characteristics

Trails were assessed for environmental and social sustainability, observing the following characteristics:

- Trail grade
- Prevailing slope grade
- Vegetative cover
- Soil type
- Presence of drainages and/or and seeps
- Tread characteristics
- User experience
- User safety
- User interactions
- Location identification markers

3.2.2 Recommendation Categories

Based upon the observed characteristics, recommendations were made for trail sections, including:

- Tread maintenance
- Reroutes and reclamation
- Relative difficulty for trail enhancement
- Relative priority for trail enhancement

3.3 Existing System Assessment

Many of the existing trails were not designed, but are legacy trails originally formed as access routes between villages, to gravesites, or to streams or viewpoints. Access routes typically travel the most direct path to the destination; this is seldom a sustainable alignment for long-term use. These unsustainable alignments are further compounded by limited maintenance over the life of the trail resulting in a mix of inconsistent trail conditions.

Steps placed for erosion control are ineffective and creating trip hazard; users have simply widened the tread to go around them. Erosion continues, user experience is degraded, and safety becomes a concern.

3.3.1 Fall-line Alignments and Steep Grades

Many trail segments exceed 20% grades and have been modified by the installation of steps (wood, concrete, and/or stone). In many cases, the steps have created a situation where hikers and bikers choose to avoid them by traveling adjacent to the steps or creating a side trail. Due to the fall-line alignment, and exacerbated by trampling of vegetation and widening of the trail tread and corridor by users, focused water has created deep gullies (up to 0.7 metres deep). This has led to unsafe conditions for all users, and created undue impact to natural resources.

3.3.2 Trail Difficulty Ratings

Each trail was rated for skill difficulty based upon its existing condition, and proposed skill ratings following enhancements are suggested (see: *Table 1*). Recommendations for improvements are based upon proposed skill rating for each trail or trail section.

Table 1: Difficulty rating by trail or trail segment.

Trail Name	Difficulty Rating		Comments
	Existing	Proposed	
Ho Pui	Very Difficult (Advanced)	More Difficult (Intermediate)	Mix of advanced and intermediate sections, with a few short mandatory dismount or expert level sections. To reduce safety concerns and appeal to a broader set of cyclists, should be modified to intermediate level, with occasional, short advanced optional features.
Ho Pui Downhill	Very Difficult (Advanced)	Very Difficult (Advanced)	Skill level is appropriate for intended user set. Modifications needed to enhance user experience, reduce erosion and safety concerns.
Ho Pui Connector	Very Difficult (Advanced)	More Difficult (Intermediate)	Most of this trail is intermediate but significant sections require dismount and carry. Needs improvements to better accommodate bicyclists.
Tai Lam Chung Reservoir	More Difficult (Intermediate)	Easy (Beginner)	This trail is best option for beginners, but has many intermediate and even short advanced sections. For safety and user experience, improvements should be made to make suitable for beginner cyclists, with occasional optional intermediate challenge features.
TLC Reservoir - Dam Section	Very Difficult (Advanced)	Easy (Beginner)	Numerous advanced level sections and mandatory dismount sections. Ideally, this could complete the beginner route, but significant reroutes are required in a highly constrained area. Further potential reroute assessment is needed here.

3.3.3 Paved roads as trails

The majority of designated routes for mountain bicycling are not natural surface trails but paved roads. These routes provide a less-technically challenging option for many cyclists and serve as popular connectors to natural surface trails and to country park facilities.
The paved road Mountain Bike Trail sections are as follows:

- Twisk – 5.8 km
- Tin Fu Tsai – 3.7 km
- Tai Tong – 3.8 km
- Sui Lam – 3.7 km
- Tsing Lung Tau – 3.7 km
- Tsing Fai Tong – 5.2 km

As there are no features that require particular mountain bicycling skills, nor mountain bicycle components (e.g., wide, knobby tyres, suspension, relaxed geometry, disc brakes, etc.), and because the infrastructure is paved and otherwise improved to an engineered standard, the international nomenclature for such facilities is to refer to them as *bicycle routes* or *paths*, not mountain bicycle trails. Since these routes are not trails, per se, trail enhancements as described here do not apply. As such, these trails were not further assessed in this study.

