SPORT IRELAND OUTDOORS

Recreational Cycle Trails Criteria for Ireland

June 2023

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FAOIN SPÉIR
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CYCLING IRELAND

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An Roinn Iompair
Department of Transport

TII
Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Disclaimer
The criteria set out in this document provide guidelines which outline good practice for the development of recreational cycle trails at the time of writing. The criteria do not purport to be exhaustive and may not cover every eventuality arising on a recreational cycle trail. Users should use their own judgement when implementing the guidelines. Although cycle trails may be developed in accordance with these criteria, Sport Ireland does not accept responsibility for liability for any accident or injury arising from the use of such trails.

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1 Introduction

1.1 Background

Sport Ireland plays a leading role in supporting the development of recreational trails throughout Ireland to encourage more people to be active in the great outdoors. Sport Ireland is tasked with the development of trail criteria and best practice along with maintaining the National Trails Register. This role is vital in the continued development of quality trails and is a key goal in Sport Ireland's policy on Sport and Physical Activity in the Outdoors (policy goal 3.2).

Sport Ireland supports the development and promotion of quality experiences and best practice for safe and sustainable outdoor sport and physical activity participation (policy goal 2.3). Sport Ireland believes standardised criteria for recreational cycling trails will assist in providing a high-quality and consistent approach to their development and ongoing management.

1.2 What is a Recreational Cycle Trail?

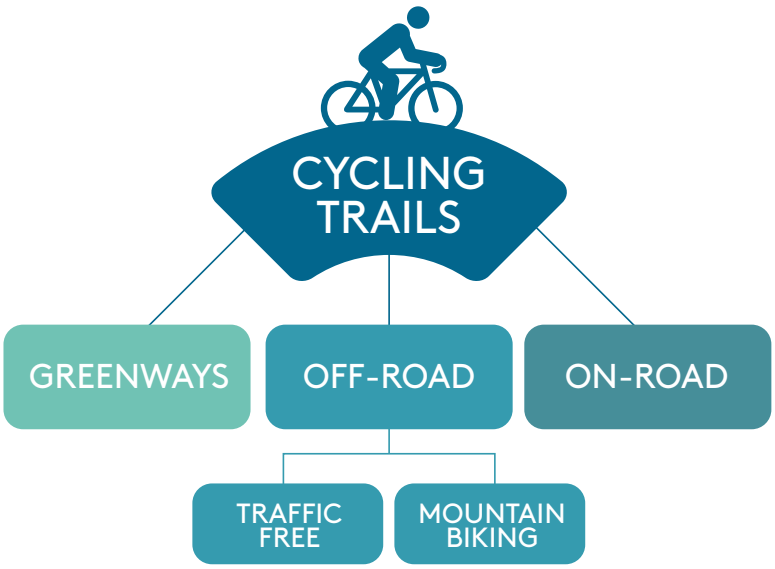
For the purposes of this criteria, a recreational cycle trail is defined as:

- A defined trail (either linear or circular) which is primarily used for recreation and leisure (rather than active travel)[1] which offers public access by bicycle as a minimum (i.e. some trails may offer shared use).
- Including appropriate signage and/or mapping which defines the trail.
- Including visitor information (pre and during visit) which allows the user to make an informed choice as to a trail's suitability relative to their ability, experience and equipment. This should also include reference to the level of accessibility for those with a disability.
- Accessible - free of charge to any member of the public, provided they do so with respect for other users and the environment[2].
- A clear proposition – i.e. a clear statement of what the trail offers – this will be consistently portrayed through trail name, promotional information, visitor information and signage.
- Managed by a defined management structure.
- An activity tourism and/or local participation initiative facilitating healthier lifestyles, social interactions and economic development.

1 It is acknowledged that some cycle trails such as greenways will be used for both recreation and active travel. The Department of Transport definition of Active Travel is 'travelling with a purpose using your own energy'
2 This does not preclude a reasonable charge for parking or a fee for equipment hire and/or instruction.

1.3 Recreational Cycle Trail Types

This criteria covers the following recreational cycle trail types[3]:



Greenway: The strategic definition[4] is 'a recreational or pedestrian corridor for non-motorised journeys, developed in an integrated manner which enhances both the environment and quality of life of the surrounding area. These routes should meet satisfactory standards of width, gradient, and surface condition to ensure that they are both user-friendly and low-risk for all users of all abilities.' In practical terms, a greenway should primarily be segregated from traffic, flat, smooth surfaced and offer shared use.

Off Road: This category is split into two further sub-categories:

- **Mountain Biking** – off road cycle trails typically in a forest environment that combine specifically designed off road trails which are interconnected by existing forest roads. The criteria will focus on trails ranging from easy (Green) to extreme (Double Black).[5]
- **Traffic Free** – primarily traffic-free[6] trails which differ from greenways in that they may utilise a range of surface types (forest roads, bog roads, canal tow paths etc), widths and gradients. These trails may be shared-use with other recreation users or dedicated to cycling.

On Road: These routes[7] avail of existing road infrastructure with minimum intervention required. The focus is on planning the route with the appropriate combination of traffic volume and traffic speed to provide a positive recreation experience for competent cyclists (i.e. those with experience cycling on public roads).

3 Sport Ireland recognizes that the way the public engage with our outdoors is constantly evolving, therefore this initial list of trail types will be kept under review.
4 Strategy for the Future Development of National and Regional Greenways
5 Whilst this grading also extends to Black (Severe) and Double-black (Extreme), Sport Ireland has determined these trail types are not appropriate for inclusion within the National Trails Register.
6 When the term 'traffic-free' in used within this publication it refers to free from motor traffic
7 As road cycling will take place on public roads, the term routes is used instead of trails.

1.4 Why have a National Trails Register and criteria for trails?

Sport Ireland maintains a National Trails Register which lists trails which meet set criteria. This currently includes walking, horse riding, water and cycling trails (this criteria). Nationally recognised, standardised criteria fulfil many functions, including:

Quality Standard – providing a consistently high-quality benchmark and best practice for the development and management of trails.

Confidence – trail developers, potential funders and the public can gain assurance the trail is of an acceptable quality.

Information – providing accurate information about trails which allows the public to make an informed choice as to a trail's suitability relative to their ability, experience and equipment.

Balance – enabling accessible and enjoyable access to Ireland's outdoors while simultaneously protecting the environment.

Insurance – trail management groups have the potential to access the National Trails Insurance Policy[8].

Promotion – the trail can be listed on Sport Ireland's Outdoors website and included on Ordnance Survey Maps. In addition, an approved trail is more marketable.

Trail Managers interested in registering a trail can apply to Sport Ireland for an independent trail registration inspection which uses an approved, standardised methodology to assess different aspects of a trail against the criteria set out in this document. If any aspect of the criteria has not been met, this will be identified during the assessment process. Trails which meet the required criteria will be added to the National Trails Register and included on Sport Ireland's Outdoors website. Periodic reassessment against the criteria, using the same process is required to stay on the register.

1.5 Key components for a successful Cycle Trail

International benchmarking and engagement with the outdoor recreation sector in Ireland have identified the following key components of a cycle trail[9]:

8 At the time of writing, the insurance policy applies to cycle trails which cross private land on a permissive access basis. This policy provides public liability cover to private landowners and occupiers who have given permission for trail/s to be developed on their property and whose property/land is crossed or adjoins a trail. Trails are considered and added on a case-by-case basis.

9 In recognition that many trail developers/managers will be responsible for many types of recreational trails, Sport Ireland has made a conscious effort to provide a level of consistency in approach when developing criteria for trails i.e. walking, cycling, horse riding and water trails.

FOUNDATION COMPONENTS

Those components which apply to all cycle trail types

Safety – potential safety issues have been identified, assessed and appropriate action taken to reduce, monitor and manage risk.

Access & Planning Agreement – access is formally agreed with all relevant landowners (public and private) and planning permission is in place (where required).

Environmental Sustainability – the impact on the environment has been considered and effective/approved mitigations to protect the environment have been put in place.

Trail Management – there are management structures, plans and processes in place to ensure the trail can continue to meet the required standard.

ACTIVITY SPECIFIC COMPONENTS

Those components which require specific considerations for each cycle trail type:

Trail Design & Infrastructure – the trail design is appropriate to the intended user and trail infrastructure follows set criteria.

Visitor Information & Signage - the visitor can make an informed choice as to the trail's suitability and find and explore the trail with confidence.

Trail Experience (Cycle Trail Plus Only) – the trail provides a positive visitor experience for those visiting the area.

Cycle Trail Plus – if a trail delivers on all the other components outlined within the criteria, it will provide a positive outdoor recreation experience. However, if trail developers wish to include the trail within a wider tourism destination portfolio it should aspire to 'Cycle Trail Plus' Criteria. These are optional and do not form part of the National Trail Register assessment process.

2 Criteria Checklist

This table is provided as a checklist to assist developers to view the criteria in their entirety from the outset. **Detail relating to each criterion is contained within the document.** A separate document will provide more detail regarding the National Trails Register registration process and inspection by Sport Ireland.

FOUNDATION COMPONENTS			
SAFETY *Potential safety issues have been identified, assessed and appropriate action taken to reduce, monitor and manage risk*	YES		NO
A detailed risk assessment has been undertaken by a person with the necessary expertise			
Required mitigations are in place to address safety issues			
ACCESS AGREEMENT *Access is formally agreed with all relevant landowners (public and private) and planning permission is in place (where required)*	YES	NO	N/A
A formal documented agreement is in place with all relevant landowners (public and private)			
Planning Permission has been obtained (where required)			
ENVIRONMENTAL SUSTAINABILITY *The impact on the environment has been considered and effective / approved mitigations to protect the environment have been put in place*	YES	NO	N/A
Evidence that the impact on **natural heritage** has been assessed and where relevant, consultation with, and approval from, the appropriate statutory body can be demonstrated			
Evidence that the impact on **built heritage** has been assessed and where relevant, consultation with and approval from the appropriate statutory body can be demonstrated			
Proactive measures are in place to stop the spread of invasive species and harmful pathogens			
A Litter Management Plan is in place			
The 'Leave No Trace' Principles are incorporated within visitor information			

FOUNDATION COMPONENTS		
TRAIL MANAGEMENT *There is a management structure and plans and processes in place to ensure the trail can continue to meet the required standard*	YES	NO
A Trail Management Organisation should be in place to effectively manage, monitor and maintain the trail.		
A documented Trail Management Plan must be in place which defines the key tasks, procedures and responsibilities for managing, monitoring and maintaining the trail.		
A robust process for recording and retaining trail management actions is in place		

TRAIL SPECIFIC COMPONENTS		
GREENWAYS	YES	NO
Trail Design and Infrastructure – The greenway adheres to the minimum criteria set out within applicable national standards		
Trail Design and Infrastructure – The greenway meets the traffic free design principles		
Visitor Information & Signage – The visitor information and signage model has been adequately executed		
Visitor Information & Signage – The greenway signage adheres to the minimum criteria set out within TII Standards and Greenway Design and Brand Guidelines		
Visitor Information & Signage – The greenway provides interpretation which allows users to experience the communities linked to the greenway and tells stories of the people and place through which they pass		
Visitor Information & Signage – The greenway has a robust approach to integrating experiences		
OFF-ROAD TRAFFIC FREE	YES	NO
Trail Design and Infrastructure – The trail meets the traffic free design principles		
Trail Design and Infrastructure – The traffic free trail grading has been accurately assessed and applied		
Trail Design and Infrastructure – Any necessary integration with road infrastructure follows applicable national standards		
Trail Design and Infrastructure – Adequate trailhead car park provision is in place		
Trail Design and Infrastructure – The visitor information and signage model has been adequately executed		
Trail Experience (Cycle Trail Plus Only) – Toilet facilities are available near the trail head		
Trail Experience (Cycle Trail Plus Only) – Food and Drink options are easily accessible from trail heads and/or trails		
Trail Experience (Cycle Trail Plus Only) – Bike hire is available		

OFF-ROAD MOUNTAIN BIKING	YES	NO
Trail Design and Infrastructure – The mountain bike trail grading has been accurately assessed and applied		
Trail Design and Infrastructure – Adequate trailhead car park provision is in place		
Visitor Information & Signage – The visitor information and signage model has been adequately executed		
Visitor Information & Signage – The mountain bike trail signage guidelines are adequately followed		
Trail Experience (Cycle Trail Plus Only) – Toilet facilities are available near the trail head		
Trail Experience (Cycle Trail Plus Only) – Food and Drink options are easily accessible from trail heads and/or trails		
Trail Experience (Cycle Trail Plus Only) – Bike hire is available		
ON-ROAD	YES	NO
Trail Design and Infrastructure – The on road route grading has been accurately assessed and applied		
Trail Design and Infrastructure – Adequate trailhead car park provision is in place		
Visitor Information & Signage – The visitor information and signage model has been adequately executed		
Trail Experience (Cycle Trail Plus Only) – Toilet facilities are available near the trail head		
Trail Experience (Cycle Trail Plus Only) – Food and Drink options are easily accessible from trail heads and/or trails		

3 Foundation Components

This section outlines the Foundation Components i.e. those which apply to all cycle trail types.

3.1 Safety

Safety – potential safety issues have been identified, assessed and appropriate action taken to reduce, monitor and manage risk

The safety of those engaging with Cycle Trails is of paramount importance, therefore a robust approach to identifying and assessing risk is required. It is essential to apply mitigations which are appropriate to the ability and experience of the end user and the environment. In all circumstances there should be 'no hidden surprises' that have the potential to cause harm or injury.

This section sets out the approach to risk assessment and is further guided by specific sections for each Cycle Trail Type. The approach to visitor safety is guided by the principles and practice set out by the Visitor Safety Group (VSG)[10].

3.1.1 Safety / Risk Assessment - Context

3.1.1.1 Balancing Risk & Benefit

The VSG states *'Visitor safety management is about balancing benefits and risks to provide overall benefit to society and individuals. It is not about creating a totally risk-free society or stopping important recreational and learning activities where the risks are considered and accepted.'*

VSG attests that by following its principles it should be possible to:

- achieve acceptable levels of safety using risk controls that do not harm the environment or reduce the value to society of our coasts and countryside;
- promote enjoyable access;
- meet our moral and legal obligations;
- use risk control solutions that comply with statutory requirements;
- achieve cost-effective visitor safety management;
- reduce costs, including those from claims.

