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**ASSESSMENT OF THE EC 3RD RAILWAY PACKAGE
Proposed Directive on Train Driver Licensing**

*Final Report for Department for Transport
Volume 4*

NERA
Economic Consulting

TABLE OF CONTENTS

1.	INTRODUCTION	1
1.1.	The Study	1
1.2.	The Proposal	1
1.3.	Our Approach	2
1.4.	Structure of the Report	3
2.	PURPOSE AND INTENDED EFFECT	5
2.1.	Objectives	5
2.2.	Background	5
2.3.	Risk Assessment	7
3.	SUPPORTING INFORMATION	8
3.1.	Train Driver Statistics	8
3.2.	Current Practice in Managing Drivers' Competence	8
3.3.	The Safety Implications of Driver Competence and Fitness	11
3.4.	Previous Assessments of the Impacts of the Proposal	14
3.5.	Implementation of the European Commission's Proposal	15
4.	OPTIONS	18
4.1.	Summary of Options	18
4.2.	Option 1 - Do Minimum	18
4.3.	Option 2 - Full Implementation of the EC Proposal	18
4.4.	Option 3 - Licensing and Certification of International Drivers Only	19
4.5.	Option 4 - A Voluntary Scheme for Domestic Drivers	19
4.6.	Option 5 - Examiners for Certificate would not Require Accreditation	19
5.	BUSINESS SECTORS AFFECTED	21
6.	EQUITY AND FAIRNESS	23
7.	BENEFITS	24
7.1.	Option 1 - Do Minimum	24
7.2.	Option 2 - Full Implementation of the EC Proposal	24
7.3.	Option 3 - Licensing and Certification of International Drivers Only	30
7.4.	Option 4 - A Voluntary Scheme for Domestic Drivers	31
7.5.	Option 5 - Examiners for Certificate would not Require Accreditation	31
8.	COSTS	32
8.1.	Option 1 - Do Minimum	32
8.2.	Option 2 - Full Implementation of the EC Proposal	32
8.3.	Option 3 - Licensing and Certification of International Drivers Only	39
8.4.	Option 4 - A Voluntary Scheme for Domestic Drivers	42

8.5.	Option 5 - Examiners for Certificate would not Require Accreditation	42
9.	THE IMPACT ON SMALL FIRMS	43
10.	COMPETITION ASSESSMENT	44
11.	SUMMARY	45

1. INTRODUCTION

1.1. The Study

This is volume 4 of the final report in NERA's study for the Department for Transport (DfT) on the European Commission's 3rd Railway Package. This particular volume deals with the proposed Directive concerning the licensing of train drivers.

The final report presents the evidence base for a regulatory impact assessment (RIA) of the four legislative proposals contained within the 3rd railway package. The report consists of four volumes, one for each proposal, as follows:

1. A draft Directive concerning opening the market for international passenger services by rail;
2. A draft Regulation setting out the rights and obligations of international rail passengers;
3. A draft Regulation on contractual quality and compensation requirements for rail freight services; and
4. A draft Directive on train driver licensing.

1.2. The Proposal

Key features of the draft Directive on train driver licensing are that:

- It applies to all train drivers and staff with an indirect role in driving trains on the rail network.
- Functionally-separated infrastructure such as the London Underground are exempt.
- Train drivers would be required to possess a mutually-recognised licence; the legislation would specify the competences required to qualify for the licence.
- The licence is to be issued by the national safety authority (which, in the UK, is currently the Health and Safety Executive,¹ HSE) or bodies to which the authority delegates this responsibility. Any delegated body requires accreditation to European (EN) standards.
- Railway undertakings and infrastructure managers are responsible for issuing each driver with a harmonised complementary certificate. Drivers would be required to have such a certificate confirming their competence with respect to the undertaking's

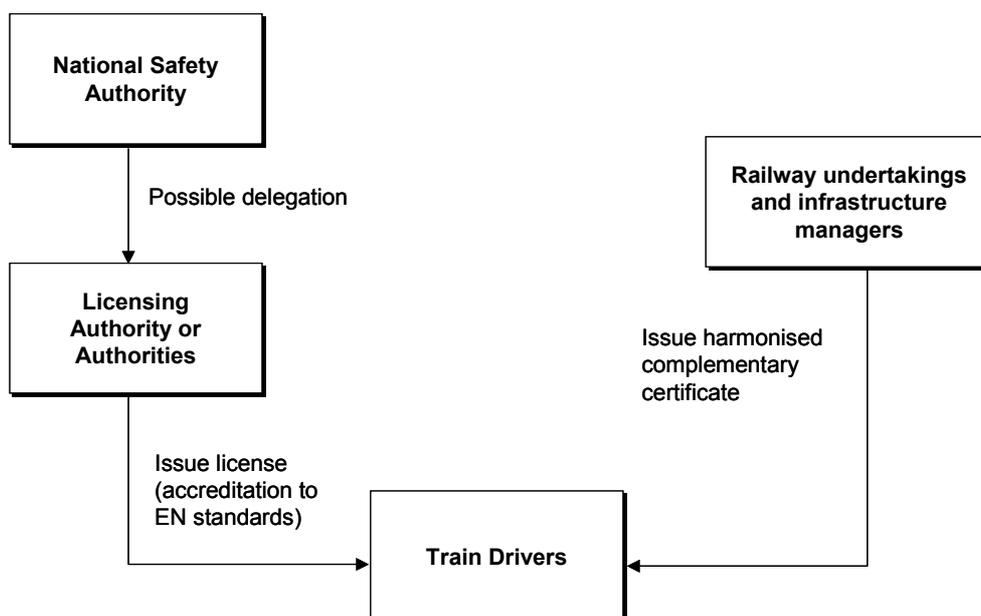
¹ In July 2004 the UK Government announced in its White Paper, *The Future of Rail*, its intention to merge HSE's railway functions with those of the Office of Rail Regulation.

safety management system, including relevant rolling stock, infrastructure and route knowledge.

- The licences and certificates are recorded in a central register, and drivers are subject to periodic checks.

The allocation of responsibilities is illustrated in Figure 1.1.

Figure 1.1
Overview of European Commission Proposal on Driver Licensing



1.3. Our Approach

NERA’s project team consists of economists with extensive experience of working on studies in the rail sector and on appraisal / cost benefit analysis techniques. Our team has worked on rail safety topics previously, including assessing the industry’s appraisal of the European Traffic Rail Management System and preparing a paper on cost benefit analysis of safety regulation for the Ladbroke Grove Inquiry. We have collected evidence for this analysis through interviews with stakeholders and document review.

We held discussions with the following stakeholders with respect to this proposal, and are grateful for the considerable assistance we received:

- ATOC and Train Operating Companies (SWT, GNER);
- Department for Transport (DfT);
- Eurostar;

- Freight Operating Companies (EWS, Freightliner);
- Health and Safety Executive (HSE);
- Network Rail and Sentinel contractors, CAPITA;
- Rail Safety and Standards Board (RSSB);
- United Kingdom Accreditation Service (UKAS);
- Department of Regional Development, Northern Ireland; and
- Northern Ireland Railways (NIR).

We found that stakeholders had widely differing views on the implications of the proposal. Our approach has therefore been to explore the conflicting arguments in detail with the stakeholders, challenging differences where they emerge; and to seek to cross-check or sense-check data and estimates.

1.4. Structure of the Report

The report structure closely follows the standard structure for a regulatory impact assessment as set out in the Cabinet Office guidelines.² It diverges in some areas to reflect the fact that this is providing the evidence base for the RIA, and not the RIA itself (for example, the consultation is a separate process). Following the introduction, the report structure is as follows:

- Chapter 2 discusses the purpose and intended effect of the proposal;
- Chapter 3 provides supporting information that is used to prepare the evidence base for the RIA;
- Chapter 4 introduces the options we are considering to address the purpose of the proposal, including option 1 which is the do minimum to which other options are compared;
- In Chapter 5 we examine the business sectors affected by the proposal;
- In Chapter 6 we discuss the implications of the proposal for equity and fairness;
- In Chapter 7 we analyse the benefits of the proposal and other options;
- In Chapter 8 we analyse the costs of each of the options;
- In Chapter 9 we discuss the impacts of the options on small firms;

² Cabinet Office (January 2003) *Better Policy Making: A Guide to Regulatory Impact Assessment*.

- In Chapter 10 we discuss the implications of the options for competition; and
- In Chapter 11 we summarise our findings.

2. PURPOSE AND INTENDED EFFECT

2.1. Objectives

The European Commission states that common rules on certification of train drivers would facilitate interoperability and improve management. They argue that this should eventually make it easier to certify railway undertakings, as provided for in the railway safety Directive,³ while maintaining a high level of safety and guaranteeing conditions for free movement of workers in the railway sector.

2.2. Background

2.2.1. Developments at European Union Level

European Commission transport policy, as set out in the 2001 White Paper, *European Transport Policy for 2010: Time to Decide* is heavily orientated towards development of the role of rail. "Revitalisation of the rail sector is at the heart of the Commission's sustainable mobility strategy." A core objective is to return rail mode share to its 1998 levels (6.2 per cent of passenger-kms, and 14 per cent of freight tonne-kms) by 2010.

The international freight market was liberalised on the 50,000 km trans-European freight network in March 2003, and the entire freight market is to be liberalised in 2007. Railway undertakings can also establish international passenger services within the EU, provided that they are operated by an international grouping of companies in more than one Member State.

Divergent national standards are seen by the Commission as acting as a barrier to competition, particularly in international traffic, and as impairing the effectiveness of the Single Market. European Commission policy has, in part, been directed at overcoming such obstacles through harmonising standards. The technical standards on interoperability (TSI), in particular, address this concern.⁴

The European Commission sees divergences in driver training as another important barrier to interoperability and competition. The Commission conducted research in the particular area of rail staff training in cross-border operations.⁵ The study found that the skills required vary substantially from one country to another. One of the report's major recommendations was the need to specify and implement common minimum requirements for train drivers at European Union (or Member State) level, in particular to replace

³ Directive 2004/49/EC

⁴ Directive 96/48/EC and Directive 2001/16/EC.