3.4 Proposed Routes

The following routes were selected by AFCD as potential mountain bicycling trails for assessment as part of this study. They were selected from a list of several trails recommended by mountain bike groups, then assessed for various characters by AFCD staff. Selection criteria included, but was not limited to:

- Established existing use
- Currently "unnamed trail"

3.5 Alternate non-named routes

It was suggested that Trail Solutions not be limited to investigating the four proposed routes, but that other non-named existing routes connecting to the existing mountain bike trails and proposed routes could be recommended as potential trails for mountain bicycling. A few of these were assessed as possible routes to make a better connection at trail access and egress points, to avoid significant fall-line sections of existing and proposed routes, and/or to provide a better experience for mountain bicycling. Some routes already see significant traffic, for such varied uses as downhill mountain bicycling or access to gravesites.

4 Recommendations

4.1 Existing natural surface trails

See inset maps for waypoint locations (WP).

4.1.1 Ho Pui Improvements

Most of the improvements needed to this trail are for user safety and enjoyment. Sections that do not currently meet goals for user enjoyment, consistency of experience, and/or have safety concerns, can be improved with maintenance. While most of the trail can be improved within its existing alignment, two significant sections require rerouting and concurrent trail closure.

Sustainable sections of the Ho Pui Trail: existing rock wall and tread armouring (left) and nice section of benched tread with natural rock edges that define the trail (right).

4.1.2 Ho Pui Reroute: Ho Pui Trailhead (WP 888) to KK019812 (WP 893)

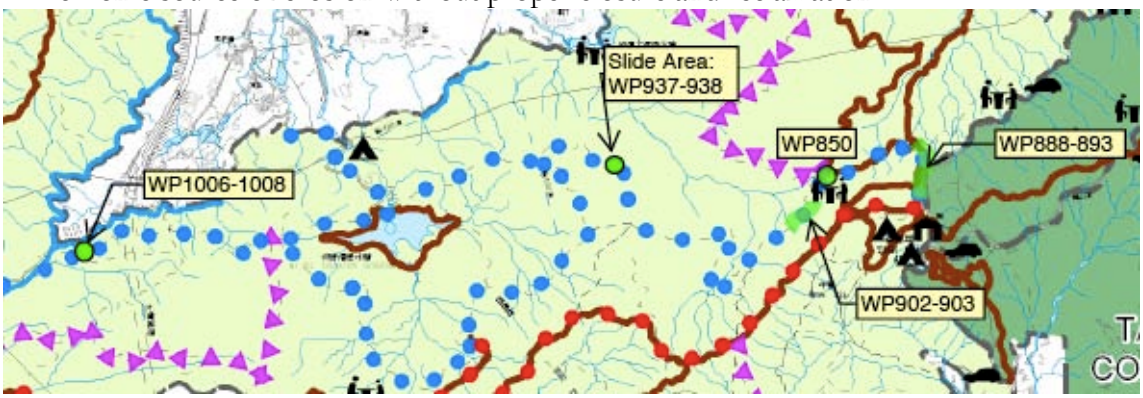
The trail originates off Twisk Road (WP 888) with an immediate climb up a set of stone steps, followed by a traverse paralleling Route Twisk, with a steep drop from the tread edge to a concrete catchment and to the roadway. After a short distance, the trail then descends back to the road. At this junction, there is a social route where most bicyclists begin the trail,

Start of the Ho Pui Trail: steep, fall-line section with severe erosion (left) and numerous social trails (right). This section needs to be rerouted and closed.

bypassing this seemingly pointless and difficult climb and descent over steps. From this point, the trail begins a steep, fall-line descent that is wide and trenched, with numerous social trails. The width of the trail bed (an old road bed, 5-7m wide) allows hikers and bikers to avoid the narrow armoured path by simply moving to side. An eroding trench has formed, creating a significant resource impact, degrading user experience, and presenting hazards. As a result, several social routes to the west of the trail have formed, leading to significant resource impacts.

4.1.3 Ho Pui Reroute: WP 1006 to WP 1008

This section is essentially the last several hundred metres of the Ho Pui Trail, where the trail leaves the contour, sidehill route, then follows a ridgeline, descending steeply fall-line. This trail section cannot be made sustainable or maintainable and requires a reroute. Significant resource impacts have already been sustained, and it will continue to be a chronic source of erosion without proper closure and reclamation.