10 VSG is a UK and Ireland wide network with the aim to both protect our historic buildings and landscapes, and encourage public access, within levels of risk acceptable to society.

3.1.1.2 Why managing visitor safety is important

The VSG outlines key reasons[11] as to why visitor safety is important, and these have been considered in the context of Cycle Trails:

Moral - First and foremost we want our visitors to return home safe, happy and satisfied with their experiences. We have a moral obligation to consider their safety and protect them from unnecessary or unreasonable risk. We also need to ensure that they do not feel overprotected. We must consider their right to willingly accept the risks that might come with the benefits they are seeking.

Legal - We have legal duties to ensure the safety of those who are affected by our work – our visitors. See Occupiers' Liability (Appendix A).

Financial - People affected by accidents often look for someone to blame and want to claim compensation. We want to be able to defend unreasonable claims. There is often a clamor for something to be done after an accident. We need to be in a strong position to resist the introduction of inappropriate or excessive safety measures. We can then avoid creating unwelcome precedents and incurring unnecessary costs.

Reputation and Authority - An entirely risk-free environment is not achievable or desirable. However, we must be able to demonstrate to the public, regulators and government that we have done all that is reasonably practicable to manage risks down to acceptable levels. If there is a major accident, we are then in a much better position to retain trust.

Retention - We want to attract, satisfy and in turn retain visitors to the outdoors. We may have different priorities for developing a Cycle Trail e.g. healthier lifestyles, social interactions and economic development, however, in each circumstance it is important to create an appropriately safe environment to attract visitors.

Visitor Information - We need to be sure that our visitor information (and if relevant promotional material) provides a balanced view of risk.

11 https://www.visitorsafety.group/principles/

3.1.1.3 VSG Guiding Principles

The VSG Guiding Principles emphasise the importance of conservation, access and personal enjoyment in the countryside and the need to find a balance between safety and these wider objectives. The principles also underpin the balance between the personal responsibility of the visitor and the responsibility of the landowner or manager.

FUNDAMENTALS	AWARENESS	PARTNERSHIP	RESPONSIBILITY	RISK CONTROL
• Take account of conservation, heritage, recreation, cultural and landscape objectives. • Do not take away people's sense of freedom and adventure. • Avoid resctrictions on access.	• Ensure that your visitors know the risks they face. • Inform and educate your visitors about the nature and extent of hazards, the risk control measures in place, and the precautions that they should take.	• Recognise that people taking part in similar activities accept different levels of risk. • Recognise that risk control measures for one visitor group may create risks to others. • Work with visitor groups to promote understanding and resolve conflict.	• It is important to strike a balance between visitor self-reliance and management intervention. • It is reasonable to expect parents, guardians and leaders to supervise people in their care. • It is reasonable to expect visitors to exercise responsbility for themselves. • It is reasonable to expect visitors not to put others at risk.	• Assess risks and develop safety plans for indvidual sites. • Risk control measures should be consistent. • Risk control measures should take account of wider benefits to society. • Monitor the behaviour and experiences of visitors to review visitor safety plans. • Make sure that your work activities do not expose visitors to risk.

3.1.1.4 VSG Risk Control Spectrum

The VSG Risk Control Spectrum (Appendix B) also provides a useful guide to assist decision making in striking the balance between visitor self-reliance and management intervention. This is particularly relevant when considering different approaches to risk management as Cycle Trails are developed in more challenging environments.

The general premise is that as the location becomes more remote and terrain more rugged, the level of visitors' skill and self-reliance should be more advanced. It is reasonable to expect visitors to have greater knowledge and awareness of risks and take more personal responsibility for their own safety. At the same time, the level of management intervention required would decrease and fewer physical safety measures are provided.

As the location and terrain become more developed, there will generally be higher visitor numbers and the level of management intervention would increase, although the relationship is not always this straightforward.

This approach also states it is reasonable to expect:

- parent, guardians and leaders to supervise people in their care – albeit they may need to be informed of unexpected or hidden risks;
- visitors to exercise responsibility for themselves;
- visitors not to put others at risk.

Zoning – The level of management intervention may vary within a cycle trail or network of cycle trails. This is explored further via the approach to grading each trail type. For example, as the visitor journeys along a cycle trail there may be a transition in intensity, for example from a beginner mountain bike trail to an intermediate mountain bike trail. Whilst the visitor should be informed of this risk in advance, the management approach may also be to divide the trail into zones to prioritize the focus of management effort.

Limitations - The VSG Risk Control Spectrum is a simplified model to aid thinking. It does not cover all eventualities. For example, adverse weather conditions can make visiting any terrain more hazardous.

3.1.2 Safety / Risk Assessment – Application

A detailed risk assessment has been undertaken by a person with the necessary expertise.

The development and refinement of any Cycle Trail must be informed by a risk assessment. If the identified risk is considered unacceptable for the intended user of the trail, it may be necessary to look for an alternative route. It is critically important that the risk assessment is undertaken by someone with the necessary expertise i.e. demonstrable experience of having undertaken the task previously and a strong understanding of the trail type e.g. mountain biking.

The following five step approach is recommended:

1. **Identify** the hazards
2. **Consider** who might be harmed and how
3. **Evaluate** the risks and decide whether the existing risk control measures are adequate or whether more should be done
4. **Record** your findings and implement them
5. **Review** your assessment and update if necessary

Hazard - is there anything with the potential to cause harm. This will include:

- Inherent Hazard i.e. a hazard caused by a permanent feature e.g. steep descent, road crossing.
- Potential Hazard i.e. a hazard which may be temporarily caused e.g. heavy rainfall, engineering works.
- Infrastructure Hazard i.e. a hazard which may be caused by an item of infrastructure which is either defective or impacted by the conditions e.g. a broken boardwalk on a mountain bike trail or pothole of a greenway.

Risk - is the likelihood, high or low, that somebody will be harmed by the hazard, the severity of the harm and the number of people who might be hurt.

Risk Control Measures - are precautions to make an incident less likely to occur and/or the results less severe. A sample risk assessment template has been provided in Appendix C.

Required mitigations are in place to address safety issues

A Cycle Trail wishing to be listed on the National Trail Register must have required mitigations in place to address safety issues. In addition, a stated timeline for a review of risk assessment must be provided.

3.2 Access & Planning Agreement

Access Agreement – access is formally agreed with all relevant landowners (public and private) and planning permission is in place (where required)

To be sustainable, it is critical a recreational trail is developed through consultation, agreement and formal permission from all relevant landowners (public and private) and planning permission is in place (where required).

3.2.1 Agreement / Permission

A formal documented agreement is in place with all relevant landowners (public and private)

A formal documented agreement should be in place with all the relevant owners of the land required for:

- trail development;
- development of supporting infrastructure such as car parks;
- installation of additional signage / visitor information;
- use of access roads / entry points (which are not part of the cycle trails) for maintenance access.

These can be divided into two distinct categories:

Public Landowners – State land may be owned and or managed by bodies such as local authorities, Coillte, Bord na Mona, National Parks & Wildlife Service, Office of Public Works, Waterways Ireland, ESB, Inland Fisheries Ireland etc. Each body will have their own process for trail development requests and agreements.

Private Landowners – Private land is land which is owned by private individuals or companies. Private land includes jointly owned and commonage land, in which several people have shares. There may be multiple rights associated with commonage including grazing, turbary and fishing rights and often right holders may not have the freehold. There is no legal right of access to private land.

There are two main methods of agreeing access with private landowners:

Permissive Access – key points include:

- the landowner gives permission for the trail to pass through their property;
- it does not lead to a trail becoming a right of way;
- it is a trail that can be used by the public with the permission of the landowner, where users must not damage the landowner's interest;
- the landowner retains the right to withdraw permission for access should they so wish, subject to reasonable notice;
- the responsibilities in relation to the ongoing maintenance, liability and promotion of the cycle trail would rest with the trail developer/manager;
- the agreement may consider providing the landowner with a contract to carry out ongoing maintenance of the trail.

It is widely acknowledged that the permissive access model has been very successful to-date, but it can involve a degree of uncertainty for both landowners and users which may be an issue, particularly for greenways of strategic importance and there has been considerable investment in the development of infrastructure.

Permissive agreements should be unambiguous and typically include:

- duration of agreement and any review schedule;
- legal status e.g. MOU, permissive agreement, licence, lease etc.;
- map of trail and landowner's land folio;
- accurate description / drawing of capital works (if required);
- purpose of use e.g. cycle trail access point for non-motorised bicycles;
- who will be allowed to use the trail;
- exclusions – e.g. periods of the trail cannot be used e.g. due to agricultural operations – hedge cutting, sileage etc.;
- responsibilities of each party.

Land Purchase - This method is typically restricted to greenways due to their high strategic value. As such the Code of Best Practice for Greenways sets out the options and process for land acquisition.

3.2.2 Advisory Note - Consultation

Consultation with landowners both public and private should be undertaken from the outset of the project. It is advisable to do so prior to communication to the wider public otherwise there is the potential to damage future relationships.

3.2.2 Planning Permission

Planning permission has been obtained (where relevant)

Planning ensures the right development happens in the right place at the right time, benefiting communities and the economy. It plays a critical role in identifying what development is needed and where. It helps to decide what areas need to be protected or enhanced and assesses the suitability of proposed development.

Generally, you need planning permission for any development of land or property unless the development is specifically exempt. Development includes, carrying out work (building, demolition, alteration) on, in, over or under land or buildings and making a material (i.e. significant) change of use of land or buildings. Failure to obtain planning permission where it is required can result in penalties (e.g. significant fines and/or even imprisonment). Your local planning authority will be able to advise you about this.[12]

When planning a trail, it is strongly advised to consult with the relevant planning authority about any proposed development in relation to the land, and the planning authority may give advice regarding the proposed application. Pre-application consultations facilitate successful applications in that they give the local authority the opportunity to explain to an applicant the type of development that is likely to be acceptable according to the development or local plan.

Further guidance is available at from the Office of the Planning Regulator.

12 Office of the Planning Regulator

3.3 Environmental Sustainability

Environmental Sustainability – the impact on the environment has been considered and effective / approved mitigations to protect the environment have been put in place

Cycle Trails provide an excellent way to engage and connect with natural and built heritage assets. It is therefore essential that as a minimum Cycle Trail development and management avoids significant negative impact on the environment during both development and ongoing use. In addition, the Cycle Trail can add to or improve the environment e.g. through education and appropriate access.

3.3.1 Natural Heritage

Evidence the impact on natural heritage has been assessed and where relevant consultation with and approval from the appropriate statutory body can be demonstrated

The impact on the following should be considered:

International Designations – Ramsar (Convention on Wetlands is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources).

EU Natura 2000 Designations – Special Areas of Conservation (SACs), Special Protected Areas (SPAs).

National Designations – Natural Heritage Area (NHAs), Nature Reserves and National Parks.

Other Protections – In addition to the aforementioned designations there are a range of other habitats / species of high conservation value which must be considered.

Further guidance on the process and level of environmental assessment required is provided by National Parks and Wildlife Service

Where any trail development works are proposed alongside, or close to, a river, lake or watercourse, consultation should take place with Inland Fisheries Ireland (IFI). Inland Fisheries Ireland has developed a Guidance Document to the IFI Environmental Assessment Process describing the process and procedures in place within IFI to facilitate development and conservation works within Ireland's inland and coastal waters.

The Local Authority Waters Programme also provides guidance on achieving good or high water quality in our rivers, lakes, transitional and coastal waters, and groundwater, as required by the European Union Water Framework Directive.

3.3.2 Built Heritage

Evidence the impact on built heritage has been assessed and where relevant consultation with and approval from the appropriate statutory body can be demonstrated

The impact on the following designation should be considered:

- **Monuments** protected in the following ways:
  - Recorded in the Record of Monuments and Places
  - Registered in the Register of Historic Monuments
  - National monument subject to a preservation order (or temporary preservation order).
  - National monument in the ownership or guardianship of the Minister for Culture, Heritage and the Gaeltacht or a Local Authority.
  - Guidance is provided by National Monuments Service
- **Archaeological sites** listed under Archaeological Survey of Ireland's Site and Monuments Database
- **Protected Structures –** these are listed in each Local authority area within the Register of Protected Structures

3.3.3 Biosecurity and Invasive Alien Species

Proactive measures are in place to stop the spread of invasive species and harmful pathogens

Invasives.ie highlights the negative impact that invasive species can have on native species. They can transform habitats and threaten whole ecosystems causing serious problems to the environment and the economy.

It is essential Cycle Trails undertake proactive measures to stop the spread of invasive species and harmful pathogens. A biosecurity plan is therefore essential in most cases[13] and should be incorporated within a Trail Management Plan (see Section 3.4.2).

It should be recognised that the typical cycle trail visitor is mobile, for example, a mountain biker may visit several trails/trail centres across a number of days/weeks.

The overriding principle regarding biosecurity is that prevention is better than cure therefore awareness, education and training are key to successful biosecurity action planning. Pemberton Off-Road Cycling – Play, Clean, Go initiative provides a best practice example.

13 Road cycling trails have a very low risk of spread of invasive species and harmful pathogens, therefore, this is not an essential requirement for this trail type.

3.3.5 Litter / Waste

A litter management plan is in place

Litter and waste (including dog foul) left at access points and along a trail will detract from the users' experience and has a significant detrimental impact on the environment. The route should be kept free from litter, broken glass and fly-tipped waste.

A litter monitoring and pick up plan must be included in the Trail Management Plan. The schedule for this may need to be more frequent if there is a littering problem or at times of high usage.

3.3.6 Environmental Education / Awareness

The 'Leave No Trace' Principles are incorporated within visitor information

As a minimum Cycle Trail developers should incorporate the Leave No Trace Principles within information boards. However, it is recommended Leave No Trace Awareness Sessions should be offered to key stakeholders.