⁵ ATKINS (November 2002) *Training and Staff Requirements for Railway Staff in Cross-Border Operations. Final Report.*

certification systems based on the practices of former railway operators. This has clearly provided some of the impetus behind the driver licensing proposal, though the study was restricted to cross-border operations.

The Railway Safety Directive⁶ is a piece of related legislation with obvious parallels to the driver licensing proposal. In it, the Safety Certificate/Authorisation⁷ has two components. The first part consists of a certificate/authorisation, awarded to railway undertakings/infrastructure managers, that is recognised in all Member States. The second part consists of a certificate/authorisation, issued by the Member State, reflecting specific conditions in that Member State. Some UK stakeholders have argued that there is considerable overlap between the Safety Directive and the driver licensing proposal (and indeed the technical specifications on interoperability and the driver licensing proposal).⁸

2.2.2. Developments within the United Kingdom

Prior to the publication of the 3rd railway package, the Health and Safety Executive began proposals for the development of a national system of licensing for train drivers. This work followed directly from a recommendation of the Ladbroke Grove Inquiry.

Lord Cullen's 25th recommendation⁹ was that:

There should be a system for the licensing and central recording of those who are qualified for the driving of trains in respect of their knowledge of the rules and regulations and the traction for which they have been assessed as competent. Training providers or train operators should be accredited and common standards laid down for the purpose. Drivers' licences should require to be revalidated every three years.

HSE have informed us that they are "continuing to engage with the rail industry to develop a national, non-regulatory accredited licensing system. The most important requirement of this system is that driver assessors would need to be competent and that there is independence, impartiality and no conflict of interest in the licensing system." HSE believe that development of such a system would strengthen the evidence base the UK Government can use when negotiations take place on the extension of the European Commission's proposal to domestic drivers. We understand that HSE will take account of the EC proposals so as to minimise any further amendments to a national licensing system in due course.

⁶ 2004/49/EC

⁷ Railway undertakings must hold a safety certificate issued by the safety authority before being granted access to railway infrastructure. Infrastructure managers must hold a safety authorisation issued by the safety authority before being allowed to manage and operate rail infrastructure.

⁸ See ATOC's response to Department for Transport's consultation on the 3rd Railway Package.

⁹ The Ladbroke Grove Rail Inquiry Part 2 Report.

Railway Group Standards were modified in the light of a number of Lord Cullen's recommendations with respect to driver competency. Recently ATOC members have agreed to issue licences to their drivers, though the licences are not subject to external accreditation or register.

2.3. Risk Assessment

The Cabinet Office's guidance on regulatory impact assessment states that the Risk Assessment section of an RIA should explain, and where possible quantify, the problem or the risk that the legislative proposal is trying to address.¹⁰ Many proposals are introduced to deal with risks to the environment, consumer or worker safety or health. So the risk assessment should identify the hazard or situation which, in particular circumstances, leads to harm or detriment; and the estimation of the incidence of the harm.

The proposed regulation is intended to address the concern that differences in rules on certification of train drivers is causing barriers: to interoperability for international services, thereby reducing their attractiveness; and to driver mobility. It could simplify the process of certifying the safety certificate/authorisation of railway undertakings/infrastructure managers.

In its proposal, the European Commission does not identify improvements in safety as a rationale for the development of this draft Directive (though we understand that the EC has mentioned safety as a rationale during working group meetings). The parallel initiative to implement driver licensing in the UK - following from the Ladbroke Grove inquiry recommendation discussed above - was very much driven by safety concerns.

RSSB estimate that the risk for train occupants is now 10.1 annual equivalent fatalities.¹¹ Much of this risk relates to the quality of the infrastructure and rolling stock, though some of the risk will be associated with driver error, or for which driver behaviour is a contributory factor.

The proposal is directed at all train drivers, of which about 2 per cent operate international services - the area of greatest concern to the European Commission. In Great Britain around 2 per cent of drivers move between operators each year, often in order to re-locate or work closer to home.

¹⁰ Cabinet Office (January 2003) *Better Policy Making: A Guide to Regulatory Impact Assessment*.

¹¹ One fatality is equivalent to 10 serious injuries or to 200 slight injuries. Source: RSSB *Annual Safety Performance Report 2003*.

3. SUPPORTING INFORMATION

3.1. Train Driver Statistics

Table 3.1 shows a breakdown of the number of train drivers within the scope of the European Commission’s proposal, disaggregated by type of company. The figures are approximate only.

Table 3.1
Approximate Number of Train Drivers within the Proposal’s Scope

	Domestic only	International	Total
Train Operating Companies	10,595	0	10,595 (74%)
Freight Operating Companies	2,718	44	2,762 (19%)
Open Access Passenger Operators	13	0	13 (0%)
Northern Ireland Railways	6	86	92 (1%)
Infrastructure Maintenance Companies	750	0	750 (5%)
Eurostar UK Limited	0	84	84 (1%)
Eurotunnel (UK component)	0	133	133 (1%)
Total	14,082 (98%)	347 (2%)	14,429 (100%)

Source : interviews with stakeholders. Note: we have apportioned Eurotunnel drivers between the UK and France.

Some other statistics, derived from TOC data provided by ATOC, are:

- around 1 per cent of train drivers are not productive (for example, for health reasons);
- around 5 per cent of TOC drivers leave the industry each year;
- around 2 per cent of drivers move between operators (including FOCs) each year;
- around 7 per cent of new recruits without previous experience of train driving fail to complete their training.

3.2. Current Practice in Managing Drivers’ Competence

3.2.1. Responsibility for training and assessment

In Great Britain, operators are currently fully responsible for driver competency, and develop their own procedures for training and assessment. Involvement of external bodies is limited to the following:

- Operators, and their drivers, must comply with Railway Group Standards. Following the Cullen Inquiry, ATOC issued a Code of Practice concerning driver competence that has subsequently largely been incorporated into these standards.
- The safety case of operators – including the competence of safety critical workers – requires the certification of Her Majesty’s Rail Inspectorate (HMRI), and annual audit by an independent body.¹²

Operators carry out training and assessment in-house, though some contract out medical examinations.

3.2.2. Procedures for recruits without previous driving experience

The systems for driver training and assessment have been subject to substantial reform following the Cullen inquiry. The changes were driven initially by the publication in early 2000 of an ATOC Code of Practice on driver competence. These were then used to revise Railway Group Standards with respect to driver competence.

It typically takes around a year to train fully and assess a new recruit without previous experience of driving trains. Practice in training varies between operators, but might consist of the following broadly consecutive stages:

- learning railway rules and regulations;
- cab experience: watching an experienced driver;
- basic traction skills, including fault finding;
- low speed manoeuvres, at depots etc;
- driving under supervision, under a variety of conditions, for core routes for a minimum of 240 hours.

Assessment would typically occur after each stage, with a full assessment on completion of training. Dedicated assessments might take seven to ten days in total. There would usually be one assessor per trainee, though for certain assessments there can be two trainees. Assessments would take longer if a recruit fails an individual stage: recruits are usually allowed two attempts at each stage in the assessment.

A recruit without previous experience may on average cost £45,000 to train.¹³

¹² The need for a safety case is established in the Railways (Safety Case) Regulations 2000. This requires operators to produce a description of the process that they follow that ensures staff competence. This must be accepted by HSE, HMRI and be independently audited. Additionally, the Railways (Safety Critical Work) Regulations 1994 require train drivers to be fit, competent and not fatigued to dangerous levels.

3.2.3. Procedures for recruits with previous driving experience

The training of recruits with previous driving experience is considerably shorter, though it varies considerably between recruits depending on their previous experience. We understand that savings in training might be made as follows:

- A driver in Great Britain will already have knowledge of railway rules and regulations. They may not have complete knowledge though: drivers employed by train operators do not need to know rules with respect to possessions, whereas drivers employed by infrastructure maintenance companies do. Rules are different for high speed lines, ie the Channel Tunnel Rail Link, and are currently very different to those in other Member States, thereby limiting the scope for harmonisation of driver assessment (though differences should reduce over time as systems are harmonised).
- Basic traction and driving skills will reduce the training for some operators, though the saving may be quite minor.
- More substantial savings can be realised if the driver has previously worked on similar rolling stock.

Whereas a recruit without previous experience may cost typically £45,000 to train, training costs for a recruit with previous experience may typically be £30,000.¹⁴

3.2.4. Periodic checks

Upon qualification, further assessments occur, which reduce in frequency as the driver gains in experience. A fully experienced driver, with a good competence record and with at least two years' experience, is formally reassessed by their operator every two years. Informal assessment also occurs; for example, if an assessor needs to travel on a particular route, they may observe the driver in the cab during their journey, and drivers' performance can be analysed retrospectively using information downloaded from a train's black box.

Medicals are part of the recruitment process. They also occur with promotion, and at certain prescribed frequencies that vary according to the age of the driver. Random drugs tests are also undertaken.

3.2.5. Eurostar training

Eurostar UK Limited only recruits train drivers with previous experience of driving on the British rail network. Drivers must then learn the rules and regulation for:

¹³ ATOC / TOCs expert judgement.

¹⁴ ATOC / TOCs expert judgement.

- the UK high speed line,
- Eurotunnel,
- the high speed lines in France,
- conventional lines in France.

(The route to Brussels is reserved for drivers with previous experience of the route to Paris.)

Drivers must receive training on Eurostar rolling stock. And they receive six months' training in the French language, including the structured system of communication on the French railways. In total, training lasts around 12 months.