4.1.4 Ho Pui Downhill Improvements

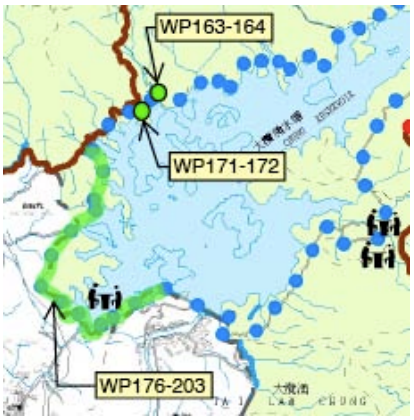
A few sections of this trail are in a sustainable alignment or can be made maintainable through tread improvements. However, significant sections, particularly the lower

switchback turns, are too steep and/or are along the fall-line and require rerouting. The terrain on either side of the existing alignment is ideal for trail routing: good vegetation, stable slopes, high clay-content soils, and moderate slope grades.

4.1.5 Ho Pui Connector Improvements

While seldom in a sustainable alignment, this short trail connector has some sections that can be improved to make them maintainable. The section closest to the intersection with Ho Pui Trail, however, has steep eroding steps that could be rerouted to provide a better user experience and reduce erosion.

4.1.6 Tai Lam Chung Reservoir Trail Improvements



There are many improvements that can be made to this trail to enhance user safety and enjoyment, and reduce erosion. Sections that do not currently meet goals for user enjoyment, consistency of experience, and/or have safety concerns, can be improved with maintenance. While most of the trail can be improved within its existing alignment, sections along the dams require rerouting and concurrent trail closure. Also, the slide area near the waterfall (WP163) needs reconstruction of the original alignment to avoid steep and dangerous climb and descent of steps.

4.1.7 Tai Lam Chung Reservoir Trail – Dam Section (WP176-WP203)

This section of trail is out of character with the rest of the reservoir trail. Rather than a primarily contour beginner to intermediate skill level route with occasional, short advanced segments, the dams section is consistently advanced to expert in skill level, is suffering significant erosion, and with maintenance features creating safety risks for users. Absence a complete redesign and trail closure for this section, it is recommended that the short section along the WSD road leading to So Kwun Wat be opened to cyclists to provide trail access and egress from this end of the trail.