3.4 Trail Management

Trail Management – there is a management structure and plans and processes in place to ensure the trail can continue to meet the required standard

To ensure a Cycle Trail continues to maintain the high standard set out at launch, it is essential an effective trail management organisation / structure is in place to deliver a defined management plan for the monitoring and maintenance of the trail. In addition, this will be beneficial when demonstrating a robust approach to visitor management to insurance brokers.

3.4.1 Trail Management Organisation

A Trail Management Organisation should be in place to effectively manage, monitor and maintain the trail

The scale of the trail management organisation should be appropriate to the requirements of the Cycle Trail. In most circumstances, the trail management organisation will be formed during the development stage – it is therefore important it is able to draw upon appropriate expertise to inform both stages.

The management organisation may be subsumed within a pre-existing organisation or due to the geographic nature of Cycle Trails, trail management may involve a range of organisations. In this circumstance a partnership should be formalised via a mechanism such as a partnership agreement or Memorandum of Understanding (MOU). In all circumstances there must be a defined lead contact for each Cycle Trail. To aid ongoing management sustainability, it is recommended that this is a public body[14], although this is not essential.

3.4.2 Trail Management Plan

A documented Trail Management Plan must be in place which defines the key tasks, procedures and responsibilities for managing, monitoring and maintaining the trail

A Trail Management Plan should include (but is not limited to):

- Roles and Responsibilities within trail management organisation.
- Map of Trail and Inventory of infrastructure, signage, waymarking, counters etc.
- Risk Assessment – see Safety – section 3.1.
- Inspections
  - Schedule of Inspections – routine, operational and additional (e.g. following adverse weather, reported incident or accident).
  - Inspection Templates – including hazard identification, risk rating and priority for action.
  - Process for Random Fault Reporting (by stakeholder or member of public).
- Maintenance – template for recording maintenance undertaken.
- Incident & Accident Reporting by stakeholders or members of the public.
- Communication – process for communicating diversions, closures, exceptional events etc.
- Emergency Services Plan.

14 A public body is a formally established organisation that is, at least in part, publicly funded to deliver a public or government service. The term refers to a wide range of public sector entities.

- Biosecurity Plan (where relevant) – outlining proactive measure to stop the spread of invasive species and harmful pathogens
- Review Process and regularity

It is recognised that Local Authorities will already have maintenance regimes, emergency response and public feedback systems in place for the public road network – the Cycle Trail Management Plan may refer to these.

Additional Items – may include:
- Marketing Plan
- Event Management Plan

3.4.3 Record Keeping

A robust process for recording and retaining trail management actions is in place

The retention of all records related to the trail is best practice and will potentially be critical as a form of defence in the event of a claim for an injury on a trail. It is a condition of the National Trails Insurance Scheme that for cover to be eligible a trail has in place:

'...a system for ongoing maintenance and monitoring of the trail managed locally by the Trail Management Organisation. Any safety issues found or reported must be prioritised and addressed accordingly. Documented records of all monitoring or work carried out on the trail must be retained by the management organisation.'

Documented and dated records related to the management of a trail should include:
- Risk Assessment – including any reviews and rationale for same.
- Inspections & Findings.
- Maintenance and/or repair work.
- Accident/Incident Reports – including record of any resulting investigation/action.
- Specific decisions made by Trail Management Organisation.

4 Activity Specific Components

The remainder of this document is focused on the following specific trail types i.e.

GREENWAYS	OFF ROAD - Traffic Free - Mountain Biking	ROAD CYCLING - EuroVelo - On Road

5 Greenways

5.1 What is a Greenway?

The strategic definition[15] is 'a recreational or pedestrian corridor for non-motorised journeys, developed in an integrated manner which enhances both the environment and quality of life of the surrounding area. These routes should meet satisfactory standards of width, gradient, and surface condition to ensure that they are both user-friendly and low-risk for all user of all abilities.' In practical terms, a greenway should primarily be segregated from traffic, flat, smooth surfaced and offer shared use. Whilst primarily used for cycling they will also be used for walking and wheeling by both visitors and the local community alike.

Greenways are not simply a means of getting from A to B, they are an experience in and of themselves. They are also a means to experience the communities through which they transport us. Greenways should be used to tell the story of the people and places through which they pass and interpretation will be a key means of enabling this.

5.2 Greenway – Trail Design & Infrastructure

5.2.1 Greenway – National Standards

» The greenway adheres to the minimum criteria set out within applicable national standards

This publication has consciously avoided duplicating any relevant and existing publications, those planning and developing national and regional greenways should refer to Transport Infrastructure Ireland's (TII) Rural Cycle Way Design (Offline & Greenway) Standards.

These standards apply to the development and delivery of new or improved rural offline cycleways, including national and regional greenways (over 20km in length), which are funded through TII and/or when TII is the Approving Authority, unless otherwise instructed by TII. However, they also provide best practice guidance for those developing greenways under this length.

As required within TII Standards, where rural offline cycleways, including national and regional greenways, interface with the national, regional, and local road networks the requirements of complementary standards shall be taken into consideration and apply.

15 Strategy for the Future Development of National and Regional Greenways

5.2.2 Greenway – Traffic Free Principles

The Greenway meets the traffic free design principles

The following core design principles[16] will ensure routes are inclusive, safe and attractive – they are:

- be traffic free (there may be occasions where the integration of road infrastructure is required, for example, use of an existing local or undesignated road as part of a trail or when a trail crosses the road);
- be accessible to all legitimate users[17];
- be wide enough to accommodate all users, considering future and predicted usage levels;
- minimise maintenance;
- clearly and consistently signed;
- enable all users to safely cross roads;
- be attractive and interesting places to be;
- feel like a safe place to be.

The principles should be used alongside existing best-practice design guidance.

5.3 Greenway – Visitor Information and Signage

The visitor information and signage model has been adequately executed

Existing greenway visitor information and signage guidance has been incorporated within the Visitor Information and Signage Model as set out within Appendix D. The approach is summarised in the table below.

Step	Source
Pre-visit Information	Appendix D.1
Directional Road Signs	Section 5.3.1
Trail Head Identifier	Section 5.3.1
Trail Head Information Panels	Section 5.3.1
On Trail Signage	Section 5.3.1
Post Visit Review	Appendix D.6

5.3.1 Greenway - Specific Signage

The greenway signage adheres to the minimum criteria set out within Transport Infrastructure Ireland's standards and Greenway Design and Brand Guidelines

Appropriate signage and road markings are an integral and important part of any greenway serving to enhance coherence, safety, and attractiveness. Appropriate signage gives clarity to the user as to where the greenway starts/ends and provides warnings to potential risks that may be present. Beyond communicating operating requirements to users, the role of signage is important in the success of a route and is primarily to bring users to and along the route and inform them about the route.

16 These principles were identified during a best practice review and based on guidance within Sustrans Traffic-Free Routes and Greenways Design Guide

17 Those who are permitted to use the trail, for example, it may not be accessible to quads or scramblers as they are not a legitimate user

Signage and road markings fall into two categories:

- **Regulatory signage and line marking** – relating to signage on public roads, where greenways and public road intersect and along the greenway. The TII Rural Cycle Way Design (Offline & Greenway) Standards provide standards and links to other relevant standards such as Traffic Sign Manual.

- **Branding / wayfinding / communication** – consistency in the use of the Greenway Brand will maximise visibility and make it easier for potential users to find. All greenways should adhere to the Greenway Design and Brand Guidelines.[18] If the greenway forms part of a EuroVelo route the EuroVelo branding must also be incorporated into the signage and conform to Signing of EuroVelo Cycle Routes.

  Failte Ireland has also prepared a Greenways Naming Toolkit to guide this element of brand development.

5.3.2 Greenway - Interpretation (Cycle Trail Plus Only)

» The greenway provides interpretation which allows users to experience the communities linked to the greenway and tells stories of the people and place through which they pass

Greenways are not simply a means of getting from A to B, they are an experience in and of themselves. They also allow users to experience the communities linked to the greenway and should tell the stories of the people and places through which they pass. Interpretation enables that storytelling. It is a communication process that helps us to share our stories with others. Information presents facts; Interpretation unveils the local stories that are unique to your greenway.

Further information and guidance can be found within Failte Ireland's Greenway Visitor Experience and Interpretation Toolkit.

18 Please note: these brand guidelines must only be used on greenways funded by the Department of Transport

5.4 Greenway – Trail Experience (Cycle Trail Plus Only)

The greenway has a robust approach to integrating experiences

Experiential tourism is travel that is motivated by the desire to connect with a place, its culture and people. Research shows that today's visitor is less concerned with simply seeing or doing things; what they really want is to immerse themselves in the locale, interact with people, engage the senses, and learn the history and stories that are unique to a place. Developing experiences is all about combining natural landscape assets, tourism products, customer service, and engaging stories to create compelling consumer offerings or 'experiences' for the visitor. When the senses are engaged these triggers emotions and creates lasting memories.

To create experiences, the greenway needs to be bundled with a range of associated services such as transport to/from the greenway, accommodation, food, bike hire, guiding, culture, heritage etc. so that potential visitors can imagine themselves creating memories with family and friends when they visit the greenway. Experiences are successful when a business immerses the visitor in an interesting and engaging story, so creativity and building in the unexpected are important when developing greenway experiences. Further information and guidance regarding the utilisation of 'The Experience Wheel' can be found within Failte Ireland's Greenway Visitor Experience and Interpretation Toolkit.

6 Off-Road - Traffic Free

6.1 What is a traffic free cycle trail

As the name suggests, traffic free cycle trails are those which are primarily free from traffic, however for the purposes of this criteria they have been divided into a number of sub-categories:

- **Greenways** – as outlined in Section 5.
- **Mountain biking** – as outlined in Section 7.
- **Recreational[19] traffic-free cycle trails (i.e. the focus on this section)** – as a summary definition these are primarily traffic-free trails which differ from greenways in that they may utilise a range of surface types (forest roads, bog roads, canal tow paths etc), widths and gradients. These trails may be shared-use with other recreational users or dedicated to cycling.

6.2 Traffic Free – Trail Design and Infrastructure

6.2.1 Traffic Free – Principles

The Trail meets the traffic free design principles

The following core design principles[20] will ensure routes are inclusive, safe and attractive. They:

- are traffic-free (see section 6.2.3 re integration with road network);
- are accessible to all legitimate users[21];
- are wide enough to accommodate all users, considering future and predicted usage levels;
- minimise maintenance;
- are clearly and consistently signed;
- enable all users to safely cross roads;
- are attractive and interesting places to be;
- feel like a safe place to be.

The principles should be used alongside existing best-practice design guidance.

19 Active Travel routes (such as a Shared Active Travel Facility, Cycle Lane or Cycle Track) – active travel does not form part of this criteria and therefore the standards for these are outlined within TII's Rural Cycle Way Design (Offline & Greenway) and the National Transports Authority's National Cycle Manual.

20 These principles were identified during a best practice review and based on guidance within Sustrans Traffic-Free Routes and Greenways Design Guide

21 Those who are permitted to use the trail, for example, it may not be accessible to quads or scramblers as they are not a legitimate user

6.2.2 Traffic Free – Trail Grading

The Traffic Free Trail Grading has been accurately assessed and applied

The trail grading below provides an approach for traffic free cycling trails which are used for cycling only; shared use trails which will be used by multiple recreational activities such as walking and horse riding **must** comply to the additional width criteria referenced throughout.

In addition, to ensure a positive recreation experience, shared use trails should comply with relevant Sport Ireland criteria for the activities included i.e.

- Walking Trail Criteria for Ireland
- Horse Trail Criteria for Ireland

GRADE	EXPECTATION
Traffic Free Cycling – All Ability	Relatively wide trails with a smooth, even and consistent surface. No significant climbs or descents and no technical features. *Shared with other users (as advised by trail manager)*
Traffic Free Cycling – Easy	Relatively wide trails with a smooth, even and consistent surface. No significant climbs or descents and no technical features. *Shared with other users (as advised by trail manager)*

Please Note: The 'Cycling Only – Easy' trail grade is the same as a 'Mountain Bike – Easy (Green)' trail. In reality, trail users do not require a mountain bike to undertake a 'Mountain Bike – Easy (Green)' trail, however a trail manager for a site which only includes mountain biking trails may wish to name them as such for consistency.

Further detail is provided within the technical classifications below. A glossary of terms is available is Appendix E.