3.2.6. Drivers in Northern Ireland

Drivers in Northern Ireland form another group of international drivers in the United Kingdom. Northern Ireland Railways (NIR) is a passenger-only railway, and international services are operated between Belfast and Dublin in partnership with IE, the railway operator in Eire. There is a common railway rulebook over the whole of the island of Ireland, so NIR drivers are trained in this rulebook. In addition it is NIR policy for operational reasons that all their passenger drivers are qualified to operate international trains, and have the appropriate route knowledge to do so. So of the 92 drivers on NIR all but six, who operate permanent way trains, are qualified as international drivers.

3.2.7. Recording and communicating driver competence

When a driver wishes to work for another operator they are required to complete ATOC Form B, which contains all safety critical information related to the driver. The driver's current line manager is then required to confirm, or otherwise, the contents of the form. The prospective employer would then usually contact the line manager to discuss the driver's past record with respect to safety and competence more generally. Operators – the users of the system - consider it to work well.

3.3. The Safety Implications of Driver Competence and Fitness

3.3.1. Estimation of associated risk

Driver competence and fitness are factors which are critical to the safety of the rail network. If the proposal for driver licensing were to result in an improvement in driver competence and fitness, there should be associated safety benefits.

There are a number of types of accident where driver behaviour can be a cause or contributory factor. These include collisions which result from a driver passing a signal at danger (SPAD), collisions with buffer stops, derailments caused by excess speed, or

accidents during possessions caused by miscommunication. In addition, a driver's competence may impact on their ability to mitigate the consequences of other emergencies such as train fires or collisions with road vehicles on level crossings.

Accident rates on Britain's railways are now at historically low levels, as shown by analysis by the Railway Safety and Standards Board (RSSB) in their annual safety reports¹⁵ and by studies by Professor Andrew Evans of Imperial College.¹⁶ In their 2003 report, the RSSB note that rail accident risk has been reducing, and significant train accidents (STAs)¹⁷ are at their lowest number and rate per million train miles. Prior to 1994, STA rates exceeded 0.6 per million train mile; between 1994 and 2000 there were between 0.2 and 0.4 STA per million train mile each year; in each of the last three years there have been fewer than 0.2 STA per million.¹⁸

An important factor in the most recent reductions has been the completion of the programme of fitting the Train Protection Warning System (TPWS), which cost £550 million to implement. TPWS and automatic train protection (ATP, which has not been implemented across the network) are examples of major safety initiative that set a context for the scale of possible risk reduction associated with safety initiatives, such as improvements to drivers' competence and fitness.

The RSSB measure risk in terms of annual equivalent fatalities (aef), where one fatality is equivalent to 10 serious injuries or to 200 slight injuries. RSSB estimate that full implementation of TPWS reduces annual equivalent fatalities (aef) by 2.37, and that completion of the TPWS fitment programme in December 2003 reduced total risk for train occupants to 10.1 aef. Of the 10.1 aef, a risk of 1.2 aef is preventable by a single technology, ATP. The remainder have diverse causes, but are largely related to the quality of the infrastructure and rolling stock. However human factors such as miscommunication or possession irregularities can be important.

Driver competence will be a contributory factor to a number of other accidents, such as track personnel being hit by a train. An alternative statistic is that 2.01 aef are attributable to driver error (though risk with other primary causes can be mitigated through competent action of drivers).¹⁹

¹⁵ RSSB *Annual Safety Performance Report 2003*.

¹⁶ A Evans *Rail Safety and Rail Privatisation in Britain*. Available at <http://www.cts.cv.ic.ac.uk/tmal/ResearchActivities/publicationDetails.asp?PublicationID=410>

¹⁷ STAs include collisions, derailments and reportable buffer stop collisions on or affecting passenger lines. These train accidents are the ones that are associated with high passenger risk, but they only account for a small proportion (3.3 per cent in 2003) of the total.

¹⁸ RSSB, *op cit*, Chart 1, p.20.

¹⁹ Estimate prepared by HSE for NERA.

Subjecting operators' assessment processes to accreditation could have safety benefits. Certain stakeholders, including RSSB,²⁰ have argued that there would be no such benefits, and observed that there is no suggestion (by the European Commission in the train driver licensing proposal) that current driver training is inadequate. In contrast, the HSE has argued strongly that there would be safety benefits, not least through improving the consistency and transparency of driver assessment, but that it is not possible to quantify these benefits. HSE notes that drivers' actions can serve to mitigate the effects of many types of incident, not just those which can be attributed to errors made by drivers. Indeed, that many incidents that do not result in casualties, but nevertheless may result in disruption and damage to infrastructure, may also be mitigated through improved driver competence. They suggest an upper estimate for the possible benefits of the driver licensing proposal of 2.01 aef – the estimated risk associated with driver error.

3.3.2. Valuation of rail accidents

In accordance with Strategic Rail Authority appraisal guidance²¹, we have drawn on a paper by Andrew Evans to estimate the cost of preventing an aef.²² Table 3.2 is taken from that report. We then updated the estimates using information given in a more recent paper by the same author.²³ We have used this valuation in our estimation of safety benefits, set out in chapter 7.

Table 3.2
Estimated total losses from railway accidents per year (£million at 2002 prices)

	Fatal train accidents	Non-fatal train accidents	Personal accidents	Fatalities to trespassers**	Suicides**	Total
Fatalities	12.5	0	37.5	0	0	50
Non-fatal injuries	6	*	19	0	0	25
Damage	4	6	0	0	0	10
Disruption	4	6	1.5	6.5	6.5	25
Accident investigation	-	-	-	-	-	10
Total						120

Source: Andrew W Evans (2002), *op. cit.* Table 1.

*An unknown element of the estimated £6 million for non-fatal injuries in the previous column strictly belongs here, because some non-fatal accidents cause injury. There is no simple way of estimating how much, but it is certainly small.

²⁰ See RSSB's formal responses to the DfT consultation on the 3rd railway package.

²¹ SRA, Appraisal Criteria, April 2003.

²² Andrew W Evans (2002) Report on Call-off Project on Cost and Benefits of Reducing Railway Accidents

²³ "Fatal Train Accidents on Britain's Mainline Railways: End of 2003 Analysis", Andrew Evans, February 2004.

***Professor Evans has not valued casualties associated with trespassers or suicides. This approach does not affect our calculation because we consider train accidents only.*

We calculate the total cost of train accidents and accident investigation per equivalent fatality. We used the data in Table 4.1, adjusted in accordance with Professor Evan's guidance from his 2004 paper to reflect data inadequacies.²⁴ We then adopted Professor Evans' assumed value of a life of £1.25 million, in 2002 prices and values.²⁵ We concluded that the total cost of an equivalent fatality resulting from a train accident to be £2.5 million in 2004 prices and value.

3.4. Previous Assessments of the Impacts of the Proposal

We are aware of two existing assessments of the impact of a harmonised system of driver licensing.

- The European Commission's assessment is published as part of the 3rd railway package. It concludes that, relative to the status quo, implementing Phase 1 of the driver licensing proposal (drivers working on cross-border services) should lead to a net benefit to the EU of €44 million a year; phase 2 (drivers on domestic services) should yield a further net benefit to the EU of €13 million a year. These benefits contrast with their estimates of the impacts of implementing national systems in each Member State, namely a net *cost* of €66.5 million a year.
- Consultants DNV examine the costs of harmonised driver licensing (on the basis of the European Commission's discussion document of July 2003) as part of a larger study for RSSB on driver licensing and competence. They estimate the annual net costs of the EC's proposal in Great Britain to be £18.8 million; in addition there are one-off costs of £39.5 million.

Despite differences in the subject matter of these assessments, it is surprising that their conclusions diverge so substantially from each other. There may be a number of explanations for this. Here, we simply note two factors that account for some of the difference: a major error in presentation of the European Commission's results, and an inappropriate assumption in DNV's cost calculations.

- In the European Commission assessment, the details of costs and benefits are presented in three columns. The first is for the reference scenario, a system of national licensing. The second is for phase 1 of the draft Directive, for drivers on

²⁴ The data in the 2002 study related to three accidents which had unusually high costs, even accounting for their severity.

²⁵ This is the value derived by Department for Transport, consisting of human cost, lost output, and medical / ambulance costs. *Highways Economics Note Number 1* (2002), Appendix 1, Table 1.

cross-border services. The third is for phase 2 of the draft Directive, for drivers on domestic services. From the text it is clear that the costs in the third column (phase 2) relate only to phase 2 activities; they exclude phase 1 costs. In contrast, the benefits for third column are the cumulative benefits of phase 1 and phase 2. When this inconsistency of presentation is corrected, phase 2, in common with DNV's findings, yield net estimated disbenefits. In combination, phases 1 and 2 are found to yield estimated net disbenefits, though phase 1 alone yields net benefits. So, under the European Commission's own assumptions and analysis, the case for the proposal as currently drafted is undermined.²⁶

- In its report, DNV estimates that the proposal would require 250 external assessors. They do this on the basis that the ratio of drivers to external assessors would be the same as the current ratio of drivers to Driver Standards Managers (DSM) at EWS (1:55). We consider this assumption to be flawed because, first, DSM have a number of responsibilities, and spend only a minority of their time on assessment; and, second, external assessors would only take on part of the responsibility for assessment (they would not take on responsibility for assessing the certificate). In this report we estimate the net increase in assessors required to be around 25.²⁷ If this assumption alone is changed, we calculate that DNV's estimates of the annual net costs would fall from £18.8 million to £9.4 million, and the one off costs would fall from £39.5 million to £14.8 million.

3.5. Implementation of the European Commission's Proposal

3.5.1. Scope of the licence

The assessment required before a driver licence is issued would include general requirements, namely

- medical examinations;
- psychological examinations; and
- language tests.²⁸

It would also require knowledge and procedures regarding:

²⁶ RSSB has prepared a detailed critique of the European Commission's impact assessment as part of its response to DfT's consultation on the proposal. The author argues that there are many problems with EC's assessment and is puzzled by the presentation of benefits, though does not pick up this particular error.

²⁷ An additional 35 external assessors would be needed, but operators would spend less time assessing in-house, and so could reduce their staff by ten (central estimate).