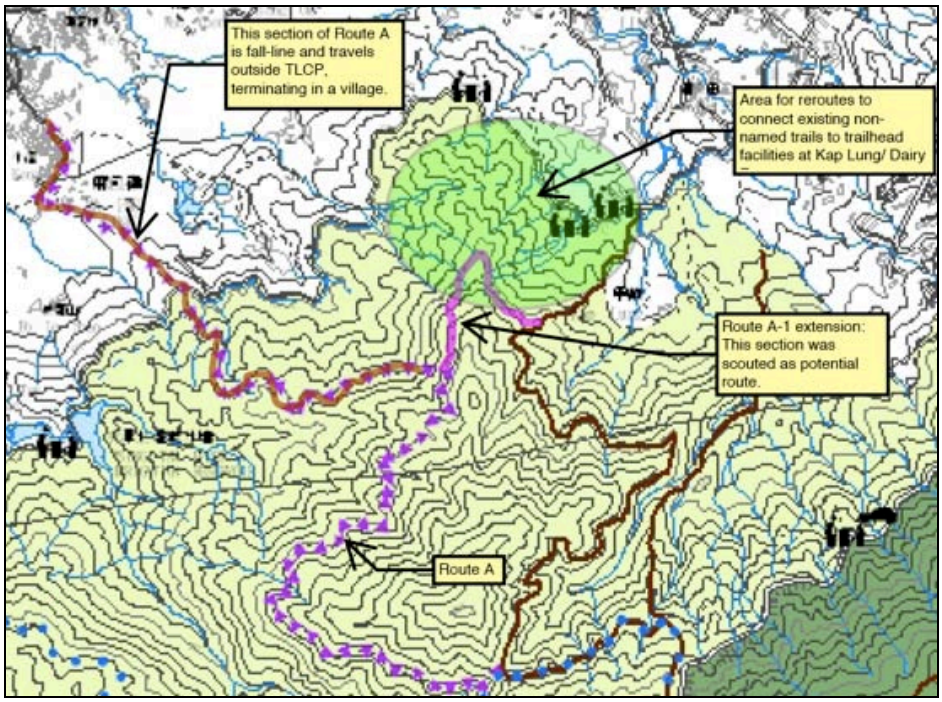
4.2 Proposed Routes

Recommendations and comments for proposed routes are described below. Included in this section are a few non-named routes that were assessed in conjunction with proposed routes to make better connections, eliminate sections that terminate in private property or other areas outside the Country Park, and/or trails or trail segments that cannot be made sustainable or maintainable. It was not feasible to evaluate all such routes, but a few significant routes were assessed as alternates to sections of proposed routes and are described here. For inset maps below, proposed routes are shown in purple; for significant reroute and closure sections, conceptual reroutes are shown in transparent green, and closures are shown over the existing route in transparent brown.

4.2.1 Route A

Because proposed Route A is partly on outside Tai Lam Country Park and terminates in a village, an alternate route was assessed for the lower portion, *Route A-1*, with the expectation

that reroutes and/or sections of additional existing, non-named trails could be utilised to tie into trailhead facilities at Kap Lung at the Dairy Farm to avoid the Kap Lung Forest Trail.

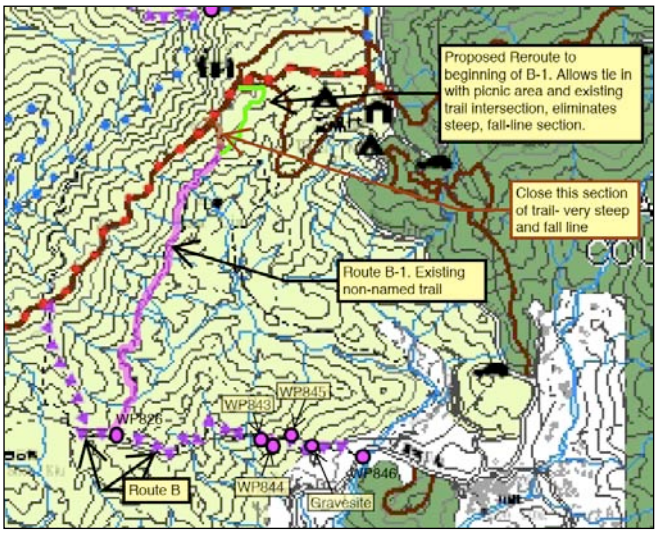


4.2.2 Route B

The upper section of the proposed route is very steep and directly descends the fall-line. In order to avoid this section, it was noted that there was an existing non-named trail (*Route B-1*) that appeared to be mostly in a contour alignment that could bypass this fall line section and also join the paved Twisk Mountain Bike Trail at a better location, closer to a country park entrance. Additionally, substituting this route for the first part of route B would lengthen the proposed route significantly (see inset map). The first part of B-1, however has a short steep section of steps that would need a minor reroute. This would further reduce the distance traveled on the paved road to get to the trail and take advantage of existing country park facilities.

4.2.2.1 Route B and B-1 improvements

The majority of route B-1 and route B until WP844 can be improved with tread enhancements. From WP844, route B would require a reroute. Additionally, there are numerous existing trails in this area that could be used to tie a loop back to Twisk Mountain Bike Trail close to the country park entrance off Route Twisk.



4.2.2.2 Non-Country Park Areas

The existing route from the gravesite extends off Country Park areas. Trail Solutions cannot recommend

