Mountain Biking Skills Areas

Mountain Biking Design Guidance

This guidance has been developed by sportscotland, Scottish Cycling through its Developing Mountain Biking in Scotland project (DMBinS) & Forestry Commission Scotland.
The information held within these technical datasheets is intended as preliminary information for those wishing to develop a local/ regional level, purpose built mountain bike facility. It is recommended that persons seeking to develop any project consult sportscotland Project Development Checklist for mountain bike trails and training facilities and engage the skills of a specialist trail designer.

Types of Skills facilities

Skills areas are for cyclists to develop their technique and skills in and safe and fun environment. These skills can then apply when riding cross country trails and downhill courses and improve their performance when participating in events. The allow cyclists to assess their own level of skill prior to trying a trail, they may also be competition facilities in their own right. We recommend that all of these skills areas are situated close to amenities and have easy vehicular access.

1. Non-technical Skills Area

What? A non-technical skills area is a space which can be used for coaching groups or clubs, where cycling 'drills' can be taught.
What for? Basic bike handling and skills drills include: cycling in and out cones; picking up bottles; learning to front & rear wheel lift; bunny-hops.
Where? This could be a purpose built facility or it could make use of an existing facility such as a multi-use games area or a safe area of tarmac, for example a playground or a safe area of car park which

can be cordoned off.

2. Technical Skills Area

What? A technical skills area contains a number of 'technical trail features'. The features may have options of difficulty graded in line with those on cross country trails.
What for? The features require cycling technique and skill to manoeuvre past and are typically found on a cross country mountain bike trail. The features typically include rollers (bumps), jumps, berms (banked corners), skinnies, drop offs (steps), rock sections, 'flat' corners and wooden boardwalk.
Where? A technical skills area is typically located adjacent to mountain bike trails, allowing cyclists to practice technique and assist in deciding upon the appropriate trail grading for their ability.

3. Pump Track

What? A pump track is a looped track that consists of number of berms (banked corners) and rollers (bumps) and other trail features that allow a cyclist to generate speed without pedalling. This technique is called pumping.
What for? This track allows cyclists to learn key balance, pedalling and bike handling skills that apply to mountain biking.
Where? These tracks can be accommodated in small urban areas, park settings, schools or as stand alone facilities or adjacent to other skills facilities and trails.

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4. Skills trails

What? A skills trail is a short trail that contains a number of 'technical trail features'. Each feature may have difficulty options in line with cross country trails. They can be permanently installed path routes or temporary structures like the one shown below.
What for? Many experienced cyclists will also enjoy this facility to develop their skills and practice improving their technique and getting faster.
Where? These tracks can be accommodated in park settings or schools as stand alone facilities that allow cyclists a first taste of mountain biking but are also well suited adjacent to other skills facilities and/or cross country trails and networks.

5. Freeride Areas & Freeride Trails

What? These are extreme versions of skills trails or skills areas with severe features similar to those used in downhill mountain biking.
What for? Freeride areas and trails are specifically designed for expert cyclists to execute gravity powered jumps and extreme features. Features may include large jumps, vertical wall rides, large drop-offs, elevated boardwalks or rock-gardens with very challenging terrain.
Where? These may be stand alone facilities or may be suitable adjacent to downhill trails.

Accessibility

As a service provider of a public facility any trail operator will have a duty under the 2010 Equity & Inclusion Act to make reasonable adjustments or provision to ensure that disabled participants are able to use your facility. Consideration should be given to the trail width and or route options to accommodate adapted wheelchairs & bikes. Trail design should be also ensure the safety of those on mountain bikes on wider and potentially faster trails. Signage should be clearly identify trail suitability and risks.

Scottish Access Legislation

The Land Reform (Scotland) Act 2003 gives everyone statutory access rights to most land and inland water. People only have these rights if they exercise them responsibly by respecting people's privacy, safety and livelihoods, and Scotland's environment.

For a greater understanding of access rights in Scotland see
The Scottish Outdoor Access Code published by Natural heritage Scotland
www.outdooraccess-scotland.com

For a greater understanding of access rights relating to mountain biking in Scotland see
'Do the ride thing' published by Scottish Cycling (DMBinS)
www.dmbins.com/files/Do_the_Ride_Thing.pdf

This sportscotland DATASHEET is intended to support only purpose built mountain bike trails. Facility developers and owners should be aware of access rights and should consider the needs of all users when developing facilities. We expect all purpose built mountain bike facilities to undergo a thorough scoping exercise, as part of the overall project management when developing facility, which will consult and consider other users as part of the process.