TRAFFIC FREE CYCLING – ALL ABILITY	
Suitable for[22]	Any cyclist using any type of bicycle regardless of their ability or experience. This includes family/leisure cyclists of all abilities including bikes with child seats, tag-alongs, trailers and training wheels. They should therefore be wide enough to safely accommodate these users. ***If shared use:*** All users (as defined by the trail manager e.g. walkers, horse riders, cyclists) at the same time including those with limited ability.
Grade Description for Users	Relatively wide trails with a smooth, even and consistent surface. No significant climbs or descents and no technical features. ***If shared use:*** Shared with other users (as advised by trail manager)
CLASSIFICATION FOR TRAIL DEVELOPERS	
Trail Surface	Smooth, even and consistent surface throughout and can include asphalt and compacted gravel and dust. Even and consistent surfaces are also important in ensuring that cyclists with a variety of bicycles and tyres can safely access the trails, including children with bikes with small wheels or training wheels.
Trail Width	Minimum 1500mm ***If shared use:*** Minimum 2500mm
Trail Gradient	Maximum Average Gradient not more than 3% Maximum Absolute Gradient not more than 5% for not more than 30m in length Low gradients are essential to ensure safe use of these trails by all users and to ensure that conflicts between users or safety issues do not affect the sustainability of the trails
Lines of sight	Minimum of 40m
Trail Features	**Flat or level trails with no significant trail features. Guidance is provided below:** **Grade reversals:** minimum length 10m, maximum depth 500mm **Turns**: Climbing turn, minimum radius 10m Rolling crown switchbacks, minimum radius 8m Berms – NONE **Level changes:** None **Steps, step downs and rollable step downs**: None **Rollers, Tabletops, Log Rides:** NONE **Boardwalks**: minimum width 2500mm –maximum height above ground level 300mm Guardrails: minimum height 1100mm where there are exposed drops of over 300mm Maximum gradient of boardwalks 0% with no out-slope or in-slope **Bridges:** minimum width 2.5m – guardrails both sides of minimum height 1100mm **Other:** Any exposed edges higher than 600mm should have a guardrail throughout, minimum height 1100mm

22 This aligns with the Multi-Access Trail definition within the Irish Wheelchair Association – Get Outdoors Access Guidelines

TRAFFIC FREE CYCLING – EASY	
Suitable for[23]	Suitable for most users including children capable of riding off-road bikes with wheels of not less than 400mm and users with limited mobility using an off-road wheelchair. A mountain bike will be most comfortable but other bikes with wide tyres are suitable. Suitable for bikes with tag-a-longs, but not bikes with stabilisers or child seats. Basic bike control skills required. *If shared use:* By all users (as defined by the trail manager e.g. walkers, horse riders, cyclists) at the same time including: • Pedestrians of mixed abilities including young children and some baby buggies • Equestrian users of all abilities[24] *Not suitable for:* • Those of limited mobility or with impaired vision
Grade Description for Users	Relatively flat, wide and smooth trails. Gentle climbs, descents, rollers and berms, with easy to avoid features such as rocks and potholes. Surface might be loose, uneven or muddy at times.
CLASSIFICATION FOR TRAIL DEVELOPERS	
Trail Surface	Consistent sealed surfaces can include asphalt and compacted stone, gravel and dust. These trails can include areas of accumulated leaf litter of not more than 20mm deep and accumulations of loose gravel not more than 20mm deep
Trail Width	Range:1500mm to 2200mm *If shared use:* Minimum 1800mm
Trail Gradient	Maximum Average Gradient not more than 5% Maximum Absolute Gradient not more than 8% for not more than 20m
Lines of sight	Minimum of 30m
Trail Features	Flat or level trails with no significant trail features **Grade reversals:** minimum length 5000m, maximum depth 800mm **Turns**: • Climbing turn, minimum radius 8m • Rolling crown switchbacks, minimum radius 8m **Level changes:** maximum height 60mm not less than 20m apart **Steps, step downs and rollable step downs**: None **Rollers, Tabletops, Log Rides:** None **Boardwalks**: minimum width 2.5m – maximum height above ground level 300mm, maximum gradient of boardwalks 0% with no in-slope or out-slope **Bridges:** minimum width 2.5m – guardrails both sides minimum height 1100mm **Pot holes:** maximum depth 60mm, maximum length/width 300mm, maximum frequency 2 x 20m **Other:** Any exposed edges higher than 600mm should have a guardrail throughout, minimum height 1100mm

23 This aligns with the Challenging Access Trail definition within the Irish Wheelchair Association – Get Outdoors Access Guidelines
24 The application of equestrian use to the trail is a wider management decision regarding appropriateness of horse riding to the site/trail

6.2.3 Traffic Free – Integration with Road Infrastructure

Any necessary integration with road infrastructure follows applicable national standards

As per the definition, traffic-free cycle trails are primarily traffic free, however, there may be occasions where the integration of road infrastructure is required, for example, use of an existing local or undesignated road as part of a trail or when a trail crosses the road. This should be undertaken in adherence to national standards – guidance is provided within Rural Cycle Way Design (Offline & Greenway) and the National Cycle Manual.

6.2.4 Traffic Free – Infrastructure

Adequate Trailhead car park provision is in place

A designated trail head should include off-road parking (i.e. off the public highway) which is adequate for the visitor number to the site.

Trailhead leading to either Multi-Access or Challenging Access Trails[25] should include:

- **Parking** - accessible parking bays and set down areas should be provided at the trailhead/access point. Consideration should also be given to developing linkages by bicycle to nearby towns and villages.
- **Level Access** - from the parking area to the route/s adjacent to the trail and leading to any on-site facility.
- **Public Accessible WCs/WC Changing Place Facility** - Locate adjacent to the trailhead/access point.

Additional non-essential options for all trails may include:

- Bike Racks
- Bike Wash
- Toilets

25 Irish Wheelchair Association – Get Outdoors Access Guidelines

6.3 Traffic Free – Visitor Information & Signage

The visitor information and signage model has been adequately executed

Traffic free trails should follow the Visitor Information and Signage Model as set out within Appendix D.

Step	Source
Pre-visit Information	Appendix D.1
Directional Road Signs	Appendix D.2
Trail Head Identifier	Appendix D.3
Trail Head Information Panels	Appendix D.4
On-trail Signage	Appendix D.5
Post Visit Review	Appendix D.6

6.4 Traffic Free – Trail Experience (Cycle Trail Plus Only)

If a trail delivers on the other components outlined within the criteria, it will provide a positive outdoor recreation experience for the end user. However, if trail developers wish to include the Traffic Free trail within a wider tourism destination portfolio it should aspire to 'Cycle Trail Plus' Criteria. These are optional and do not form part of the National Trail Register assessment process.

6.4.1 Toilets and Changing Facilities

Toilet facilities are available within close proximity of the trail head

Toilets and changing facilities which are publicly accessible should be provided near trailheads. Composting toilets offer an environmentally friendly solution and have lower construction costs with respect to power and effluent treatment, however care is required regards positioning and they require occasional management especially in high use areas of the trail.

6.4.2 Eateries & Attractions

Food and Drink options are easily accessible from trail heads and/or trails

Visitors should be able to easily access eateries preferably at trail heads. As a minimum they should be available within short walking distance. These should be clearly identified within visitor information. It may be appropriate for trail heads located in a more rural setting to offer mobile catering options. Although these should be sensitive to their setting and have proactive measures to prevent littering and deal with food disposal etc.

6.4.3 Bike Hire

Bike hire is available

Bike hire should be available with bikes appropriate to the trail grading. For example, sites offering Green (Easy Trails) should offer bikes suitable for that grade.

7 Off-Road - Mountain Biking

7.1 What is mountain biking?

For the purposes of this criteria, Mountain Biking is defined as off-road cycle trails typically in a forest environment that combine specifically designed off road trails which are interconnected by existing forest roads. These trails are typically provided in a specific 'Trail Centre' format or within a wider portfolio of a recreation site.

7.2 Mountain Biking – Trail Design and Infrastructure

7.2.1 Mountain Biking – Trail Grading

The Mountain Bike Trail Grading has been accurately assessed and applied

A common approach to mountain bike trail grading is used across the United Kingdom and Ireland. Whilst there are minor local variances it does nevertheless provide a consistent approach to allow those engaging with trails in various venues to select a trail based on their ability, fitness and equipment.
Mountain bike trails utilise the following summary grading:

Grade	Expectation
Green: Easy	Relatively flat, wide and smooth trails. Gentle climbs, descents, rollers and berms, with easy to avoid features such as rocks and potholes. Surface might be loose, uneven or muddy at times.
Blue: Moderate	A mixture of climbs and descents with moderate gradients, technical features like tree roots and rock steps; jumps and berms. Rollable features at controlled speed. Variable surfaces.
Red: Difficult	A mixture of steep climbs, descents and/or avoidable features. Larger jumps, berms and rollable features at controlled speed. Technical features such as tree roots, drop-offs and large rocks. Very variable surfaces.
Black: Severe	Long and steep climbs, descents and jumps. Numerous hazards including drop-offs and severe features. Rapid rate of surface change. Commitment required.
Double-Black: Extreme	Very fast and steep descents. Large drop-offs, jumps and unavoidable obstacles that require high levels of skill and commitment. Extreme level of exposure or risk. Rapid rate of surface change.

The above grading names, descriptions, shapes and colours has been developed by the key public bodies responsible for the development of mountain bike trails in the United Kingdom[26] and is reproduced with their permission.

Whilst this grading also extends to Black (Severe) and Double-black (Extreme), Sport Ireland has determined these trail types are not appropriate for inclusion within the National Trails Register. Further detail is provided within the technical classifications below:

Green: Easy	
Suitable for	Suitable for most users including children capable of riding off-road bikes with wheels of not less than 400mm and users with limited mobility using an off-road wheelchair. A mountain bike will be most comfortable but other bikes with wide tyres are suitable. Suitable for bikes with tag-a-longs, but not bikes with stabilisers or child seats. Basic bike control skills required.
Grade Description for Users	Relatively flat, wide and smooth trails. Gentle climbs, descents, rollers and berms, with easy to avoid features such as rocks and potholes. Surface might be loose, uneven or muddy at times.
Classification for Trail Developers	
Trail Surface	Smooth, even and consistent surface throughout and can include asphalt and compacted stone, gravel and dust. These trails can include areas of accumulated leaf litter of not more than 20mm deep and accumulations of loose gravel not more than 20mm deep
Trail Width	Range: 1500mm to 2200mm
Trail Gradient	Maximum Average Gradient: not more than 5% Maximum Absolute Gradient: not more than 8% for not more than 20m
Lines of sight	Minimum of 30m
Trail Features	Flat or level trails with no significant trail features. Guidance is provided below. **Grade reversals:** Minimum length 5000m, maximum depth 800mm **Turns**: • Climbing turn, minimum radius 8m • Rolling crown switchbacks, minimum radius 8m **Level changes:** Maximum height 60mm not less than 20m apart **Steps, step downs and rollable step downs**: None **Rollers, Tabletops, Log Rides:** None **Boardwalks**: Minimum width 2.5m – maximum height above ground level 300mm, maximum gradient of boardwalks 0% with no in-slope or out-slope **Bridges:** Minimum width 2.5m – guardrails both sides minimum height 1100mm **Pot holes:** Maximum depth 60mm, maximum length/width 300mm, maximum frequency 2 x 20m **Other:** Any exposed edges higher than 600mm should have a guardrail throughout, minimum height 1100mm

26 Natural Resources Wales, Forestry & Land Scotland and Forest England – July 2002

Blue: Moderate

Suitable for	Suitable for participants with a moderate level of fitness and competency in bike control. Suitable for off road bikes only. Not suitable for training wheels, tag-a-longs, child seats and trailers.
Grade Description for Users	A mixture of climbs and descents with moderate gradients, technical features like tree roots and rock steps; jumps and berms. Rollable features at controlled speed. Variable surfaces.
Classification for Trail Developers	
Trail Surface	Variable though still stable surface that can be and slightly uneven and include some loose material. Surfaces can include compacted stone and gravel, soil, grass, sand, and mud. Accumulated leaf litter up to 30mm deep and areas of loose gravel not more than 50mm deep
Trail Width	Range: 800mm to 1200mm. Advisory minimum width of 1000mm
Trail Gradient	Maximum Average Gradient: not more than 5% Maximum Absolute Gradient: not more than 15% for not more than 20m or 8% downhill
Lines of sight	Minimum of 20m
Trail Features	Trail features should be rollable on a bike with 20" wheels or contain an option to avoid. Guidance is provided below: **Grade reversals:** Minimum length 3000mm, maximum depth 1000mm **Turns**: • Climbing turn - minimum radius 6m • Rolling crown switchbacks - minimum radius 4m • Berms - minimum radius 6m, maximum in-slope of trail 10%, maximum height 600mm **Level changes:** Maximum height 100mm not less than 10m apart **Steps, step downs and rollable step downs**: None **Rollers:** Maximum height 500mm, minimum length 1500mm, not less than 4m apart and either in sets of not more than 2 or in isolation **Tabletops:** None **Boardwalks**: Minimum width 1200mm – maximum height above ground level 500mm, guardrails minimum height of 1100mm where height above ground level exceeds 400mm, maximum gradient of boardwalks 5% and maximum out-slope/in-slope 3% **Bridges:** Minimum width 2.5m – guardrails both sides minimum height 1100mm **Pot holes:** Maximum depth 100mm, maximum length/width 500mm, maximum frequency 4 x 20m **Other:** Any exposed edges higher than 1500mm should have a guardrail throughout, minimum height 1100mm

Red: Difficult 

Suitable for	Suitable for experienced mountain bikers riding mountain bikes with at least front suspension. These are physically and technically demanding routes that require a competence in bike control and a good level of physical fitness.
Grade Description for Users	A mixture of steep climbs, descents and/or avoidable features. Larger jumps, berms and rollable features at controlled speed. Technical features such as tree roots, drop-offs and large rocks. Very variable surfaces.
Classification for Trail Developers	
Trail Surface	Variable and uneven including loose material, rocks, mud, gravel, soil, roots, grass and other vegetation. Surfaces may change suddenly and vary over short distances.
Trail Width	Range: 500mm to 800mm. Advisory minimum width of 600mm
Trail Gradient	Maximum Average Gradient: not more than 10% Maximum Absolute Gradient: not more than 20% for not more than 50m
Lines of sight	Minimum of 15m
Trail Features	Trail features should be rollable on a bike with 24" wheels or contain an option to avoid. Guidance is provided below: **Grade reversals:** Minimum length 2500mm, maximum depth 1000mm **Turns**: • Climbing turn - minimum radius 5m • Rolling crown switchbacks - minimum radius 4m • Berms - minimum radius 4m, maximum in-slope of trail 20%, maximum height 1200mm **Level changes:** Maximum height 150mm not less than 4m apart **Step downs**: Maximum height 500mm, not less than 4m apart **Rollable step downs:** Maximum height 1000mm, not less than 5m apart **Rollers:** Maximum height 1200mm, minimum length 1500mm, not less than 2m apart and in sets of not more than 3 **Tabletops:** Maximum height 1500mm, minimum length 2000mm **Boardwalks**: Minimum width 600mm – maximum height above ground level 1200mm, maximum gradient of boardwalks 10% and maximum out-slope/in-slope 15% level changes of up to 100mm, turns of up to 90° **Bridges:** Minimum width 2m – guardrails both sides minimum height 1100mm **Pot holes:** Maximum depth 120mm, maximum length/width 600mm, maximum frequency 5 x 20m **Other:** Any exposed edges higher than 1500mm should have a guardrail throughout, minimum height 1100mm