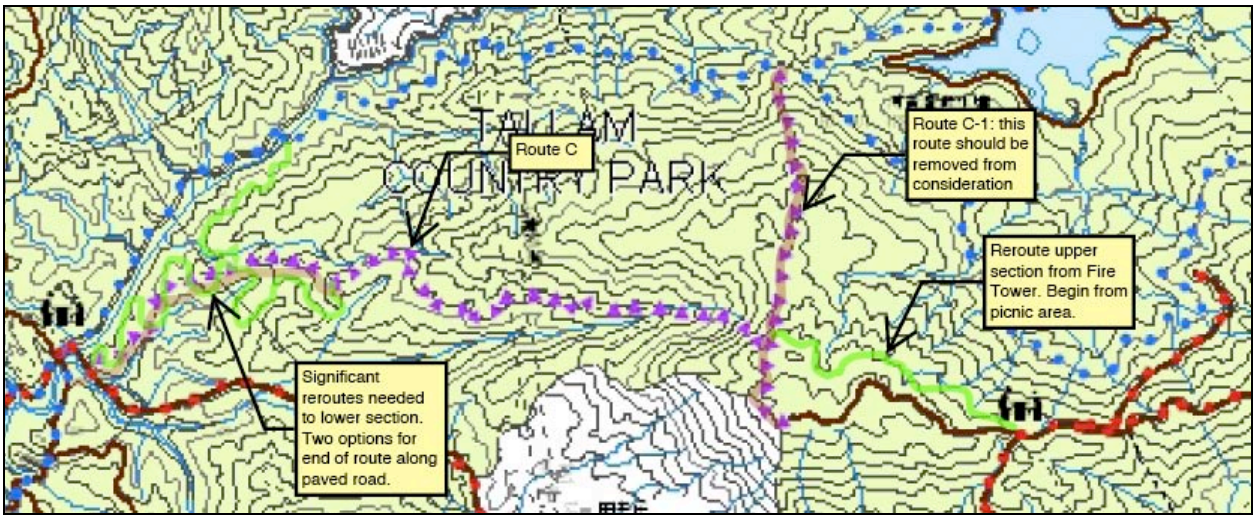
extending trails onto areas outside country park.

4.2.3 Route C

Route C ("Tin Man") could be made into a workable trail, but it would require significant maintenance and reroutes to the upper and lower sections. The lower third of the trail is suffering significant erosion. A reroute and concurrent trail closure is required.

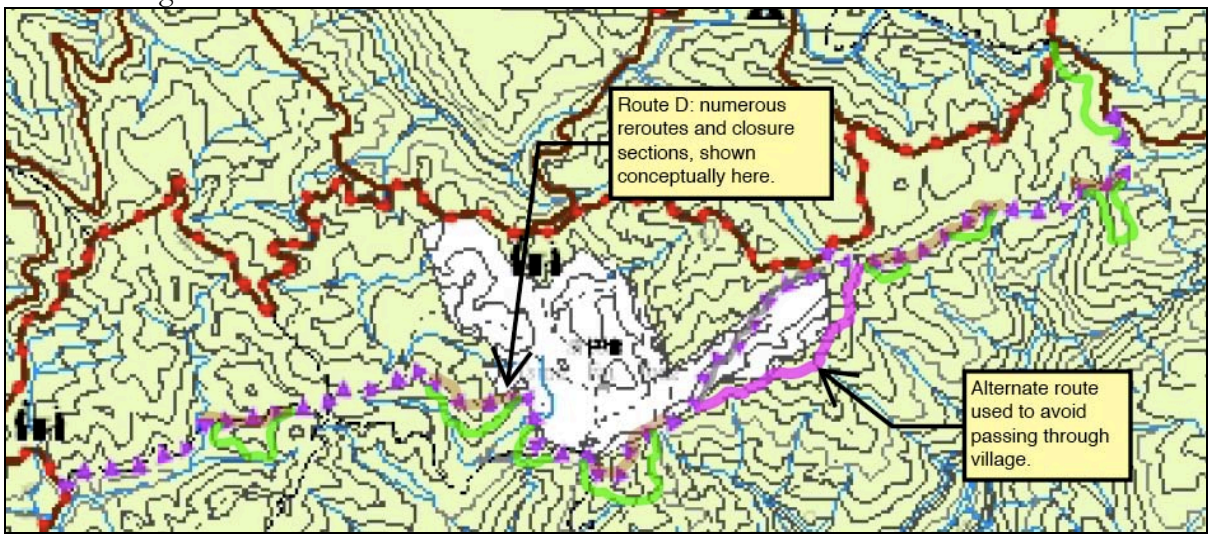
As a downhill trail, it is less ideal than some of the other routes proposed, due to the limited access. In its current form, it does not provide a loop option nor is there a good, legal ascent to the trail start. It could be made into an all-mountain-style descending trail, with an additional reroute at the beginning to create a starting point from an existing or proposed mountain bicycling trail.