Guidance on general multi-use and upland paths is published by The Scottish Access Technical information network.
www.satinonline.org
Guidance on multi use path construction is published by Paths for All.
www.pathsforall.org.uk

Landowner Liability

Land managers have to manage their land and water responsibly in relation to access rights. Any person / organisation with a responsibility for an aspect of management of the land / trail has a legal Duty of Care to all users. Facilities catering for visitors should have clear signs warning or hazards and ensure that facility is designed in such a way to minimise unwanted risk to participants.

The Visitor Safety in the Countryside Group have published guidance on landowner and participant responsibility
vscg.co.uk/guiding-principles/responsibility

For more guidance on landowner liability see:
A Brief Guide to Occupiers' Legal Liabilities in Scotland published by Scottish Natural Heritage 2005.
www.snh.org.uk/pdfs/publications/heritagemanagement/occupiers.pdf

Maintenance & Inspections

An annual budget of approximately 5% of the capital build cost of the facility is likely to be required to maintain the facilities. Those with responsibilities for the trail must be able to show they have been suitably careful in its construction and maintenance in relation to the features of the trail and users' level of skill. Cyclists should be advised to cycle responsibly within their capabilities, and all users advised of the need to show consideration for other types of trail user. The landowner should undertake regular inspections in line with an appropriate risk assessment. Findings and action taken should be recoded to demonstrate due diligence.

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Suitable for

Track Type	Non-Technical Skills Area	Technical Skills Area	Pump Track	Skills Trail	Freeride Areas & Trails
People	Coaches Children Inexperienced cyclists	Coaches Children Inexperienced cyclists Proficient cyclists	Coaches Children Inexperienced cyclists Proficient cyclists	Coaches Children Inexperienced cyclists Proficient cyclists	Coaches Expert cyclists
Bikes	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes	Kids bikes Mountain bikes Mountain bike hybrids Hand bikes Recumbent bikes Tandem bikes	Off-road mountain bikes 4 wheel adapted bikes
Competition	Depending on location may be used as a starting area or for a skills competition prior to a race.	Unlikely to be a competition facility	Short fun timed laps are possible—likely to be incorporated into a bike festival or fun event.	Can be incorporated into short cross country events—likely to be for children and young people.	Freeride events can range from being very extreme (see Crankworx, Huckfest & Red Bull Rampage) to fun local 'style' events.

Design Characteristics

Track Type	Non-Technical Skills Area	Technical Skills Area	Pump Track	Skills Trail	Freeride Areas & Trails
Size	Min 20m x 30m	Min 20m x 30m	Width: 1.5—2m Length: 100m	Width: 0.8—1.5m Length: 1-2km	Min 20m x 50m
Suitable surfaces	Whindust surface, grass, concrete, tarmac	Whindust path, dug path, boardwalk timber, rock, boulders, logs	Whindust path, dug path, boardwalk timber, tarmac, concrete,	Whindust path, dug path, boardwalk timber, rock, boulders, logs	Whindust, built path, boardwalk timber, rock, boulders, logs
Site requirement	Relatively flat ground	Likely to be on relatively flat ground with constructed features. Shallow climbs and descents may be incorporated 2- 4%	Likely to be on relatively flat ground with constructed features	Likely to be on relatively flat ground with constructed features. Shallow climbs and descents may be incorporated 2- 4%	Needs to have a degree of slope for cyclists speed. Ideally around 5% gradient.
Character	Flat safe area	Each feature should provide options for the varying degrees of difficulty found on mountain biking trails. Options should incorporate a gentle route and any increase in difficulty should be very clearly signed.	Cyclists should be able to roll over all features which should be close together so that the momentum of each carries you into the next.	Each feature should provide options for the varying degrees of difficulty found on mountain biking trails. Options should incorporate a gentle route and any increase in difficulty should be very clearly signed.	By its nature trail should contain hazards however these should be very clearly signed.
Common technical trail features	No purpose built features	Berms (banked corners) Drops (steps) Rollers (bumps) Skinnies (balance beams) Technical climbs	Berms (banked corners) Rollers (bumps)	Berms (banked corners) Drops (steps) Rollers (bumps) Skinnies (balance beams) Technical climbs	Severe Jumps -Tabletops, doubles, spines, step-ups challenging rollers challenging berms rock gardens
Cost sqm*	£10-20	£30-40	£40-80	£30–60	£30-60

*The cost range is provided for guidance only. The site cost can vary considerably dependent on design, access, ground conditions, materials and other variables.

Additional Information

sportscotland DATASHEET 811 will provide information on cross country mountain bike trail types

sportscotland DATASHEET 812 will provide information on downhill trail types

sportscotland Project Development Checklist for mountain bike trails and training facilities will provide information on how to develop a facility project.

Endorsed by

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Please contact a member of our Facilities Team to discuss your project in detail:
sportscotland, Templeton on the Green, 62 Templeton St, Glasgow G40 1DA | e: facilities@sportscotland.org.uk | t: 0141 534 6500