Black: Severe ◆	
Suitable for	Suitable for very experienced mountain bikers riding mountain bikes with suspension only. These are challenging trails in difficult and often remote settings with numerous difficult trail features.
Grade Description for Users	Long and steep climbs, descents and jumps. Numerous hazards including drop-offs and severe features. Rapid rate of surface change. Commitment required.
Classification for Trail Developers	
Trail Surface	Extremely variable and uneven, including large loose material up to 100mm size, mud, rocks, sand, grass and other vegetation, gravel and roots. Surfaces may change suddenly and unexpectedly and may be slippery and unstable.
Trail Width	Minimum 400mm
Trail Gradient	Maximum Average Gradient not more than 25% Maximum Absolute Gradient not more than 50% for not more than 10m
Lines of sight	Minimum of 15m
Trail Features	Trail features do not need to be rollable or contain an opt out option. Guidance is provided below: **Grade reversals:** Minimum length 1000mm, maximum depth 1500mm **Turns**: • Climbing turn - minimum radius 5m • Rolling crown switchbacks - minimum radius 4m • Berms - minimum radius 4m, maximum in-slope of trail 20%, maximum height 2000mm **Level changes:** Maximum height 300mm not less than 4m apart **Step downs**: Maximum height 1000mm, not less than 4m apart **Rollable step downs:** Maximum height 1500mm, not less than 5m apart **Rollers:** Maximum height 2000mm, minimum length 1200mm, not less than 1.5m apart and in sets of not more than 4 **Tabletops:** Maximum height 2000mm, minimum length 2000mm **Boardwalks**: Minimum width 500mm – maximum height above ground level 2000mm, maximum gradient of boardwalks 20% and maximum out-slope/in-slope 30%. Level changes of up to 300mm, turns of up to 60°. They can also include features such as ramps of up to 8m length and of a gradient of up to 50%. Where boardwalks are more than 1500mm above ground level guardrails of not less than 1100mm must be installed **Bridges:** Minimum width 1500mm with guardrails on both sides of minimum height 1100mm **Pot holes:** Maximum depth 120mm, maximum length/width 600mm, maximum frequency 5 x 20m **Other:** In addition to the trail features outlined above, these trails may also cross steep and exposed side slopes in rugged and challenging terrain. These trails may have unprotected exposed edges or drops of up to 2500mm. Where exposed edges or drops exceed 2500mm, guardrails of not less than 1100mm high must be installed. These trails can feature very limited clearance of as little as 800mm between trees, stumps, rocks, rocky outcrops and demarcation features such as block stones.

Double Black: Extreme 	
Suitable for	Suitable for expert mountain bikers, riding mountain bikes with suspension only.
Grade Description for Users	Very fast and steep descents. Large drop-offs, jumps and unavoidable obstacles that require high levels of skill and commitment. Extreme level of exposure or risk. Rapid rate of surface change.
Classification for Trail Developers	
Trail Surface	Extremely uneven, unstable or loose surfaces including, mud, sand, grass and other vegetation, roots, gravel and rocks. Surfaces may include large loose material up to 300mm in size. Surfaces may change suddenly and be both slippery and unstable.
Trail Width	Minimum 300mm
Trail Gradient	Maximum Average Gradient not more than 20% Maximum Absolute Gradient not more than 70% for not more than 20m
Lines of sight	N/A
Trail Features	Persistent trail features do not need to be rollable or contain an opt out option. Guidance is provided below: **Grade reversals:** Minimum length 1000mm, maximum depth 1500mm **Turns**: • Climbing turn - minimum radius 5m • Rolling crown switchbacks - minimum radius 4m • Berms - minimum radius 3m, maximum in-slope of trail 40%, maximum height 2500mm **Level changes:** Maximum height 1500mm not less than 2m apart **Step downs**: Maximum height 2500mm, not less than 4m apart **Rollable step downs:** Maximum height 3500mm, not less than 4m apart **Rollers:** Maximum height 2500mm, minimum length 1200mm, not less than 1.5m apart and in sets of not more than 4 **Tabletops:** Maximum height 2000mm, minimum length 2000mm **Log Rides:** Must be not more than 20m long with a gradient of not more than 20%, not less than 300mm wide and be not more than 1000mm above ground level. **Boardwalks**: Minimum width 300mm – maximum height above ground level 2500mm, maximum gradient of boardwalks 30% and maximum out-slope/in-slope 30%. Level changes of up to 600mm, turns of up to 60° and in-slopes/out-slopes of up to 40%. They can also include features such as ramps of up to 10m long and a gradient of up to 80%. Where boardwalks are more than 1500mm above ground level guardrails of not less than 1100mm must be installed. **Bridges:** Minimum width 1500mm with guardrails on both sides of minimum height 1100mm **Pot holes:** Maximum depth 120mm, maximum length/width 600mm, maximum frequency 5 x 20m **Other:** These trails may have unprotected exposed edges or drops of up to 2500mm. Where exposed edges or drops exceed 2500mm, guardrails of not less than 1100mm high must be installed. These trails can feature very limited clearance of as little as 1000mm between trees, stumps, rocks, rocky outcrops and demarcation features such as block stones

7.2.2 Mountain Biking – Infrastructure

Adequate Trailhead car park provision is in place

A designated trail head should include off-road parking (i.e. off the public highway) which is adequate for the visitor numbers to the site. Consideration should also be given to developing linkages by bicycle to nearby towns and villages.
Additional non-essential options may include:

- Bike Racks
- Bike Wash
- Toilets

7.3 Mountain Biking – Visitor Information & Signage

The visitor information and signage model has been adequately executed

Best practice mountain biking visitor information and signage guidance has been incorporated within the Visitor Information and Signage Model as set out within Appendix D. The approach is summarised in the table below.

Step	Source
Pre-visit Information	Appendix D.1
Directional Road Signs	Appendix D.2
Trail Head Identifier	Appendix D.3
Trail Head Information Panels	Section 7.3.1
On-Trail Signage	Section 7.3.1
Post Visit Review	Appendix D.6

7.3.1 Mountain Biking - Trail Specific Signage

The Mountain Bike Trail Signage Guidelines are adequately followed

7.3.1.1 Mountain Biking - Trailhead Information Panels

Trailhead information panels should be positioned in such a way the participant must pass the information prior to accessing the trail. This is to ensure they can make an informed choice regarding the suitability of the trail to their fitness, ability and equipment.

If a trailhead combines more than one type of trail it is good practice to separate the information relating to the individual activities e.g. one panel for a mountain bike trail and one panel for a walk trail.

The trailhead information panel for mountain bike trails should include as a minimum:

- Map – An up-to-date map or chart clearing showing
  - A clear legend of symbols
  - A distance scale
  - A north pointer
  - The complete trail
  - 'You are Here' pointer

- Start and Finish Locations
- All defined access points (if relevant)
- Location of obstructions, hazards or increase in difficulty

- Trail Description & Grading
  - **Mandatory**
    - Name of Trail
    - Grading name applied to each trail
    - Grading Shapes & Colours
    - Trail length in kilometres
    - Grading Overview
    - Emergency Services contact number (999 or 112)
    - Leave No Trace Principles – or other appropriate robust guidance

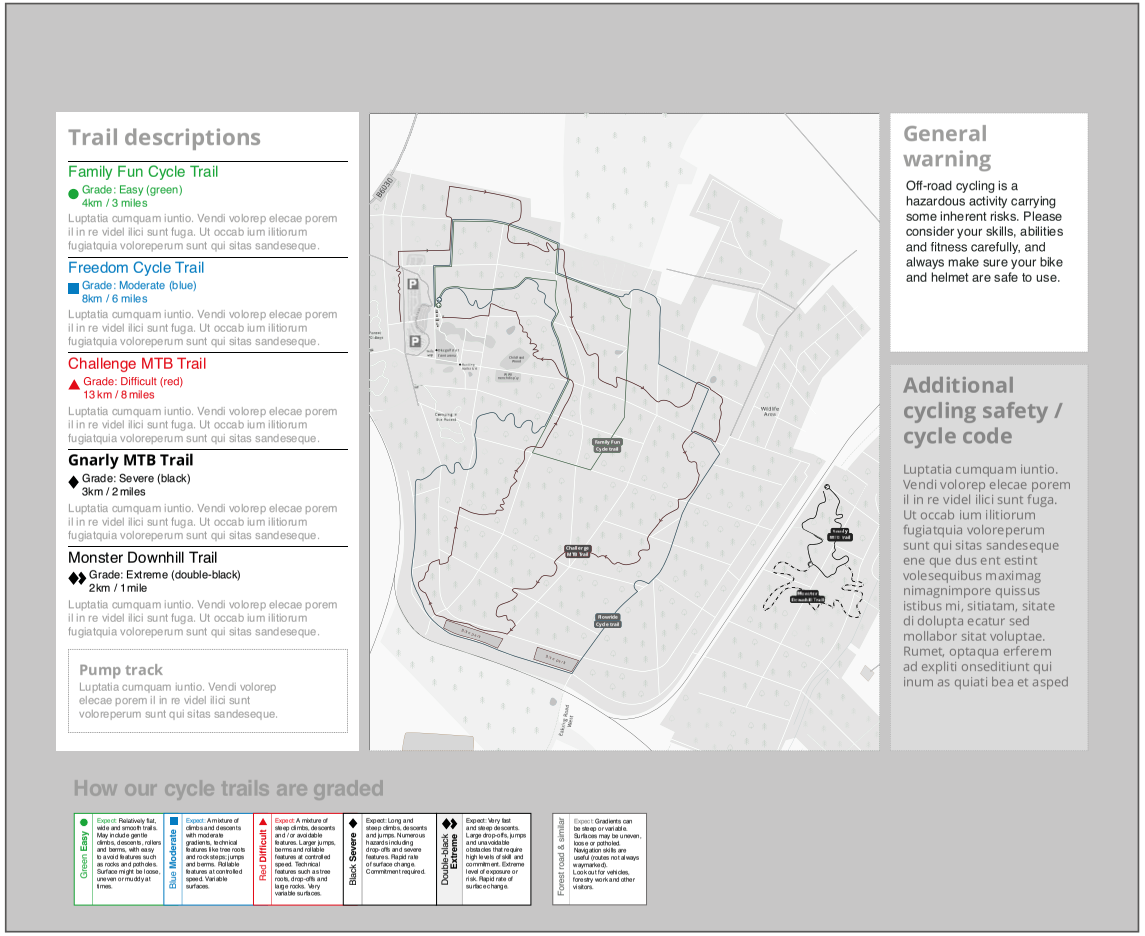
  - **Optional**
    - Method for visitor feedback – online form / email / phone number
    - Web URL or QR code – linking to pre-visit information

Mountain Bike Trail Head Information Panel Example

MANDATORY trail descriptions include:
- Grading names.
- Shapes & colours.

Ungraded features such as pump tracks can be listed separately.

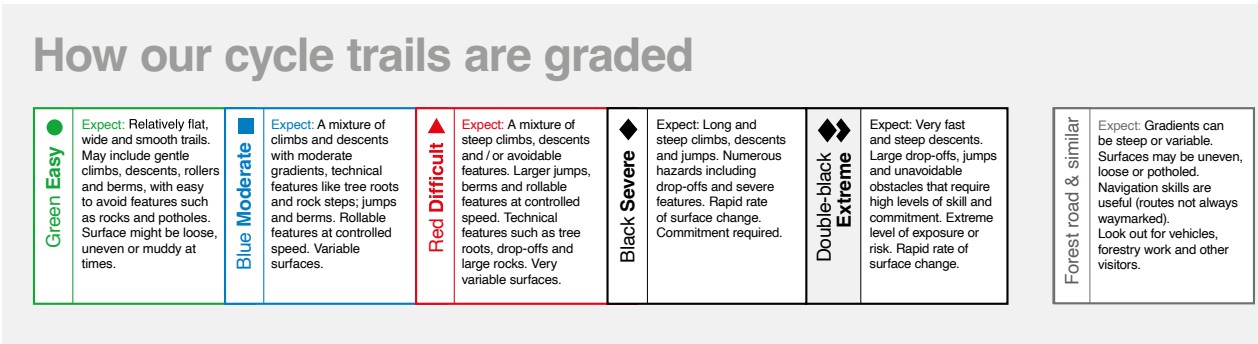
MANDATORY grading overview includes:
- Grading names and text.
- Shapes & colours.



General warning

Additional safety information (e.g. cycle code)

Example Portrayal of Grading[24]



ref. [27]

7.3.1.2 Mountain Biking – On-Trail Signage

Mountain Biking on-trail signage falls into three areas:

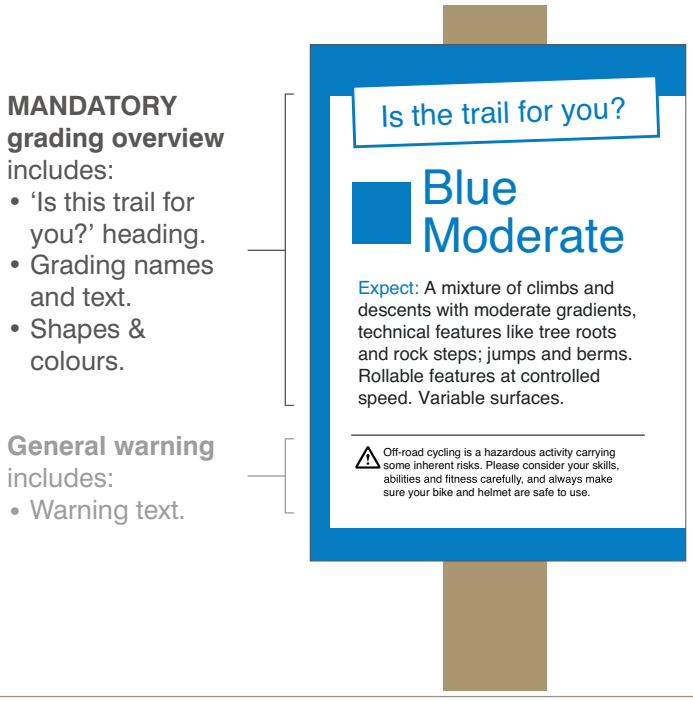
- Trail Start and Key Access Points
- 'Top of Grade' and hazard warnings
- Waymarking

Trail Start and Key Access Points

A trail start and key access point signage is required at a point where there is a change in grading, for example a red trail exiting a forest road transition. The trail user must be informed of the change in grade. It must include:

- Is this trail for you?
- Grading Names & Text
- Shapes and Colours
- General Warning

Example Trail Start Sign



27 The above grading has been developed by the key public bodies responsible for the development of mountain bike trails in the United Kingdom and is reproduced with their permission. This grading also extends to Black (Severe) and Double-black (Extreme), however Sport Ireland has determined these trail types are not appropriate for inclusion within the National Trails Register.