Route C-1 should be closed and restored. It does not provide a compelling user experience and almost none of it can be made sustainable or maintainable.



4.2.4 Route D

Also known as the Gas Pipeline trail, Route D has numerous problem sections; unlike many of the proposed and existing trails, where needed reroutes are focused on endpoints, reroutes for this proposed route are required throughout its length. Intermixed among sections of beautiful contour trails, with stunning views, are catastrophic erosion trenches and scars on the landscape that will take years or decades to restore. This route is only viable with significant and numerous reroutes.



4.2.5 Proposed Trail Comparison

Table 2 compares trail segments for each proposed route for several criteria. A rating of "3" is the best or most positive rating within its criteria, a rating of "1" is the lowest or least desirable.

Table 2: Trail Priority Evaluation. Assessed factors related to existing trail conditions. *Final score excludes closure sections; sections within each route are weighted relative to trail length.

Route Name	Route A (Inca)			Route B (the Push)				Route C (Tin Man)		Route D (Gasline)	
Evaluation Criteria	A Upper WP850-871	A Lower WP871 to Ma Pau Ling	A-1	B Upper Twisk MBT to WP826	B Middle WP826-843	B Lower WP843-846	B-1	C	C-1	D WP036-039	D WP039-071
Topography	3	3	2	3	3	3	3	3	3	2	2
Access/Egress ease	2	1	1	1	2	1	2	1	1	3	3
Access/Egress safety	2	2	2	3	2	2	2	3	3	3	3
Stakeholder concerns	1	1	1	2	2	1	1	3	3	3	3
Connectivity	3	1	2	2	2	1	3	3	3	3	3
Erosion potential	3	3	3	1	3	2	3	1	1	2	1
Aesthetic value	2	2	2	2	2	2	2	3	2	1	3
Enviromental impact	3	2	2	2	3	1	2	2	1	2	1
User safety	3	2	2	2	3	2	3	2	2	2	1
User experience	3	3	2	3	3	2	3	2	1	2	1
Construction difficulty	3	2	1	2	3	1	2	2	2	2	1
Recommendation	maintenance	closure	study	closure	maintenance	reroute	maintenance	maintenance & reroutes	closure	reroute	maintenance & reroutes
Comments											
Total	28	22	20	23	28	18	26	25	22	25	22

	A & A-1	B & B-1	C	D
Avg score by proposed route (not incuding closure sections)	**23.3**	**23.8**	**25.0**	**23.5**

While none of these routes is ideal, this comparison helps to weigh which of the proposed options is most feasible given the criteria. In this scenario, criteria are weighted equally, a simplification that may not accurately reflect AFCD and/or stakeholder values.

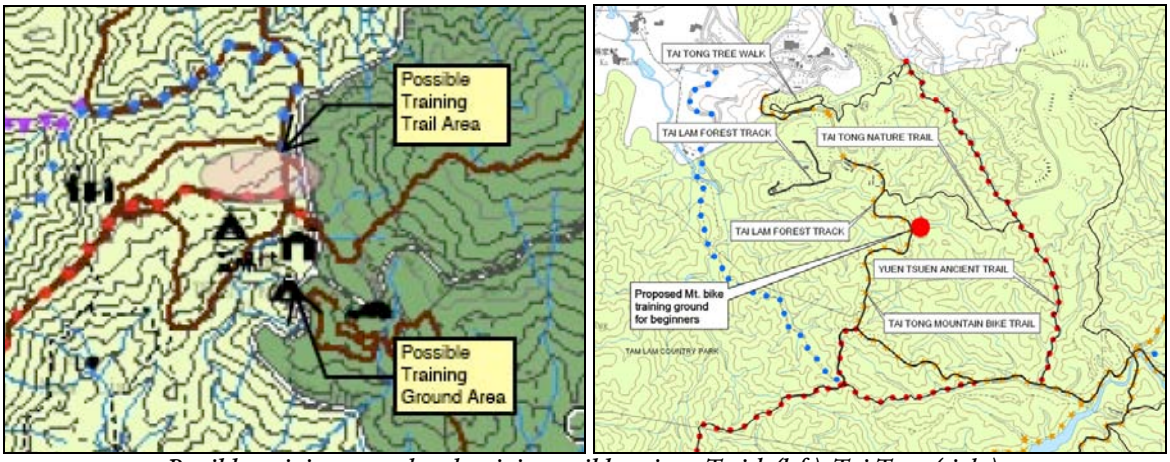
5 Beginner Facilities

A key piece missing from the trails and facilities at Tai Lam is a place for beginners to ride. The development of beginner training ground (skills area) and/or training trail has broad support from AFCD and from users.