²⁸ Annex III of the draft proposal.

- railway technologies, including safety and operational regulations;
- the risks related to railway operations, and the various means to be used to combat them;
- one or more railway operating modes
- one or more types of rolling stock.²⁹

3.5.2. Training and assessment for harmonised complementary certificate

The proposal sets out the requirements for professional knowledge with regard to the certificate, in Annexes VI and VII, in two categories: rolling stock, and infrastructure. The specifications are quite detailed, and have the following headings:

- tests and checks prior to departure;
- knowledge of rolling stock;
- testing the brakes;
- operating mode and maximum speed of the train in relation to the line characteristics;
- driving the train in a way which does not damage installations or vehicles;
- anomalies;
- operating incidents and accidents, fires and accidents involving persons;
- conditions for continuing running after an accident involving rolling stock;
- immobilisation of the train;
- knowledge of the line;
- safety regulations.

3.5.3. Implementation Issues

The licensing authority requires accreditation to EN standards, whereas the organisations awarding the harmonised complementary certificates do not require accreditation (though their examiners do).

HSE has explained that the standard of accreditation for the third party licensing authority requires a suitable degree of separation between the assessor/issuer of the licence and the

²⁹ Annex V of the draft proposal.

driver and that there are likely to be problems with any proposal where the assessor belongs to the same undertaking as the driver being assessed. HSE has suggested that the licensing authority could be established by ATOC, and assessors could be employed by individual operators provided that they did not assess recruits from the same operator or from an operator with which they competed directly. The practicality of such an arrangement is yet to be fully explored, and ATOC has stated that it would not voluntarily be prepared to take on this responsibility.

HSE has also highlighted Network Rail's Sentinel database as a model for the national register of driver licences. Sentinel is a database that was originally established as a system to replace track safety certificates. It has been greatly expanded to cover a large number of safety critical disciplines and around 170,000 workers. To register in Sentinel, individuals must complete the appropriate Sentinel-accredited training programme and assessment. They will then be issued with a Sentinel card, which has a number of features designed to minimise forgery. While HSE has suggested that the national register of driver licences could be an extension of Sentinel, Capita (the database developer and administrator) has stated that the existing database could not meet the requirements of the driver licensing proposal without considerable modification.

4. OPTIONS

4.1. Summary of Options

Table 4.1 summarises the options that we have considered in this study.

Table 4.1
Summary of Options

	Brief Description
Option 1	Base case: the do minimum
Option 2	Full implementation of the EC proposal
Option 3	Implementation of phase 1 of the EC proposal only: licensing of international drivers
Option 4	Implementation of phase 1 of the EC proposal with licensing and accreditation of drivers of domestic services available, but this would not be obligatory
Option 5	As option 2 but examiners for the harmonised complementary certification would not require accreditation

We now describe each of these options in turn.

4.2. Option 1 - Do Minimum

The base case, with which all other options are compared, is a do-minimum.

Under the do-minimum we assume that driver licensing continues to be up to the discretion of individual operators, and is not subject to external assessment. There are currently great differences in railway Rules and Regulations between Member States' railways and differences in rolling stock within Member States. These differences would diminish to some extent over time as a result of European Union legislation, in particular technical specifications on interoperability.

4.3. Option 2 - Full Implementation of the EC Proposal

Under Option 2, schemes for the licensing and certification of train drivers would be introduced in two stages. First, the requirements would apply to drivers of cross border services. Then, after a report examining the implementation of the first phase, the scheme would be extended to cover all train drivers within the scope of the proposal. Drivers on tram, metro and other light rail systems would be excluded.

We have assumed that the first phase would be implemented at the start of 2008; the second phase would be implemented at the start of 2010.

We have agreed with DfT to assume that the responsibility for examining drivers and issuing licences would be delegated by the safety authority to a single independent third party licensing authority, on the basis that it appears less costly than alternatives, though there is still considerable uncertainty as to the identity of such a body. This organisation would be accredited to EN (European) standards by the United Kingdom Accreditation Service (UKAS). The duty will be on the railway undertaking or infrastructure manager to certify their drivers.

4.4. Option 3 - Licensing and Certification of International Drivers Only

This option consists of phase 1 of the European Commission's proposal; phase 2 would not be implemented. The scheme would be implemented by 2008.

4.5. Option 4 - A Voluntary Scheme for Domestic Drivers

This option consists of phase 1 of the European Commission's proposal; Phase 2 would be implemented on a voluntary basis so giving the potential for benefits to operators that want to establish services in other Member States.

The option involves introduction of a third party licensing and certification scheme for drivers of international train services. Drivers of domestic services could also be licensed and certificated within this scheme but this would not be obligatory. The licence and certificate would be mutually recognised in other Member States. As in options 2 and 3, licences would be issued by a third party independent licensing authority and certification would be the responsibility of the railway undertaking or infrastructure managers. The scheme would be implemented by 2008.

4.6. Option 5 - Examiners for Certificate would not Require Accreditation

The difference between option 5 and the European Commission's proposal (option 2) is that the examiners responsible for assessing driver competence with respect to the harmonised complementary certificate would not require accreditation.

As in option 2, schemes for the licensing and certification of train drivers would be introduced in two stages. First, the requirements would apply to drivers of cross border services. Then, after a report examining the implementation of the first phase, the scheme would be extended to cover all train drivers. Drivers on tram, metro and other light rail systems would be excluded. The first phase would be implemented by 2008. The second phase would be implemented by 2010.

The responsibility for examining drivers and issuing licences would be delegated by the safety authority to an independent licensing authority. This organisation would be accredited to European standards. Train drivers would be certificated by the railway

undertaking/infrastructure manager that employs them *but the examiners in this process would not require accreditation.*

5. BUSINESS SECTORS AFFECTED

Implementation of option 2 (the proposed directive) and option 5 would impact upon all companies that employ train drivers that operate on the UK rail network. These include franchised train operating companies (23), an open access operator (1), freight operating companies (4), Eurostar, Eurotunnel, Northern Ireland Railways and those infrastructure maintenance contractors to Network Rail that employ train drivers (7).

Implementing train driver licensing for drivers of international services only, as presented in option 3, would impact on far fewer UK businesses at the present time. Those affected would be Eurostar, Eurotunnel, EWS and Northern Ireland Railways. Under option 4, if other operators wish to establish services outside the UK, they would have the option of licensing UK drivers for work in other Member States, but this process would be voluntary.

Table 5.1 lists the businesses that would be affected by the EC proposal along with the revenue and number of employees. We also state the driver complement for each category of business. Revenue and employee numbers indicate the size of the business - though many are subsidiaries of larger companies or joint ventures - while the number of drivers employed indicates the impact that the proposed directive would have on businesses. Those businesses with international operations are listed in italics. Revenue and employee data are omitted from Table 5.1 for a number of TOCs because relevant comparable data were not available as the industry structure has changed in the last financial year.

Table 5.1
Characteristics of Businesses Affected by the Proposal

Company	2002/03 revenue (£ million)	Number of employees (2002/03)	Driver Complement
Franchised TOCs			10,378
Arriva Trains Northern	291	2,909	
Arriva Trains Wales			
C2C	96	687	
Central Trains	214	2,087	
First Great Western Link			
Gatwick Express	38	306	
Great North Eastern Railway	344	3,036	
Great Western	279	2,482	
Midland Mainline	114	928	
North Western Trains	256	2,329	
One Greater Anglia ¹	203	2154	
ScotRail	314	3,138	
Silverlink Trains	134	1,095	
South Central	265	3,092	
South Eastern Trains ¹	343	3,472	
South West Trains	364	4,931	

Company	2002/03 revenue (£ million)	Number of employees (2002/03)	Driver Complement
Thameslink Rail	99	798	
Transpennine Express			
The Chiltern Railways	74	644	
Virgin Trains	896	4,596	
Wessex			
WAGN			
Open Access Operators			13
Hull Trains	7	47	
Northern Ireland Operator			92
<i>Northern Ireland Railways</i>	19	800	
Freight Operating Companies			2,762
Direct Rail Services	20	130	
EWS	564	6,654	
Freightliner	186	1,401	
GB Railfreight	10	75	
International Passenger Operators			84
<i>Eurostar UK Limited</i>	191	1,361	
Infrastructure Manager			
Network Rail (contractors'			750
Eurotunnel	584	3,309	133 ²

Source: Rail Industry Monitor 2004; Eurotunnel 2003 Annual Report; Northern Ireland Railways. Driver numbers supplied by ATOC, freight operating companies, Eurostar, NIR and Network Rail.

Notes: Revenue data for TOCs are the sum of passenger revenue and SRA and PTE grants received net of any payments to the SRA.

1 Data relate to previous franchise; in the case of One Anglia they are not exactly comparable because franchises were respecified.

2. This represents Eurotunnel's UK driver complement

6. EQUITY AND FAIRNESS

The main groups in the UK that would be most immediately affected by this proposal are employers of train drivers (ie all train operators, infrastructure maintenance contractors or Network Rail and Eurotunnel) because they would bear most of the additional costs. Though businesses would be expected to pass on costs to customers through higher charges, TOCs' scope for doing so in the short term will be constrained by fares regulation, so profit margins would be affected. Any cost increases would result in falling demand for their services.

The proposal would affect passengers, other citizens, and freight customers as follows:

- any additional costs of the proposal would tend to be passed through to freight customers in the form of higher charges;
- any additional costs of the proposal may be passed through to passengers also, though in the longer term the government (and therefore taxpayers) may bear some of these costs in the form of increased subsidy;
- customers would gain from any improvements in safety and efficiency that result from the proposal. There could possibly be additional safety benefits for trackworkers, users of level crossings, etc.

However, vulnerable groups would not be differentially affected by this proposal: vulnerable passengers are to some extent protected from cost increases through fares regulation.

Taxpayers would bear any additional costs to passenger services that are not financed through increased fares or reductions in services.

