



FITTING
LANDSCAPES
SECURING MORE
SUSTAINABLE LANDSCAPES



Local character is thus no mere accident ... it is attained only in the course of adequate grasp and treatment of the whole environment, and in active sympathy with the essential and characteristic life of the place

Sir Patrick Geddes 1854-1932

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Ministerial Foreword

Scotland has long been defined by the beauty and distinctiveness of its landscape. From the rugged coastline and drama of the Highlands through to the more gentle sheltered lowland areas, it is a landscape steeped in history and cultural significance. This landscape, and the way we interact with it, plays a key role in all aspects of our national life, whether economic, social or in terms of the quality of our environment. It is also a fundamental element in how Scotland is perceived around the world.

As custodians of this landscape we have a duty to respect, protect and where possible enhance the natural asset whilst managing, with sensitivity, the development pressures associated with a vibrant 21st century society. Good transport links are vital to enhanced social wellbeing and a crucial part of a strong and sustainable economy, whilst also offering visitors a window onto the landscape through which they pass.

It is important that these transport corridors are developed to promote and support sustainable travel objectives and deliver a transport infrastructure that respects and fits with the landscape, is resource efficient, and supports good place-making.

Through the application of this new **Fitting Landscapes** policy the Scottish Government seeks to further advance its commitment to quality in all aspects of landscape design and management in connection with transport infrastructure.



Mr Keith Brown MSP
Minister for Transport and Veterans

The policy will empower landscape architects, engineers and other relevant specialists to work together to deliver and maintain schemes that secure quality environments, promote design innovation and ensure a more sustainable approach to design and management, with greater capacity to adapt to future change.

The policy is based on best practice and lessons learned from more than a decade of applying the previous award-winning policy **Cost Effective Landscape: Learning from Nature**. It is applicable across all land-based transport modes and will be adopted as setting the high-level landscape design approach for all strategic road, rail and cycleway routes whilst being fully complementary to current Scottish Government policies on sustainability, biodiversity and the historic, built and natural environment.

In its landscape, Scotland has an enviable resource that can at once inspire, enthrall and astound – it is deeply embedded in our national psyche and an enduring fascination for visitors from near and far.

As a resource it requires careful management to ensure it remains an integral part of the lives of future generations. The **Fitting Landscapes** policy is founded on this understanding and the belief that the pursuit of high-quality, sustainable design and management and a commitment to early stakeholder engagement will help deliver an efficient and attractive transport legacy, set within a landscape of enduring splendour and diversity, of which we can be rightly proud.

The Scottish landscape is a prime national asset which is often experienced through the window of the country's transport networks

Status and Aims of Fitting Landscapes

Fitting Landscapes provides the Scottish Government's policy statement addressing the landscape design and management of our transport corridors. Such corridors can be major elements in the environment. It is important that they are designed and managed not only to meet their functional objectives but also to fit with the landscape through which they pass - reflecting local distinctiveness, conserving and enhancing areas of high quality or, where appropriate, creating a positive contrast to the natural setting.



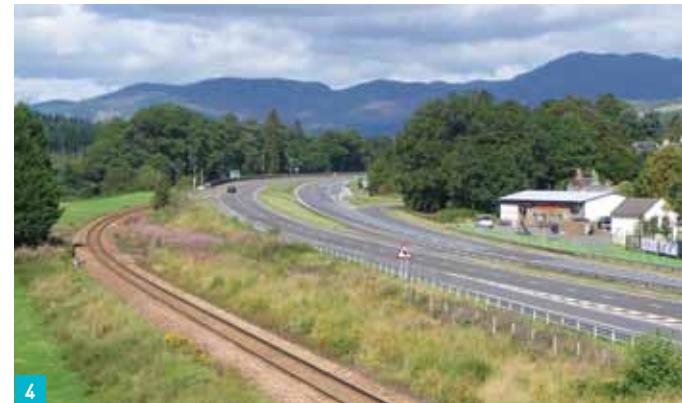
A87 Glen Shiel

The Scottish Landscape is one of our prime national assets. It is diverse in type, distinctive in character and much of it is of high scenic, ecological and cultural value. Transport corridors are often one of the main ways through which people experience this landscape, whether as a visitor travelling distances to remote destinations or as a commuter travelling to work. It is vital that this experience is recognised, supported and enhanced by sensitive and appropriate design and management practices.

Fitting Landscapes updates, builds upon and widens the scope of the successful **Cost Effective Landscape: Learning from Nature** (1998) and aligns Transport Scotland's landscape policy with Scottish Government policies on sustainability and the environment.

The updated policy encourages broad consultation and greater integration between landscape architects, engineers and all those involved with designing, constructing and maintaining transport infrastructure.

It promotes the adoption of an 'outcomes' approach with a focus on the differences and benefits that can be made, and not just the inputs or processes involved. To this end, the policy framework set out in this document is neither prescriptive nor narrowly based on procedure. It seeks intelligent and balanced design-led decision-making that supports clear outcomes and delivers a more sustainable and inclusive approach to high quality design and management of Scotland's transport corridors.



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A9 and Perth-Inverness railway. A transport corridor



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A9 and path, Dunkeld. Transport corridor and active travel route

Transport landscapes must be designed to reflect and protect local characteristics and distinctiveness or, where appropriate, create high quality positive contrast



01 Introduction

This document sets out Transport Scotland's new landscape policy: **Fitting Landscapes**. The following sections detail the policy and provide guidance on its implementation:

Sections 01 and 02 set out the policy and the key aims and objectives that Transport Scotland will employ to promote and develop high-quality sustainable landscapes associated with the development and management of transport infrastructure.

Sections 03, 04 and 05 provide supporting guidance on implementation, design, engagement and the development of Project-specific objectives.

Section 06 emphasises the importance of monitoring the understanding and use of the policy and the effectiveness of its implementation whilst reinforcing the need for good feedback.

Section 01 explains the background to the policy.

Section 02 gives the vision, the four key policy aims and typical project-specific objectives.

Section 03 explains how the policy is to be used and gives guidance on implementation.

Section 04 provides detailed examples of objectives and supporting mechanisms.

Section 05 summarises the intended long-term benefits of the policy.

Section 06 advises the mechanisms for monitoring effective application of the policy and recording feedback.



Unsustainable
maintenance inputs
required

Design proposals
require high inputs
to maintain

Natural equilibrium
with design and
nature in balance

Design proposals
require low inputs
to maintain

Natural Equilibrium

Equilibrium, n. from Latin *aequilibrium*, from *aequi-* 'equal'+ *libra* 'balance'

A condition in which all acting influences are cancelled by others,
resulting in a stable, balanced, or unchanging system.

Fitting Landscapes

Transport Scotland manages a large public estate associated with transport infrastructure. The 'transport estate' traverses and is influenced by a diverse mix of urban, rural, lowland and highland landscapes. These transport corridors have been created and are managed to address strategic transport objectives; communication and tourism needs; environmental mitigation and safety.

Scotland has long promoted a sustainable and integrated approach to the design and management of transport corridor landscapes. The previous trunk road landscape policy provided a set of principles to guide new and innovative approaches to the landscape design and management of roads.

The new policy **Fitting Landscapes** builds on the previous policy whilst also:

- Reflecting changing national policy frameworks, legislation and wider Scottish Government and Transport Scotland objectives;
- Incorporating further innovation and opportunities that maximise quality of design and the development of more sustainable outcomes;
- Creating a fresh vision for all transport landscapes;
- Encouraging continuous improvement through a process of assessment and feedback.

This document updates Transport Scotland's landscape policy, complementing current Scottish Government design and place-making policies



Estate fencing and bridge, A96 Fochabers bypass

The policy is concise and strategic in its approach. It defines a clearer, bolder vision for transport landscapes, reflecting Scotland's future needs, and focuses on the areas of activity with the potential to make the greatest contribution to sustainability outcomes.

Design, implementation and management of transport landscapes is approached in a more holistic manner. A greater contribution is required towards design quality and place-making, whilst giving equal consideration to the enhancement of natural heritage, climate change adaptation and sustainable economic development.

To encourage this approach the policy promotes:

- Clear definition of aims;
- Objective and design-led decision making;
- Empowerment of professional teams;
- Recognition of the value of high quality design.

By following this approach, a framework for action can be developed that applies across all professionals involved in the planning, design, implementation, management and maintenance of transport corridors. The policy supports engagement with statutory and non-statutory agencies and wider stakeholders and is underpinned by best practice and the commitment to a more sustainable management of the transport estate.

Quality of design is at the heart of successful transport planning, particularly when founded on the application of design, implementation and management decisions that work with natural systems and give recognition to the value of learning from nature.

Good design needs to be flexible and adaptive in the delivery of project-specific objectives. It should support innovation, the positive exploitation of opportunities and the exploration of potential alternative solutions; all within the context of developing a more sustainable approach to transport landscapes.

Application of the policy

Fitting Landscapes is a high level document which sets an agenda for policymakers, planners, designers, contractors, operational managers and maintenance teams; helping address the challenges of delivering and managing a transport network that offers a demonstrable contribution to national policy targets, supports the natural heritage resource and ensures a ‘best fit’ with the local landscape character.