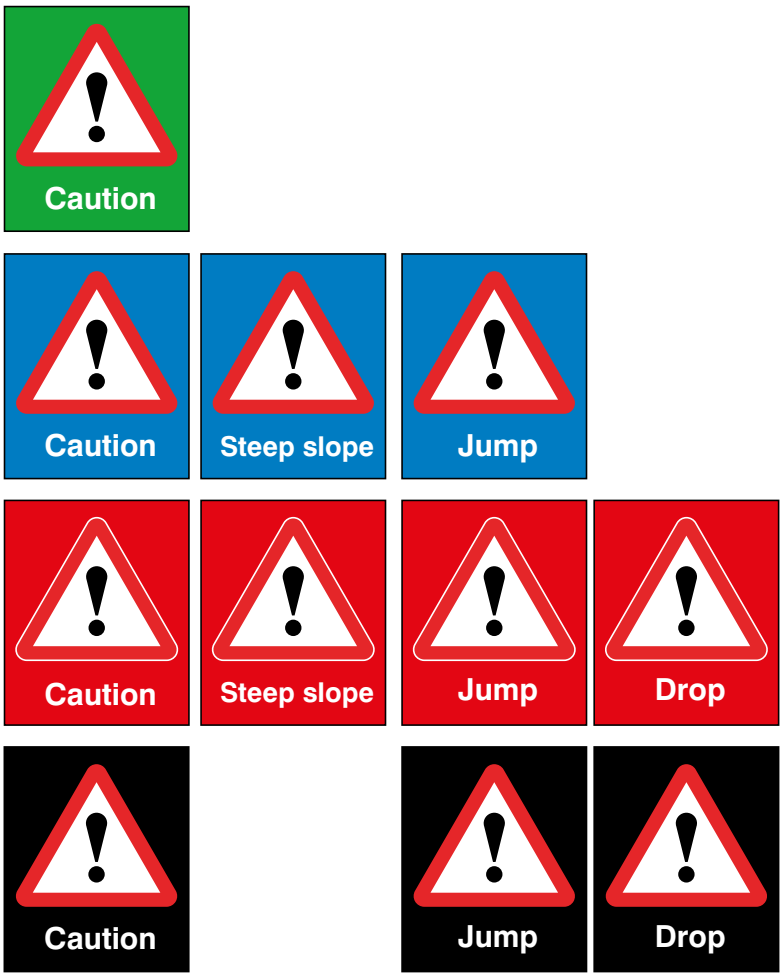
'Top of Grade' and hazard warnings

'Top of Grade' warning signs must be used for exceptional features that have a high risk/skill level relative to the grade in question

Optional Hazard warnings should be used for features that may be surprising or unusual in some way. (Note: grading covers all features within a trail, so these should only be used where there is an exceptional need, similar to the way warning signs are used on public roads).

Example Mandatory Top of Grade Signage

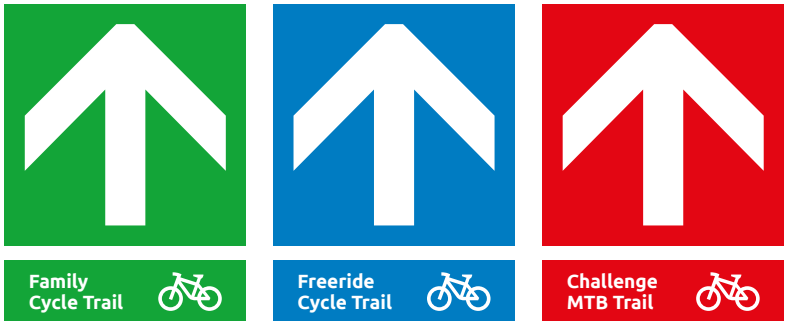
Example Optional Hazard Warnings



Waymarking

Waymarking should be used to allow trail users journey along the trail without a map. Waymarking will typically be used to direct cyclists along forest roads whilst transitioning to the next specific mountain bike trail section.

Example Waymarkers



- At the trailhead there should be clear and obvious waymarking/signposting indicating which way the trails(s) go.
- Where there are junctions on a route, or where there is a risk of the user diverting from the route, waymarking/signposting must be provided.
- At such junctions, waymarkers/signposts must be secure and correctly aligned, and clearly pointing in the direction of travel.
- Waymarkers/signposts must be clean, clearly visible to an approaching cyclist, and free from overgrown vegetation; on a route intended for travel in both directions the waymarker/signpost must be clearly visible from both directions.
- The same design of waymarker/signpost and marking standard must be used consistently throughout an entire route.
- If there are multiple routes in the same area, waymarkers/signposts must be coloured or numbered differently for each route, such that each route can be clearly identified and followed.
- Any temporary diversions on the route must be clearly waymarked/signposted

7.4 Mountain Biking – Trail Experience (Cycle Trail Plus Only)

If a trail delivers on the other components outlined within the criteria, it will provide a positive outdoor recreation experience for the end user. However, if trail developers wish to include the Mountain Bike trail within a wider tourism destination portfolio it should aspire to 'Cycle Trail Plus' Criteria. These are optional and do not form part of the National Trail Register assessment process.

7.4.1 Toilets and Changing Facilities

Toilet facilities are available within close proximity of the trail head

Toilets and changing facilities which are publicly accessible should be provided within close proximity to trailheads.

Composting toilets offer an environmentally friendly solution and have lower construction costs with respect to power and effluent treatment, however care is required regards positioning and they require occasional management especially in high use areas of the trail.

7.4.2 Eateries & Attractions

Food and Drink options are easily accessible from trail heads and/or trails

Visitors should be able to easily access eateries preferably at trail heads. As a minimum they should be available within short walking distance. These should be clearly identified within visitor information. It may be appropriate for trail heads located in a more rural setting to offer mobile catering options, although these should be sensitive to their setting.

7.4.3 Bike Hire

Bike hire is available

Bike hire should be available with bikes appropriate to the trail grading. For example, sites offering Green (Easy Trails) should offer bikes suitable for that grading.

8 On Road

8.1 What is On Road Cycling

Traffic free cycle trails are more likely to attract a larger number of users with a wider range of abilities, however, there is also a place for the development of cycle routes which utilise the vast network of Local Roads in Ireland (approximately 80,000km accounting for 80% of our road network[28])

Criteria are therefore provided for recreational on road cycling routes[29] which avail of existing road infrastructure with minimum intervention required. The focus is on planning the route with the appropriate combination of traffic volume and traffic speed to provide a positive recreation experience for competent cyclists (i.e. those with experience cycling on public roads). This criteria does not cover shared space roads where priority is given to cyclists, however, it is understood guidance in this area is under consideration.

8.2 On Road – Route Design & Infrastructure

8.2.1 On Road – Route Grading

The On Road Route Grading has been accurately assessed and applied

For the purposes of this criteria classifying on road routes fall into four sub-categories which consider traffic volume, traffic speed, ascent and distance.

28 Road Management Office (RMO)
29 As road cycling will take place on public roads, the term routes is used instead of trails.

Grade	Expectation
Easy	A mixture of public roads, primarily Local or Regional Roads including some very short sections of National Roads[30] with appropriate traffic volume and speed. Asphalt surface but may have imperfections and potholes than can be avoided. Gentle climbs and descents – with a total ascent no greater than 200m Maximum distance 10km
Moderate	A mixture of public roads, primarily Local or Regional Roads including some short sections of National Roads with appropriate traffic volume and speed. Asphalt surface but may have imperfections and potholes than can be avoided. Gentle climbs and descents – with a total ascent no greater than 500m. Maximum distance 15km
Challenging	A mixture of public roads, primarily Local or Regional Roads including some National Roads with appropriate traffic volume and speed. Asphalt surface but may have imperfections and potholes than can be avoided. A mixture of steep climbs and descents – with total ascent no greater than 1000m. Minimum distance 15km
Very Challenging	A mixture of public roads, primarily Local or Regional Roads including some National Roads with appropriate traffic volume and speed. Asphalt surface but may have imperfections and potholes than can be avoided. A mixture of steep climbs and descents – with no limit on total ascent. Minimum distance 25km

Further detail is provided within the technical classifications below.

EASY

Suitable for	Participants with: • a moderate level of fitness and competency in bike control • confidence in cycling on roads shared with a low traffic volume
Grade Description for Users	A mixture of public roads, primarily local or regional roads including some very short sections of National Roads with low traffic volume. Asphalt surface but may have imperfections and potholes than can be avoided. Gentle climbs and descents – with a total ascent no greater than 200m
Classification for Route Developers	
Surface	Asphalt or tarmac – may have imperfections and potholes that can be avoided
Road Category	The focus is to plan routes along local and regional roads. Very short sections of National roads with very low traffic volume may be used to provide a link between quieter roads. See Traffic Category.
Traffic Category	<table><tr><th>VERY LOW</th><th>LOW</th><th>MODERATE</th><th>HIGH</th><th>VERY HIGH</th></tr><tr><td>No Limit</td><td>Max 50%</td><td>Max 1%</td><td>Not allowed</td><td>Not allowed</td></tr></table> See section 8.2.2 for guidance.
Gradient	Maximum Average Gradient not more than 3% Maximum Absolute Gradient not more than 5% for not more than 30m in length.
Signage	Required – See Section 8.3.2
Distance	Maximum of 10km.

MODERATE

Suitable for	Participants with: • a moderate level of fitness and competency in bike control • confidence in cycling on roads shared with a low traffic volume
Grade Description for Users	A mixture of public roads, primarily local or regional roads including some short sections of National Roads with moderate traffic volume. Asphalt surface but may have imperfections and potholes than can be avoided. Gentle climbs and descents – with a total ascent no greater than 500m.
Classification for Route Developers	
Surface	Asphalt or tarmac – may have imperfections and potholes that can be avoided
Road Category	The focus is to plan routes along local and regional roads. Very short sections of National roads with low traffic volume may be used to provide a link between quieter roads. See Traffic Category.
Traffic Category	<table><tr><th>VERY LOW</th><th>LOW</th><th>MODERATE</th><th>HIGH</th><th>VERY HIGH</th></tr><tr><td>No Limit</td><td>No Limit</td><td>Max 50%</td><td>Max 1%</td><td>Not allowed</td></tr></table> See section 8.2.2 for guidance.
Gradient	Maximum Average Gradient not more than 5% Maximum Absolute Gradient not more than 10% for not more than 50m in length.
Signage	Required – See Section 8.3.2
Distance	Maximum of 15km. Advisory 5km to 10km

30 A summary of the classification of roads in Ireland is included within the Glossary in Appendix E.

CHALLENGING

Suitable for	Participants with: • a moderate-high level of fitness and competency in bike control • confidence in cycling on roads shared with a high traffic volume • the desire for a physical challenge of at least two hours – often as part of a cycling club or informal group • ability to navigate via map or through use of navigation technology
Grade Description for Users	A mixture of public roads, primarily local or regional roads including some National Roads with high traffic volume. Asphalt surface but may have imperfections and potholes than can be avoided. A mixture of steep climbs and descents – with total ascent no greater than 1000m.

Classification for Route Developers

Surface	Asphalt or tarmac – may have imperfections and potholes that can be avoided
Road Category	The focus is to plan routes along local and regional roads. Very short sections of National roads with high traffic volume may be used to provide a link between quieter roads. See Traffic Category.
Traffic Category	<table><tr><th>VERY LOW</th><th>LOW</th><th>MODERATE</th><th>HIGH</th><th>VERY HIGH</th></tr><tr><td>No Limit</td><td>No Limit</td><td>No Limit</td><td>Max 50%</td><td>Max 1%</td></tr></table> See section 8.2.2 for guidance.
Gradient	Maximum Average Gradient not more than 6% Maximum Absolute Gradient not more than 20%
Signage	Required – See Section 8.3.2
Distance	Minimum of 15km. Advisory 15km - 50km

VERY CHALLENGING

Suitable for	Participants with: • a high level of fitness and competency in bike control • confidence in cycling on roads shared with a high traffic volume • the desire for a physical challenge of at least two hours – often as part of a cycling club or informal group • ability to navigate via map or through use of navigation technology
Grade Description for Users	A mixture of public roads, primarily local or regional roads including some National Roads with high traffic volume. Asphalt surface but may have imperfections and potholes than can be avoided. A mixture of steep climbs and descents – with no limit on total ascent.

Classification for Route Developers

Surface	Asphalt or tarmac – may have imperfections and potholes that can be avoided. No loose material present.
Road Category	The focus is to plan routes along local and regional roads. Very short sections of National roads with high traffic volume may be used to provide a link between quieter roads. See Traffic Category.
Traffic Category	<table><tr><th>VERY LOW</th><th>LOW</th><th>MODERATE</th><th>HIGH</th><th>VERY HIGH</th></tr><tr><td>No Limit</td><td>No Limit</td><td>No Limit</td><td>Max 50%</td><td>Max 1%</td></tr></table> See section 8.2.2 for guidance.
Gradient	Maximum Average Gradient not more than 9% Maximum Absolute Gradient not more than 20%
Signage	Required – See Section 8.3.2
Distance	Minimum of 25km. Advisory 25km - 80km

8.2.2 On Road – Traffic Category

The aspect of an on-road route which is likely to have the most significant impact on the user experience and enjoyment of the route is the 'traffic category' - which is established by combining **traffic volume** and **traffic speed** – as per the table below. The guidance in this document regarding 'traffic category' is based on the European Certification Standards for EuroVelo routes published by the European Cyclists' Federation (ECF).

Traffic Volume

The traffic volume is the number of vehicles passing along the route. To establish the traffic volume, the route should be divided into segments.[31] The traffic volume on a segment can be estimated by counting the total of motorised vehicles passing in both directions past a defined point for 10 minutes. If time permits and for further accuracy, the count can be extended to an hour.