The European Commission argue that there would be benefits to train drivers in terms of increased mobility that might result from increased transferability of skills. We argue, in subsequent chapters, that these effects are not material in the UK. In any case, train drivers are not a vulnerable group, and would tend to have above average incomes.

7. BENEFITS

This chapter considers the benefits which are likely to occur under each option relative to the do-minimum option (option 1). We estimate the scale of such benefits and specify likely lower and upper limits of these benefits. The lower and upper limits are primarily intended to derive estimates of the likely range of total benefits, rather than the range of individual benefits components.

7.1. Option 1 - Do Minimum

Option 1 is the base case, do-minimum. Benefits are measured relative to the base case.

The option to not regulate would result in greater flexibility for operators in their choice of training and assessment, and some cost savings. Such issues are taken into account when assessing other options (which are assessed relative to option 1).

7.2. Option 2 - Full Implementation of the EC Proposal

Option 2 is the European Commission's proposal.

7.2.1. Low training costs for experienced British drivers

An accredited system of licensing drivers might be expected to result in a reduction in retraining costs for operators recruiting experienced drivers, because a driver's licence would provide proof of a set of competences. However, we have been persuaded by stakeholder' arguments as follows:

- Operators already save substantial training costs when they recruit experienced drivers. On the basis of discussions with operators, ATOC estimates that the costs of training recruits with previous experience is on average two thirds that of training recruits with no previous experience. This is supported by industry data which show that time spent training experienced recruits is considerably less than time spent training recruits with no previous experience of driving.
- The current system for transferring information about drivers' training, safety record, and competence more generally - ATOC Form B and informal contacts between the prospective employer and the line manager - is superior to the limited information that would be provided on the national licence database that would be developed under this proposal.
- Although railway harmonisation may offer greater scope for pooled training, and therefore potential cost reductions, in the future, such an outcome is not dependent on the licensing proposal.

We therefore conclude that there would be no such saving from recruiting British drivers.

7.2.2. Reduced training requirement for drivers working in more than one Member State

Currently, systems across Europe diverge so widely that experience in another Member State is of little relevance to driving in the UK, though these differences will diminish over time. If, given greater harmonisation, the proposal results in better training procedures in certain other Member States, UK operators may benefit from recruiting such drivers. However, most Member States will already have high standards of training, the likely improvements in training from the proposal alone must be marginal, and language barriers and relocation costs are such that there will be few instances when this is a saving relative to the do-minimum. We therefore conclude that possible benefits would not be material relative to other impacts.

7.2.3. Reduction in cost of safety certification and authorisation processes, and inspections

In its impact assessment of the proposal, the European Commission explains “in accordance with the rail safety directive, railway undertakings have to apply for safety certificates approving the arrangements made by the railway undertaking to fulfil the specific requirements necessary for the safe operation of the network in question. Requirements may include procedures for issuing certificates to personnel. For personnel, certification is based on the documentation provided by the railway undertaking concerning the selection of various categories of staff of the undertaking or its contractors, including evidence that the staff have been duly certified” (section 7.4.6).

It then goes on to argue that the Directive should help reduce the time which the railway undertaking needs to prepare the documentation and the time which the national safety authority needs to assess it.

The HSE, the current UK safety authority, has confirmed this position by explaining that an accredited licensing system would create an increased level of assurance to the safety regulator and it is unlikely that further assessments or checks would be needed (with respect to the competences covered by the driver licence) unless there were evidence to suggest otherwise.

We understand the situation to be as follows:

- Within the UK itself, the requirement to demonstrate driver competence as part of a new application for safety certification does not necessarily arise. New franchise operators may choose to continue with the safety management systems of the previous franchisee, and will take on a full complement of train drivers through

TUPE,³⁰ so that no detailed review of their systems is necessary. If a company wishes to become a licensed railway undertaking, operating open access services (either passenger or freight), a full review of the applicant's safety management systems would be required. But whilst the driver licensing proposal could potentially reduce the costs associated with that review, there have been few such applications.

- If railway undertakings in the UK make material changes to their safety management systems (as part of the handover of a franchise or at other times), the new systems would be subject to detailed external review; there are also ongoing costs associated with retaining safety certification within the UK. Some of these costs would be reduced under option 2: section 8.2.4 discusses such costs.
- There could be savings in the cost of safety certification if a UK business wished to launch an open access operation (as opposed to a franchise) in another Member State. Such circumstances would occur infrequently in the passenger market. In the freight market there is more potential as liberalisation increases. Benefits would probably only accrue if the business were able to recruit licensed drivers for the new services; otherwise the savings might be more than offset by extra costs associated with obtaining licenses for drivers. The benefits could result in a marginal increase in the opportunities for UK businesses, though any impact would ordinarily be enjoyed by customers because the markets would, by definition, be open to competition; therefore they would not accrue to the UK. It is not clear, however, that this proposal adds value to the framework already established through the common safety methods in the railway Safety Directive.

Therefore the proposal may result in some reductions in the unit cost of safety certification. For operators of services in the UK, these will primarily be costs associated with retaining – rather than obtaining – safety certification, and are discussed in section 8.2.4. For new ventures by UK firms in other Member States, possible benefits would be passed on to customers in the Member States concerned in the form of lower charges, and not accrue to the United Kingdom.

7.2.4. Changes to driver mobility

Around 2 per cent of drivers a year move between operators. Train driver mobility is inherently limited by the location of operators' depots. Mobility is not limited in Great Britain by training or competence issues because, as we have already discussed, operators can achieve considerable savings in training costs by recruiting experienced drivers.

As there is only one train operator in Northern Ireland, train driver mobility is very low. In addition, despite significant harmonisation of rules and regulations, there is no train driver

³⁰ A regulation protecting employment during the transfer of ownership of undertakings.

mobility between Northern Ireland and Eire. Again, the barrier appears to relate more to locational and possibly cultural issues rather than communicating the value of skills.

Of course, an increase in driver mobility within the UK would result in a net cost: if operator A recruits a driver without previous experience, they bear the full training cost; whereas if they recruit an experienced driver who currently works for operator B, B must bear the full training costs and, in addition, A must bear costs associated with, as a minimum, route specific training.

In chapter 8 we consider how the costs of recruiting, training and assessing an experienced driver would change, relative to those of a recruit without previous experience, under the proposal. We conclude that in the UK there would be no change.

The option should, however, facilitate operators recruiting licensed drivers from other Member States, because the driver's fitness and competency would be more effectively communicated than it can be under current systems. This would be a benefit to the UK whilst impose additional training costs on the other Member State. But the inherent barriers to labour movements, such as language barriers and relocation costs, mean that such instances would be rare.

Hence we reason that the proposal:

- would not result in any material change in driver mobility within the UK, and therefore there would be no associated cost or benefit.
- might facilitate UK operators recruiting drivers trained in other Member States, but possible benefits to the UK would be small (and would be outweighed by training costs borne by other Member States).

7.2.5. Savings in direct costs of assessment

With some of the responsibility for assessing drivers being taken on by the licensing authority, one might suppose that the time that *operators* would need to spend assessing their own staff could be reduced. Operators have argued that this would not, in practice, occur:

- the HSE has made it clear that, under the proposal, operators would maintain full responsibility for the competence of their drivers; they would not be able to use the existence of a licence as an excuse for poor competency levels;
- the transferability of driver competence between operators is limited to broad level skills and certain rules and regulations; operators demand higher levels of competence from their drivers, and hence would need to assess them accordingly.

So the potential saving in assessment must be limited to certain rules and the medical.

In contrast, the HSE has argued that they would expect no duplication in assessment to occur, unless operators had clear evidence to suggest that there was a problem with the assessment process.

By considering these factors we conclude that, whilst we find the operators' arguments persuasive, there could be scope for some saving in assessment time. We assume that the saving for operators amounts to between 7 and 15 person years across the UK rail industry. We have estimated this as a proportion of the time that the licensing authority would spend assessing drivers (see section 8.2.2). Following detailed discussions on the nature of the assessment, we have formed the judgement that between 25 per cent and 50 per cent of the assessment time transferred to the licensing authority would be saved by operators; the remainder would be duplicated. We estimate that the associated cost saving would be £50,000 per assessor per year.³¹

Hence the total saving in direct costs *for operators* would be around £350,000 to £700,000 a year. The savings may be less in early years, as the reputation of the licence would take some time to be established.

7.2.6. Possible improved safety performance

It can be argued that the European Commission's proposal would result in improvements in safety because:

- the licensing authority would require accreditation. However, it is not clear that the licence would greatly contribute to the demonstration of driver competence because it would be generic: a much higher degree of specialised rolling stock and route competence would be required before drivers would be permitted to operate trains unsupervised;
- the examiners of the certificate would require accreditation, reducing scope for any operators to compromise standards of driver competence in order to meet their timetable obligations. We note that the operators we have spoken to separate the task of assessment from training and operations, and processes are audited, albeit probably in less detail than under the proposal, as part of each operator's safety case.

Indeed, the proposal could result in a deterioration in safety if operators felt that the existence of an external licensing authority meant that they no longer needed to take full

³¹ This is based on earnings data we have for train drivers; assessors would be at the upper end of the pay scale. We have made an allowance for overheads.

responsibility for their own drivers' competence. We do not think that this would happen in practice, however, because the licence appears too generic to have great relevance as an indicator of driver competence. In any case, as we have previously noted, the HSE has made it clear that operators would continue to take full responsibility for their drivers' competence.

We saw in Section 3.3 that the current risk to train occupants was estimated to be 10.1 annual equivalent fatalities (aef), and that the majority of this risk was caused by failures in infrastructure and rolling stock. Driver error is calculated³² to result in risk of 2.01 aef, though risk associated with other causes might be mitigated through the action of competent drivers.

Driver training, assessment and competence management – as well as minimising incidence of fatigue, drugs and alcohol – has been subject to extensive overhaul since the Ladbroke Grove Inquiry and we find it implausible that an initiative such as the EC proposal would make substantial further improvements.

