Title: **Impact Assessment for Level Crossings** **Lead department or agency:** Law Commission **Other departments or agencies:** Scottish Law Commission, Department for Transport, Office of Rail Regulation, Ministry of Justice	Impact Assessment (IA) **IA No:** LAWCOM0005 **Date:** 10/08/2010 **Stage:** Consultation **Source of intervention:** Domestic **Type of measure:** Primary legislation **Contact for enquiries:** Sarah Young 020 3334 0279

Summary: Intervention and Options

What is the problem under consideration? Why is government intervention necessary?

The legislation governing level crossings is complex, antiquated and difficult to access, much of it dating back to the nineteenth century when the main railways were constructed. The legislation has been heavily amended over the years. This has led to confusion as to which provisions still apply. There has been no consolidation of the legislation governing level crossings. The procedure for making changes to safety provisions at level crossings is cumbersome, expensive and does not easily allow generic changes to be made. The procedures for closing level crossings are complicated and time-consuming so that level crossings are not closed even where net financial benefit is indicated. Only primary legislation can resolve these problems.

What are the policy objectives and the intended effects?

1. Ensure safety at level crossings;
2. Promote the efficient operation of railways and, where present, highways/roads, taking account of the need to strike a balance between the interests of rail, road and other users and between safety and convenience;
3. Allocate duties and responsibilities appropriately amongst the various actors;
4. Create accessible, generic and modern criminal offences relating to the misuse of level crossings;
5. Provide appropriate means to define rights of way at level crossings insofar as feasible and to extinguish them where necessary.

The intended effect is to deliver a modern regulatory regime which is clear, consistent and transparent.

What policy options have been considered? Please justify preferred option (further details in Evidence Base)

Option 0: Do nothing.

Option 1: Targeted regulatory reform, based on three key elements:

(a) Reliance on the Health and Safety at Work etc Act 1974(HSWA)-based system for safety.
(b) Creation of a simplified system for level crossing closure.
(c) Creation of three new level crossing-specific offences.

Option 1 is a proportionate response to a long-standing problem. It aims to modernise the law, provide clear lines of responsibility and improve governance, and enable level crossings to be closed where appropriate. It also aims to reduce the risk of accidents including catastrophic accidents.

When will the policy be reviewed to establish its impact and the extent to which the policy objectives have been achieved?	Review will be a matter for DfT on implementation.
Are there arrangements in place that will allow a systematic collection of monitoring information for future policy review?	As above.

Chair's Sign-off For consultation stage Impact Assessments:

I have read the Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options.

Signed by the responsible Chair:  Date: 13 August 2010

Summary: Analysis and Evidence

Policy Option 1

Description: Targeted regulatory reform

Price Base Year 2002	PV Base Year 2010	Time Period Years 60	Net Benefit (Present Value (PV)) (£m)		
			Low: £114.4m	**High:** 635.8m	**Best Estimate:** 375.1m

COSTS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low	Optional		Optional	**Optional**
High	Optional		Optional	**Optional**
Best Estimate	N/Q		N/Q	**N/Q**

Description and scale of key monetised costs by 'main affected groups'

Safety regulation

1. The non-quantified transitional cost of moving safety regulation over to a HSWA 1974-based system, including training and administration costs for Her Majesty's Railway Inspectors, engineers and others at the Department for Transport (DfT), Network Rail, the Office of Rail Reglation (ORR), the Rail Accident Investigation Branch (RAIB) and the Rail Safety and Standards Board (RSSB).
2. The non-quantified transitional costs of drafting regulations under the HSWA 1974 as well as codes of practice relating to safety at level crossings. This will fall mainly on ORR.

Closure

1. The transitional cost of creating an application process and decision-making system for the closure of level crossings, including training and administration costs. This will fall mainly on DfT.
2. The key monetised costs, incorporated into the AXIAT model, are the costs of closure of level crossings, which include replacement costs. These costs will fall mainly on DfT and Network Rail.

When evidence has been gathered through the consultation process and the final proposals have been developed, we expect to be able to quantify more costs and include them in the NPV calculations.

Other key non-monetised costs by 'main affected groups'

Closure of a level crossing might impact on the access of a wide range of groups, including pedestrians, horse riders, farmers and others using farm machinery and may affect disabled people or others with access difficulties, such as those with pushchairs. The closure decision-making process will include consideration of the needs of users and an opportunity for interest groups to make their views known.

BENEFITS (£m)	Total Transition (Constant Price)	Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low	£0		£0	**£114.4m**
High	£0		£2.52m	**£635.8m**
Best Estimate	£0		£1.26m	**£375.1m**

Description and scale of key monetised benefits by 'main affected groups'

Safety regulation:

1. Reduction in non-quantified costs in the administration of the safety regime, by removing the need to make changes to individual level crossing orders and introducing a system whereby generic changes can more easily be made. These benefits will be gained mainly by ORR but also by rail operating bodies.
2. A reduction in the risk of catastrophic and other accidents, including weighted injuries and near misses, of between 0 and 15%. These will be felt by all users of level crossings, railway operators (usually Network Rail), ORR, RAIB and RSSB as well as the emergency services. The best estimate of the net present value of savings is £31,954,187.

Closure:

1. Savings would be made by the closure of level crossings. Benefits include reductions in road congestion, waiting times, and accidents, and will be felt by all road and rail users and by ORR, Network Rail and train operating companies. If 5-25% of those public vehicular crossings that are economically beneficial to close were closed the present value of the savings would range between £114,386,650 to £571,933,250, with a best estimate of £343,159,950.
2. By introducing a system for the closure of level crossings, obstacles to closure in appropriate circumstances would be removed and the costs of closure reduced. DfT and railway operators would benefit.

Other key non-monetised benefits by 'main affected groups'

Better regulation, modernisation and simplification of the legislative framework would make the governance, management and, where appropriate, closure of level crossings more straightforward and efficient. Additional non-monetary benefits would be increased certainty, enhanced reputation, and an increased ability to act decisively when accidents occur to help to prevent further accidents. A modern set of criminal offences covering level crossing misuse would aid enforcement, appropriate prosecution and sentencing. By clarifying and modernising the issues relating to rights of access to private level crossings, those affected by those rights will benefit.

Key assumptions/sensitivities/risk	**Discount rate (%)**	3-3.5

1. The reform of safety regulation would reduce fatalities, weighted injuries and near misses at level crossings by 0-15%.
2. The reform of safety regulation would reduce the risk of catastrophic accident at level crossings by 0-15%.
3. 10-50% of the level crossings where cost savings outweigh construction costs of alternatives could not, in practice, be closed but for our proposed reforms. We have also assumed that 50% of these would be closed as a result of the proposed targeted reforms. There is a risk that even if the reforms were implemented few would be closed.
4. The number of prosecutions and level of sentencing for level crossing misuse would remain the same. There is a risk of increased costs if the number of prosecutions or the severity of sentences were to increase, although the non-monetised benefits could still be significant.

Impact on admin burden (AB) (£m):			**Impact on policy cost savings (£m):**	**In scope**
New AB: N/Q	**AB savings:** N/Q	**Net:** N/Q	**Policy cost savings:** 0	No

Enforcement, Implementation and Wider Impacts

What is the geographic coverage of the policy/option?			Great Britain		
From what date will the policy be implemented?			Not before the end of 2014		
Which organisation(s) will enforce the policy?			Department for Transport and Office of Rail Regulation, and prosecuting authorities		
What is the annual change in enforcement cost (£m)?					
Does enforcement comply with Hampton principles?			Yes		
Does implementation go beyond minimum EU requirements?			No		
What is the CO_2 equivalent change in greenhouse gas emissions? (Million tonnes CO_2 equivalent)			**Traded:** 0	**Non-traded:** N/Q	
Does the proposal have an impact on competition?			No		
What proportion (%) of Total PV costs/benefits is directly attributable to primary legislation, if applicable?			**Costs:** 100%	**Benefits:** 100%	
Annual cost (£m) per organisation (excl. Transition) (Constant Price)	**Micro**	**< 20**	**Small**	**Medium**	**Large**
Are any of these organisations exempt?	No	No	No	No	No

Specific Impact Tests: Checklist

Set out in the table below where information on any SITs undertaken as part of the analysis of the policy options can be found in the evidence base. For guidance on how to complete each test, double-click on the link for the guidance provided by the relevant department.

Please note this checklist is not intended to list each and every statutory consideration that departments should take into account when deciding which policy option to follow. It is the responsibility of departments to make sure that their duties are complied with.

Does your policy option/proposal have an impact on…?	**Impact**	**Page ref within IA**
Statutory equality duties[1] Statutory Equality Duties Impact Test guidance	Yes	24

Economic impacts		
Competition Competition Assessment Impact Test guidance	No	24
Small firms Small Firms Impact Test guidance	Yes	25

Environmental impacts		
Greenhouse gas assessment Greenhouse Gas Assessment Impact Test guidance	Yes	24
Wider environmental issues Wider Environmental Issues Impact Test guidance	Yes	25

Social impacts		
Health and well-being Health and Well-being Impact Test guidance	Yes	25
Human rights Human Rights Impact Test guidance	Yes	25
Justice system Justice Impact Test guidance	Yes	In text
Rural proofing Rural Proofing Impact Test guidance	Yes	26

Sustainable development Sustainable Development Impact Test guidance	No	27

[1] Race, disability and gender impact assessments are statutory requirements for relevant policies. Equality statutory requirements will be expanded in 2011, once the Equality Act 2010 comes into force. The statutory equality duties under the Equality Act 2010 apply to Great Britain only. The toolkit provides advice on statutory equality duties for public authorities with a remit in Northern Ireland.