Through the implementation of early and regular consultation between design teams, statutory consultees and other relevant stakeholders, the policy should inform and support decisions associated with transport planning, land acquisition and mitigation strategies as well as detailed design, contract development, implementation and long-term management.

The document is not a ‘how to guide’ – but rather sets out the overarching principles to be adopted.

Promoting the concept of ‘change’ becomes possible when we ‘change the ways we do things’ with a wish to engage across all the disciplines and stakeholder interests that contribute to the design, delivery and management of our transport infrastructure and estate.

The policy is intended to empower those involved in the transport estate and allow them to respond appropriately to the challenges of delivering a transport network that can offer a greater contribution to national policy targets and guide landscape practice in a more sustainable direction.



Best practice workshop session



A830 Loch nan Uamh



A9 trunk road and cycleway, Dunkeld

POLICY AIMS

Fitting Landscapes has four key aims:

1. Ensure high quality of design and place;
2. Enhance and protect natural heritage;
3. Use resources wisely;
4. Build in adaptability to change.

Each of the aims addresses aspects of the policy vision and accompanying objectives.

It is a prerequisite of all Transport Scotland projects that the servicing of these aims is given full consideration at the outset of all transport projects, whether associated with constructing new infrastructure or for specifying maintenance and management.

02 The Policy

Policy vision

To promote the more sustainable design, implementation, maintenance and management of the transport estate and ensure that the landscapes we create and manage are of high quality, well integrated, bio-diverse, adaptable and deliver a meaningful contribution to national sustainability targets.

At the heart of the policy is the belief that landscapes which are relatively self-sustaining can only be developed if the design and management regime works with nature and understands and respects natural processes: close alignment with nature offers more sustainable and successful solutions.

Policy objectives

The policy seeks to promote design quality and more sustainable outcomes for the transport estate.

The policy states:

- Transport landscapes should enhance natural heritage, ensure a high quality of design and place, use resources wisely and be adaptable to future change;

- Landscape and environmental objectives will be set to inform the planning, design, implementation and management of new transport infrastructure and the management of existing networks;
- Landscape design will promote approaches that support stronger integration of natural heritage and place quality based on a full understanding of landscape character and context;
- Landscape architects will actively engage with other design and environmental professionals to secure a multi-disciplinary and collaborative approach to all landscape-related design and management processes.

These objectives and the policy aims shall be employed in the planning, design, implementation and management of all transport landscapes. The policy applies to all those involved in transport projects.

This landscape policy recognises the value of developing planning and design solutions through consultation. It supports close iterative working within design teams and open and inclusive consultation with statutory bodies and stakeholders.

Understand the concept and practice of place-making in design and its importance to users of transport corridors



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Kylesku Bridge, northwest Highlands: an iconic example of harmony in design and place

Aim 1

Ensure high quality of design and place

Transport landscapes are integral to the character and experience of Scotland. New projects can be successfully integrated with their surroundings as well as create new landscapes and provide an enhanced experience for travellers. Existing schemes can be managed to improve landscape integration, maintain views and enhance the road user experience.

Promoting design and place quality requires designers and managers to:

- Understand the landscape character, history and context;
- Understand the concept and practice of place-making in design and its importance to users of transport corridors;
- Instigate early integrated working between all the members of the design and maintenance teams;
- Undertake early engagement and consultation with stakeholders;

The design team should focus on:

- Appreciation of the importance of route selection, geometry, land use context and landform in integrating transport corridors with the landscape;
- Early understanding of detailed infrastructure, maintenance and functional requirements to ensure these can be integrated with the landscape design;
- Retaining valued features wherever possible and addressing landscape, cultural and habitat fragmentation;
- Use of local and site-won materials, promoting local vernacular building methods and where appropriate use native plant species in natural assemblages with stock of local provenance;
- Achieving an appropriate balance between landscape and visual mitigation and the amenity of route users;
- Bespoke and locally appropriate solutions.



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Native oak woodland with bluebells. Inchcaillioch
National Nature Reserve, Loch Lomond

Aim 2

Enhance and protect natural heritage

Transport corridors can create positive and negative impacts on natural heritage. Effective mitigation of adverse impacts on species and ecosystems is a primary consideration of this policy, as is the positive enhancement of biodiversity through the creation and management of new habitats and green networks.

Enhancing and protecting natural heritage requires designers and managers to:

- Understand and respect ecosystems and natural processes;
- Be fully aware of conservation requirements of protected species and priority habitats and how this may affect route selection, design and management;
- Understand the project context, capacity to support the natural heritage and enhance/create a range of existing and new habitats;

- Support local biodiversity action plan priorities including re-establishment and re-colonisation of local species and habitats;
- Reduce adverse impacts by more robust protection and more extensive retention of existing natural assets and habitats;
- Provide effective mitigation of residual impacts and, where this is not possible, explore opportunities for meaningful offset mitigation through habitat creation and enhancement;
- Use native plant species mixes and local provenance plants and seeds;
- Support and link with wider habitat networks and help address habitat fragmentation and species dispersal resulting from development and the effects of climate change.

Understand and respect ecological and natural processes



Simple design principles and a clear understanding of future management can allow a natural equilibrium or balance to be achieved early in the establishment of new landscapes

Aim 3

Use resources wisely

Created and managed landscapes are not natural but can establish over time a state of dynamic equilibrium, where natural forces are in broad balance and landscape change involves relatively slow and self-regulating trends that support habitat development through natural processes. Using simple design principles and a clear understanding of future management can allow a natural equilibrium or balance to be achieved early in the establishment of a new landscape. This delivers a range of benefits including reducing consumption of materials and energy; minimising waste; conserving natural assets; reducing long-term maintenance inputs and accommodating future change.

Encouraging the wise use of resources requires designers and managers to:

- Understand and respect existing site assets such as landscape features, local character and materials, and valued habitats;
- Give early consideration to the integration of active travel routes and transport corridors;
- Employ natural characteristics and processes in the design of earthworks, drainage and landscape, integrating both habitat and landscape elements;
- Design and specify projects that are 'fit-for-purpose' to reduce future maintenance and management requirements including minimising the use of fertilisers, herbicides and the need for labour intensive thinning and mowing;
- Reduce the use of non-renewable energy and materials during construction and maintenance;
- Minimise waste during construction and encourage re-use of site-won materials including earthworks, soils, stone, timber, seed banks, plants and habitat;
- Exploit unforeseen and chance opportunities to minimise unnecessary use of resources at all stages.



Recognise that change is inevitable
and build in capacity for future adaptation

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Flooding on the River Earn, Tayside and
Clackmannanshire. Transport corridors must be
designed to accommodate future climate change

Aim 4

Build in adaptability to change

All development needs to take account of future implications of climate change, as well as other environmental and operational changes. Transport landscapes will be subject to the effects of changes in rainfall, temperature and species ranges as well as future changes in transport modes, technologies and priorities. Transport corridors may also help with wider climate change adaptation by accommodating storm drainage, providing refuge habitats and forming linkages to green networks.

Natural systems respond to environmental change to achieve new states of dynamic equilibrium. The policy promotes flexibility and with it the capacity of transport landscapes to allow adaptation to future change in climate and other parameters.

Building in adaptability to change requires designers and managers to:

- Recognise that future change is inevitable;
- Promote innovation and allow for alternatives that take advantage of the opportunities that arise at all stages of planning, design, implementation and management;
- Promote natural heritage resilience through links with other habitats;
- Build in capacity for future adaptation through landtake and adaptable designs;
- Encourage resilience by using suitable planting stock and species mixes;
- Recognise that some projects or elements may be relatively short term by designing and/or managing the landscape to create early benefits;
- Build sustainable drainage systems capable of accommodating future increased water flows and enhancing water quality, whilst also fitting with the adjacent landscape and land use as far as practicable;
- Encourage flexible maintenance and management regimes that respond to changing climate, habitats and soil conditions;
- Use planting and landforms to reduce drifting of snow and formation of ice.

Setting project-specific objectives

The landscape architect or manager is responsible for developing project-specific design objectives to deliver the four key policy aims. Lessons learnt within transport projects indicate that collaborative working and clearer objective setting offers the best mechanism to capture the opportunities inherent within a project and identify areas for innovation.

The policy therefore requires:

- Setting of detailed landscape objectives for the project;
- Engagement with statutory consultees/advisors in setting these objectives;
- Collaborative design working with other design professionals and advisors;
- Early engagement with the future maintenance and management team.

The setting of objectives needs to be undertaken on a project by project basis and should be seen as central to the design process. Engagement with statutory consultees is a key part of this process.

Objectives can and should be developed and further refined as the project proposals are progressed and should always relate to the special project characteristics and opportunities. It is important that objective setting is led by experienced landscape architects and that the objectives are confirmed through consultation.

The following list and supporting diagram (see over) provides indicative examples of possible objectives broadly applicable to the typical range of works encountered across transport corridors. It is important that, in the case of each project or route, objectives are developed and tailored to suit the specific characteristics and requirements of the project.