Subjecting operators' assessment processes to accreditation could have safety benefits, though it is not clear to us that the proposal would necessarily improve procedures for training and assessing drivers. The HSE, arguing that there is insufficient information to quantify safety benefits properly, has suggested we estimate the possible benefit to be up to 2.01 annual equivalent fatalities.³³ This is the total amount of risk estimated to be associated with driver error.³⁴ We consider such an estimate to be too high because, in our judgement, the proposal would only have a marginal effect on driver competence and fitness. We also find it implausible that the EC's proposal would reduce risks to the same order of magnitude as a major scheme such as the train protection warning system (where risk is estimated to have fallen by 2.37 aef at a cost of £550 million). If that were the case, further improvements in driver competence would have been a "quick win" that should have received greater priority.

With consideration to the above, we estimate the benefits to be between zero and 0.5 aef a year. We use 0.5 aef as a generous upper estimate, because we consider that any impact must be a small fraction of the risk associated with driver competence and fitness, and driver error is estimated to be 2.01 aef. The monetary valuation of this impact is between 0 and £1.25 million a year in 2004 prices and values.³⁵ In accordance with DfT appraisal guidance, we then adjust the value of life component to 2015 values (2004 prices), being the

³² This estimate was provided by HSE and is based on a mapping of risk factors to casualties in the RSSB Safety Risk Model.

³³ This is discussed in more detail in section 3.3.

³⁴ The HSE is not arguing that the proposal might eliminate all risk associated with driver error; rather that the proposal, by increasing driver competence, would reduce risk associated with driver errors as well as other risk which have other primary causes.

³⁵ See section 3.3 for calculation of the unit cost of an aef.

median year for the appraisal period we are considering, so that the estimated impact is between £0.0 and £1.4 million.

7.2.7. Summary of benefits for option 2

The benefits are summarised in Table 7.1.

A regulatory impact assessment is required to distinguish between economic, social and environmental benefits. Most of the benefits listed are economic (ie commercial), though the safety benefits are classified as social benefits.

Table 7.1
Benefits of Option 2: European Commission Draft Proposal

Benefits	Parties Affected	Annual Benefits
Lower training costs of experienced drivers	Operators	£0
Reduced training requirement for drivers working in more than one Member State	International operators	Not material
Reduction in cost of safety certification and authorisation processes, and inspections	New entrant UK operators in Europe	Possible economic benefit would accrue to other countries
Improvements in drivers mobility	Train drivers	£0
Savings in in-house assessment costs	Operators	£0.35 to £0.7 million
Possible improved safety performance	Rail passengers and rail freight customers	£0 to £1.4 million
Total benefits		£0.35 to £2.1 million

7.3. Option 3 - Licensing and Certification of International Drivers Only

If only phase 1 (cross-border) of the proposal were implemented, around 2 per cent of UK drivers would be affected.

In the case of Eurostar, we think that the safety benefits would be lower than for domestic drivers because UK drivers are already subject to some external assessment from partners SNCF and SNCB (the state railways of France and Belgium respectively); and vice versa for French and Belgian drivers. The same logic applies to the international service for Northern Ireland Railways.

We assume that the safety benefits for Eurostar and Northern Ireland Railways are only 50 per cent of the benefits for an average UK driver, whereas the benefits from licensing EWS international drivers are similar to those for domestic drivers (because EWS drivers

disembark in Calais). On this basis, the benefits would be between £8,000 and £45,000 a year.

7.4. Option 4 - A Voluntary Scheme for Domestic Drivers

Under option 4, in addition to the compulsory licensing of cross-border drivers, mutually recognised licences may be awarded to domestic drivers on a voluntary basis.

We think that the benefits of this option would be very similar to those for option 3 because the take up of voluntary licences would be low

7.5. Option 5 - Examiners for Certificate would not Require Accreditation

Option 5 is similar to the European Commission's proposal (option 2), except that accreditation of examiners of the certificate would not be required.

This option would deliver a similar saving in operators' assessment time to that of option 2. But a significant proportion of any safety benefits would be associated with the certificate, and so the safety benefits would be less under this option than under option 2. We have not attempted to quantify how much benefit is associated with the process of accreditation of examiners but would expect that there would be some benefit to it. In total, we estimate that the benefits would be between £0.35 million and £1.4 million a year.

8. COSTS

This chapter considers the costs which are likely to occur under each option relative to the do-minimum option (option 1). We estimate the scale of such costs and specify likely lower and upper limits of these costs. The lower and upper limits are primarily intended to derive estimates of the likely range of total costs, rather than the range of individual cost components.

8.1. Option 1 - Do Minimum

Option 1 is the base case, do-minimum. Costs are measured relative to the base case.

8.2. Option 2 - Full Implementation of the EC Proposal

Option 2 is the European Commission's proposal.

8.2.1. Training costs³⁶

Operators currently manage the training programme of their staff, though outsourcing does occur to a limited degree, for example for medical inspections. Operators may experience changes in training costs. *Provided that implementation does not introduce unnecessary training requirements, we do not consider the changes in costs to be material.* We address issues that have arisen in our discussion with stakeholders as follows:

- On the basis of advice, given to us by HSE, we understand that the proposal does not prohibit operators from continuing to run their own training programmes, and we assume that they continue to do so (or, at least, they carry out the same amount of training in house that they would under the do minimum, option 1).
- A licence may impose greater uniformity of training procedures across Great Britain, and thereby have the potential to reduce training costs, because preparation of the training programme would no longer be duplicated by different operators. However, we do not think that this is a material effect because 1) training needs vary greatly by operator, so the opportunity for uniformity is limited 2) work by ATOC already seeks to realise savings from common approaches, where they are appropriate. Although railway harmonisation may offer greater scope for pooled training, and therefore potential cost reductions, in the future, such an outcome is not dependent on the licensing proposal.

³⁶ This section concerns training costs for recruits with no previous driver experience. We discussed potential savings for experienced drivers in chapter 7.

- A European Commission prescribed standard might be expected to harmonise training, so that trainees would be required to learn techniques that were not relevant to their job. This would add to cost and may reduce driver competency in other areas. We think that this is a real danger with the concept of a pan-European licence that applied to *all* train drivers, because the traction, the infrastructure and the rules vary so widely between the UK and other Member States. Current drafting appears to be sufficiently broad to largely prevent this problem from occurring, and the stakeholders we interviewed did not raise this as a particular concern.³⁷

8.2.2. Costs of the licensing authority

Under this option, assessment of competence with respect to the requirements for a licence would be the responsibility of a third party independent licensing authority. This licensing authority would require accreditation by the United Kingdom Accreditation Service (UKAS).

The licensing authority would be new. It has been suggested by HSE that it could be set up as part of ATOC (though we note that a large number of drivers are not employed by ATOC members), but ATOC has informed us that they would not be prepared to do this voluntarily and understand that they cannot be compelled to do so. The assessors would be recruited from operators, and may just work as assessors for a short term of three years, say, before returning to work for the operators, or alternatively continue to work for their operator part time (because it is better if assessors stay in touch with practical operational issues).

New recruits, without previous experience of driving a train, generally receive around a year's training before they qualify to drive trains. During this year, there are several stages of assessment, amounting to several days in total. The final assessment, covering rules, traction, train driving and route knowledge, tends to last between three and five days, with one assessor per driver. The licence would only cover a subset of these competences, and be issued prior to the commencement of practical training. On the basis of information we have obtained from operators concerning the time taken for different stages of the assessment, we estimate that the time taken to assess an initial licence to be around one or two days.

The proposal also requires periodic checks in order for the licence to be retained, with the frequency of checking being determined by each Member State. Current practice in the UK is that all experienced drivers will undergo a reassessment every other year; however, it is thought that this may move to once every three years. We have assumed that reassessment

³⁷ A number of respondents to DfT's consultation on this proposal have emphasised that the training requirements must not be overly prescriptive, and must be risk based. If the text is overly prescriptive, they are likely to introduce unnecessary training measures that could significantly add to costs.

for the licence would be required once every three years (which is consistent with the requirement for a medical in Article 14), and such an assessment would last one day. New licence holders would also be reassessed after 12 months.

We assume that assessors will carry out assessments for 200 days each year. Part of the other time will be spent training (including training of new staff), and attending to paperwork. Thus an individual assessor might assess 100 new applicants in a year, or 200 experienced drivers.³⁸ We have assumed a cost of £80,000 per assessor per year, which in addition to direct staff costs includes an allowance for costs of training assessors, support staff, maintaining the national register and maintaining the extensive procedures required to satisfy the European accreditation standard. Thus, the charge out rate of an assessor is £400 a day (= £80,000 / 200 days). This appears reasonable to us: as we would expect, it is at the lower end of what a professional qualified consultant might charge; by way of contrast, we understand that UKAS charge £550 a day plus expenses for their own staff and £800 a day plus expenses for rail experts.

As an assessor might assess 100 new applicants or 200 experienced drivers a year, we calculate, based on the current UK driver population, that **35 external assessors would be required to issue licences in the UK, and that the running costs of the associated body to be £2.8 million.** By considering the uncertainty associated with the length of assessment and rates per day, we judge likely costs to be within + or - 20 per cent of this central estimate.

There would be one-off costs associated **with establishing the licensing authority.** We have little information on what the cost is likely to be³⁹, but have taken it to be equivalent to one year's running costs, ie **£2.8 million.** Costs would be incurred establishing procedures, which would be developed from existing Rail Group Standards, ATOC Code of Practice, and the assessment processes of individual operators, but additional complexity would be required to satisfy UKAS accreditation. Considerable time would also be needed establishing the appropriate institutional structure of the body and its ownership. Although the costs are highly uncertain, it would be surprising if they were not in the range of £0.5 million to £5 million.

³⁸ It is current practice that the assessment for components related to the license are one to one or, in some cases for some aspects of the assessment, two drivers to one assessor.