Evidence Base (for summary sheets) – Notes

Use this space to set out the relevant references, evidence, analysis and detailed narrative from which you have generated your policy options or proposal. Please fill in **References** section.

References

Include the links to relevant legislation and publications, such as public impact assessment of earlier stages (e.g. Consultation, Final, Enactment).

No.	Legislation or publication
1	
2	
3	
4	

+ Add another row

Evidence Base

Ensure that the information in this section provides clear evidence of the information provided in the summary pages of this form (recommended maximum of 30 pages). Complete the **Annual profile of monetised costs and benefits** (transition and recurring) below over the life of the preferred policy (use the spreadsheet attached if the period is longer than 10 years).

The spreadsheet also contains an emission changes table that you will need to fill in if your measure has an impact on greenhouse gas emissions.

Annual profile of monetised costs and benefits* - (£m) constant prices

	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5	Y_6	Y_7	Y_8	Y_9
Transition costs	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q
Annual recurring cost	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q
Total annual costs	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q
Transition benefits	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q
Annual recurring benefits	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m	£1.26m
Total annual benefits	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q	N/Q

* For non-monetised benefits please see summary pages and main evidence base section

Evidence Base (for summary sheets)

1. INTRODUCTION

Background to the problem

The Law Commissions of England and Wales and Scotland are examining the legal framework relating to level crossings with a view to its modernisation and simplification. A level crossing is a place where a railway is crossed by another type of way on the same level.

Many level crossings were created at the same time as the railways which they cross. Originally, gates operated by gate keepers protected crossing users from passing trains, with the gate remaining closed across the railway for most of the time. Provision for unmanned gates and barriers was made by the British Transport Commission Act 1957, developing new safety arrangements, intended to balance the interests of safety and convenience. Our proposals seek to maintain that balance.

Today, there are some 7,500-8,000 level crossings, including public and private level crossings on mainline, heritage and hobby railways, as well as those in dockyards and other commercial premises. A public level crossing is subject to three possible sources of regulatory control:

(1) the original special Act, laying down specific rules about the protection of the crossing

(2) orders made under the Level Crossings Act 1983; and

(3) the Health and Safety at Work etc Act 1974 (HSWA 1974) and regulations made thereunder.

The mainline railway network was privatised by the Government in the early 1990s with Railtrack plc owning and managing the national railway infrastructure. After Railtrack was taken into railway administration in 2001, Network Rail Infrastructure Limited (a not-for-dividend company) took over ownership of and became responsible for the management of the mainline infrastructure. Some parts of the railway network are still owned by heritage railways or commercial organisations. The system of rail regulation was reformed after a series of fatal rail accidents at Ladbroke Grove, Hatfield, Potters Bar and Southall. The Railways and Transport Safety Act 2003 established the Rail Accident Investigation Branch (RAIB) and transferred the Rail Regulator's functions to the new Office of Rail Regulation (ORR). The Railways Act 2005 then transferred responsibility for railway safety from the Health and Safety Executive (HSE) to ORR.

The Department for Transport (DfT) and ORR proposed a project to review the law relating to level crossings as part of the Law Commission's Tenth Programme of Law Reform. It was agreed that the project would be a joint one between the Law Commission (England and Wales) and the Scottish Law Commission because much of the legislation applies throughout Great Britain. An advisory group, consisting of a broad range of stakeholders, was established to assist the teams and it has met on two occasions prior to publication of the joint consultation paper.

The provisional proposals set out in the consultation paper represent our preliminary views about how the law should be reformed. Once responses to the Consultation Paper have been gathered and considered, an analysis of responses will be published, together with a report containing our final recommendations, which will be submitted to the Lord Chancellor and Scottish Ministers. Our intention is that the report will include a draft Bill which would give effect to the recommendations.

The problem

The legislation governing level crossings is complex, outdated and often difficult to find. Much of the legislation dates back to the time when the railways were built in the nineteenth century and it has been heavily amended since then. Provisions relating to level crossings are often difficult to access. They can be spread across legislation in a number of different subject areas, and can be contained in public general Acts, private special Acts, bye-laws and subordinate legislation. Some Acts have been partially repealed or provisions are spent or obsolete, making it difficult for those responsible for level crossings to determine which provisions still apply and which are redundant, as well as leaving questions open as to which provisions take precedence where there is a conflict. Victorian Acts contain antiquated terminology such as "turnpike roads" or "statute labour roads", which is no longer in use. There has been no attempt to consolidate the law in this area.

Under the current regime, the procedure for making generic changes to the protective measures at level crossings, for example the type of barrier is cumbersome and expensive and the relationship between the various systems of safety regulation is far from clear. Significant obstacles stand in the way of closing level crossings even where safety, convenience or economic analysis point towards closure. The procedures are complicated, time-consuming and often expensive. Although there are criminal offences which are relevant to level crossings, they do not specifically deal with the relevant types of misuse which can occur at level crossings. Issues relating to disability and accessibility have also been raised by our advisory group.

The current regime does not fully recognise the potentially competing interests affecting level crossings nor does it adequately cater for all types of level crossing, including public roads/highways, private rights of way, heritage and hobby railways, and railways within commercial premises such as docks or factories.

Objectives

The aim of this project is to review the law relating to level crossings and make proposals to modernise and simplify the legislation and reform the legal framework so as to make it more coherent, accessible and up-to-date, enabling better regulation, deterrence from misuse, increased efficiency of the road-rail interface and the reduction of risk.

The consultation paper has been written with the following aims:

(1) establishment of an accessible legislative framework governing level crossings;

(2) clarification of the relationship between the legal regime relating specifically to level crossings and other legal regimes, in particular the general duties under the Health and Safety at Work etc Act 1974;

(3) maintenance of a workable system for the regulation of safety at level crossings;

(4) the setting of a proper balance between the interests of road and railway users;

(5) clarification of issues in relation to the nature of rights of access to private level crossings, and the creation and extinguishment of such rights;

(6) review of current arrangements for considering the potential impact of proposed developments on level crossings before planning decisions are reached;

(7) formulation of a comprehensive legal framework for closure and, where appropriate, replacement of level crossings, providing all interested parties with an adequate opportunity to put forward their views before a decision is reached;

(8) review of the existing criminal offences that can apply in relation to level crossings; and

(9) development of a legal framework for level crossings which would be adaptable to alternative institutional or regulatory structures relating to the railways.

In proposing reforms of the regulatory system, we take the view that the regulatory regime for level crossings should aim to:

(1) ensure safety at level crossings;

(2) promote the efficient operation of railways and, where present, highways/roads, taking account of the need to strike a balance between the interests of rail, road and other users;

(3) allocate duties and responsibilities appropriately amongst the various actors; and

(4) provide appropriate means to define rights of way at level crossings in so far as feasible and to extinguish them where necessary.

So far as possible, any changes should fit into and take account of the existing legal structures at a level crossing, such as the provisions of highways/roads and planning law.

Rationale

The problems with the current law can only be remedied through government intervention to amend the

current regulatory regimes which govern level crossings. The objectives can only be achieved by way of primary and secondary legislation, supported by codes and guidance as proposed. Reform should be informed by modern learning on regulatory theory. In terms of regulatory structure, we do not propose wholesale institutional change, but do propose some changes which build upon the existing roles and responsibilities of the existing actors in the railway industry and the relationships between them. In terms of regulatory content, we propose to move away from prescriptive legal provision for individual level crossings in favour of increased use of general regulations that can be easily amended to take into account advancements in technology or safety.

A modern regulatory system would be:

(1) Simple

The purpose of reform would be to replace this current patchwork of laws with a clearer and more cohesive legal framework for the regulation of level crossings. A simplified legal framework would, in turn, promote a more efficient legal system. The creation of a simple system for the closure of level crossings, with or without replacement, would yield economic as well as safety benefits and improve the efficiency of the road and rail systems.

(2) Consistent

A key objective of reform would be to establish a greater degree of consistency in the law relating to level crossings. For example, a clear HSWA 1974 regime would ensure that the regulation of safety at level crossings would no longer be based on a series of piecemeal and inconsistent special Acts, orders and Acts of Parliament. It would also ensure consistency in the duties imposed and powers conferred to ensure that the legal framework takes into account the current and future direction of policy. The clarification of the law relating to rights of way proposed in the consultation paper would aid consistency.

(3) Modern

Reform of the law relating to level crossings would aim to bring the law into line with modern road and rail use and current terminology. It would also make the current law easier to access and to understand, improving consistency in practice.

Regulatory regimes should be clear, consistent and transparent. In addition, there are requirements specific to level crossings which are determined by the physical engineering involved and the responsibilities and aims of the regulators and regulated.

Scale and context

There are several ways in which a level crossing can be classified: by reference to its physical features; by reference to its users; and by reference to the legal nature of the crossing. This project covers the following types of level crossing, as explained in the consultation paper:

(1) public crossings where the railway is crossed by a footpath, a bridleway, and/or a road/highway;

(2) private statutory rights of way crossings;

(3) private easement or servitude crossings; and

(4) track/railway owner crossings in cases where the public has legitimate access over them as a matter of fact.

In total there are currently between 7,500 and 8,000 level crossings in Great Britain.