Connecting objectives with outcomes

Setting landscape objectives also helps in being clearer about outcomes. Outcomes are important as they help to introduce forward thinking into the design process about the type, character, quality and function of the landscapes we are seeking to create and what will define success.

Developing appropriate outcomes often requires a team to stand back and take stock of a project. An outcome approach helps strengthen the connections between the design aspiration and design proposals. Outcomes should also focus design thinking around the effectiveness of delivery and help to confirm that the proposals represent long-term sustainable value.

Establishing greater clarity around objectives and the consideration of anticipated outcomes offers opportunity for all parties to make an informed input to the design process.

The A830 traverses a highly scenic and intricate landscape in the West Highlands. The road improvements involved sensitive routeing and design aims and objectives





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New drystone wall on the A7, built in vernacular style

The capacity of the transport estate landscape to deliver stronger benefits and outcomes is dependent upon developing clearer, better defined project-level design objectives.

Multi-disciplinary working and design integration between engineers and landscape architects is essential to secure enhanced outcomes.

Design objectives should be developed from a clearer understanding of context and thereafter encourage quality of design and design innovation.

In summary, the setting of objectives, early consultation and consideration of outcomes opens up opportunity for more holistic thinking. It reinforces a design approach that recognises both the value of design review processes and the multi-disciplinary contributions to design. Objective setting will support balanced, sustainable and well integrated landscapes.

Consultation on project objectives

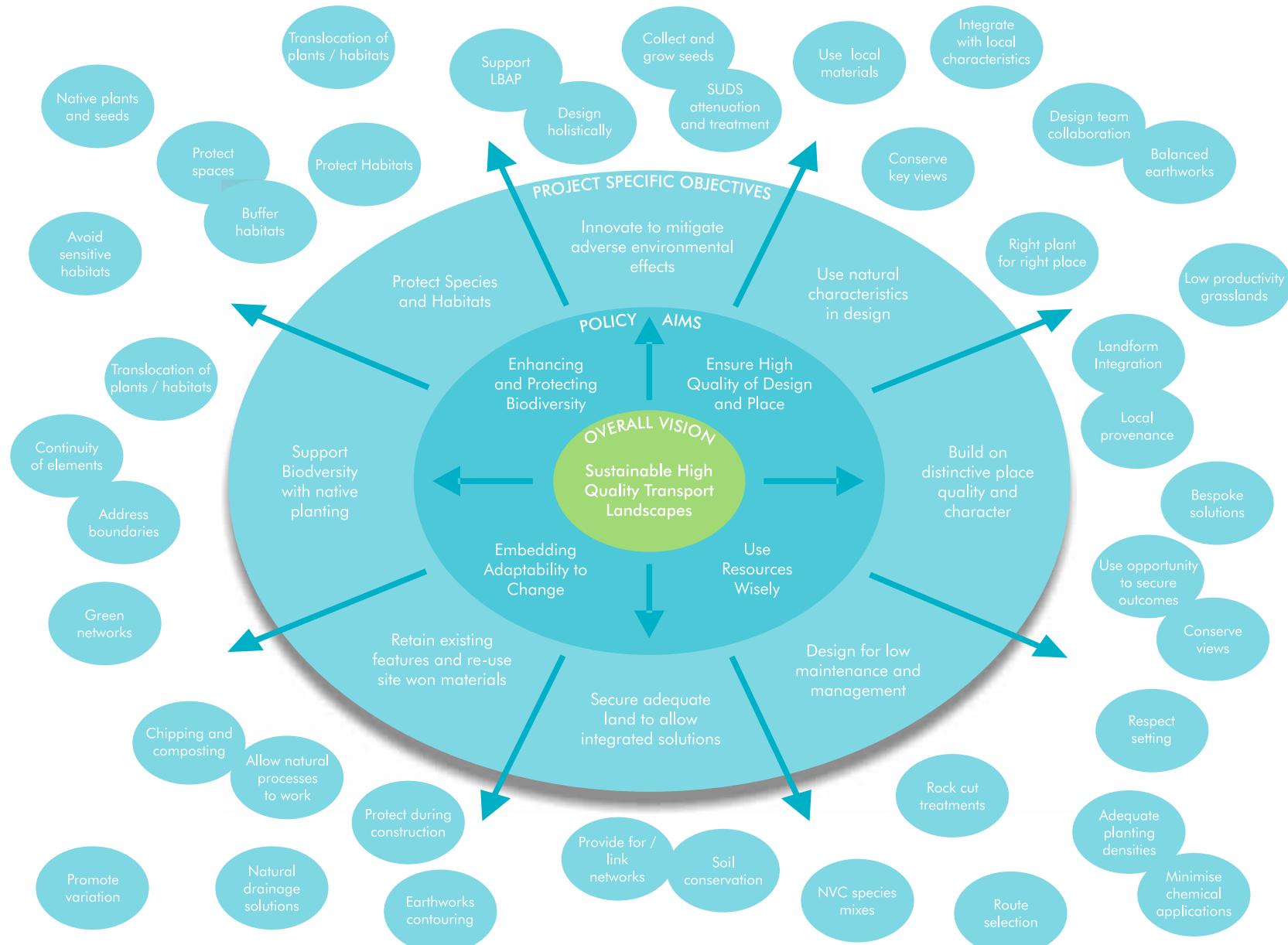
Consultations with stakeholders, including statutory and other consultees and professionals of other disciplines within the design team, will be important in defining objectives and identifying the key areas of opportunity. Consultees will include, for example, SNH, SEPA, Historic Scotland, Local Planning Authorities and/or National Park Authorities. It is important that the context, opportunities and constraints of the site and project are fully understood and reviewed with consultees.

Typical objectives

- Innovate to mitigate adverse environmental effects;
- Protect species, habitats and ecosystems;
- Use of natural characteristics in design;
- Support biodiversity with native planting;
- Retain existing features and re-use site-won materials;
- Design for low maintenance and management;
- Secure adequate land to allow integrated solutions;
- Build on distinctive place quality and character.

The high-level objectives can be supported by more practical understanding of the mechanisms around which objectives will be delivered. These help to provide an understanding of how the design challenges of the project will be addressed and identify specific areas of opportunity.

Detailed examples of objectives





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A830 near Lochailort. Integration of geometry, sideslopes and landscape setting

03 Delivering Fitting Landscapes

Transport projects cover a wide range of sizes, types and complexities and require good communications to support design coordination and the delivery of effective solutions. Early engagement of design teams and external stakeholders is vital in establishing from the outset a process of partnership between the relevant parties.

Strengthening the design role

Lessons learnt from past experience highlight that the best and most sustainable solutions involve collaborative inputs across disciplines:

- The design of transport corridors should promote close, multi-disciplinary working based on balanced decision-making and clear objectives;
- As well as delivering environmental and landscape mitigation, landscape architects have a key role in creating places that represent high quality integrated design: this requires considered input at all stages of planning, design and implementation.

Continuous improvement can be ensured by embracing best practice, the adoption of lessons learnt and better design team communication. The following considerations are important in this regard:

- all members of the design team are to be involved in setting land requirements and making recommendations on Compulsory Purchase Order and Land Made Available boundaries;
- active travel opportunities and facilitating connections of path, cycleway and other non-motorised user provision is considered and committed to early in the design process;

- landscape design shall inform the planning and design of sustainable drainage systems (SUDS) and drainage outfalls to secure integrated solutions;
- design integration is required around the planning and detailing of structures and other built elements to ensure successful projects;
- green and blue infrastructure development needs to be addressed through consultation and shall incorporate relevant national and local biodiversity targets.

Promoting engagement and consultation

Statutory consultees and other specialist organisations have a key role in contributing to and informing the design process. Quality design is best secured through an informed process that openly addresses a breadth of issues and secures balanced solutions. The following considerations are important in this regard:

- a consultation strategy is established at the outset of the design process for engagement with all consultees;
- design team engages with statutory and relevant non-statutory consultees on project specific and detailed objectives early in the process;
- design teams are encouraged to take full advantage of the best practice expertise and local officer knowledge to inform the design process;
- designing to reflect end users' needs and interests can only be understood through effective consultation.

Strengthening the integration of maintenance and management

The policy gives the same importance to maintenance and management as to design and implementation. Sustainable design requires collaboration between design professionals, route operators and maintenance managers. An informed process will help to clarify established management regimes and the scope for developing design solutions that accommodate practical and effective future maintenance and management regimes.

The following considerations are important in this regard:

- landscape plans specifically shall include landscape and habitat protection measures defining restricted work areas and measures to safeguard landscape features, habitats and trees;
- innovation takes account of future maintenance requirements to ensure sustainable measures are agreed with maintenance bodies;
- early consultation with management officers to clarify current regimes and future management arrangements;
- The use of geographical information systems to enable efficient, targeted maintenance and management operations.

Guidance on project implementation

An active approach to design, engagement and management at all stages of a project, including monitoring, should be encouraged. Good design should be an inclusive, iterative and informed process with opportunity taken at every stage to create bespoke solutions that address the policy aims and project specific objectives. Consultation is an important element of the process.