Beginner facilities are built to provide a friendly introduction to mountain bicycling for novice riders. Newcomers build skills with each turn of the handlebars; as they traverse the natural world, they strengthen their muscles and build self-esteem. By incorporating family-style natural surface trails, bike skills areas, and simple, fun signs, these areas can stimulate a new generation of bikers and outdoor enthusiasts. A spectrum of facilities allows an easy progression to natural surface trails, building confidence and skills to allow riders to tackle singletrack and challenge features. The bicycle handling skills and confidence gained encourages people to explore other trails within the Country Park and beyond.

5.1 Possible locations

Two locations were assessed for feasibility as sites for training ground areas: at one of the lower use picnic areas off Route Twisk, just south of field office entrance and carpark; and near the trailhead for Tai Tong, along Tai Tong Mountain Bike Trail. Both sites are close to parking and existing country park amenities, including picnic areas and restrooms. The Route Twisk site lies in close proximity to existing and proposed trails for mountain bicycling, but would require 10-20 metres travel along a high traffic roadway to access the site from parking. The Tai Tong area presents fewer challenges from conflict with other existing uses.



Possible training ground and training trail locations: Twisk (left), Tai Tong (right).

If Tai Tong were developed as a beginner area, it would need to have access to beginner level trails. There is a bicycle path and country park road (forest track) access from this location into the country park (and connecting to Tai Lam Chung Reservoir Trail), but this path has sections that are too physically demanding for beginner users, and they have vehicle use. Ideally, a novice to beginner level trail would be created to access this site from parking areas at Tai Tong. Then, beginner to low-intermediate trails would continue to connect to Tai Lam Chung Reservoir Trail. Creation of these additional facilities to support the skills area would make this a compelling location, particularly for families and beginners. Feasibility of a beginner trail area and training ground for this area needs further exploration.

Proposed area near Tai Tong: this open area along the road could be converted to a skills area.

The best, scouted location for a beginner, training trail is the area near Ho Pui Trailhead, which can be accessed from Twisk Mountain Bike Trail, Twisk Nature Trail, or the top of Ho Pui Mountain Bike Trail. The gentle grades and open forest at this site is not found in many places in the Country Park. Because of the existing nature trail, good trail flow, effective signs, and corralling and chicanes at trail intersections would be critical in management user conflict.

6 Next Steps

The existing topography and un-programmed space at Tai Lam hold great potential for bicycle trail and facilities development. Community partners united to provide a signature country park space that encourages fun and fitness for children and families, draws visitors across the city and region, and acts as a catalyst for other community development initiatives.

Conceptual trail and facility recommendations contained in this document provide a key component and necessary early step in developing enhanced facilities for mountain bikers and other trail users. This document represents a narrow vision for the country park, highlighting specific existing facilities and assessing a few proposed routes and facilities.

6.1 Implementation

It is implied that the follow-up to this study will involve bringing some of the existing mountain bike trails up to IMBA guidelines and the construction of reroutes. Ideally, design and construction would be combined with training for AFCD staff and volunteers. Implementation also encompasses reclamation: closure and restoration efforts are furthered by using materials generated from new construction. As new routes are opened, old routes should be immediately closed so that users can be educated about new routes and changing use patterns.

6.1.1 Demonstration projects

A successful planning effort can be bolstered by an implementation effort that includes demonstration of trail redesign principles. These projects help to educate country park users, and the public at large, about the planning efforts. They also engage volunteers, and produce tangible trail improvements and restoration to showcase the process. A successful demonstration project would typically include sections of new trail construction, trail closure and site restoration, and a section of existing trail maintenance. This could be combined with field training by a professional trailbuilder for AFCD staff and volunteers.