In 2009 there were:

- 3,950 public level crossings were in use on the mainline network, comprising:
    - 1,747 on vehicular highways;
    - 2,073 on public footpaths; and
    - 130 on public bridleways.
- 2,114 public level crossings had special protection measures, such as whistle boards and miniature warning lights, to indicate that a train was approaching.

- 1,836 public level crossings had no special protection.
- 2,642 private level crossings were in use on the mainline network, comprising:
    - 2,383 on private vehicular roads;
    - 248 on private footpaths; and
    - 11 on private bridleways.
- 228 private level crossings had special protection measures, and 2,414 had no special protection.[2]
- In addition, there are an estimated 1,000 to 1,500 level crossings on heritage and hobby railways.

Safety risks

CATASTROPHIC INCIDENTS

Level crossings represent 42% of the risk of catastrophic accident on the mainline railway network.[3] A catastrophic accident (or "serious train accident") is defined by RSSB as an incident where there are multiple deaths and serious injuries, typically a train accident, but also including major fires on trains. RSSB has provided us with an estimated cost of a catastrophic accident at a level crossing of £40 million (at 2010 prices).

The overall cost of £40 million (£33 million in 2002 prices) of each catastrophic accident at a level crossing, including fatalities, injuries, legal costs, charges to train operating companies for delays, damage and disruption, was produced from the catastrophic accidents which have occurred at level crossings since 1968. The accidents were at Hixon (11 deaths and 45 people injured), Lockington (9 deaths and 11 people injured) and Ufton Nervet (6 deaths and at least 50 people injured). These figures represent the estimated cost of a multi-fatality accident caused by the operation or maintenance of the railway. Where an accident is derived from third party actions, the contractual payments made to train operating companies for delays are likely to be somewhat lower and an estimate nearer to £30m (£24.75 million in 2002 prices) might be more appropriate.

RSSB has provided us with a table of catastrophic accident probabilities. We calculated the probability of incidents at level crossings, assuming that 42% of the risk was attributable to level crossings.

Table One: Frequency of train-related incidents leading to multiple fatalities

Number of fatalities	Incidents per year	Incidents attributable to level crossings
>=5	0.186	0.07812
>=10	0.065	0.0273
>=15	0.02	0.0084

RISK OF ACCIDENTS AND NEAR MISSES

There are currently various measures of risk on the rail network including total system risk and train accident risk, as discussed below. The figures do include catastrophic incident risks, and these are separated out below. Fatalities and injuries on the rail network are often expressed as fatalities and weighted injuries (FWI). Numbers of injuries are weighted according to severity. The current weighting is 0.1 (where the whole number 1 represents a fatality) for each major injury and 0.005 for each minor injury.

Collisions between trains and road vehicles, as opposed to collisions with pedestrians or cyclists, at level crossings are classified as train accidents. Train accidents include derailments, collisions, buffer stop collisions, train fires and trains striking road vehicles both at and away from level crossings, and trains

[2] Network Rail's level crossing census (2009).
[3] Network Rail, see for example http://www.networkrail.co.uk/aspx/7679.aspx.

striking animals and objects on the line.

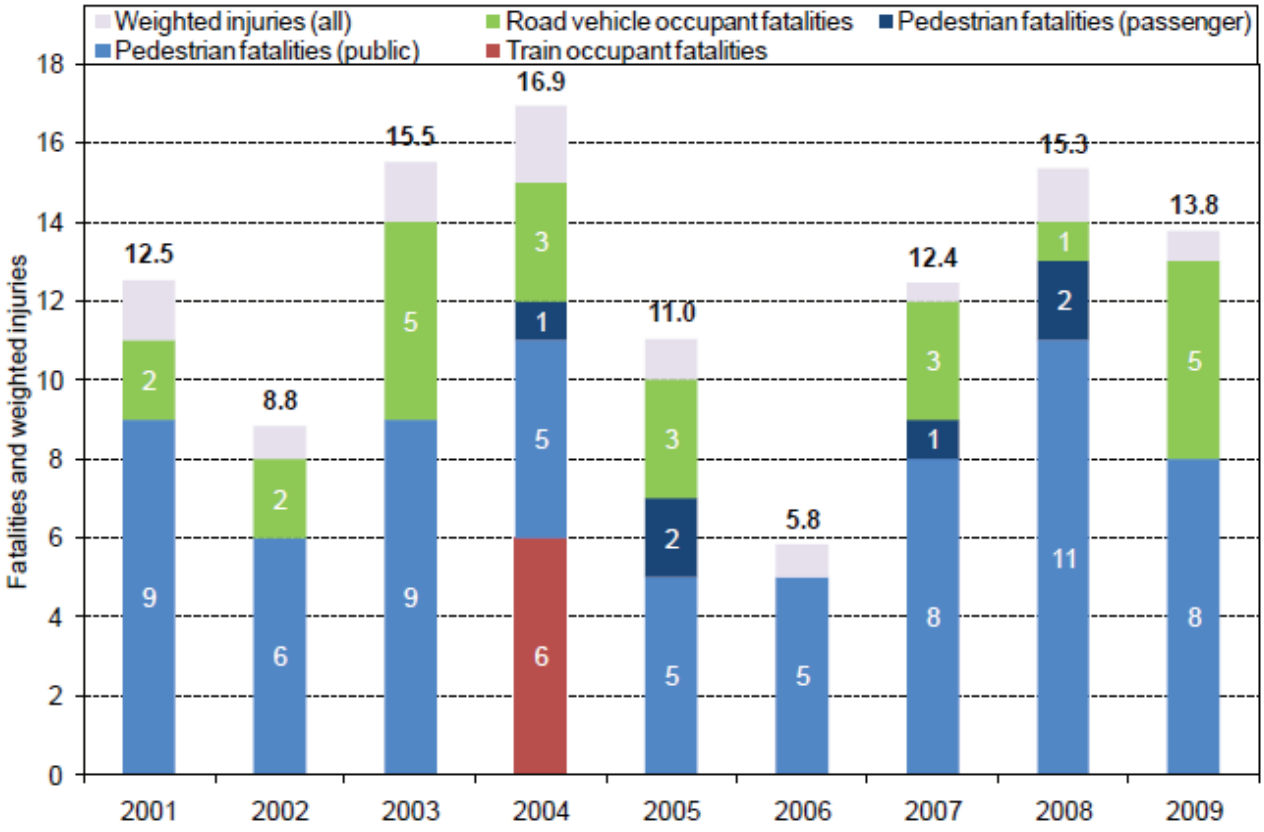
RSSB published its “Road Rail Interface: a special topic report” in April 2010, which states that the train accident risk at level crossings amounts to 2.8 FWI per year. It is worth noting that of this 2.8 FWI, around 95% of the risk is to road vehicle occupants rather than people on the train. According to RSSB, the average number of train collisions with road vehicles at level crossings over a ten year period has been 16 per year.

The total system risk reflects all the harm occurring to passengers, workforce or members of the public while at stations or on Network Rail managed infrastructure, including pedestrians and cyclists. Version six of RSSB’s Safety Risk Model estimates it at 141.3 FWI per year (excluding suicides), of which 67 are deaths, 501 major injuries and several thousand minor injuries. 8% of the total system risk relates to level crossings, which equates to 11.8 FWI annually. 58% of the risk at level crossings is risk to pedestrians and cyclists.

RSSB’s “Road Rail Interface: a special topic report” also includes actual recorded fatalities and weighted injuries at level crossings. Chart one below shows the breakdown of fatalities and weighted injuries. The chart does not include suicides, and there have been six road vehicle driver suicides at level crossings since 2000. The 10 year average excluding suicides is 12.6 FWI.

For the purposes of the impact assessment we will use the average over 10 years of actual FWI, excluding the catastrophic incident FWI from the Ufton Nervet disaster. 7.135 FWI resulted from this incident. Subtracting these from 12.6 FWI a year gives an average of 11.8865 FWI per year caused by incidents with fewer than 5 fatalities at level crossings.

Chart One: Actual Fatalities and Weighted Injuries at Level Crossings 2001-2009



It is worth noting that the number of FWI caused by train accidents is much lower than the number of pedestrians killed at level crossings. According to RSSB, there has been a total of 80 pedestrian fatalities at level crossings over the last 10 years. Incidents of all injuries have averaged 68 per year, which is equivalent to 1.14 FWI.

Near misses are also recorded. A near miss is an incident reported, usually by a train driver or crossing operator, where the driver has had to take action to avoid a collision or feels that they have come close to colliding with a road vehicle or pedestrian.

Table Two: Near Misses with Road Vehicles, 2000 – 2009

Year	Near misses
2000	186
2003	223
2009	145

There were more near misses with pedestrians than with road vehicles over the same period. The vast majority of risk is created by individual users of level crossings. Over the last 10 years, there was an average of 220 reported near misses with pedestrians and 177 reported near misses with road vehicles.

Closure

Network Rail is responsible for some 3,950 level crossings on public roads, of which 1,747 are vehicular highways/roads, in addition to private crossings. Network Rail currently has a policy of closing or diverting level crossings where reasonably practicable. Users of the crossings will not always support closure, even if this is accompanied by the replacement of the crossing by an alternative means of crossing the railway, such as a bridge or underpass.

RSSB is developing a model for the assessment of level crossing alternatives (known as “AXIAT”) to look at the economic impact of closure of public vehicular level crossings on the mainline network. Although the model is still being developed, a trial has taken place in four counties. The findings of these trials inform the later discussion of the costs and benefits of the proposals set out in the consultation paper.