There are several important stages in the development of transport landscapes. These were identified in the original policy document and are set out in the following project stages.

PROJECT STAGES

1. Understand the context and set objectives
2. Develop conceptual solutions
3. Detailed design and specification
4. Project implementation
5. Maintenance and management

It should be noted that not all stages may apply to a specific transport project.



A1 Expressway, River Tyne Crossing: a bridge and landscape design responding to its context

Fitting Landscapes strongly promotes the role of design in securing more sustainable outcomes

1. Understand the context and set objectives

It is critical to fully understand the landscape setting and environmental context of the project, as well as understand its purpose and functional requirements, to establish potential constraints and opportunities and help set out project specific objectives

Project requirements should be considered through understanding of the site and the project's key functional objectives, including how the site has developed; the current character of its setting; how and why it may change in future. This includes:

- Past history, present development context and potential for future changes;
- Stakeholder consultation and engagement to gain better understanding of context and issues affecting design information and requirements in setting objectives;

- Survey information including existing topography, geology, soils, ecology, landscape elements, features, character and condition;
- Information on legal and planning obligations, protected areas and species and other potential sensitivities including potential direct, indirect and cumulative impacts;
- Review of the project including key objectives, functional requirements, potential physical, safety and legal constraints and potential opportunities for fulfilling the key policy aims.

The specific landscape objectives for a project should 'adapt' the four key policy aims (*ensure high quality of design and place; enhance and protect natural heritage; use resources wisely and build in adaptability to change*) to the specific characteristics of the site.



A85 Loch Awe, below Ben Cruachan: decking allows the steep wooded slopes above to be retained intact

2. Develop conceptual solutions



The key foundation for design is to develop a clear and strong landscape vision for the project which captures the spirit and intent of the proposals, bringing together and communicating the main project objectives and options.

The development of conceptual solutions is an important creative stage and key opportunity to capture ideas and influence other members of the design team. It is also the point at which many potential adverse impacts can be identified and addressed, with the opportunity to integrate different design elements, secure balanced solutions and avoid impacts at source. Conceptual solutions should be developed and alternatives tested against the landscape, environmental and functional objectives of the project. Those which best fulfil the objectives are taken forward to the detailed design stage.

Landscape and other environmental professionals should work closely together with the engineering design team in order to fully understand the functional requirements of the project and develop integrated solutions. Design engagement and consultation is an important part of the process of developing and testing conceptual solutions. A further key requirement is an assessment of the practical, shorter and longer term environmental and operational implications of the project, including those relating to maintenance and management. This is particularly important in protecting and enhancing natural heritage interests associated with landform, geodiversity, sustainable drainage systems, boundary treatments, habitat protection measures and integration of active travel.

Conceptual solutions should capitalise on integrating project requirements and existing landscape and environmental characteristics; seek to maximise the potential for landscape and biodiversity benefits; consider ways of minimising resource use and be accommodating of potential future change.

3. Detailed design and specification

Design and specification adds practical detail to the initial conceptual solution, creating the design and/or management proposals that will ultimately be implemented.

The project outcomes are realised through development of conceptual proposals into design details and a specification that addresses the practicalities of implementation and/or maintenance and management. Designers may use established design details and specification standards but these should not stifle the potential for design innovation. This stage should fully test, and if necessary revisit, the initial conceptual solutions, and consider alternatives to their implementation. Where potential adverse impacts are unavoidable, detailed project specific design may significantly mitigate or offset the level of impact.

A detailed knowledge of the site and the project functional requirements is essential as well as an understanding of the specified materials and processes. Environmental professionals should consider the future consequences of detailed design and management decisions for landscape and natural heritage and for future maintenance and management inputs. As with the previous stage, it is important to continue with consultation and testing of ideas.

Project documentation should be sufficiently detailed to guide implementation. Nevertheless, requirements should be flexible enough to allow scope for regular and meaningful review of both design and specification, including the potential to adopt opportunities that arise during the works.



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A82 Lairig Eilde Bridge. Detailed design and specification was required to respond to the dramatic location.

4. Project implementation

It is fundamental to the policy that implementation is carefully monitored to ensure that the aims and objectives embedded in the landscape design are realised. This includes the delivery of all committed mitigation. Unexpected issues can often arise which present problems or opportunities and may lead to improved solutions.

Discovering unexpected issues and overcoming practical problems during implementation should be used as an opportunity to maximise landscape and natural heritage benefits through the development of alternative solutions. Contractual and regulatory obligations will still be required to be satisfied but the potential for alternative, creative solutions should be promoted wherever possible.

The exploitation of opportunities requires regular monitoring of implementation by the landscape professional. This is helped by ensuring a clear understanding of the project objectives by other project professionals and supported by good communication.



A7 Auchenrivock: Use of local walling materials and integration of landforms

5. Maintenance and management

The maintenance and management requirements of the project may be a final project consideration, or the sole consideration for an existing scheme. In all cases there are implications for sustainability, quality and environmental objectives.

Design awareness of future maintenance regimes strongly influences project success and sustainability. Impracticable and inappropriate design solutions can generate adverse consequences and early failure.

Maintenance and management activities should be reviewed and wherever possible inputs should be minimised. Design strategies and management regimes should be adapted to achieve outcomes that are as close to a self-sustaining dynamic equilibrium as possible. Consultation with the relevant operating and management team will be important and future arrangements for maintenance and management should be clearly defined and concluded early in the design process.

The developing landscape requires ongoing monitoring and assessment by the environmental professionals. Opportunities that achieve enhanced landscape and natural heritage outcomes should be exploited.

Promoting an iterative review process

Continuous review is a crucial part of a successful process, especially one where the effects of time can have a significant impact. The review process should draw lessons from project implementation and management and introduce change where appropriate to improve future outcomes. The review process will be led by Transport Scotland and include consultation and engagement with key stakeholders as appropriate.

Illustrative objectives have been included in Section 04 and are supported by a series of suggested mechanisms. These mechanisms provide additional detail to guide project design and establish a useful basis against which to review project delivery and assess how effectively and successfully the project has been delivered.



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Low productivity grassland can reduce verge maintenance inputs

Monitoring and evaluation

The implementation and delivery of the policy will be monitored and evaluated by Transport Scotland through a range of mechanisms that include regular review through the existing design and management evaluation process. All designers and managers will be required to demonstrate the application of the policy within Transport Scotland appointments and contracts. Good practice and lessons learnt will be shared with designers and managers through Transport Scotland's Landscape Unit and in joint workshops and conferences with Scottish Natural Heritage and other agencies (see section 06).



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The Forth Replacement Crossing is a project which will provide many future lessons for the Fitting Landscapes policy.

Transport Scotland requires monitoring and evaluation of the policy implementation and encourages the sharing of lessons learned through knowledge transfer



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04 Detailed Examples of Objectives

Setting objectives is very important for the whole of the project team and is the means by which constructive engagement can be advanced. The following are illustrative of objectives commonly applied to transport projects:

Detailed examples of objectives from existing projects and schemes are illustrated in the following pages.

1. Innovate to mitigate adverse environmental effects
2. Protect species, habitats and ecosystems
3. Use of natural characteristics in design
4. Support biodiversity with native planting
5. Retain existing features and re-use site-won materials
6. Design for low maintenance and management
7. Secure adequate land to allow integrated solutions
8. Build on distinctive place quality and character

Each project should, through consultation, develop project-specific objectives and identify the mechanisms that help to deliver more sustainable landscapes



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1. Innovate to mitigate adverse environmental effects

Potential adverse environmental effects on people, the landscape, habitats and water are an inevitable consequence of existing and new transport corridors. The requirement to mitigate impacts provides a basis on which to innovate and seize opportunities, not just to mitigate but also to create features and habitats which serve environmental aims and objectives.

Design team collaboration

Designing major transport infrastructure and the maintenance and management of road and rail networks is complex and involves multi-disciplinary teams and high levels of design coordination. Design needs to balance a wide range of objectives. Successful integration of engineering, transport and environmental objectives requires good dialogue in which landscape architects, landscape managers and environmental specialists have key roles. Engagement with statutory consultees and local environmental groups/officers should be undertaken to inform design.

Design integration

Delivering project outcomes requires landscape architects to assist the design team in preparing integrated solutions. This is of particular importance in the engineering and landscape integration of sustainable drainage, earthworks and landforms; reconnection of new and existing landscape elements; and the reconciliation of transport and safety requirements such as geometry, sightlines, barriers and signage etc with landscape and environmental objectives. Early dialogue is always important to ensure all parts of the design team are aware of the design objectives and areas offering opportunity for innovation.



- 26 A830 near Arisaig. Road alignment integrated with landform and vegetation
- 27 A830 rock cut, profiled to natural grain and revegetated with peat turves
- 28 A7 Auchenrirock, sensitively aligned with locally characteristic drystone walls
- 29 Drystone dyke. There are many rock types and vernacular styles across Scotland
- 30 Heather moorland vegetation, common beside Highland roads



Addressing unforeseen opportunities

A key part of innovation includes addressing unforeseen events and turning new circumstances and constraints into opportunities. Unforeseen events create opportunity to enhance design detailing and identify innovative solutions by exploiting site conditions and local circumstances. This might be achieved through measures such as transplanting, re-use of materials and involving communities and landowners.