The following table indicates the traffic volume expressed in units per day, which will be estimated from a 1-hour count or a 10 minute count.

Units per day	Units per hour	Units per 10 minutes
Car – Free	None	None
500	36	6
2000	144	24
4000	288	48
10000	720	120

Traffic Speed

While the overall approach to establishing the 'traffic category' in this document adopts the ECF methodology, there is a modification to the recommended approach for establishing traffic speed. Rather than using the regulatory speed limit of the road, as proposed by the ECF, this document recommends that the speed is established by using the route finding application available in Google maps (or equivalent). This application can be used to establish the predicted time for a car to travel a specific distance between two points on the route - which make up a route segment. With this information it is possible to establish the average speed of motorised traffic on that segment.[32]

Traffic category

A route evaluation where traffic volume and traffic speed are established should preferably be carried out during the main cycling season between March and September.

Once the traffic volume and traffic speed are known, the 'traffic category' for the route segments can be established using the table below. Taking the length of the segments on the route the percentage of the total route that is within each traffic category can be established. Then, using the Grading Table below it can be determined if the route will be within one of the grades defined and if so which one.

31 A route segment is a section of the route where the traffic flow and speed are similar along its length. A change to a new segment will typically occur where there is a change in road classification, and/or where the route joins a different road or leaves the road it is already on and there is either and increase in the traffic volume and/or speed (even where the road classification may not change). Appropriate segments should be identified by cycling the route and making judgements based on the criteria described in this paragraph.

32 This information is established based on average time/speed data stored within the Google maps application (or equivalent). However this application also uses real time data and if used for this exercise at times when there is slow moving traffic, (e,g, morning and evening rush hour) the predicted average speed will be slower that typical. To avoid this situation the average speed must be established at a time when traffic flow is typical.

		Speed Limit km/h			
		< 30[33]	31 – 50	51 – 80	> 80[34]
Traffic Count - units / day	1 – 500	Very Low	Very Low	Very Low	Low
	501 – 2000	Very Low	Low	Low	Moderate
	200 – 4000	Low	Moderate	Moderate	High
	4001 – 10,000	Moderate	High	High	Very High
	10,000 <	Moderate	Very High	Very High	Very High

Route Grading Table

The following table outlines how this is applied to the On-Road Cycling Route Categories. Please note - the percentage relates to the overall route.

	Very Low	Low	Moderate	High	Very High
Easy	No Limit	Max 50%	Max 1%	Not Allowed	Not Allowed
Moderate	No Limit	No Limit	Max 50%	Max 1%	Not Allowed
Challenging	No Limit	No Limit	No Limit	Max 50%	Max 1%
Very Challenging	No Limit	No Limit	No Limit	Max 50%	Max 1%

8.2.3 On Road – Infrastructure

Adequate Trailhead car park provision is in place

A designated trail head should include off road parking (i.e. off the public highway) which is adequate for the visitor number to the site. Given the length of the routes, several trail heads may be identified. These are often staging areas for cycle clubs or informal groups.

The trailheads should be clearly identified and host a trail head information panel – see section 8.3

Additional non-essential options may include:

- Bike Racks
- Toilets
- Bike Hire

8.3 On Road – Visitor Information & Signage

The visitor information and signage model has been adequately executed

Appendix D outlines the overview model for visitor information and signage. The following table outlines how this is applied to on road routes.

33 30km/h or less
34 Greater than 80 km/h

Step	Source
Pre-visit Information	Appendix D.1
Directional Road Signs	Section 8.3.1
Trail Head Identifier	Appendix D.3
Trail Head Information Panels	Appendix D.4
On-Trail Signage	Section 8.3.2
Post Visit Review	Appendix D.6

8.3.1 On Road - Directional road signs to the trail

Directions to the main entry trailheads are not required as these may cause confusion with on-route signage.

8.3.2 On Road – On-Trail Signage

On-route signage must follow the standards within Traffic Signs Manual Chapter 4 – Other Information Signs and Chapter 6 - Warning Signs

On-route directional signage is required for 'Easy' and 'Moderate' routes only and is optional for 'Challenging' or 'Very Challenging' routes.

Challenging or Very Challenging routes must be accompanied by an online resource to allow cyclists to identify and follow the route. This should be provided by the route developer's website and supported by some of the following options Google Maps, Strava, Komoot, Map My Ride etc in addition to a downloadable GPX file of the route.

8.4 On Road – Trail Experience (Cycle Trail Plus Only)

If a route delivers on the other components outlined within the criteria, it will provide a positive outdoor recreation experience for the end user. However, if route developers wish to include the route within a wider tourism destination portfolio it should aspire to 'Cycle Trail Plus' Criteria. These are optional and do not form part of the National Trail Register assessment process.

8.4.1.1 Toilets and Changing Facilities

Toilet facilities are available within close proximity of the trail head

Toilets and changing facilities which are publicly accessible should be provided near to trailheads.

Composting toilets offer an environmentally friendly solution and have lower construction costs with respect to power and effluent treatment, however care is required regards positioning and they require occasional management especially in high use areas of the trail.

8.4.1.2 Eateries & Attractions

Food and Drink options are easily accessible from trail heads and/or trails

Visitors should be able to easily access eateries preferably at trail heads. As a minimum they should be available within short walking distance. These should be clearly identified within visitor information. It may be appropriate for trail heads located in a more rural setting to offer mobile catering options, although these should be sensitive to their setting.

9 EUROVELO

EuroVelo is the European cycle route network – comprising of 17 long-distance cycle routes passing through and connecting 42 countries. The network is coordinated by the European Cyclists' Federation (ECF)[35] in cooperation with the individual countries through which the route passes. Each country develops the section of the route(s) in their country.

In Ireland EuroVelo encompasses EuroVelo 1 – Atlantic Coast Route and EuroVelo 2 - Capitals Route which combine greenways, quiet roads and in some places incorporating parts of local sign-posted cycle routes. Work is ongoing to develop new traffic free sections, improve existing traffic free sections, improve existing on road sections by rerouting them onto traffic free sections or more suitable on road sections.

EuroVelo Route Criteria - When carrying out this work the European Certification Standard – Quality Criteria for long-distance cycle routes must be followed, however in some circumstances it defers to national criteria or standards. Trail developers should therefore refer to:

- Section 5 Greenways
- Section 6 Off Road Traffic Free

35 European Cyclists' Federation (ECF) is an umbrella federation for national cycling organizations that promote cycling in general and policies to increase of cycling modal share. The ECF has 81 member organizations representing 45 countries worldwide.

Appendices

Appendix A:
Occupiers' Liability

Overview

The Occupiers' Liability Act 1995 (the "1995 Act") addresses the legal exposure of landowners and occupiers to claims arising from injuries to different types of users on a premises and the duty of care owed to those users.

Section 1 of the 1995 Act expressly confirms that a premises includes land, water and any fixed or moveable structures, and defines an occupier as *"a person exercising such control over the state of the premises that it is reasonable to impose upon that person a duty towards an entrant in respect of a particular danger"*.

The extent of the duty of care of each occupier towards users is dependent on the degree of control the occupier has over the premises, the particular dangers on the premises, and whether the user is classified as a (i) visitor, (ii) recreational user or (iii) trespasser.

In the case of cycle trails, the trail manager e.g. local authority will typically be the occupier/landowner and users of the cycle trail will almost certainly be classified as *"recreational users"*.

Where property of other landowners/occupiers is included within a cycle trail the developer/manager will need to make appropriate arrangements with such landowner/occupier including indemnification under the Developer's insurance.

What duty is owed to recreational users

A recreational user for the purposes of the 1995 Act is someone who is on the premises with or without the occupier's permission or at the occupier's implied invitation, without a charge being imposed for the purpose of engaging in a recreational activity, such as cycling etc.

The duty of care owed to a recreational user is lower than that owed to a visitor, but greater than that owed to a trespasser. In particular, section 4 of the 1995 Acts requires an occupier not to "intentionally injure" or act with "reckless disregard" for the recreational user. Although "reckless disregard" is not formally defined, the 1995 Act sets out a number of factors to be considered in determining whether an occupier would be considered as acting with reckless disregard in the particular circumstances.

Relevant factors are largely based on the state of knowledge of the occupier in relation to the dangers associated with the premises, and the protections the occupier should reasonably be expected to provide having regard to the difficulty, expense and impracticability of implementing those protections.

Other very relevant factors in the cycle trail context include the character of the premises with regard to the recreational activity, and the desirability of maintaining a tradition of open access, as well as the warnings issued by the occupier and the care reasonably expected to be taken by the recreational user.

The duty owed by occupiers to recreational users is an area that has been litigated frequently, and it is clear that the courts do not impose onerous burdens on occupiers where recreational users are involved, in particular where the social utility of the recreational use is high and the risk to the users is clear.

Conclusion

As both the social utility and the dangers inherent in recreational cycling activities are generally clear and obvious, recreational users will be reasonably expected to take particular care in that context. The duty of care imposed on occupiers in respect of recreational users in the context of a cycle trail project may therefore be perceived as not being overly onerous.

However, of course, this will be subject to each managed cycle trail undertaking its own risk assessment and risk control exercise to ascertain individual preventative and protective measures.

All cycle trail developers should obtain independent legal/insurance advice from an appropriately qualified person in relation to their own developments. Furthermore, it is essential that appropriate warnings and safety advice should be included and prominently featured in promotional materials, both printed and those available online and at each trailhead/entry way to the Cycle Trail to minimize the risk of a legal challenge.

It should be noted that at the time of writing there is an ongoing review of the Occupiers' Liability Act.

Appendix B: VSG Risk Control Spectrum

Appendix B:
Sample Risk Assessment Template

Facility Risk Assessment:	
Activity:	
Date Completed:	**Location:**
Persons covered by risk assessment:	
Completed by:	

Visitor Safety Group – Risk Control Spectrum Classification:		
Level of Visitor Use, Location and Terrain	Level of Visitor's Skill, Self-reliance and Personal Responsibility	Level and type of hazard management required

The Hazard	Location of the Hazard	Who could be harmed?	Level of risk	Controls	Implementation/ Monitoring
Example Only:					
Woodland environment fallen trees, branches	*On the trails*	*Trail users, staff and their contractors*	*Low*	• *Dead trees immediately adjacent to route are felled and made safe* • *Windblown trees leaning across or towards the route felled and made safe.* • *Route maintained clear of fall and debris and cut material.* • *Trail inspections, tree inspections within 10m either side of trail* • *Inspection by trained staff only* • *Exception reporting by riders.*	*Nominated and trained member of staff to undertake trail inspections:* • *Visual 3 monthly inspections carried out and recorded by trained site staff* • *Annual independent tree inspection and audit of inspections carried out by external specialist* • *Operations Manager to review accident reports and monthly inspection reports and applies additional controls if required* • *Visitor information encouraging riders to report issues and how*

Assessment by:	**Approved by:**
Signed:	**Signed:**
Date:	**Date:**

Appendix D:
Visitor Information & Signage

Visitor Information, Signage & Trail Experience – the visitor can make an informed choice as to the trail's suitability, find and explore the trail with confidence.

The activity specific components for each cycle trail type provide an overview of how each can comply with the visitor information and signage model below. Each trail type will have specific signage requirements which replace some of the requirements below.

The purpose of the model below is to ensure the visitor can find the trail, make an informed choice as to the trail's suitability and explore with confidence.

The approach to each section below may differ for each specific trail type i.e. some trail types have specific guidance which must be followed. Please consult the Visitor Information & Signage Section of each trail type for further guidance.

All public bodies which come under the auspices of the Official Languages Acts (listed here) must comply with the Regulations (S.I. No. 391 of 2008) issued under Section 9(1) of the Official Languages Acts, 2003.

The regulations require that trails developed or funded by these public bodies must have signage on the trail either in Irish only, or in English and Irish in accordance with specific criteria set out in the Regulations. It is recommended that other groups erecting signage on trails also adhere to the Regulations to ensure correlation, although this is not a legal requirement.

The Office of An Coimisinéir Teanga has issued a Guidebook which may be of assistance in ensuring that signage complies with the Regulations. The Office can also provide advice on the Regulations, or on design proofs of signs. They may be contacted at eolas@coimisineir.ie or 091-504006.

D.1 Pre-visit Information

The visitor should be able to easily access pre-visit information online

The trail developer will inevitably wish to provide online information to attract visitors to their trail and this should be encouraged. However, the focus of this criteria is to ensure the online information is adequate to allow the visitor to make an informed choice as to the trail's suitability and also allow them to plan their trip with confidence.

As a minimum, the online pre-visit information should reflect:

- **Directions** - A link showing the trail start point (trailhead) on an online map which can provide directions (e.g. Google Maps) to allow potential users to find the trail

- **Map** – An up-to-date map clearly showing
  - A clear legend of symbols
  - A scale plus kilometre marker
  - A north pointer
  - The complete trail section (separate maps may be provided for longer trails)
  - Start and finish Locations
  - All defined access points (if relevant)

- **Trail Grading** – the appropriate trail grading - in the case of trails with multiple grades these should be portrayed on the map. Where relevant accessibility grading should also be included

- **Trail Description** detailing:
  - Name of Trail
  - Distance in Km
  - Estimated Duration
  - Concise Description of what to expect

- **Leave No Trace Principles** – or other appropriate robust guidance

- **Method for visitor feedback** – online form / email / phone number

- **Contact Details for Enquiries** - email / phone number

- **Link to downloadable GPX file or online mapping platform** – on road trails only

D.2 Directional Signs to the Trail

The visitor should be able to find the main entry trailheads from the nearest town(s)

- Directions to the main entry trailheads along the Cycle Trail should be signed. Signing should commence at the nearest town, village or junction with the nearest national road. Thereafter all junctions from the first sign en-route to the trailhead must be signed.
- Minor trailheads may be signed similarly to the main trailheads if required. The main trailheads should be easy to find however it may not be appropriate to provide directional signs from centres of local population and national roads to all of the trailheads due to cost as well as the risk of confusion where there are signs to multiple cycle trail entry points in the same area.
- Signs which are used on Public Roads in the Republic of Ireland should follow the guidelines within Department of Transport's Traffic Signs Manual

D.3 Trailhead Entrance / Identifier Sign

The visitor should be able to clearly identify the main trailhead entrance

In many cases, a trailhead entrance or identifier sign may be required to identify the trailhead / access points. The requirement for a trail head information panel to be near the trailhead often means they can be hidden within busy car parks.