Criminal justice

The British Transport Police, RSSB, ORR and Network Rail all identify up to 95% of risk at level crossings as being caused by user misuse, either deliberate or accidental. Various initiatives have been undertaken to encourage the safe use of level crossings, including Network Rail’s “Don’t Run the Risk” campaign. The British Transport Police ran “Operation Galley” in June 2009, and again in March 2010, to promote awareness of the dangers at level crossings and enforce rules against those who misuse crossings. Operation Galley included on-the-spot enforcement and public education. Network Rail also proposes to introduce fixed cameras at certain public vehicular crossings on the mainline rail network, both as a deterrent in themselves and to assist in the gathering of evidence to support prosecution. At present, most offences committed at level crossings are prosecuted by the British Transport Police in England and Wales, or by the Procurator Fiscal in Scotland. Prosecutions are low in number and tend to be for summary offences.

Information from the British Transport Police shows that the offences most frequently prosecuted in England and Wales in 2009/10 were as follows:

Table Three: Frequently Prosecuted Transport Offences 2009/10

Offence	Prosecutions	Actual sentence passed (range)
Failure to comply (summary offence)	1338	Licence endorsed: 3 points Fines ranged between £60 to £250
Careless driving (summary offence)	120	Licenses endorsed: 3 to 7 points Fines ranges between £60 to £370
Dangerous driving (indictable offence)	18	Normally disqualification from driving 12 months for 3 years. One case resulted in licence being endorsed with 8 points, £500 fine and £85 costs Community orders 12 months, with unpaid work orders between 100-200 hours
Endangering safety (indictable offence)	1	21 days disqualification from driving £500 fine

Source: British Transport Police

Main affected groups

The main groups affected by these proposals are:

- Department for Transport
- Office of Rail Regulation
- Network Rail
- Train operating companies
- Freight operating companies
- Heritage and hobby railways
- Commercial bodies with level crossings such as docks and harbours
- Disability interest groups
- Rail users (drivers and passengers)
- Road users (individual and commercial drivers)
- Cyclists
- Horse riders
- Pedestrians
- Farmers and other businesses who use level crossings
- Ramblers
- British Transport Police and local police forces
- Crown Prosecution Service (CPS) and in Scotland the Procurator Fiscal service
- Rights of way and access lobby groups
- Rural affairs interest groups
- Environmental affairs groups

Policy options and option appraisal

Option 0: Do nothing

This option demonstrates the ongoing costs and benefits of non-intervention and is therefore the "base case" against which the other option for intervention is compared.

Safety regulation

As discussed above, the law relating to safety at level crossings is complex, out-dated and often difficult to find. There are currently three possible sources of regulatory control over level crossings: individual private special Acts passed to allow the building of the railways; individual level crossing orders under the Level Crossings Act 1983, each of which governs the safety and convenience of individual level crossings; and the Health and Safety at Work etc Act 1974 and regulations. Despite the applicability of the general duties under Part 1 of HSWA 1974, special Acts and level crossing orders continue to play a role in the regulation of safety at level crossings. Although it was envisaged that codes of practice and guidance under HSWA 1974 would progressively replace the existing statutory provisions for health and safety, this has not happened. Neither ORR nor any other body has the power to make codes of practice for railway safety purposes since the Railways Act 2005 came into force. Generic changes to the protection at level crossings cannot easily be made when developments in technology or changes to safety requirements occur. In addition, there is uncertainty as to whether the provisions of HSWA 1974 trump a level crossing order or a special Act where a conflict between them arises. Only primary legislation can resolve the problems with the current regulatory regime.

Closure

A level crossing might need to be closed where there is no longer any need to cross the railway at that location, where it is to be replaced by a bridge or underpass, or where it is downgraded from public to private. It is both Network Rail and ORR's policy not to create any new level crossings, unless exceptional circumstances arise which require it. In England and Wales, sections 118A and 119A of the Highways Act 1980 provide for the stopping up of a public footpath or bridleway (but not a vehicular way) on safety grounds only. Section 116 of the Highways Act 1980 provides a general power for a magistrates court to order a vehicular highway to be stopped up. In Scotland, the Roads (Scotland) Act 1984 is somewhat wider in its application in that it allows a road to be stopped up where it has become dangerous or unnecessary. Powers to close paths which are neither "core paths" nor "public paths" under the relevant legislation are exercisable only on the grounds of convenience and not for safety. A private level crossing can be closed by agreement between the railway operator (usually Network Rail) and the owner of the right of way. Where no agreement can be reached, there is no procedure for closing a private level crossing apart from a compulsory purchase order made under the Transport and Works Act 1992 or the Transport and Works (Scotland) Act 2007. The procedure under the 1992 and 2007 Acts was designed mainly for larger scale building projects and it seems unlikely that such an order would generally be made for the purpose of closing an individual level crossing unless it was part of a larger project. Thus, in practice, the closure of level crossings is only possible in very limited circumstances.

Criminal offences

RSSB has found that 95% of risk and 95% of actual accidents at level crossings arises from misuse of the crossing by the user,[4] whether deliberate or accidental. Criminal law has a role to play in setting down expected norms of behaviour and enforcing against those who fail to meet those norms. There are numerous criminal offences which can be applied to misconduct at a level crossing, including driving offences, railway offences, offences against the person and railway bye laws. None of these offences was designed specifically to police or deter misuse of level crossings and most of the offences only apply to particular types of user, such as drivers, or particular types of crossing, either private or public crossings. The offence of criminal trespass under section 55 of the British Transport Commission Act 1949 is particularly obscure. It is a private Act which has been so heavily amended that it is difficult to ascertain the current wording. This raises the question of whether the offence complies with Articles 6 and 7 of the ECHR, the right for the accused to know what he or she is accused of and the requirement

[4] RSSB, Special Topic Report on Level Crossings, April 2010.

that the law be sufficiently accessible for an individual to know in advance whether his or her conduct was criminal. All of these problems make it difficult for the British Transport Police and others to enforce the criminal law effectively and to use it, together with other measures, as a deterrent.

Option 1: Targeted regulatory reform

Consult on provisional proposals for targeted reform by way of primary legislation in the following key areas:

Safety regulation

The regulation of safety at level crossings should be governed entirely by the general scheme under Part 1 of the Health and Safety at Work etc Act 1974, along with regulations and codes of practice under the Act. In addition, level crossing orders would be revoked and special Acts disapplied insofar as they relate to safety at level crossings. It might also be appropriate to enable the Secretary of State to repeal individual special Acts insofar as they relate to safety at level crossings. ORR would need to propose regulations under section 15 of HSWA 1974 to replace individual level crossing orders and would be empowered to create statutory codes of practice under section 16. Safety obligations would be placed on the railway operator, currently Network Rail in respect of the main line railway, as they are under the current regime.

In addition, in the consultation paper we consider whether provision to enable convenience-related measures to be put in place at level crossings is necessary, either by extending the power to make regulations under section 15 of HSWA 1974, or by creating a new power to make separate convenience-related orders in relation to specific level crossings.

Closure

Create a new system to allow for the closure of individual public and private level crossings with or without replacement by closure order contained in a statutory instrument, following the decision of the Secretary of State/Scottish Ministers/Welsh Ministers based on a non-exhaustive list of criteria for consideration and an appeal procedure where agreement cannot be reached.

Criminal offences

Create three coherent criminal offences specifically relating to the misuse of level crossings: summary (failing to comply with a sign); mid-level (dangerous use of a level crossing); and serious (death by dangerous use of a level crossing). The elements of these offences and the penalties would be comparable to driving offences, but would apply to all users on all types of level crossing.

Rights of way

Statutory reform and clarification of the acquisition of rights of way has been proposed, which should enable better management of level crossings and allow for closure where appropriate.

2. COSTS AND BENEFITS

This draft impact assessment aims to identify both monetised and non-monetised impacts on individuals, groups and businesses in Great Britain, with the aim of developing an understanding of what the overall impact to society might be from implementing these options.

The AXIAT model, on which our findings in relation to closure are based, is assessed over a **60 year time period at 2002 prices.** We have not updated the figures as it is our understanding that the components of the AXIAT model are updated using different inflators.

We have used a discount rate of 3.5% for the first 30 years and 3% for the next 30 years, in accordance with accepted government practice. The AXIAT results have been discounted with the same rates.

Option 0: Do Nothing

Costs

Because the do-nothing option is compared against itself, its costs and benefits are necessarily zero, as

is its net present value.

DfT, Network Rail, ORR and others responsible for the maintenance and regulation of level crossings continue to expend significant time and effort in interpreting and enforcing the complex, confusing, outdated law which is difficult to access. This requires more time and effort on the part of each organisation and their lawyers and undermines effective governance. For example, where a review of safety at a particular level crossing suggests improvements are required, it will be necessary to go through the process of making a new level crossing order, unlike under a generalised HSWA 1974 regime as proposed. If a technical advance which improves safety at a large number of crossings becomes available, such as a change in the design of half-barriers, it would be necessary to change the level crossing order in force at each level crossing, whereas the HSWA 1974 regime would allow generic changes to be made in respect of all level crossings or all those of a particular type.