Integrate local characteristics

Local characteristics and features are primary assets that should be used to inform the design and development of the transport corridor. Appreciation of local elements, features and characteristics and their integration into the transport landscape should have a high priority in design. Local characteristics can include a variety of elements such as landforms, rock outcrops, water features, mature habitats and trees, distinctive boundaries or key views.

An understanding of landscape characteristics developed in consultation with Scottish Natural Heritage and local stakeholders can ensure a sensitive response to the special qualities of place.



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2. Protect species, habitats and ecosystems

Transport projects can affect species and habitats, both directly and indirectly.

Some animal and plant species, as well as certain habitats, are protected under European and national legislation to ensure they are not adversely affected by planned development, operational activities or maintenance requirements. Some areas are also designated as nature reserves and local areas of nature conservation or landscape interest. Early consideration should be given to such designations to allow route planning and mitigation which minimises adverse effects and potentially capitalises on these natural assets.

Avoid sensitive species and habitats

Early route planning of transport corridors should give consideration to alternatives that avoid adverse impacts on protected species and habitats, and this happens as part of the EIA process. The EIA will seek to address impacts through mitigation and set out requirements to avoid or minimise effects on sensitive receptors.

Protect ecosystems

Individual species and habitats form part of wider ecosystems. A well-functioning ecosystem can provide a range of natural benefits called ecosystem services. These include physical benefits such as flood and climate regulation as well as the quality of life benefits people gain from pleasant surroundings. Consider the natural system holistically to avoid unforeseen impacts on the wider environment.



- 31 Protect long established hedgerows
- 32 Small pearl-bordered fritillary butterfly on viper's bugloss flower
- 33 A1 Expressway rock cutting seeded with locally appropriate wildflower grassland species

- 34 Artificial mammal den
- 35 Transport corridors pass through extensive habitat networks



Protect assets

Where route corridors interact with sensitive habitats and species, or include long-established features such as woodlands and hedgerows, provision should be made to protect these during construction or maintenance operations. At various stages opportunity should be taken to protect assets and this may include a range of measures from design team and contractor briefs to design amendments, physical protection and establishment of no-work zones.

Buffer habitats

Proximity to sensitive habitats provides opportunities for creating or maintaining buffering features along the route corridor. SUDS drainage systems commonly provide buffers between transport corridors and rivers, but groundwater barriers, physical screening or intervening intermediate habitats can also provide this function.

Provide for networks

Transport corridors are part of an extensive interconnected system of linear features. Typically these cross a variety of habitats and landscape features, some of which (for example, hedgerows, tree belts and rivers) are also linear and interconnected. Addressing habitat connections that reduce severance and allow for the movement of species can be an important consideration in nature conservation.

The transport corridors also cross and sometimes include other transport modes such as footpaths and cycleways. These links provide opportunities for connectivity between habitats, landscapes and differing transport modes leading to the creation of Green Networks.



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3. Use of natural characteristics in design

Natural characteristics are the physical manifestations resulting from natural processes and the inter-relationship of natural elements. Wherever possible, design and management of landscapes should work with these characteristics and processes to reduce resource consumption and long-term maintenance requirements, as well as encourage biodiversity. Successfully achieving this objective, in a manner that supports landscape integration, requires a thorough understanding of context, materials and processes.

Promote variation

The variety inherent in natural characteristics develops from differences in the environment. Where possible and appropriate, uniform and geometric finishes of earthworks and other landforms should be avoided and designers should be encouraged instead to create designs that support natural processes and patterns by reflecting local characteristics. Minor changes in slope, aspect, substrate and drainage encourage variation in the development of habitats and the establishment of species. This in turn increases biodiversity and can provide the basis for successfully responding to future environmental change.

Allow natural processes to work

The development of features and habitats should be encouraged through the action of natural processes including drainage and water flow, habitat succession, and breakdown of materials. The controlled harnessing of natural processes reduces initial inputs and long-term maintenance requirements but successful implementation requires a thorough understanding of the processes and materials involved and may take time to evolve.



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- 36 A90 Inchture. Low productivity/ high diversity grassland on subsoil
- 37 Willow planted as a multi-stem
- 38 A1 Howburn to Houndwood: natural processes in the Eye Water realignment

- 39 Naturalistic rock cutting and native vegetation on the A1 Expressway
- 40 Well integrated sustainable drainage offering nature conservation and green network benefits on the A1



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Earthworks contouring

Shaping earthworks to reflect locally characteristic landforms can achieve desirable outcomes including: stability of subsoils and topsoils at their natural angle of repose; landscape integration with the surroundings; and the creation of varied slope gradients and aspects which encourages diversity. It can also allow minimisation of the transport corridor by return of land to productive use or natural habitat development, with resulting reductions in maintenance and long-term management.

Rock cut treatments

Natural bedding planes and fracturing of rock can be exploited to create naturalistic rock features reflecting the characteristics of local outcrops. The surface irregularities of cracks, ledges and scree promote variation and provide habitat opportunities for plants, birds and other animals such as reptiles. Whilst transport networks must be inherently safe for users, care should also be taken at the design stage to ensure a measured and proportionate

response to the perceived hazards of adjacent rock cuttings and outcrops. This includes designing to avoid visually intrusive engineering stabilisation and protection measures such as rock blankets, netting and safety barriers.

Natural drainage solutions

Drainage of transport corridors is a key opportunity for innovation in the harnessing of natural processes to minimise artificial interventions, leading to creation of new habitats and valuable integrated landscape features whilst reducing long-term maintenance requirements. Introduction of man-made elements such as extensive safety fencing and engineered retaining structures should be avoided wherever possible. Drainage proposals should address best practice, adopting water sensitive design in accordance with SUDS guidance.



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4. Support biodiversity with native planting

Native plant species are those that have been the longest established in the British Isles, forming associations of species that have developed in geographical regions and in specific habitats, responding to local soil, water and microclimatic conditions. As such, native plants, particularly those of local provenance, are most likely to successfully establish and develop in balanced plant assemblages and create naturalistic habitats in which other native plant and animal species are encouraged. Some species such as Scots pine, birch and rowan are highly characteristic of Scottish habitats and landscapes, forming the key species in widely distributed plant assemblages.

Designers will need to be aware of the potential effects of climate change on the geographical range of some native species as well as the likely impacts on local soils and microclimatic conditions.

Native plants and seeds

Native plants and seeds appropriate to the geographical location and local conditions should be used for all projects. If particular local characteristics or factors warrant the potential use of non-native species it must first be established that the location concerned is not

considered 'in the wild' under the terms of the Code of Practice on Non-native Species (Scottish Government 2012) or that the proposals are acceptable to Scottish Natural Heritage under licence.



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- 41 Lowland meadow, Keltneyburn SSSI
- 42 Rowan berries: a native seed source
- 43 A90 Inchture Interchange: transition across wetland and woodland habitats

- 44 Native pinewood, Deeside. Scots pine has very specific local genotypes
- 45 Well integrated landform and native wildflower grassland on the A1 at Pencraig



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Local provenance

Most UK native species have a wide geographical range and can be affected by significant variations in localised climate and soil conditions. Over thousands of years this has led to adaptations within populations of species. Scotland and the rest of the UK are divided into a series of geographically defined plant provenance zones each with similar climate and soil factors. It is therefore important that all native plants used on projects should, wherever possible, be sourced from stock originating in the project's local provenance zone. Such plants are most likely to be adapted to local conditions and have the best chance of successful establishment.

Species mixes

In natural and semi-natural habitats, where human intervention has been minimal or low, plant species are found in common associations that respond to local conditions. These associations are found repeatedly across areas in which similar conditions prevail and have been recorded in the National Vegetation Classification system. Native planting and seeding mixes should be based on these assemblages, or on simple combinations that allow such associations to develop in combination with natural regeneration.

Collect and grow seeds and cuttings

A ready supply of the appropriate local provenance material can be ensured by collecting and growing-on seeds and cuttings from native plants growing in or near the project location. Successful implementation of this procedure requires forward planning 2-3 years ahead of the project, and the availability of a local plant nursery where the plants can be grown-on.

Bespoke solutions

Transport corridors, by virtue of their design and implementation requirements may impact on landscape character, historical and cultural environments and ecological assets. Design proposals should seek innovative responses to specific impacts, local anomalies and points of interest. This may include addressing cultural or historical artefacts, reinforcing localised elements of landscape character and taking into consideration site-specific soil and drainage conditions. Detailed design development should take account of such factors and create a bespoke solution that maximises opportunities for successful project integration.



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5. Retain existing features and re-use site-won materials

Successful integration of transport corridors with their surrounding landscape and habitats requires local characteristics to be taken into account. Early and ongoing consideration should be given to the potential for retaining and integrating with local landscape features and elements and for re-using local materials generated by site clearance and earthworks excavation.