6.2 Long Term Recommendations

6.2.1 Downhill-Specific Route

Because of the overwhelming pressure on existing trails, the potential for user conflict, and resource concerns, it is imperative options for a single-use trail for downhill mountain bicyclists be developed. Designing a trail specifically for this use will take immense pressure off of other existing trails, provide a better experience for these users, and reduce illegal construction of trails and features. Each of the proposed routes has some flaw that makes it difficult to recommend without significant new trail design and construction.
Of the proposed and assessed routes, Route C is likely the most appropriate, given the constraints. However, given the access to this route, it will likely not provide a significant opportunity for downhill bicyclists. Reroutes to the start and end of this trail will make it better for riders of all types, but it will still require significant uphill travel to reach the proposed trail origin from Twisk Mountain Bike Trail.

Options assessed that are more desirable as downhill routes, Routes A and B, terminate outside Tai Lam Country Park and/or present significant concerns from villagers, other users, and roadway congestion. These constraints make these routes unfeasible for trail development at this phase.

Improving existing trails for mountain bicyclists will reduce pressure on downhill-specific routes, as more riders are physically and technically able to traverse trails and have fun without having to carry their bikes up and down sets of stairs. For instance, improvements to upper Ho Pui and to the Ho Pui Downhill would significantly enhance trail experiences for mountain bicyclists in the short term.

Further study is needed to identify locations specifically for downhill bicycling. Based upon AFCD's concerns regarding resource impacts, safety, and potentially incompatible recreation experiences associated with downhill bicycling, it would behoove advocates to look for opportunities beyond Country Parks. While a downhill-style trail is not inconceivable in Country Parks, there are likely fewer social and regulatory hurdles associated with other locations. It is in the interest of all HK residents to provide recreational opportunities to this growing and healthy sport in a suitable setting.

6.2.2 Routine Maintenance Program

Trail maintenance should be regularly performed in order to ensure that trails are in compliance with trail construction guidelines and risk management considerations. The development of a maintenance program will allow AFCD staff to be able to take care of existing trails, manage risks to users and any liability from un-maintained trails, as well as document trail maintenance activities and address situations more logically and methodically as they occur.

All trail features, and the trail in general, should be inspected by a person trained in and experienced with trail design, construction, and maintenance for the type of trail and the users permitted on that trail. If the trail or a feature is found to be deficient in a manner that may lead to injury, it should be closed or remedied as soon as possible. More details regarding the development of a routine maintenance program are in *Managing Mountain Biking, Chapter 7: Risk Management*, and in *Trail Solutions, Part 7: Maintenance.*

6.2.3 Partnerships

The process of managing mountain bicycling begins by forming solid relationships. In earlier times, land managers alone decided how to manage existing trails and when to build new ones. However, as agency budget resources are put under increasing pressure and public interest in trail recreation grows, it is clear that the best land management approaches, and the most successful trail projects, stem from partnerships among land managers, volunteers, user groups, and the community as a whole.

Creating formal partnerships with trail users and other country park stakeholders helps to define the relationships and delineates commitments made toward achieving shared goals.

6.2.4 Further Study

It is recommended that AFCD undertake a more comprehensive study of the trail system in Tai Lam Country Park. A Trail Master Plan is a blueprint for trail management in a public

open space, and is the result of a comprehensive decision-making process that analyzes the landscape, the needs of current and future visitors, and a country park's limitations and constraints, in order to meet user expectations through a system of trails that link activity to place.

7 Closing

The crux of the current situation is to offer better trail experiences for a wider range of skill levels than currently exist. Only when high-quality, sustainable, enjoyable trails are available will the existing unsustainable, user-created trails become less popular. Without this new focus, successes will be limited, time-consuming, and ultimately fail to address user conflict and resource impacts.

Balancing the recreational demands and protection of cultural and natural resources will become more challenging as trail use increases. In many countries, public land agencies with large mountain bicycling populations have evolved to take advantage of the volunteer resources that this user group represents, to reduce the management and maintenance burden of their trail systems.

It is hoped that this document, while limited in scope, will further the goals of enhancing the trail experience for mountain bikers, reducing user conflict, and reducing impacts to natural resources.