The ongoing cost of maintaining all existing level crossings would continue to accrue, in addition to the delays caused to road traffic at level crossings, particularly those where the barriers are closed across the road for the majority of the time. In some cases, level crossing barriers can be closed for up to 45 minutes in each hour during daylight hours. Calculations for the cost of these delays are included in the AXIAT calculations below. Closure is very difficult under the current regime and the processes are cumbersome and slow; we have estimated that 10% to 50% of those level crossings where AXIAT suggests closure would be economically beneficial, could not currently be closed in practice. This is because orders under the Transport and Works Acts are unlikely to be used merely for the closure of an individual level crossing, and other closure methods only arise where the level crossing poses a safety risk sufficient to justify closure.

The police and prosecuting authorities continue to find the prosecution of offences at level crossings difficult. Misuse at different types of level crossing by different types of user is covered by numerous different and sometimes archaic and obscure offences, the terms of which are not always clear.

As mentioned above, some of the criminal legislation in this field is so difficult to access or it is so difficult to ascertain the current wording in force that there is a risk that the legislation may not be not compliant with Articles 6(3)(a) (the right to be informed promptly and in detail of the nature and cause of the accusation) and 7 (the law must be sufficiently accessible and precise as to enable the accused to know in advance whether his or her conduct is criminal) of the ECHR. The offence of criminal trespass under section 55 of the British Transport Commission Act 1949 is the prime example. This gives rise to a risk of litigation, possibly up to the level of the European Court of Human Rights, with attendant expenses.

The proposals as a whole are intended to reduce the risk of accidents, including catastrophic accident. This reduction is costed below. If nothing is done, that reduction would not be realised.

Option 1: Targeted Regulatory Reform

Costs

Transitional costs

Safety regulation

The costs associated with this section of the option would be as follows.

(1) Training costs in connection with introducing the new safety framework for DfT, Network Rail, ORR, RAIB and RSSB staff, and possibly for highway and roads authority staff. This would include training for railway inspectors and engineers as well as for policy-makers, lawyers and those involved in implementing safety regimes. While some training could take place as part of regular professional development, the move to a HSWA-based safety regime will require specific training.

(2) The costs of implementing the new safety regime, including administrative costs. These would also be incurred by ORR, as well as DfT, Network Rail, RAIB and RSSB.

(3) The costs of preparing and making regulations under section 15 of HSWA 1974, which would involve DfT and ORR staff and lawyers as well as the costs of drafting and the cost to Network Rail of implementing codes of practice under section 16 of HSWA 1974 in relation to safety at level crossings.

These costs have not been monetised. We would be grateful for evidence from consultees and their views on these areas of spending and the quantification of costs anticipated.

Closure

(1) The establishment of a decision-making procedure, including a mechanism for mediation would involve departmental staff time as well as the costs of setting up the systems for decisions to be made, meetings and hearings to take place, albeit in existing buildings and considered by existing Ministers and their officials. It may be that this work could be undertaken at DfT and the Scottish Government by the existing units dealing with orders under the Transport and Works Acts but it may be that this additional work stream would increase costs.

(2) The costs of training all relevant departmental staff as well as local authority staff in planning authorities and highway/roads authorities.

We would be grateful for evidence from consultees on the likely costs involved in setting up a system for determining applications for closure.

Criminal offences

We do not anticipate additional costs for the British Transport Police and prosecuting authorities or for judicial training or the training of lawyers. The proposed criminal offences might be outlined, in England and Wales, in the Judicial Studies Board criminal law newsletter, or merely in an update to Stones' Justices Manual, Archbold and other similar criminal law practitioners' guides and similar publications in Scotland. Inclusion in the newsletter and guides would be at no additional cost. If the British Transport Police were to use the new offences as part of a further campaign to reduce level crossing misuse, similar to Operation Galley, costs associated with that campaign would not be directly associated with these proposals, but might have a beneficial deterrent effect in reducing misuse at level crossings.

On-going costs

Safety regulation

Where the perceived risk of an accident at a level crossing changes, or where a renewal of a level crossing is not expected to provide like-for-like replacement, an assessment must be made in order to ensure that the risk of accident is as low as reasonably practicable.[5] In addition to Network Rail's responsibilities, under the current regime, railway inspectors inspect level crossings and review the safety provisions. Where changes need to be made, ORR exercises the Secretary of State's power to make a new level crossing order in respect of a particular crossing. In order to meet compliance requirements under the proposed safety regime, the risk assessment process for ensuring that the risk of accident is as low as reasonably practicable may be more costly than the making, management and operation of individual level crossing orders.

Over time, regulations made under section 15 of HSWA 1974 will need to be updated. In addition, approved codes of practice will have to be updated. This will incur costs in staff time at ORR and drafting resources of lawyers at DfT in respect of regulations. There will also be training costs for staff of other relevant bodies.

Again, we would welcome the views of consultees on the operation of these systems and the quantification of costs.

Closure

All the engineering and associated costs of closure are taken into account in the AXIAT model when determining whether it is economically beneficial to close a particular level crossing, including the following:

(a) User costs

i. Road user delay

ii. Vehicle operating costs

[5] See for example *Signalling Review: Network Rail's long term funding submission,* June 2006, page 14

iii. Accidents
iv. Rolling stock damage (accidents)
v. Infrastructure damage (accidents)
vi. Rail performance costs

(b) Operating and maintenance costs

i. Crossing maintenance (rail)
ii. Crossing maintenance (bridge/tunnel)
iii. Operating staff

(c) Construction costs (including optimism bias)

i. Renewals
ii. Land acquisition
iii. Property demolition
iv. Removal of existing infrastructure
v. Infrastructure construction
vi. Enhancing existing infrastructure
vii. Statutory undertakers
viii. Developer contribution
ix. Network Rail project management costs
x. Optimism bias

AXIAT can then calculate total costs and savings and divide the savings into road cost savings and rail cost savings, before calculating the ratio of the total cost savings over construction costs. The AXIAT results which we present here are the net benefits. We do not set out the costs in detail.

These costs might be incurred over a period of many years, as decisions to close particular crossings are taken.

Although there would be costs associated with the maintenance of the system for making closure orders, there are dedicated units within DfT and the Scottish Government to support decision-making in connection with Transport and Works Act orders. Our proposed closure orders would be fewer and simpler than Transport and Works Act orders generally and so it is not anticipated that additional costs would be significant.

The closure of a level crossing might affect the access of people from a wide range of groups, including pedestrians, ramblers and cyclists, horse riders, farmers and others using farm machinery and may affect disabled people or others with access difficulties, such as those with pushchairs. The extent of the impact will depend upon the type of crossing, the adequacy of alternative routes, whether the crossing is replaced and the type of replacement. The closure decision-making process will include consideration of the needs of users and an opportunity for interest groups to make their views known.

We would be grateful for the assistance of consultees on how these costs could be quantified.

Criminal offences

The proposals aim to create a modern, comprehensive set of easily accessible criminal offences dealing specifically with misuse by all types of user at all types of level crossing. The aims are to reduce the number of crimes committed, deter offending, punish offenders, prevent accidents and increase confidence in the criminal justice system.

It is not anticipated that these proposals will lead to a significant increase in the number of prosecutions for offences relating to level crossings, but will enable those prosecutions to be targeted at the right offences and at an appropriate level of seriousness. The new offences will also enable crimes committed

at level crossings to be recorded as level crossings offences, which will assist courts in sentencing appropriately and will assist all those involved in the promotion and regulation of safety to publicise the incidence and consequences of misuse.

If our assumptions are incorrect, then there might be increased numbers of prosecutions, an increase in the seriousness of the offences charged and prosecuted and/or an increase in the severity of sentences. If there is an increase in the number of prosecutions and the severity of the offences prosecuted, then increased costs will fall on the Crown Prosecution Service, the Crown Office and Procurator Fiscal Service in Scotland, the British Transport Police, the Legal Services Commission (who administer the legal aid scheme in England and Wales) the Scottish Legal Aid Board (who administer the legal aid scheme in Scotland) and Her Majesty's Courts Service and the Scottish Court Service.

Currently the vast majority of prosecutions for misuse of level crossings are for summary offences. If the number of prosecutions or the proportion of prosecutions for indictable offences increases then costs will increase. If our assumptions are wrong, we do not have the evidence on which to estimate what the increase will be. We can, however, provide estimates for unit costs for investigation and prosecution.

The figures available to us in relation to the costs of prosecuting offenders only cover England and Wales. We do not have corresponding information for Scotland, but will endeavour to obtain evidence from Scotland for the impact assessment accompanying the final report.

The average cost to the police of investigating an indictable offence is £12,000 and the cost of investigating shoplifting (the best equivalent we can find for a summary offence) is £1,500. We assume that the costs of a British Transport Police investigation are similar.

The average cost to the prosecutor of a case tried in the Crown Court is £2,500 and in the magistrates' court is £175, including guilty pleas and contested trials. These costs may fall on the British Transport Police as prosecutor or the Crown Prosecution Service when prosecuting indictable offences. If the proportion of indictable offences increases then more cases are likely to be tried in the Crown Court.

The average cost to the Legal Services Commission or defendant of defending a summary trial in the magistrates' court is £300. For an indictable offence in the magistrates' court the average cost is £400 and in the Crown Court is £4,500.

The average cost to Her Majesty's Court Service for a summary trial in the magistrates' court is £950, and for a Crown Court trial is £6,300.