Local context and route selection

Knowledge of the project context and setting will identify key local features and characteristics. This can inform an alignment review in which the potential for retaining features such as landforms, mature trees and distinctive boundaries is maximised.

Protect during construction

The footprint required to build a project should be at a size appropriate to allow successful integration with its surroundings. The objective of integration may also require that valued existing features are retained and protected. Where protection of features is required this may include physical barriers, control of drainage and briefing of site personnel.

Balanced earthworks

Balancing of cut and fill can not only minimise the footprint of a transport corridor and the need for disposing, importing and transporting of materials, but can also, with careful design, improve landscape integration. Creative use of site-won materials can include lime mixing to stabilise unsuitable clay soils for structural earthworks, landscape integration by grading out embankments or environmental mitigation through the creation of screen bunds and false cuttings.



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- 46 A former main road becomes a cycleway
- 47 Aquatic plants are easily translocated
- 48 The A830 passes through an intricate landscape where the retention of existing features and re-use of soils is important to successful landscape integration

- 49 Lairig Eilde Bridge, Glencoe: removing turves for re-use on completed scheme
- 50 A1 Howburn to Houndwood: woody vegetation was chipped and composted before being re-spread as mulch



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Soil conservation

Care should be taken to strip, store and re-spread site-won soils as these provide the basis for establishing naturalistic assemblages of plants. Stripped soils can contain desirable seed and plant fragments which allow successful re-establishment of natural and semi-natural local vegetation.

Translocation of plants and habitats

Some plants and habitats (eg. small saplings, and turves from grassland or moorland habitats) are capable of successful translocation to alternative locations in which they will re-establish. Detailed site survey will identify such opportunities. The process requires careful forward planning and handling: lifting and transferring is best carried out as a single handling operation but suitable temporary storage may be required between these stages depending on the implementation programme.

Chipping and composting

Woody vegetation and brash cleared from a route construction corridor, or as part of vegetation management on an existing scheme, can be chipped, composted and re-used as mulch or a soil improver. Site mulching has useful but limited applications and, where larger volumes of chipped or mulched material are available, contracts should consider alternative uses and applications e.g. wood fuel/biomass. It may also be appropriate in some locations and in carefully controlled amounts to leave unchipped brashings and arisings on site as habitat piles etc.



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6. Design for low maintenance and management

Most planting and seeding in transport corridors requires some maintenance and management. This may involve early inputs to promote successful establishment or later inputs to control effects on operational and safety aspects. This requires the commitment of materials, labour and energy. The need for intensive or frequent management is a sign that habitats are not in equilibrium. This may be acceptable for certain design contexts but is unlikely to be appropriate in general. Project planning and landscape design should ensure that the potential for intensive, frequent or long-term management inputs is minimised. Consultation with maintenance managers will be important.

Right plant for right place

Plants are often used which fail to establish due to local soil and microclimatic conditions. Detailed knowledge of these factors, together with a working knowledge of native plants and plant associations is required to ensure that appropriate plants and plant mixes are chosen.

Modification of specifications, plant mixes, or their intended location may be required if inspection of works during construction or during establishment indicates localised factors which may affect plant establishment. Choice of plant and location should, where possible, anticipate the potential effects of future climate change.



- 51 Wildflower grassland on the A1 at Houndwood
- 52 Tree shelters splitting to accommodate growth
- 53 Use of tree shelters and planting in subsoil reduces the need for chemical weed control

- 54 Vipers bugloss and rock cutting
- 55 A830 near Fort William: wildflower grassland verge



Appropriate planting densities and spacings

Various planting and management strategies can be employed to ensure successful establishment of planting. Too low a density will leave significant areas in which control of weeds is required for a long time before shading out occurs. Too high a density is intensive in time and materials to plant and may leave a long-term requirement for thinning. A balanced strategy should be developed appropriate to the location and future requirements. Within the constraints of density, plant spacings and groupings of species should be varied to more closely reflect natural patterns of plant distribution.

Low productivity grasslands

Almost all transport corridors include extensive areas of grassland. This often requires significant and ongoing maintenance inputs in the form of mowing. In areas that do not require maintaining for safety and sightline purposes, grass growth should be controlled by using low fertility soils/minimal soil depth and seeding with low productivity native grass and/or wildflower mixes. These will often also serve biodiversity and landscape objectives.

Minimise chemical applications

Maintenance and management strategies should be employed which reduce the need for intensive long-term chemical applications. This may include planting and seeding without fertilisers. It also includes using passive weed control measures where appropriate such as shelters, mulches or low productivity grass.



7. Secure adequate land to allow integrated solutions

Successful integration of transport routes with their surroundings is a desirable environmental objective and contributes to mitigation of effects. This may require additional land beyond the immediate corridor needed to accommodate construction of the route. This not only addresses landform integration but also allows for natural drainage solutions and future adaptation to changing circumstances, including climate change.

Landform integration

Successful integration with the surrounding landscape may require permanent or temporary land acquisition beyond the immediate construction corridor. This may include allowance for grading out embankments and cuttings to smoothly flow into surrounding landforms, or to later return land to agriculture and minimise the final footprint of the scheme.

SUDS attenuation and treatment

Sustainable drainage should be used to attenuate and treat water runoff, create semi-natural habitats and enhance landscape character. To successfully accomplish this requires adequate space to create naturalistic water bodies with extensive shallows, varied depths and shorelines and gradual transitions between habitats and landscape types. Adequate provision of land and SUDS may also allow future changes in rainfall and runoff to be accommodated.



- 56 A1 Tower to Penmanshiel: horizontal road alignment and re-vegetated rock cutting integrates with the character of the adjacent landform
- 57 Allow integration between transport corridors and active travel routes
- 58 A1 Howburn to Houndwood: SUDs pond on Eye Water floodplain

- 59 Lairig Eilde Bridge, Glencoe: Curved deck fits the narrow, dramatic landscape
- 60 A96 Fochabers Bypass: landform graded out for return to agriculture



Green networks

Landscape and natural heritage objectives can be served by connecting the transport corridor landscape with existing habitats, access opportunities and landscape features. It may be appropriate in terms of mitigation objectives to secure additional land to achieve a better integration with nearby green networks including woodlands, hedgerows and river corridors. This approach must also be balanced with the need to protect any wildlife using green networks by employing measures such as fencing, underpasses and green bridges where these offer robust mitigation solutions and can be justified in terms of their integration with the landscape and impact on budgets.

Conserve and create views

Key views can be affected by transport corridors. Equally, construction of a route can lead to new experiences of landscapes previously unavailable. Design and maintenance of transport corridors should allow for retention of existing views and adequate framing of newly realised views, either en route or as part of the provision of rest areas and lay-bys.

Active travel routes

The earliest opportunity should be taken to plan for integration and enhancement of alternative travel corridors, including pedestrian and cycling, within main transport corridors. New or upgraded corridors should aim to avoid adversely affecting existing routes.

Address boundaries

Distinctive boundaries such as hedges and drystane walls create a sense of place as well as contributing to habitat diversity and green networks. Adequate provision should be made to conserve or connect with existing boundaries, as well as to construct new boundaries that sit naturally in the landscape.



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8. Build on distinctive place quality and character

Landscapes by their combinations and patterns of elements and features create areas of distinctive character. Sense of place arises from the character and special qualities of location and the connections people make with it. A positive sense of place and strengthening of distinctive place qualities is fundamental to how we perceive our environment. Transport corridors can provide access to and experience of landscapes as well as affect them positively or adversely. Policy and project objectives should support the conservation and creation of distinctive place, character and experience of landscape.

Respect setting

A critical element in the design process and setting of design objectives is an understanding of landscape context. Context requires an informed understanding of place, an appreciation of landscape character and respect for setting.

Creating a sense of place through a journey

Transport routes can provide opportunities for creating a sense of place and memorable experiences by virtue of their course through the landscape, the provision of access and the need to provide locations for resting. A high quality of design along the corridor is essential to enhancing and exploiting these opportunities and their contribution to the experience of the journey.



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- 61 The A9 separates Craigellachie National Nature Reserve and Aviemore
- 62 A1 Expressway: Biel House gateway relocation – a bespoke solution
- 63 Rhynie village and Hill of Noth viewed from the A97

- 64 A87: spectacular views to the South Cluanie ridge
- 65 Glen Docherty: roadside barrier made from local stone



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Continuity of elements

Linear transport corridors create severance and introduce new forms into the landscape. Engineering works sever existing patterns and can fragment elements such as woodlands, shelter belts, field patterns, walls and habitats. An important project objective is reconnecting features, re-establishing patterns and ensuring continuity of elements through good design.

Use local materials

Local materials help create distinctive place qualities. Conserving local materials and re-using materials and design references supports design integration and protects local character. Drystane wall boundaries and rock faces can be particularly distinctive.

Conserve key features

Local distinctiveness is often contingent on or enhanced by distinctive features such as the historic environment, particular buildings, tree planting or landforms. These can be unique to a particular location or characteristic of a particular region or area. Design priorities should aim to protect or integrate with these features.