This trailhead entrance or identifier sign will therefore provide reassurance that the visitor is in the right place. It should:

- be clearly visible to passing traffic
- not block visibility to those entering or exiting the site / car park
- never be used in place of a white on brown road sign / directional sign

D.4 Trailhead Information Panels

The visitor should be able to easily access key information regarding the trail

Trailhead information panels should be positioned in such a way that the participant must pass the information prior to accessing the trail. This is to ensure they can make an informed choice regarding the suitability of the trail to their fitness, ability and equipment.

If a trailhead combines more than one type of trail it is good practice to separate the information relating to the individual activities e.g. one panel for a mountain bike trail and one panel for a walk trail.
The trailhead information panel for mountain bike trails should include as a minimum:

- **Map** – An up-to-date map or chart clearing showing
  - A clear legend of symbols
  - A distance scale
  - A north pointer
  - The complete trail
  - 'You are Here' pointer
  - Start and finish Locations
  - All defined access points (if relevant)
  - Location of obstructions, hazards or increase in difficulty

- **Trail Description & Grading**
  - **Mandatory**
    - Name of Trail
    - Grading name applied to each trail
    - Trail length in Km
    - Grading overview including accessibility grading where relevant
    - Emergency Services contact number (999 or 112)
  - **Optional**
    - Leave No Trace Principles – or other appropriate robust guidance
    - Method for visitor feedback – online form / email / phone number
    - Web URL or QR code – linking to pre-visit information

It is recommended that trailhead panels have a secure updateable section to update visitors on frequently changing aspects for example events, trail closures, temporary hazards etc.

D.5 On-trail signage

On-trail signage positioned as required

On-trail signage falls into two areas:

- Trail Starts, and Key Access Points
- 'Top of Grade' and hazard warnings
- Waymarking

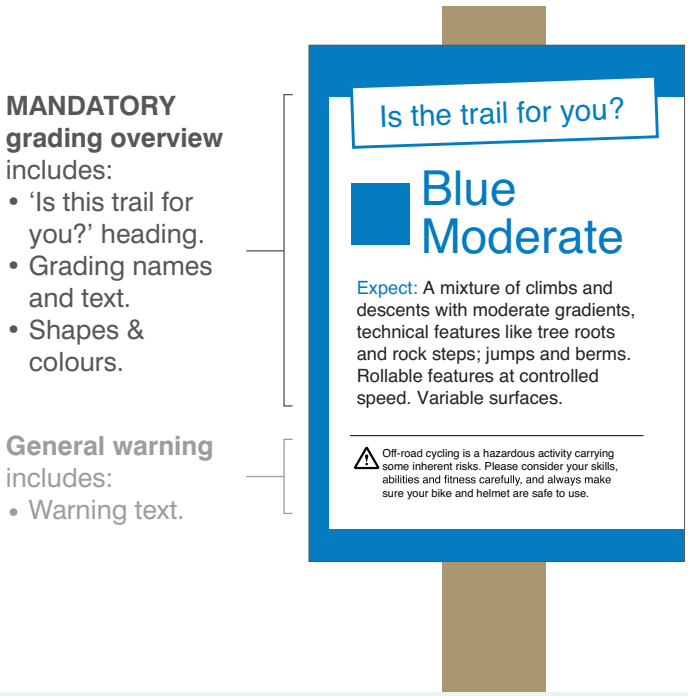
Trail Starts and Key Access Points

A trail start and key access point sign is required at a point where there is a change in grading, for example an easy trail option departing from an all ability trail. The trail user must be informed of the change in grade. It must include:

- Is this trail for you?
- Grading Names & Text
- Differentiating Colours

The general warning can be included as optional text.

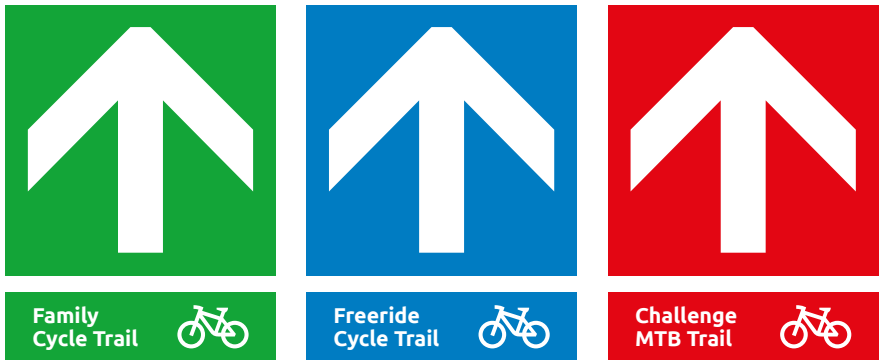
Example Trail Start Sign



Waymarking

Waymarking should be used to allow trail users journey along the trail without a map. Waymarking will typically be used to direct cyclists along forest roads whilst transitioning to the next specific mountain bike trail section.

Example Waymarkers



- At the trailhead there should be clear and obvious waymarking/signposting indicating which way the trails (s) go.
- Where there are junctions on a route, or where there is a risk of the user diverting from the route, waymarking/signposting must be provided.
- At such junctions, waymarkers/signposts must be secure and correctly aligned, and clearly pointing in the direction of travel.
- Waymarkers/signposts must be clean, clearly visible to an approaching cyclist, and free from overgrown vegetation; on a route intended for travel in both directions the waymarker/signpost must be clearly visible from both directions.
- The same design of waymarker/signpost and marking standard must be used consistently throughout an entire route.
- If there are multiple routes in the same area, waymarkers/signposts must be coloured or numbered differently for each route, such that each route can be clearly identified and followed.
- Any temporary diversions on the route must be clearly waymarked/signposted.

D.6 Post Visit Review

A method for visitor feedback is required

The user should be provided with an online method for providing feedback on the trail. Feedback will relate to management/maintenance issue and trail experience.

Appendix E:
Glossary of Terms

Boardwalks - wooden structures or recycled plastic that are commonly built to cross areas of sensitive or very wet ground. They are normally elevated aboveground level. The Trail Grade will define the width of the boardwalk, the height above the ground and the need to have handrails or not. The narrower the boardwalk, the higher the Trail Grade and the higher off the ground, the higher the Trail Grade.

Bridges - on some trails it is necessary to incorporate bridges into the design to cross a watercourse or a particularly wet area. Each Trail Grade will have a minimum width and defined surface of bridge. These should be consistent with the width and surface of the rest of the trail. In addition, the need for handrails will be specified where required.

Grade Reversals - these are a reversal of the gradient of the trail, i.e. from downhill to uphill (or vice versa) over any distance and can vary enormously in length, depth, gradient and frequency depending on the classification or category of the trail. The purpose of a grade reversal is to force water to exit the trail at the low point of the grade reversal, preventing erosion.
Each Trail Grade has a defined minimum length, maximum depth and steepness of grade reversal -

- The minimum length of grade reversal refers to the distance between the highest points at either end of the grade reversal.
- The maximum depth refers to the depth between the lowest point of the grade reversal and the highest points at either end of the grade reversal.
- The steepness of the grade reversal must not be greater than the maximum absolute gradient of the Trail Grade

The closer grade reversals are together and the shorter and deeper they are, the higher the Trail Grade. The higher the gradient of the steepest part of the grade reversal, the higher the Trail Grade

Level Changes - defined as where the level of the surface of the trail changes to either a higher or lower level. The height and frequency of level changes have a very significant effect on the classification of any trail, i.e. the greater the level change and the greater their frequency, the higher the Trail Grade. Such changes can be caused by features in the trail surface such as steps, rocks or roots. These can either be natural trail features or purposely designed trail features.

Lines of Sight - a straight line along which the trail user has an unobstructed vision. Each trail has a minimum line of sight that applies to the entire trail. This should be measured from each obstruction or corner either with a tape or more accurately with a trundle wheel

Maximum Average Gradient - this is the average gradient of the slope on each of the ascents and descents along the trail. The gradient is calculated using the amount of vertical distance over a given horizontal distance. For example, if the vertical distance is 10 metres over a horizontal distance of 100 metres then the gradient is 10%. The most accurate way to measure this is using a clinometer (also referred to as inclinometer) – an instrument used for measuring angles of slop, elevation or depression. If can also be more crudely measured using a GPX track.

Calculation:
Vertical Distance (10 m) x 100 = Gradient (10%)
Horizontal Distance (100m)

Maximum Absolute Gradient - this is the steepest part of the trail. Each trail grade has a defined maximum distance over which this can occur.

Road Classifications:

- **National:** National primary roads form the major routes between the major urban centres. National secondary roads form an important part of the national route network but are secondary to the main arterial routes which are classified as national primary roads. This category of road has the prefix "N" followed by one or two digits. The default speed limit is 100 km/h
- **Regional:** A class of road not forming a major route (such as a national primary road or national secondary road), but nevertheless forming a link in the national route network. Regional roads are numbered with three-digit route numbers, prefixed by "R" (e.g. R105). The default speed limit is 80 km/h
- **Local:** a public road not classified as a national primary road, national secondary road, or regional road but nevertheless forming a link in the national network of roads. Local roads are numbered with four- or five-digit route numbers, prefixed by "L" (for example, L3005 or L97476).

For more information see DTTAS Guidelines for Classification and Scheduling of Roads

Steps - are artificial level changes that have been constructed to gain or lose height on steep ground. They can be built of stone (stone pitching) or from timber with stone fill and they consist of risers and treads. The riser is the front face of the step and the height of these must comply with that which is stated in the Trail Grading. The height of the riser and the frequency of the steps have a very significant effect on who can use the trail. The tread is the flat upper part of the step and the width and length of this must comply with the dimensions stated in the Trail Grading. In addition, the percentage of steps to be found in any trail has a significant effect on its overall Trail Grade, i.e. the higher the percentage of steps the higher the trail category.

Step Downs and Rollable Step Downs - are Technical Trail Features (TTFs) that can be incorporated into Mountain Bike Trails and are level changes in the trail that are more than 500mm in height. Also, the level of the trail changes abruptly with either a vertical face between the two levels or a less than vertical but still steep slope in the case of a rollable step down.

Step downs - are only appropriate on Red Mountain Bike Trails and above and their positioning and alignment must be very carefully considered. They should not be more than 500mm high and must never be less than 4m apart. This is to ensure that trail users can prepare to tackle the feature. If they are less than 4m apart it can be very difficult for trail users to negotiate them.

Rollable step downs - are level changes where there is a less than vertical slope between the upper and lower levels of the trail where riders can 'roll' the bike over the feature rather than have to drop over it as in the case of a step down.

Technical Trail Features:

Rollers - These are large free-standing artificial grade reversals, which have been created using imported material to build the feature above the surrounding ground. They can vary in size from as little as 500mm high to as much as 1500mm. They are intended to add technical features to mountain bike trails

and should only be included in Blue trails and above and their dimensions and frequency must relate to the definition contained in the Trail grading.

Tabletops - these are quite large features that should only be included in Black Mountain Bike Trails or over. Their alignment and positioning must be very carefully considered, as should the dimensions, height and gradients of its component parts. Tabletops are in effect rollers with steeper approaches and transitions and longer flatter tops. Tabletops can be used as jumps but it is essential that riders can roll over every part of the feature. It is essential that tabletops are built to the required dimensions that relate to the Trail Grade. Poorly positioned tabletops or those with inappropriate dimensions can lead to them becoming a hazard to trail users.

Turns - where the direction of the trail shifts or changes significantly. Turns can be used for a variety of reasons including

- To change direction to get to a particular place
- To gain or lose elevation when on a steep side slope

The type of turn that is used in trail design will generally relate to the steepness of the side slope and the width available to make the turn. Turns are frequently the location of erosion either caused by water on the trail or by use. It is therefore crucial to ensure that the correct turn is identified in the trail design to limit the level of erosion on the turn.

There are essentially four types of turn as follows:

Climbing turn - This type of turn is generally used on flatter side slopes of less than 10%. Climbing turns are wide turns of between 60˚and 100˚ where there is a gain or loss of height during the turn itself and where side slopes do not exceed 10%. They have a radius of not less than 15 metres and generally have flat or out-sloped trail treads.
As these turns are wide and flat, they are easy turns to negotiate and can be used on any Trail Grade.

In-sloped climbing turn - This type of turn is generally used on steeper side slopes of up to 20%. Similar to a climbing turn, an in-sloped climbing turn is a wide turn of between 60° and 100˚. However, in an in-sloped climbing turn, the tread is significantly in-sloped to aid travel around the turn. In-sloped climbing turns allow more open and wider turns to be constructed on slightly steeper side slopes, since they require revetment on the lower leg of the turn in order that the tread can be in-sloped. This enables the turn to be built on steeper side slopes of up to 20% As these turns are wide and flat, they are easy turns to negotiate and can be used on any Trail Grade.

Rolling crown switchback - A switchback reverses direction with the help of a relatively level, constructed landing. Therefore the turn itself is on a crowned platform which has been built by bringing the lower leg of the turn up to meet the upper leg by building a revetment. Rolling crown switchbacks are much tighter turns of less than 70°. They are difficult to build but they are much more durable on steep slopes than climbing turns, therefore they can be used on side slopes over 10% and up to 70%. Rolling crown switchbacks must have a radius of not less than 3m and the gradients of the inward and outward legs must not exceed 5%. As these turns are tighter than climbing turns or in-sloped climbing turns, they are not as easy to negotiate and therefore must only be used on Blue Mountain Bike Trails and above.

Berms - These are turns of less than 90° where the outside of the turn has been built up and in-sloped at a steep gradient. This is generally done to enable turns to take place on steep side slopes, encourage effective trail flow and prevent skidding and erosion. The berm itself is constructed by making up the level of the outside of the turn and drastically in-sloping the tread of the trail by up to 50%.

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