If the severity of the sanctions and number of prison sentences increases, then imprisonment costs will be incurred. The annual cost of a prison space depends on the category of prison and ranges between £31,000 and £69,000. It is possible that most sentences will continue to be in the form of fines or other non-custodial penalties, which are less costly than imprisonment. The proposed summary offence does not carry a custodial sentence. The other two proposed offences may be punished with sentences of imprisonment.

We would welcome information and the views of consultees on the likely impact of the proposed offences on prosecution levels and the quantification of the costs in England and Wales and in Scotland.

Rights of way and access rights

If Scottish landowners were to be compensated for the loss of a right of way in the circumstances outlined in the cases of *Midland Railway Company v Gribble*[6] and *Robertson v Network Rail Infrastructure Ltd,*[7] this cost would arise on an ongoing basis, as and when individual pieces of land came to be sold. Costs would be variable, according to the value of the right of way lost and the method used to calculate compensation. It is unpredictable, but likely to be moderate, as the factual situation concerned will arise comparatively rarely.

[6] [1895] 2 Ch 827.
[7] Inverness Sheriff Court, 28 May 2007, unreported.

Benefits

Transitional benefits

There are no expected transitional benefits.

On-going benefits

On-going benefits - safety regulation

The most significant savings would result from the operation of a comprehensive, modern, simpler, and clearer system of safety regulation, with improved governance, leading to a reduction in the risk of accidents and in the risk of catastrophic accidents. The HSWA-based system of safety regulation may, however, require increased inspections and assessments of risk to ensure that risk is as low as reasonably practicable. The on-going benefits are:

(1) reduced risk of catastrophic accident; and

(2) reduced risk of accidents and near misses.

REDUCED RISK OF CATASTROPHIC ACCIDENT

The proposed move to reliance on HSWA 1974 for the regulation of safety at level crossings aims to reduce the risk of catastrophic accidents on the rail network. However, we accept that the amount of the reduction is difficult to quantify. Therefore we consider that the reduced risk could range from 0-15%.

Using the RSSB average cost of a catastrophic accident involving a third party on a level crossing of £24.75 million we have calculated the potential savings if the risk of catastrophic accidents was reduced by 0-15%, with 7.5% as our best estimate. These are included in the table below. The present values are calculated assuming the benefits start accruing in year 1, not year 0, but the costs accrue from year 0. We have assumed for the purposes of our calculations that incidents involving 10 or more people are included in the statistics for incidents involving five or more people.

Table Four: Potential cost reductions relating to catastrophic accidents

	Annual probability of incident	**Costs per year**	**Present value**
Incident involving >=5 people	0.07812	£1,933,388	£50,993,609
	Reduction in incident probability	**Savings per year**	**Present value of savings**
Low: Reduction of 0%	0	£0	£0
Best: Reduction of 7.5%	*0.005859*	*£145,004*	*£3,679,517*
High: Reduction of 15%	0.011718	£290,008	£7,359,033

This table shows the potential annual savings attributable to a reduced risk of catastrophic accidents specifically. The best estimate of the total savings discounted over 60 years is £3,679,517.

The average cost provided by RSSB is an average of the costs of the previous three accidents on level crossings. It is important to recognise that the costs of a catastrophic accident vary enormously, but immediate costs include: the loss of life and injury costs; physical damage to the rail network and train; pain grief and suffering; lost economic output; medical and healthcare costs; material damage; police and fire service costs; and insurance administration. There are also the costs of dealing with the accident in the short term, including clearing up the area in which the accident occurred, and the implementation of temporary arrangements such as temporary speed restrictions.

RSSB describes catastrophic accidents as having a “rippling effect”, as they can have large consequential costs, including legal and court costs, public inquiries and inquests. A large portion of the costs is due to diversions and closure of the line, and long-term arrangements such as altered timetables while any infrastructure damage is repaired. These cause disruption to the rail services, and lost time resulting from transport delays, charges to Network Rail resulting from extended journey times, and loss of revenue from passengers choosing alternative means of transport. There are also the costs of repairs

to the rail network and the cost of improvements to the safety measures. Examples of catastrophic accidents on the railway include the accidents at Hatfield (2000), Potters Bar (2002) and Ufton Nervet (2004).

Additional risk on the road should also be considered where a level crossing is replaced with a bridge or underpass. Our best estimates suggest that there is no or negligible additional risk of accident where the alternative to the level crossing follows the same route as the road. Where a lengthy road diversion is created, the risk may increase and this would have to be taken into account when considering whether to divert the road.

REDUCED RISK OF ACCIDENTS AND NEAR MISSES

We also anticipate that a move to a reliance on HSWA 1974 for safety regulation would result in a reduced risk of all accidents, including near misses. We estimate that there could be a reduction in the overall risk of accidents at level crossings of in the region of 0-15%, with 7.5% as a best estimate.

In our calculations we have used the actual reported FWI from RSSB. The 10 year average of FWI per year, excluding those caused by incidents in which there were five or more fatalities, is 11.8865 FWI. The potential reduction in FWI per year is thus 0 to 1.782975 FWI, with a best estimate of 0.8914875 FWI.

It is possible to express the cost of accidents at level crossings in economic terms. This entails combining the risk of an injury occurring with the economic loss that such an injury would occasion to the injured person and the consequent loss to the wider economy. On this basis, the economic effect of an accident would vary from person to person. In order to extrapolate a wider picture, a standardised cost must be assumed that applies to every death or other injury at a level crossing. Table five has been generated using the 2002 DfT value for a fatality which has been prevented of £1,249,890. This reflects the benefit of avoiding a fatality.

Table Five: Potential cost reductions relating to incidents involving < 5 fatalities

	Average FWI	**Costs per year**	**Present value**
Incident involving < 5 people	11.8865	£14,856,817	£391,852,417
	Reduction in FWI	**Savings per year**	**Present value**
Low: Reduction of 0%	0	£0	£0
Best: Reduction of 7.5%	*0.8914875*	*£1,114,261*	*£28,274,670*
High: Reduction of 15%	1.782975	£2,228,523	£56,549,340

The best estimate of the saving over 60 years is £28,274,670.

There would also be a reduction in the associated accident costs, such as rail repair. Although we do not have sufficient information about the number and type of accidents at level crossings to estimate a total annual infrastructure repair cost, RSSB estimates that approximately 75 metres of rail infrastructure has to be repaired per accident, with a 50% increase in costs for lines which have a line speed of over 80mph.

Table six below shows the breakdown of the cost of repairs to the infrastructure per metre. Using a total of £936 per metre and an average accident which does not occur on a high speed line, infrastructure repairs would cost £70,200 for a single accident.

Table Six: Break-down of infrastructure repair costs

Item	Cost per metre
Removal of damaged rail	£50
Removal of sleepers	£40
Removal of formation	£25
Removal of track drainage	£20
Removal of cable routes	£15
Re-grade sub formation	£45
Replace drainage	£20
Replace formation	£25
Replace sleepers	£30
Replace rails/S&C	£100
Replace track ballast	£15
Replace cable routes	£25
Replace signalling	£150
Tamp and line	£50
Maintenance	£10
Engineering trains	£100
Sub total per metre	£720
Labour (10%)	£72
Overheads (20%)	£144
Total	*£1,656*

An overall reduction in risk would also reduce the number of near misses with pedestrians and road vehicles. There would also be a consequential reduction in the psychological impact of near misses on train and vehicle drivers and passengers and a reduction in interruptions to train services.

We would welcome consultees' views and evidence on the costs associated with accidents, including rail repair.

On-going benefits - closure

As explained above, RSSB is developing: the *Alternatives to Level Crossings Assessment Tool* or "AXIAT". The model only applies to public vehicular level crossings. It considers the costs of maintaining an existing level crossing against the most favoured alternative, such as a bridge or underpass, and includes quantification of safety and delay costs. The model is in the process of being rolled out across the country. An initial study of level crossings in four counties in England (Dorset, Lincolnshire, North Yorkshire and West Sussex) indicated that there was an initial economic case for replacing 27 out of a total of 240 level crossings (or 11.25% of the total). Given the low number of public crossings which are currently replaced, such modelling indicates that replacement should be more fully considered in relation to a greater number of level crossings.

The costs taken into account in AXIAT include:

(1) maintaining the existing level crossing;

(2) the cost of delay to road and rail users;

(3) the cost of accidents at the crossing;

(4) the cost of any land purchased in order to close the level crossing whether or not a replacement is created; and

(5) the cost of construction and subsequent maintenance of any alternative.

The most significant benefit of level crossing closure is a reduction in traffic congestion, and AXIAT takes this into account. The delay caused to drivers at a public vehicular level crossing can be expressed in economic terms relatively easily. The two main approaches are to calculate either the lost productivity of those individuals delayed or the amount that they would be willing to pay not to be delayed. At a theoretical level, these approaches should give identical figures. However, this will not always be the case in practice. The Transport Research Laboratory undertook a major research project in 2008 into the effect of traffic delays at level crossings with a view to finding ways to reduce the delays.[8]

Delay to trains is difficult to attribute to a single level crossing. Generally speaking, trains will only be delayed if there is a sufficient number of level crossings on a particular stretch of track to justify a reduction in the line speed. Removing a single crossing will in most cases not affect the line speed decision. On the other hand, delay consequent on accidents at or damage to a level crossing is more readily quantifiable, although this would have to be balanced against any delay occasioned by damage to bridges.

Wherever a level crossing is closed the risk of accident on the railway is reduced to almost nil. However, the overall impact of risk reduction resulting from closure is likely to be small as the AXIAT model only suggests closure of a small number of level crossings.