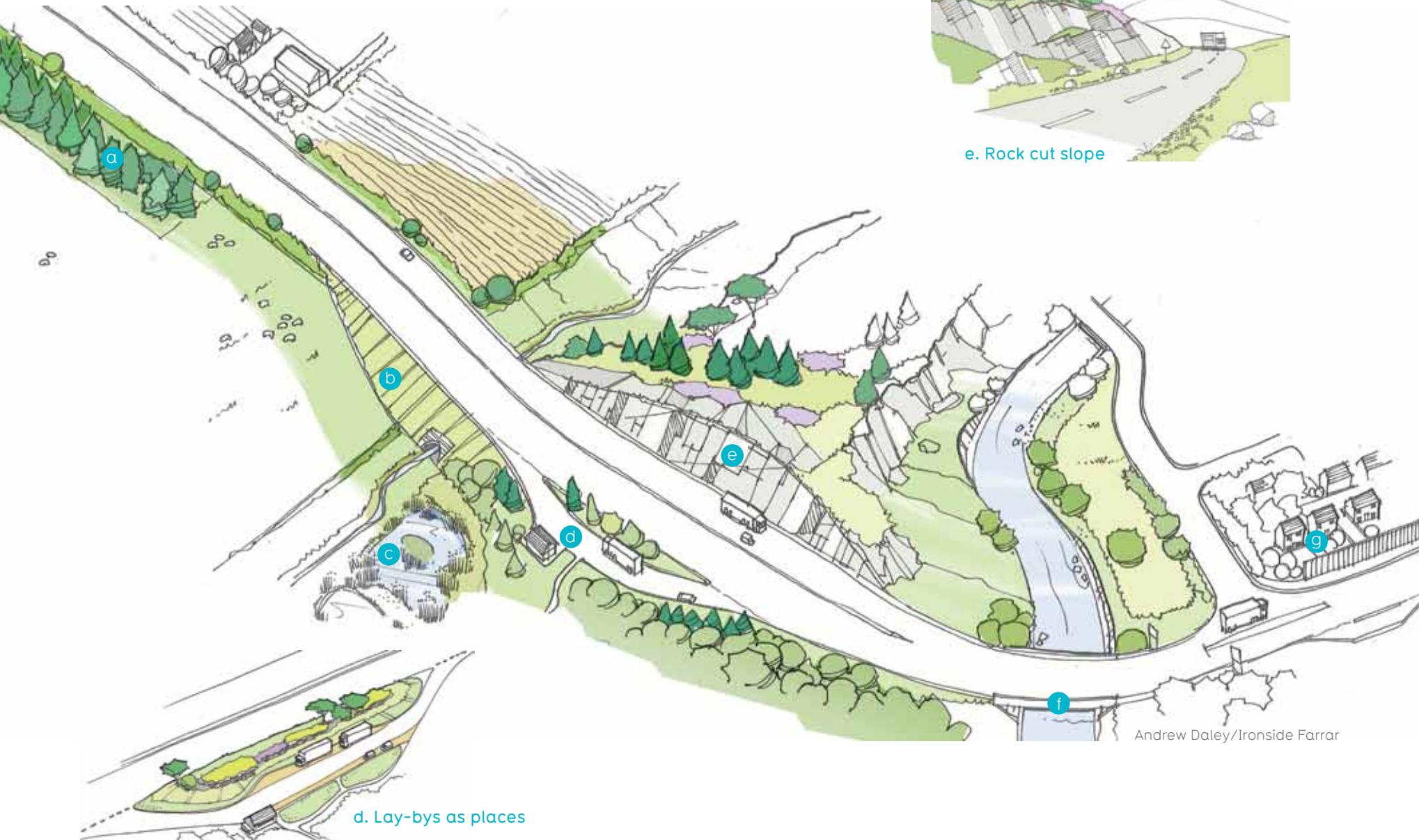
Conserve and create key views

Transport corridors can direct or screen views, create vistas and inform how we read and perceive the landscape. Understanding the value of views and designing to create and retain views and vistas is important in place-setting and the experience of travel.

Quality in detailing

Quality of design is important at all scales and can be significant in terms of detailing. The appropriate use of materials, application of vernacular design details that respect context ,and simple uncluttered solutions, can all play a part in supporting design quality and place-making.

Typical examples of landscape objectives



Detailed Examples of Objectives



e. Rock cut slope

Andrew Daley/Ironside Farrar



a. Shelter belt

- Use of native species
- Integrate with local character
- Appropriate planting densities

b. Mammal pass

- Protection of species
- Reducing fragmentation

c. Sustainable drainage

- Attenuation and treatment
- Native species and green networks
- Adaptation to climate change

d. Lay-bys as places

- Conserve and create views
- Link to active travel routes
- Address boundaries
- Local characteristics

e. Rock cut slope

- Integrated with local characteristics
- Natural rock bedding
- Spread site-won soils
- Native species planting

f. Bridge

- Sense of place
- Innovation in design
- Reduced habitat fragmentation

g. Noise barrier

- Engage with stakeholders
- Bespoke solution
- Innovation in design



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A96 Trunk Road near Huntley, Aberdeenshire

05 Sustainable Benefits

The benefits of the **Fitting Landscapes** policy will be the establishment of a clearer, more focused approach to the design, implementation and management of the transport estate. The policy will empower the designer and other professionals in the setting of clear project objectives, addressing the policy aims and supporting decisions made at each of the project stages.

A less procedural, more deterministic approach to carrying out projects will free up and support the landscape designer in taking decisions, making innovations and seizing opportunities without reducing transparency and accountability. In particular the four specific policy aims will address key areas contributing to improvements in sustainability:

- The aim of enhancing and protecting biodiversity will encourage the conservation of and integration with existing resources through good design and innovation in mitigation;
- The aim of ensuring high quality of design and place will promote design engagement, vision and aspiration;
- The aim of using resources wisely will encourage observation and innovation and promote landscape integration, the re-use of materials and the use of natural characteristics to inform design;
- The aim of building in adaptability to future change will justify forward thinking decisions about the land resources and design measures required for resolving the interface between functional requirements of transportation corridors, their surroundings and natural processes.

In summary, this document brings Transport Scotland's landscape policy into line with current Scottish Government policies on sustainability, creating places and the environment.

The policy will empower the designer and other professionals in the setting of clear project objectives



06 Monitoring and Feedback Mechanisms

It is important for the effectiveness of any policy to assess its general impact whilst actively reviewing opportunities to refine the underlying principles and their wider application. The Scottish Government recognises that the success of a key statement such as **Fitting Landscapes** will depend on the full and willing engagement of all the many professionals involved in transport projects, whether from the public or private sectors. It is incumbent on Transport Scotland, as the owners of the policy, to take every opportunity to promote its aims and objectives in the course of all development and management of Scotland's terrestrial transport corridors. It is incumbent on those developing and delivering the relevant projects to fully embrace the ethos of the policy and help ensure our transport networks are fully integrated with Scotland's unique and multi-faceted landscape.

Monitoring and feedback are integral parts of the policy; ensuring it grows and develops through the experience of those using it

Fitting Landscapes is a mandatory policy statement for all relevant transport-related developments and will sit alongside other standards and contract requirements for both new works and maintenance schemes. Understanding and application of the policy will be assessed through the usual project control mechanisms and opportunities taken to reinforce the key messages, as appropriate, from the planning, developing and detailing stages through to project delivery and maintenance. Consultants and contractors will be required to demonstrate, through certification and review, that the policy has been firmly embedded in the design development process.

In addition, Transport Scotland will require a periodic post-scheme evaluation of all relevant schemes to determine the degree to which the policy has been applied and to provide an opportunity to learn lessons for the future. This feedback is likely to be undertaken by a third party consultant who has demonstrated a full understanding of the policy aims and objectives and will be able to prepare a report, analysing how well the policy has been integrated into the schemes under review and establish any recommendations for the future – whether in the form of the policy governance, content or application.

To maintain the iterative development and refining of **Fitting Landscapes**, it is also intended to develop a web presence through which practitioners, designers and contractors will be encouraged to add relevant comments in relation to the policy and draw attention to useful examples of good and poor practice. All feedback and lessons learned in relation to the policy will be reviewed, analysed and, where appropriate, used to inform future iterations of the document to ensure it remains fresh and relevant.





Fitting Landscapes:
Securing more sustainable landscapes

Wildflower grassland on the A1 Expressway contributes to biodiversity



Appendix 1

Transport landscape and wider policy links

Fitting Landscapes updates Transport Scotland's landscape policy and brings it into line with current Scottish Government policies on sustainability and the environment.

The Scottish Government has set objectives that underpin its core purpose - to create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.

Environmental policy and the commitment to addressing climate change have implications for all investment and particularly long-term investment in infrastructure. An important part of policy is the focus on the **quality of outcomes**, with due

attention given to the sustainable use of land, high quality design and the protection and enhancement of the built, natural and historic environment. In this context it is useful to understand the range of relevant policy areas to which **Fitting Landscapes** must respond. The key current drivers are summarised in this appendix.