³⁹ "Driver Licensing and Competence" which was produced by DNV Consulting for the Rail Safety and Standards Board does not consider the direct costs of setting up an authority in its report. The economic impact assessment produced by the European Commission does not make a clear estimate of the costs of setting up an authority: it estimates that there would be an initial cost of €34 million associated with setting up and administering registers in each state and a further cost to each member state of around €1 million incurred from altering the systems to comply with the Directive.

8.2.3. Other assessment costs

Assuming that assessment for the licence takes place at regional centres, and not at operators' own depots, there would be additional **travel costs** associated with each day of assessment. There would also be small administrative costs associated with booking in the assessment. We have assumed these to be £50 per day of external assessment, on the basis that it might require two additional hours of travel time and £20 travel cost. The total cost across the industry is then **£350,000 a year**. By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 20 per cent of this central estimate.

Operators are concerned that the process for obtaining a licence may cause costly delays before drivers are able to start operating trains. The proposal requires that licences be issued within three weeks of a successful assessment. We do not think this time lag would mean that experienced staff would need to be idle for three weeks, because operators would be able to ensure that the reassessment occurred sufficiently far in advance to compensate for the delay in issuing the licence. New recruits without previous experience would in any case be expected to obtain a licence before they had qualified with respect to an operator's certificate, so we do not see that material delays would occur here either.

However, delays could certainly occur if there were a shortage of assessors, so it would be important in the implementation to ensure that the licensing authority were adequately staffed. In addition, the licensing authority is unlikely to be as responsive to the needs of individual operators (concerning the timetabling of assessments) as their own staff. And we understand that Sentinel-approved assessments have sometimes been subject to delays. So we do accept the argument that an external licensing authority is likely to impose costs on operators through potential delays, and also through reduced flexibility of the timing of assessment. (We also note that the licensing authority would, under HSE's model, be accountable to operators and therefore should be highly motivated to minimise unnecessary delays.) DNV assumed that these effects would require an increase of 1 per cent in driver manpower. This appears a little high: we would suppose the cost to be an additional day of drivers' time per day of assessment, which is around 0.25 per cent of total driver time. As a driver costs around £40,000 a year (including overheads), the **cost of delays amounts to around £1.3 million a year**. By considering the uncertainty associated with these assumptions, we judge likely costs to be within the range of £0.5 million to £3 million a year.

When the licensing authority is established, operators would lose 35 trained driver assessors to the body, and may lose other staff as well. We said in chapter 7 that operators' work load associated with assessment would be reduced. Whilst HSE has argued that it would fall by an equivalent amount, we consider that the proposal would result in some duplication in assessment.⁴⁰ Our central estimate of the saving in assessment time achieved by operators

⁴⁰ In particular: operators would not wish to risk compromising safety standards as a result of inadequate external assessment, and so would undertake internal checks; only some of the competences tested as part of the license

would be equivalent to 10 person years (in a range of 7 to 15 person years). Therefore, as our central estimate, operators would need to recruit 25 more driver assessors. They would presumably promote some of their more senior drivers, but new drivers would be required to replace them. ATOC has estimated the cost of training a new recruit, without previous driving experience, to be £45,000. We assume that the cost per net assessor lost is £50,000, to allow for the incremental cost of training assessors as well as drivers. Therefore, the total **one-off costs for operators of losing experienced driver assessors to the licensing authority is £1.25 million.** By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 20 per cent of this central estimate.

8.2.4. Accreditation costs

In this section we estimate costs associated with accreditation. These are partially offset by savings in the costs associated with safety certification, which we first discussed in section 7.2.3.

On the basis of discussions with UKAS, we estimate that UKAS fees for accrediting the certification body to be between £5,000 and £10,000 a year. We have made allowance for the larger cost of the initial assessment which would require initial training of UKAS assessors and other development costs.

Accreditation would be required of examiners with respect to the harmonised complementary certificate. There would also be savings resulting for a slight reduction in the complexity of audits of the safety management systems (which are carried out by a separate, external body). We assume that the costs of this accreditation net of such savings are at the lower end of the UKAS range, £5,000 a year, per operator. Hence the total costs would be £190,000 per year.

There will also be costs for the licensing authority and the operators establishing procedures to ensure that they meet the requirements for certification. We have already taken account of the costs for the licensing authority in our estimation of their start up and running costs. For the operators, we would not expect major changes in procedures to be required because they already undergo detailed annual audits of their safety case. Some of the time previously spent preparing for the audit of their safety case and assisting the auditors would be saved, but time would instead be required to prepare for the new accreditation procedures. We assume the net additional cost to be £2,500 per operator per year, amounting to around £95,000 in total.

By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 50 per cent of the central estimate.

would be transferable to other operators; and operators would wish to assess their trainees' competences internally before going through the bureaucracy of submitting them to external assessment.

8.2.5. Costs associated with a national register

There would be costs associated with the setting up of and running a national register to store train driver licensing records. We discussed what would be involved and the likely cost of this with Network Rail and NCAA/Capita because of their experience with Sentinel. Sentinel holds around 100,000 current records of safety critical railway workers of various disciplines (but not drivers) so we would expect the ongoing costs of operating a smaller database holding train driver records to be lower than those of running Sentinel. We anticipate that the database would be administered by staff of the central licensing authority and have included the cost of administering the record keeping system in the £2.8 million a year running costs of that body.

There would also be a considerable cost incurred developing the system. Capita has informed us that the Sentinel development costs were £2 million five years ago, but equivalent costs today are greater. They estimate that the cost of developing a driver licensing database system to be £5 million. They also argued that Sentinel would require considerable modification before it would meet the requirements. Given that Sentinel cost £2 million, and that the licensing system would have fewer dimensions than Sentinel, it is difficult to see that the development costs would be as much as £5 million. One-off costs of £2 million appear more reasonable. We judge that the one-off costs of establishing a national register would be in the range £1 million and £5 million.

Operators would bear some additional costs managing their inputs to the new **national register** of licences and certificates. The information requirements of the register would be basic in relation to the very detailed information operators already keep about their drivers. We assume that they are £50 per driver per year (on the basis of the information requirements stated in the proposal and the frequency at which changes may need to be made), which is approximately £0.75 million a year in total. By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 20 per cent of this central estimate.

8.2.6. Summary of costs for option 2

The central estimates of costs are shown in Table 8.1.

A regulatory impact assessment is required to distinguish between economic, social and environmental costs. All costs shown are economic costs (ie commercial costs); environmental and social costs are negligible.

Where one-off costs are incurred we have annuitised these over ten years using an interest rate of 3.5 per cent, in line with Green Book guidance.⁴¹ Our central estimate of costs is £6.2 million a year.

Our lower and upper estimates are £4.0 million a year and £9.4 million a year respectively.

Table 8.1
Costs of Option 2: European Commission Draft Proposal

Implementation Costs	Parties Bearing Costs	Annual Costs
Setting up of licensing authority	Government / operators	£0.33 million
Travel time and expenses, and administration associated with external assessment	Operators	£0.35 million
Accreditation of the licensing authority	UKAS charges paid by body; borne by operators;	£0.01 million
Accreditation of examiners of certificate	Operators	£0.29 million
New procedure for administering driver records	Operators	£0.75 million
Total implementation costs		£1.7 million
Policy Costs	Parties Bearing Costs	Annual Costs
Running costs of licensing authority	Operators	£2.8 million
Recruitment and training of additional drivers to replace those lost to the driver assessor positions	Operators	£0.15 million
Delays and lost flexibility resulting from assessment becoming external	Operators	£1.27 million
Industry wide secure IT system for recording driver competencies	Operators	£0.23 million
Total policy costs		£4.4 million
Total costs		£6.2 million

Note: 1) "operators" refers to all firms who employ train drivers within the scope of the proposal, including infrastructure maintenance companies. 2) Items may not exactly sum to the totals due to rounding.

8.2.7. Costs for a typical business

The majority of the increased costs for each business affected would vary directly with the total number of drivers employed.

⁴¹ HM Treasury (2003) *Appraisal and Evaluation in Central Government*, <http://greenbook.treasury.gov.uk/>

We have assumed that all of the costs would be borne by operators and that the costs of the licensing authority would be passed through to operators, perhaps through a licensing fee charged per driver tested or some other form of operator levy.

The structure of the UK rail industry is such that there is not a typical firm. In Table 8.2 we show how option 2 would impact on three firms that employ around 200, 500 and 1,000 train drivers respectively.

Table 8.2
Illustrations of the Cost Impact on Different Operators

	200 driver firm	500 driver firm	1,000 driver firm
Additional costs per year	£87,000	£200,000	£380,000
Additional cost per driver per year	£440	£400	£380
Additional cost / turnover	0.08%	0.08%	0.09%

Source: NERA Analysis

Representative turnover and profit figures for firms employing approximately 200, 500 and 1000 drivers are for Midland Mainline, North West Trains and Virgin Trains respectively. These data were sourced from Rail Industry Monitor 2004 Volume 4, and relate to the financial year 2002/03.

For two of the firms, our central estimate of the annuitised costs that would be incurred as a result of the option was equivalent to 1 per cent of their 2002/03 profit. For the third (with around 500 drivers), the costs amounted to 6 per cent of profit. These differences should be interpreted as resulting from different rates of profits: the costs associated with the option do not appear to be disproportionate for smaller operators.

8.3. Option 3 - Licensing and Certification of International Drivers Only

Under option 3, licensing would only be implemented for drivers operating cross-border services, which represent 2 per cent of the UK driver work force.