AXIAT is only one way of modelling the costs and benefits of level crossings. It is designed essentially as a screening tool to identify those level crossings where there is most likely to be a case for replacement. Once a candidate level crossing has been identified, a more detailed site-specific cost/benefit analysis would have to be prepared as a basis for a case for allocation of the necessary funds.

Table seven below shows the most recent results based on emerging data from "AXIAT version 1.8.2".[9] Although the final data is not yet known, these draft outcomes are set out so as to provide a broad appreciation of the magnitude of possible savings. The results for Great Britain are calculated by scaling up the results for four trialled counties. The scaling ratio of 6.216667 is calculated by dividing the total number of public level crossings by the number included in the AXIAT trial.

The AXIAT model shows "cost savings" which can be defined as the total cost of keeping the current level crossing minus the total cost of the best alternative to the level crossing. The "total" includes maintenance and user costs. The "cost savings" are the savings of the preferred alternative to the level crossing over the existing provision. "Construction costs" in the AXIAT model are the costs of creating the best solution, including the purchase of land where necessary, building costs and the costs of maintaining the bridge or underpass.

[8] E Delmonte and S Tong, Traffic Research Laboratory Report No PPR377, *Investigation into traffic delays at level crossings* (December 2008).

[9] These results are more up to date than the AXIAT results in the consultation paper and so discrepancies may be noted.

Table Seven: Draft AXIAT calculations

DRAFT AXIAT CALCULATIONS		*Savings over 60 years*
Public road crossings in the 4 local authorities included in AXIAT trial	240	
Scaling ratio	6.216667	
Cost savings to be made by closing crossings with a ratio of "cost saving: construction cost" of >1 in these 4 local authorities		£368 million
Cost savings to be made by closing crossings with a ratio of "cost saving: construction cost" of >5 in these 4 local authorities		£196 million
Cost savings to be made by closing crossings with a ratio of "cost saving: construction cost" of >1 in GB		£2287.733 million
Cost savings to be made by closing crossings with a ratio of "cost saving: construction cost" of >5 in GB		£1218.467 million

Currently, it is rare for a public vehicular level crossing to be closed or replaced. Nearly all of the level crossings closed are private level crossings which are bought out by Network Rail by agreement with the adjoining landowner, without replacement. Since, as AXIAT suggests, there would be long term economic benefits in closing many more vehicular crossings, an explanation for the lack of such closures is called for. We do not consider that the inadequacy of the current legal powers available is the only explanation, or even, probably, the main one. It does, however, seem likely that it is a substantial factor. We therefore estimate that between 10% and 50% of crossings, with a cost-saving-to-construction-cost ratio greater than 1, could not in practice be closed under the current regime for the closure of level crossings.

While our proposals allow for more level crossings to be closed, this does not mean that they will be closed. Any savings will depend upon the DfT taking a policy decision that the necessary expenditure on closure is justified at this point in time, in order to reap the savings benefits in the long term. It should also be remembered that economics is not the only measure. Even where there are good economic arguments that a particular level crossing should be replaced, other compelling public policy considerations (such as protection of rights of way, local amenity, and local and national transport policy) may outweigh these arguments.

Of the 10% to 50% of level crossings which could not be closed but for our proposals, we estimate that only 50% of those would be closed. This gives a range of closure of 5 to 25%, with a best estimate that 15% of level crossings found by AXIAT to be economically beneficial to close will be closed. Working with level crossings with cost savings that outweigh construction costs, over a 60 year period the potential net benefit ranges between £114,386.650 to £571,933,250, with a best estimate of £343,159,950.

Models which, like AXIAT, focus on the costs and benefits to society as a whole risk obscuring the fact that decisions about level crossings are taken by individual actors such as railway operators or highway/roads authorities. Not all of the costs included in the AXIAT model will be borne by every actor. Indeed, some actors currently bear none of the costs associated with maintaining a level crossing, but might have to bear the costs of maintaining a bridge. For such actors, even where level crossing replacement provides general economic benefits, their own cost/benefit analyses may act as a disincentive to agreeing to such a scheme. Similarly, while the costs of replacing a level crossing might be borne largely by Network Rail, the benefits might be felt by a wide range of persons and groups, including the benefit to the economy more widely of improving the efficiency of the transport system, by reducing delays on both road and rail.

Again, we would welcome the views of consultees.

Criminal offences

The savings following the implementation of new offences specific to level crossings would be in their easier use by police, prosecutors and courts, so that a small number of prosecutions, enforcing against those who misuse level crossings could be used in support of wider programmes to deter such misuse. Courts would be able to identify a level crossing offence as distinct from other road traffic offences and sentence accordingly. The new offences would be less cumbersome and difficult to access, reducing staff time and removing possible breaches of the ECHR relating to the certainty and accessibility of the current offences.

We would welcome the views of consultees on the quantification of benefits likely to accrue from the introduction of new criminal offences.

Net impact of option 1

The costs of the reform will be in enacting legislation and training those operating the new regimes, and, if level crossings are closed, the costs of closure and of building alternatives, such as bridges or underpasses. It is thought that the proposal to create new criminal offences will not incur any costs.

The savings will be in the reduction of the risk of accidents, including catastrophic accident, as well as significant savings if level crossings are closed with or without replacement. Non-monetised benefits include modernisation, clarification and simplification of the law, as well as better regulation.

It is also hoped that the rationalisation, consolidation and modernisation of the relevant law will save time for those who have to manage and enforce the regulatory system and the lawyers who advise them.

There will be significant cost savings from reduced traffic congestion at level crossings if closure of level crossings occurs or level crossings are replaced with a bridge or underpass.

The proposal to create new criminal offences will assist the police in distinguishing between level crossing-related and other offences, supporting their campaigns to promote safety, enforce against those who misuse level crossings, prosecute effectively and deter offenders, with cost savings accruing in the longer term as the risk of accident reduces.

Assumptions

(1) We assume that the targeted reforms will reduce the risk of catastrophic accidents at level crossings by 0 -15%, with 7.5% as a best estimate.

(2) We assume that the reformed safety regulations will reduce fatalities, injuries and near misses at level crossings by 0-15%, with 7.5% as a best estimate.

(3) We have assumed that 10-50% of the level crossings with cost savings outweighing construction costs could not in practice be closed, but for our proposed reforms. This does not mean that they will be closed. We assume that half of these crossings will be closed.

(4) We assume that the level of prosecutions and severity of sentences will remain the same.

Risks

(1) Under the current regime, railway inspectors inspect level crossings and review the safety provisions. Where changes need to be made, ORR will exercise the Secretary of State's power to make a new level crossing order in respect of a particular crossing. In order to meet compliance requirements under the proposed safety regime, it might be necessary for risk assessments to be carried out more frequently to ensure that risk is as low as reasonably practicable. This may be more costly than the making, management and operation of individual level crossing orders.

(2) Far fewer level crossings than expected might be closed.

(3) If the number of prosecutions increases under the proposed legislation, or the proportion of more serious offences prosecuted increases or the severity of sentences increases and more offenders are imprisoned, then the costs of the proposed new criminal offences would increase. The non-monetised benefits would remain.

We would welcome information, advice and opinions from consultees on the risks we have identified.

3. SPECIFIC IMPACT TESTS

Statutory equality duties - Gender

We do not anticipate the proposals would have substantial differential impact in relation to gender.

Statutory equality duties - Disability

Accessibility at level crossings is essential to a safe and efficient road and rail transport system. Disability equality is a significant issue in relation to level crossings. Ensuring that warnings and surfaces over tracks are suitable for those with disabilities is key to making level crossings accessible to all. However, such issues are outside the scope of the current project, which only concerns the law relating to level crossings.

As part of this project, we have examined the law relating to disability and accessibility of level crossings, bearing in mind the needs, not only of disabled users, but also groups who may experience access issues, such as cyclists, horse riders, or those using pushchairs. We have been made aware of issues concerning accessibility of level crossings, such as problems wheelchair users experience in using "kissing gates" at public footpath crossings. Ensuring accessibility is the duty of the relevant actors. Our provisional conclusion is that the existing and proposed regulatory frameworks do not have an unequal impact on the disabled. Duties to ensure that disability and accessibility needs are met apply under the Disability Discrimination Act 1995 and, when it comes into force, the Equality Act 2010. Where provisions at a level crossing would be impossible or unreasonably difficult for a disabled person to use, there is a duty on a public authority to make reasonable adjustments. In addition, a positive duty on public authorities is imposed under section 49A of the Disability Discrimination Act 1995 and, when it comes into force, section 149 of the Equality Act 2010.

Disabled people are at more of a disadvantage than able bodied people in relation to safety at level crossings. For example, a certain time between an alarm sounding and a barrier descending may be safe for an able bodied person but not safe for a wheelchair user or person of limited mobility. Similar considerations apply to footpath crossings, where safety depends on seeing a train coming from a distance. The distance required for someone who moves slowly to cross safely is likely to be longer than for an able bodied person. A person with restricted vision will also be disadvantaged in that they cannot check the line of sight to see if a train is approaching. To the extent that the proposals improve safety, disabled people will particularly benefit.

The replacement of level crossings with bridges or underpasses can have advantages and disadvantages for disabled people. The surface of the highway over a level crossing can be difficult for wheelchair users and those with limited mobility. On the other hand, bridges or underpasses with steep inclines may also be problematic. Until we obtain further information, it is not possible to come to a conclusion on the balance of advantage, and indeed that balance may be site-specific.