Landscapes are often multifunctional and formed of a series of interconnected elements, many of which are the subject of related policies and guidance

Climate change and adaptation

The Climate Change (Scotland) Act 2009 is a key commitment of the Scottish Government and seeks to reduce greenhouse gas emissions by 80% by 2050.

Scotland's Climate Change Adaptation Framework acknowledges that, however successful mitigating climate change is through emissions targets, an element of climate change will be unavoidable and that steps must be taken to adapt to it.

The importance of sustainability, emissions reduction and climate change adaptation as priority issues for Transport Scotland is reflected in the following key areas:

- Establishment of a Climate Change Steering Committee and participation in Carbon Reduction Commitment (CRC);

- Development of a Carbon Calculator Tool for infrastructure – Carbon Management System (CMS);
- Production of a Climate Change Action Plan;
- Production of a Sustainability Review to establish issues and opportunities relative to the Transport Scotland estate.

Landscape design and management has a key role in reducing the impacts of the transport network and in climate change adaptation:

- Understanding the potential for landscapes as carbon sinks via the provision of green infrastructure corridors to maximise carbon storage in biomass, where appropriate in landscape terms;
- Promoting sustainable procurement of contractual services from organisations which demonstrate that effective measures are in place to minimise the carbon intensity of capital works and site management activities;
- Robust Landscape and Planting Specifications – understanding changing climatic conditions and how different species respond to these changes;
- Landscape for Climate Change Adaptation – linkages between landscaping and resilience of the network to climate change impacts e.g. reducing surface water runoff during heavy rainfall events, protecting against landslips etc.

It is the duty of every public body and office holder, in exercising any functions, to further the conservation of biodiversity so far as it is consistent with the proper exercise of those functions.

Biodiversity

Protection and enhancement of biodiversity is a key responsibility for Transport Scotland underpinned by Nature Conservation (Scotland) Act 2004 and a range of wildlife legislation. Section 1 of the Act states:

'It is the duty of every public body and office holder, in exercising any functions, to further the conservation of biodiversity so far as it is consistent with the proper exercise of those functions.'

Scottish Planning Policy underlines the importance of biodiversity in Scotland.

'Biodiversity is important because it provides natural services and products that we rely on, is an important element of sustainable development and makes an essential contribution to Scotland's economy and cultural heritage.'

The Scottish Government's policy document: **Scotland's Biodiversity: It's in Your Hands** has an aim to:

'Conserve biodiversity for the health, enjoyment and wellbeing of the people of Scotland now and in the future'.

This policy has been augmented by **The 2020 Challenge**, prepared to respond to the EU Biodiversity Strategy for 2020. This document supports the concept of 'ecosystem services', which are the environmental benefits such as clean water, clean air and productive soils provided by biodiversity and ecosystems. The challenge recognises the value of these services and the need to maintain the health of ecosystems.

Transport Scotland is responsible for 3,405 kilometres of trunk road, representing 6% of all Scotland's road infrastructure, and 2,776 kilometres of railway track passing through a wide variety of landscape and habitat types. The resource associated with this infrastructure ranges from narrow grass verges to relatively broad woodland areas.

This estate offers a significant opportunity for the conservation and promotion of biodiversity and provision of ecosystem services through diversity and interconnectedness.

The **Fitting Landscapes** policy seeks to promote Transport Scotland's role in conservation and promotion of biodiversity.

Green networks

Green networks describe an integrated approach to the provision of open spaces and habitat, promoting access within and between settlements and the countryside. Scottish Planning Policy describes the concept:

'Linking greenspaces in and around settlements through green networks can deliver benefits for people and nature. By encouraging connectivity between habitats, green networks can improve the viability of species and the health and viability of previously isolated habitats and ecosystems, supporting adaptation to climate change.'

The Central Scotland Green Network is being promoted through the National Planning Framework 3 as a national development. The aim is to create a strategic network of woodland and other habitats, active travel routes and greenspace links across the broad area of central Scotland. Other regions are also developing green networks in their Supplementary Planning Guidance.

Whilst transport landscapes are not primarily dedicated to the aims of green networks, it is clear that, due to the extensive and linked nature of transport routes, they coincide with and can contribute to many green network aims. **Fitting Landscapes** supports opportunities for integrated approaches to habitat, landscape and amenity.

Landscape and quality of place

Scottish Planning Policy underlines the fundamental importance of Scotland's landscape to its identity, culture and as an attractive place to live, do business and invest. This policy takes account of the **European Landscape Convention** (ELC – ratified by the UK in 2006) which emphasises that all landscapes, not just designated areas, are important and that opportunities should be taken to improve linkages between habitats and greenspaces and to improve degraded landscapes. The ELC defines landscape as:

'An area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.'

The Convention stresses that all landscapes matter – not just the designated and iconic – and all must receive consideration and care.

Different landscapes will have a different capacity to accommodate new development, and the siting and design of development should be informed by local landscape character.

Scotland's Landscape Charter underlines the aims of the European Landscape Convention and encourages action from all sectors of society, including public authorities, to fulfil its vision to make sure that all our landscapes are places we will be proud to pass on to future generations.

The transport estate is extensive and covers much of Scotland. It is a window on the country and for many, visitor or resident alike, it is the primary means of visually experiencing the variety of the landscape. Many people also live, work and spend recreational time in locations adjacent to transport corridors. The appearance of the transport estate from within or outwith the corridor is therefore of critical importance to Scotland.

It is a key part of the policy that transport landscapes address the potentially significant adverse impacts of transport corridors and that they integrate with and, where possible, enhance the landscape structure, character and quality of the areas through which they pass.

Design quality

The Scottish Government policy **Designing Places** emphasises the importance of design in creating successful places. Much of the policy chimes with the aims and objectives of **Fitting Landscapes**:

'The design of places plays a large part in determining what impact we have on the land and other scarce resources. Decisions about design determine how much energy we will use, how efficient transport systems will be, and what people and economic activities will flourish in a particular place.'

The policy identifies six qualities – identity, safe and pleasant spaces, ease of movement, a sense of welcome, adaptability and good use of resources – that are at the heart of good design for urban and rural development.

These qualities also underpin the Scottish Government's recent policy statement on architecture and place for Scotland: **Creating Places** reinforces the importance of design quality, co-operation and early engagement and recognises the vital contribution that Landscape has on Scotland's identity.

Landscape design can create places in harmony with natural processes of change. Landscape architects are particularly conscious that design is a matter of directing a process of continuous change and that success depends on carefully managing what has been created.

Fitting Landscapes is intended to empower landscape architects and other professionals in achieving quality of design and place in outcomes.



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A82 Rannoch Moor in snow

A9 and Perth-Inverness railway cross at Jubilee Bridge



Appendix 2

The transport landscape estate

Scotland has a total of 3,405 kilometres of trunk road and 2,776 kilometres of rail track. Assuming a typical average maintained ‘soft’ landscape corridor and supporting infrastructure, this combined network brings the order of 90–120 square kilometres of land area under management.

Transport Scotland manages the trunk road asset, including all landscape, through a number of operating companies who undertake all cyclic and routine maintenance.

The quality of the landscape and management is important by reason both of area, extent and the range of habitats it supports. The area under transport estate management supports and abuts habitats as diverse as acid and neutral grassland; rock and scree; shrub heath; deciduous, mixed and conifer woodlands; watercourses; wetlands and seashore.

Developing the ‘Green Infrastructure’ and safeguarding and restoring valuable natural ecosystems is a key component of European Biodiversity Policy and links to the National Planning Framework (NPF3) Green Network Priority. Furthermore all landscape, designated or not, has value as recognised by the European Landscape Convention and Scottish Landscape Charter.

The transport estate is widely distributed across Scotland and has the potential to contribute positively to local landscapes and habitats through reinforcing and connecting green networks.

Transport corridors are an everyday part of all our lives; but rather than mundane, the experience of the journey through the landscape should be positive and uplifting



A77 Ballantrae. Views to Ailsa Craig

Transport network: usage and users

Scotland's road and rail networks involve an estimated 50 million plus journeys per annum covering a total in excess of 60,000 million kilometres per annum. The visual quality, distinctiveness and contribution to sense of place of transport landscapes are important to the travelling experience as part of everyday quality of life and as a showcase for Scotland.

The view from the road or rail corridor impacts on place perceptions and is important to tourism and awareness of our wider landscape. Poor detailing, inappropriate foreground treatments, lack of integration with the surrounding landscape and poor maintenance and

management can negatively impact on place quality and perceptions of Scotland. The Scottish Scenic Routes Initiative aims to capitalise on the landscape asset, significantly improving the journey experience by developing complementary route management strategies and creating new high quality places to stop and enjoy Scotland's landscapes.

Multi-disciplinary design working early in the design process can add value to create a more integrated, distinctive and appealing view for transport users. This supports perceptions of Scotland and supports enhanced place-qualities.



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M90 near Kinross



Fitting Landscapes:
Securing more sustainable landscapes

A701 ascending the Devil's Beeftub, near Moffat



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www.transportscotland.gov.uk.

A82 crossing Rannoch Moor



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Firth of Tay railway viaduct, Dundee





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