

EXECUTIVE NOTE

The Environmental Noise (Scotland) Regulations 2006 SSI/2006/465

1. Background

The above instrument is made using of the powers conferred by section 2. (2) of the European Communities Act 1972. The regulations transpose and implement Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise. This directive is also known as The Environmental Noise Directive (END) must be transposed into law by the member states of the European Union. The instrument is subject to negative resolution procedure.

In European legislation the UK is deemed to represent the Member State. However, in the UK, environmental noise is a Devolved matter and is addressed by the Devolved Administrations separately. For this reason the Devolved Administrations will be taking forward the requirements of the END in their respective areas. These regulations are solely concerned with the transposition of END in Scotland.

2. Policy Objectives

The aim of the END is to define a common approach across the European Union with the intention of avoiding, preventing or reducing on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise. This will involve:

- informing the public about environmental noise and its effects;
- the preparation of strategic noise maps for: large urban areas (referred to as 'agglomerations' in the END and in these regulations), major roads, major railways and major airports as defined in the END and
- preparing action plans based on the results of the noise mapping exercise. Such plans will aim to manage and reduce environmental noise where necessary, and preserve environmental noise quality where it is good.

A strategic noise map is a method of presenting complex information on sound levels and/or exposure in a clear and simple way either on a physical map or in a database. Action plans are plans which will contain a number of measures that will be taken to manage noise and reduce it where necessary.

The noise mapping and action planning process is to be taken forward on a five-yearly rolling programme. The first round of mapping and action planning applies to the largest of the agglomerations Edinburgh and Glasgow (including the industries and ports within them), the busiest major roads and railways and all major airports. During the second round all agglomerations, major roads, major railways and major airports as defined by the END will be mapped and then action plans will be developed for them. The key dates over the next ten years are as follows:

	Task	Completion Date
1	Transpose the END (Article 14, paragraph 1) 4	18 July 2004*
2	Inform Commission and public of competent authorities (Article 4, paragraph 2)	18 July 2005
3	Inform Commission of any existing noise limit values (Article 5, paragraph 4)	18 July 2005
4	Inform Commission of first round noise sources to be mapped (Article 7, paragraph 1)	30 June 2005
5	Collection of source/validation data for first round of maps	Course of 2006
6	Completion of first round of maps (Article 7, paragraph 1)	30 June 2007
7	Completion of first round of action plans (Article 8, paragraph 1)	18 July 2008
8	Inform Commission of second round areas to be mapped (Article 7, paragraph 2)	31 December 2008
9	Completion of second round of maps (Article 7, paragraph 2)	30 June 2012
10	Completion of second round of action plans (Article 8, paragraph 2)	18 July 2013

* While it has not been possible to comply with this deadline the deadlines at 2, 3 and 4 have been met.

The END specifically requires that action plans should be revised if necessary within the five year windows, after any ‘major development’. The regulations therefore require the revision of the strategic noise map (or the relevant parts of such a map) in such circumstances as a means of informing the revision of an action plan. It is therefore possible that we may have to review a map (or part of a map) and action plan due to a major development between rounds of mapping.

The END also ultimately requires the use of a common method for assessing noise across the EU (Article 6, paragraph 2). Up to now there has not been any harmonised approach within the EU on the noise indicators used to assess noise. Until such time as there are common assessment approaches for calculating noise levels, existing national methods, data and noise indicators can be used and adapted where necessary to provide the required results. The methods for calculating environmental Noise in the UK are specified in the Regulations.

Research was carried out to inform the strategic noise mapping process required under the terms of the directive. This research, published in November 2005, has identified where the process of data handling can be automated with minimal manual intervention.

The Scottish Executive are required to designate the competent authorities and bodies responsible for implementing the END (Article 4). However, Member States remain ultimately responsible for ensuring that the requirements of END are met (Article 14). The competent authorities will be responsible for aspects such as:

- making and, where relevant, approving noise maps and action plans for agglomerations, major roads, major railways and major airports;
- collecting noise maps and action plans.

For reasons of simplicity the Regulations designate the Scottish Ministers as the competent authority except in the case airports where the airport operators will fulfil this role.

This would mean that all legal responsibilities for mapping and action planning under the END for roads, rail and agglomerations would rest with the Scottish Ministers (with the exclusion of airports as specified above). In fulfilling these responsibilities the Scottish Executive intends to enter into agreements with other authorities and/or organisations to exercise functions relating to the production of maps and action plans, both in terms of the provision of data and for the preparation of the maps and plans. In this case, final responsibility for delivery would nevertheless still remain with the Scottish Ministers. This approach will also be adopted in England and Wales.

The Regulations also cover issues such as the definition of major roads, major railways and agglomerations, set out the noise computational methods to be used and the general procedure by which noise maps and action plans should be prepared.

3. Consultation

A consultation was carried out from March to June 2005. Industry, trade associations, local authorities, environmental NGOs and other interested bodies were consulted. 30 responses were submitted which were broadly supportive of the proposals in the consultation document.

4. Effects of the Regulations

The Regulations will have no negative environmental impact. A copy of the Regulatory Impact Assessment is attached.

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Full Regulatory Impact Assessment

Title of proposal

1. Implementation of Directive 2002/49/EC relating to the assessment and management of environmental noise in the UK.

1.1 In Scotland transposition will be by way of The Environmental Noise (Scotland) Regulations 2006 under section 2(2) of the European Communities Act 1972. The END is being implemented separately in England, Wales, Northern Ireland and Gibraltar. For the purposes of the RIA costs and benefits are shown for the whole of the United Kingdom and where possible disaggregated to a regional level for Scotland.