Race

We do not anticipate that these proposals will have any differential impact in relation to race.

Competition assessment

We do not anticipate that these proposals will have any impact in relation to competition.

Small firms impact test

We anticipate that the proposals will benefit all road and rail users as discussed above. Small businesses who use the roads will be included and should suffer fewer delays as a result of improved safety and closure of some level crossings.

The proposals may affect farmers and other rural businesses, in particular those using private level crossings. The decision-making procedure for closing a level crossing will ensure that the interests of those using a crossing will be taken into account before any decision is reached.

Greenhouse gas assessment

Reductions in delays at level crossings may reduce carbon monoxide emissions from vehicles, as this carbon results from petrol and diesel use. These do are non-traded carbon emissions.[10] We do not foresee any impact on traded greenhouse gas emissions.

The primary impact on carbon emissions in this project relates to cars idling at closed level crossing gates. Assuming no change in journey number or length, the closure of a vehicular level crossing with a replacement would result in less idling, resulting in lower carbon emissions. Extrapolating from figures from DfT, one arrives at a figure of 1.65 – 1.75 kg of carbon dioxide emitted per hour of idling.[11] On the other hand, constructing the alternative crossing will itself result in a short term increase in emissions.

If the road over a level crossing were to be diverted, journey length would increase. Whether this increase leads to greater emissions or not will depend on the individual circumstances. However, in general, the best alternative to a level crossing shown by AXIAT is replacement rather than diversion, so any possible increase in emissions is not likely to be of significance when compared to the likely reduction in emissions discussed above.

We do not have data available to come to an overall conclusion on the magnitude of the resultant savings in carbon dioxide emissions. We hope to obtain further information on waiting times as assessed within AXIAT.

We welcome the assistance of consultees on waiting times and how to take these into account.

A second possible effect on carbon emissions relates to changes in train use. If sufficient level crossings were closed to increase line speed, more people might use trains rather than driving cars. However, we think this effect would be so small as to be negligible.

Other environment

The AXIAT model takes into account environmental impact. We do not anticipate any general environmental impact as a consequence of the proposals on safety or criminal offences.

Health impact assessment

We do not anticipate that the proposals will have an impact on health, other than that associated with accidents. The safety savings resulting from increased public level crossing closures will have already been considered in AXIAT. We have assumed that there will be a reduction in the risk of catastrophic accident of between 0 and 15% and a similar reduction in the risk of accidents. The impact has been calculated above.

Human rights

The proposed regulatory framework includes a system for compulsory purchase of property rights in certain circumstances where agreement is not reached. As such it engages the right to peaceful enjoyment of property under Article 1, Protocol 1 of the European Convention on Human Rights as incorporated into UK domestic law by the Human Rights Act 1998. We think that the proposals comply with Article 1, Protocol 1 as a compulsory purchase scheme is well within that permitted by the Article in order to "control the use of property in accordance with the general interest". Compulsory purchase has long been a feature of legal systems in the United Kingdom (and indeed those of other signatory states) and provides payment of compensation for the loss of property rights, which is an adequate justification.

Some of the current legislative provisions are very difficult to access or it is very difficult to ascertain the wording of the version currently in force, following successive amendments. The prime example of this is section 55 of the British Transport Commission Act 1949, which creates an offence of criminal trespass.

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[10] For guidance on the assessment of greenhouse gas emissions, see http://www.decc.gov.uk/en/content/cms/statistics/analysts_group/analysts_group.aspx.

[11] http://www.highways.gov.uk/knowledge/1801.aspx. This figure is supported by separate data from an AA study at http://www.theaa.com/public_affairs/news/cut-traffic-queues-to-cut-co2.html. The study suggests that that the average petrol car uses 0.72 litres per hour when idling, and the average diesel car uses 0.45 litres. Assuming around 30% of cars on the road are diesel we can say that on average a car uses 0.64 litres per hour when idling. This converts to 1.68kg carbon dioxide emitted per hour.

A particular feature of the section 55 offence is its obscurity. The 1949 Act is a private Act, which makes it less accessible to the public than a public general Act. In addition, the Act has been heavily amended by subsequent legislation. It took us some time to arrive at a text that we were content was accurate. This level of obscurity is highly unsatisfactory and may be in breach of Articles 6(3)(a) and 7(1) of the European Convention on Human Rights. It is also not clear whether this offence would apply to misuse of a public level crossing as this would be dependent upon whether the misuse was such as to make the user a trespasser, albeit on a public road/highway. The proposals seek to avoid these problems by creating new level crossing offences.

None of the clarifications or changes in relation to land law will be retrospective and therefore do not engage human rights protection. If we were to recommend in our final report a change to the law of Scotland in relation to the *Gribble/Robertson* situation (see p18 above), it would be necessary for compensation to be payable to any affected landowners to ensure compliance with Article 7 of the ECHR.

The proposed framework is therefore human rights compliant.

Justice impact test

This has been discussed throughout the impact assessment, when assessing the introduction of new criminal offences.

The proposals aim to deter offending, reduce the number of crimes, punish offenders, prevent accidents and increase confidence in the criminal justice system.

Rural proofing

Whilst the framework outlined in our proposals does not differentiate between rural and urban areas, the likelihood is that more closures of level crossings will occur in rural areas and so there will be a greater impact. The AXIAT counties selected for the trial are all largely rural, so a statistical comparison of rural as against suburban and urban crossings is not possible. We would expect a number of positive AXIAT outcomes in relation to particularly suburban level crossings, but nonetheless expect the preponderance of level crossing closures, like the preponderance of level crossings, to be rural.

There are also different circumstances and needs to consider in rural areas, such as the interests of farmers and others driving farm machinery over private level crossings. Nearly all level crossings currently closed are private crossings. Most of these are in the countryside, and the main owners of the right of way across the railway appear to be farmers, who use the crossings to access the land each side of a railway. These are currently bought out on a voluntary basis by Network Rail following agreement with farmers. Our proposals as regards closure of level crossings would allow for a compulsory purchase order in such circumstances, with compensation. This could potentially result in a detriment to farmers or other rural businesses.

The closures of public footpath and bridleway level crossings, if not properly managed, could have an impact upon access to the countryside. In particular, it could cause difficulties for rural communities and for leisure users of the countryside, such as ramblers and horse riders. Such closure issues may be especially important in the highlands of Scotland, and other sparsely populated rural areas, where a crossing can be the only means to cross a railway for many miles.

However, the proposals include measures to manage the competing interests. The closure process has built into it consultation requirements and a final decision by the Secretary of State/Scottish Ministers/Welsh Ministers. The decision-maker would require to take into account relevant factors including the effect on the local community, the effect on those holding private rights over the crossing and the effect on the integrity of the footpath/bridleway network. Thus the impact of closure on access and local communities would be key considerations in any decision to close a level crossing.

Further, in relation to Scotland, depending on the outcome of the consultation process, there may be an impact upon public access rights. The issues in relation to this are fully discussed in the Consultation Paper with specific consultation questions. We will take into account consultation responses before deciding how to mitigate the impact of any reforms.

Sustainable development

The purpose of the sustainable development impact test is to ensure that "the current generation satisfies its basic needs and enjoys an improving quality of life without compromising the position of future generations".[12] In line with this, we have considered whether there are compelling sustainability-related reasons to amend the policy, or to otherwise alter the conclusion of the impact assessment and cannot find any. However, **we would welcome the views of consultees.**

We would welcome the views of consultees on the impact assessment made here and invite consultees to provide further evidence on the impact of the provisional proposals and the quantification of costs and benefits.

[12] Guidance from the Department of Business Innovation and Skills can be found at: http://www.bis.gov.uk/policies/better-regulation/policy/scrutinising-new-regulations/preparing-impact-assessments/specific-impact-tests/sustainable-development-impact-test

Annexes

Annex 1 should be used to set out the Post Implementation Review Plan as detailed below. Further annexes may be added to provide further information about non-monetary costs and benefits from Specific Impact Tests, if relevant to an overall understanding of policy options.

Annex 1: Post Implementation Review (PIR) Plan

A PIR should be undertaken, usually three to five years after implementation of the policy, but exceptionally a longer period may be more appropriate. A PIR should examine the extent to which the implemented regulations have achieved their objectives, assess their costs and benefits and identify whether they are having any unintended consequences. Please set out the PIR Plan as detailed below. If there is no plan to do a PIR please provide reasons below.

Basis of the review: [The basis of the review could be statutory (forming part of the legislation), it could be to review existing policy or there could be a political commitment to review];
Review objective: [Is it intended as a proportionate check that regulation is operating as expected to tackle the problem of concern?; or as a wider exploration of the policy approach taken?; or as a link from policy objective to outcome?]
Review approach and rationale: [e.g. describe here the review approach (in-depth evaluation, scope review of monitoring data, scan of stakeholder views, etc.) and the rationale that made choosing such an approach]
Baseline: [The current (baseline) position against which the change introduced by the legislation can be measured]
Success criteria: [Criteria showing achievement of the policy objectives as set out in the final impact assessment; criteria for modifying or replacing the policy if it does not achieve its objectives]
Monitoring information arrangements: [Provide further details of the planned/existing arrangements in place that will allow a systematic collection systematic collection of monitoring information for future policy review]
Reasons for not planning a PIR: [If there is no plan to do a PIR please provide reasons here]