8.3.1. Assessment costs

Under this option, we conjecture that there would need to be four assessors, one for each of the types of cross border service (Eurostar, Eurotunnel, freight, NIR). They would be recruited from the international operators, because other assessors would not have adequate knowledge of the relevant rolling stock and rules.⁴² However, only a small proportion of their time would be required to carry out assessments, and so in order to achieve reasonable cost efficiency it would be necessary for them to carry out other duties. This would be

⁴² Even though detailed knowledge of rolling stock is within the scope of the certificate, knowledge of one or more types of rolling stock is listed by the European Commission as a requirement of the licence.

difficult to implement, and so we assume that the costs are proportionately higher per driver than in option 1: that the running costs of the licensing authority would be £100,000 a year, and that start-up costs are also £100,000.

By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 50 per cent of these central estimates.

Given that the assessors would be dedicated to each of the cross border services, we think that travel costs and delay in assessment and issuing of licences should be minimal.

There will be one-off costs to operators of losing assessors. Given the higher level of training required for cross-border drivers, we estimate this cost to be £100,000 per assessor, or £400,000 in total. By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 20 per cent of these central estimates.

8.3.2. Accreditation costs

As with option 2, we estimate UKAS fees for accrediting the certification body to be between £5,000 and £10,000 a year.

Accreditation would also be required of examiners procedures with respect to the certificate. Assuming, as before, a cost of £5,000 a year per operator, these costs would amount to £20,000 a year.

Using the same methodology as in option 2, the additional costs for the operators establishing procedures to ensure that they met the requirements for certification would amount to £10,000 a year.

By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 50 per cent of these central estimates.

8.3.3. Costs associated with a national register

The costs associated with establishing a national register would be less under this option. It may make sense for a single register to be established by an EU body, rather than by individual Member States, given that the number of entries per country would be small. We assume that some centralisation would occur, or that the register would be added on to Sentinel (though Capita judge this to be difficult), so that costs are maintained at a reasonable level, and that the one-off costs of establishing the national register are £200,000. We consider that a suitable range for these costs to be £100,000 to £1 million.

As before, we assume that operators would bear an additional cost of £50 per driver per year from the administration of their records in the register. This amounts to approximately £17,000 a year in total.

8.3.4. Summary of costs for option 3

A summary of costs is shown in Table 8.3. These costs assume that there are not severe diseconomies of scale: the national register can be built using an EU system or using Sentinel, and that assessors can be usefully employed with other tasks at times when they are not required to assess licences. If these assumptions are not practical, the costs could be more than those shown.

All costs shown are economic costs: environmental and social costs are negligible.

Where one-off costs are incurred we have annuitised these over ten years using an interest rate of 3.5 per cent, in line with Green Book guidance.⁴³

Our central estimate of costs is £240,000 a year. Our lower and upper estimates are £140,000 a year and £350,000 a year respectively.

Table 8.3
Costs of Option 3: Licensing for Cross-Border Drivers

Implementation Costs	Parties Bearing Costs	Annual Costs
Setting up of licensing authority	Government / operators	£11,000
Accreditation of the licensing authority	UKAS charges paid by body; borne by operators;	£5,000
Accreditation of examiners of certificate	Operators	£30,000
New procedure for administering driver records	Operators	£17,000
Total implementation costs		£64,000
Policy Costs	Parties Bearing Costs	Annual Costs
Running costs of licensing authority	Operators	£100,000
Recruitment and training of additional drivers to replace those lost to the driver assessor positions	Operators	£46,000
Industry wide secure IT system for recording driver competencies	Operators	£23,000
Total policy costs		£168,000
Total costs		£230,000

Note: 1) "operators" refers to all firms who employ train drivers within the scope of the proposal, including infrastructure maintenance companies. 2) Items may not exactly sum to the totals due to rounding.

⁴³ Op. cit.

The estimated additional annual cost per cross-border train driver is between £400 and £1,000 (compared to between £250 and £700 for option 2).

8.4. Option 4 - A Voluntary Scheme for Domestic Drivers

Under option 4, licensing would also be open to domestic drivers on a voluntary basis.

This option appears to be difficult to implement because the take up of the voluntary licence is likely to be low, and yet the licensing authority would need competent assessors. This would probably be achieved by having assessors, who would continue to spend most of their time working for an individual operator, on standby. To span a sufficient range of skills and rolling stock, 10 stand-by assessors may be needed, in addition to the assessors of cross-border services. We suppose that each of the stand-by assessors spends two weeks a year in training and certification, at a cost of £4,000 per assessor (using the same daily rate as in option 2). With an additional allowance of £20,000 for managing this training programme, the total cost of the stand-by assessors would be £60,000 a year.

By considering the uncertainty associated with these assumptions, we judge likely costs to be within + or - 50 per cent of this central estimate.

We think that there will be negligible take up of this voluntary scheme, because operators wishing to launch services in another Member State are likely to recruit drivers with knowledge of the language and relevant rules and regulations. Therefore, with the exception of these standby assessors, the costs would be the same as for option 3.

So the total additional costs per year, relative to option 1, would be £290,000 (with upper and lower estimates of £170,00 and £440,000 respectively), of which £64,000 are implementation costs.

8.5. Option 5 - Examiners for Certificate would not Require Accreditation

The costs of option 5 would be the same as those for option 2, with the exception that the annual costs of accrediting examiners of the certificate would not be incurred. This represents a saving of £0.29 million a year.

Hence the costs relative to the base case for this option are £5.9 million a year (with upper and lower limits of £9.0 million and £3.9 respectively). Of these, £1.4 million are implementation costs.

9. THE IMPACT ON SMALL FIRMS

Most of the costs associated with the options that we have identified will be borne by train and freight operating companies. We expect that much of these costs will be proportional to the number of drivers employed and so will not impose differential cost burdens across the industry. However, costs such as those associated with interpreting the legislation and reviewing training procedures in light of this are likely to be similar for each operator. Thus such costs could impact disproportionately on the smaller train and freight operating companies but we do not expect these costs to be that great.

Although some of the training relating to infrastructure management, coordinated by Network Rail and registered in Sentinel, is undertaken by small companies, the same is not currently true of train driver training. We have discussed driver training in detail with train and freight operating companies. The training and assessment of drivers is undertaken by experienced employees of the employer organisation and assessment requires current knowledge of rules, routes and traction. Whilst harmonisation may increase the potential for outsourcing of driver training, and some of this training may be undertaken by small firms, the proposal does not appear to affect their positions in this market.

This proposal would not significantly impact upon charter train operators because they tend to hire drivers temporarily from TOCs to operate their services. Nor would the proposal affect heritage railways as there is a derogation for undertakings that operate solely on operationally separate networks.

We conclude that there is no evidence to suggest that there will be an impact of this proposal on small firms.

10. COMPETITION ASSESSMENT

The options that we have considered in this report would lead to an increase in the operating costs of the businesses identified in Section 5. These costs will mostly be pro-rated to the number of train drivers employed by each company. We see driver numbers as a fair proxy for the size of an operator and so expect that costs will be incurred in proportion to the companies' sizes. We therefore expect that competition will not be affected by differential cost increases across companies.

The limited competition that exists between TOCs is unlikely to be materially affected by this proposal. It is possible that at the margin some discretionary services would cease to be profitable and would be suspended, but in most cases such services would not face rail competition. As many passenger fares are regulated through the franchise agreements the scope for individual TOCs to choose to pass increased costs through to passengers in the form of higher fares is constrained. Cost increases would be expected, following refranchising, to result in increased public subsidy, though the government might choose to finance the costs through increased fares or reduced service specification. Prior to refranchising, the impact may reduce profit for TOCs.

Freight operating companies' ability to pass cost increases through to customers will be constrained by direct competition between FOCs in regards to some services and severely restricted on others by competition from road hauliers. If they are not able to pass costs through, operators may withdraw from the affected services, thereby reducing competition. But if this occurs at all, it will tend to be on services with low profitability, not on services where there are already competition concerns.

The European Commission has argued that the proposal may help promote competition by making it easier for new entrants to achieve a safety certificate, thereby reducing barriers to entry in new markets and so promoting competition. However drivers and safety management systems are often transferred with franchises. So we would not expect this to have an impact in Great Britain in terms of encouraging bidding for franchises. There may be marginal reductions in the setting up costs for open access operators, helping expand the opportunities for UK companies in liberalising rail markets.

11. SUMMARY

Table 11.1 summarises our estimates of the costs and benefits of each option relative to the do minimum (option 1). Our estimates of the likely lower and upper limits of these costs and benefits are shown.

Table 11.1
Summary of Estimated Costs and Benefits

Option	Total cost per annum (£ '000)	Total benefit per annum (£ '000)
1 Base case: the status quo	N/A	N/A
2 Full implementation of the EC proposal	4,000 to 9,400	350 to 2,100
3 Implementation of phase 1 of the EC proposal only: licensing of international drivers	140 to 350	8 to 45
4 Implementation of phase 1 of the EC proposal with licensing and accreditation of drivers of domestic services available, but this would not be obligatory	170 to 440	8 to 45
5 As option 2 but accreditation of examiners of the certificates would not be required	3,900 to 9,000	350 to 1,400

The costs are economic costs: there are no material social and environmental costs. We expect most of these costs to be borne by the railway undertakings and infrastructure managers, either directly or as charges for licensing assessment, use of the register of licenses and other costs. In the medium term, these costs would be passed through to customers in the form of higher charges, or for passenger operators may be financed through increased subsidy.

The benefits consist of some economic benefits, in terms of reduced costs for operators of internal assessment of their drivers, and possible social benefits in the form of improvements in safety, though it is not clear that these will necessarily occur. There are no material environmental benefits.

One-off costs and benefits have been annuitised by considering their impacts over ten years using a discount rate of 3.5 per cent.

As would be expected, the scale of impact is much greater for those options requiring the system to be applied to domestic drivers (options 2 and 5), because only around 2 per cent of

UK drivers operate cross-border services. For all options, the costs are greater than the benefits.⁴⁴

⁴⁴ Our assumption concerning the risk reduction resulting from with option 2 would need to change from 0 to 0.5 aef to 2 aef (or a range with a mean value of 2 aef) in order for the central estimate of benefits to be equal to the central estimate of costs.