Purpose and intended effect

Objective

2. The objective of the legislation is to transpose EU Directive 2002/49/EC (the Environmental Noise Directive (END)) accurately, transparently and in the least onerous manner consistent with the END's requirements. The objective of the END is to provide for the comprehensive collection and analysis of data to prevent further deterioration in the environmental noise climate and to improve it where possible. The data collection and analysis would allow Member States and the European Commission to determine at each level:

- how much noise is affecting how many people; and
- the most cost effective measures or combinations of instruments to reduce the level of environmental noise affecting people.

2.1 The Directive requires the following actions:

- the use of harmonised noise indicators and computational measures so that data can be collected and compared in a standardised way;
- common protocols and systems for noise mapping;
- the drawing up of noise maps;
- making information available for the public;
- the drawing up of local action plans; and
- collection of data by the Commission to inform future Community policy.

2.2 The noise mapping and action planning process is to be carried out every five years. The first round of mapping and action planning applies to the largest agglomerations, and the busiest roads and railways and airports. First round of mapping has to be completed by June 2007 and action planning by July 2008. During the subsequent rounds smaller agglomerations, and the busiest roads and railways which meet the minimum criteria set by the END will be mapped and action plans will be developed for them.

Background

3. The EU Green Paper on Future Noise and Policy¹ stated that environmental noise caused by traffic, industry and recreation is one of the main local environmental problems in Europe.

¹ "The Green Paper on Future Noise Policy" (COM(96) 540). European Commission. November 1996

3.1 The European Community has a long history of working to reduce emission from sources of noise. For example it has adopted Directives controlling noise emissions from aircraft, motor vehicles and industrial plant. Legislation and technological progress have achieved significant reductions of noise from individual sources such as an 85% reduction of noise from individual cars and a 90% reduction from lorries since 1970. However data covering the past 15 years do not show significant improvements in exposure to environmental noise except from aircraft. While these initiatives have been successful in reducing source levels, it is believed that in many areas there has been no significant reduction in exposure levels because of an increase in the number of sources.

3.2 In the UK, policy and legislation to control transport and industrial noise has been developed over a number of decades. There is no provision in the legislation for the comprehensive assessment of environmental noise that would allow an integrated approach to its management.

3.3 'Environmental noise' is defined in the END² as: 'unwanted or harmful outdoor sound created by human activities, including noise emitted by means of transport, road traffic, rail traffic, air traffic, and in agglomerations noise from industry and ports³.

3.4 The END applies to environmental noise to which humans are exposed, but it specifically excludes noise created by the exposed person, noise from domestic activities, neighbour noise, noise at workplaces, noise inside means of transport and noise from military activity in military areas.

3.5 The END was adopted by the European Parliament and the Council of the European Union on 25 June 2002 and had to be transposed by member states by 18 July 2004. Regrettably it has not been possible to comply with this deadline. The delay in transposition is not expected to impinge on our ability to meet other deadlines in the Directive.

3.6 The Directive sets out the elements that must be included in the Action Plans but does not make any action mandatory. Article 11 requires the Commission to report, by the end of 2009, to the European Parliament and Council on the implementation of the END. The report will include a review of the case for setting quality objectives for environmental noise and propose a strategy to achieve them. Such a strategy would consider the setting of goals for the reduction of the number of people affected by noise from specific sources and any measures that are necessary to reach the goals. There is a risk that these measures might require disproportionate expenditure by Member States and/or disproportionate costs to their economies. However, further legislation would be required for setting noise quality objectives and the UK would seek to ensure that the benefits of any future proposals are fully justified by the costs.

Rationale for government intervention

4. Noise in the environment affects all people and, moreover, affects many of them sufficiently that most express an opinion about it. At one extreme the noise can be loud enough to feel physically uncomfortable and, if persistent enough can lead to a direct deterioration in health through noise induced hearing loss and tinnitus. Although such high and persistent noise levels tend not to occur externally from transport or industrial sources, noise from these sources can cause conversation to be disrupted, sleep disturbance or simply generate feelings of annoyance. Consequently, the enjoyment of homes, gardens and open spaces can be adversely affected by this

² See END document at:

http://europa.eu.int/eur-lex/pri/en/oj/dat/2002/l_189/l_18920020718en00120025.pdf

³ Sites of industrial activity defined in Annex I to Council Directive 69/61/EC of 24 September 1996.

environmental noise. Concern has been raised about the effects of noise on mental health, cardiovascular and physiological functions and effects on performance such as learning acquisition by children.

4.1 The UK National Noise Incidence Study (NIS) 2000/1⁴, undertaken by BRE, carried out a national study of environmental noise levels in England & Wales by generating objective estimates of the pattern of noise exposure of the population based on 24 hour measurements outside over 1,000 dwellings. Based on extrapolating this sample data, the study estimates that 54% (range 51% to 57%)⁵ of the population of the UK live in dwellings exposed to external day-time noise levels above about 55 dB LA_{eq,day}. The same study also found that 67% (range 64% to 70%) of the population of the UK live in dwellings exposed to external night-time noise levels above 45 dB LA_{eq,night}.

4.2 Furthermore, the 1999/2000 National Survey of Attitudes to Environmental Noise⁶, which surveyed nearly 10,000 people and looked at different noise sources, also indicated a large proportion of respondents were adversely affected by noise. 84% of the respondents heard road traffic noise and 40% were bothered, annoyed or disturbed to some extent. 28% of respondents reported that road traffic had got worse in the past five years and 10% said that it had got better. 71% of respondents heard noise from aircraft, and 20% were bothered, annoyed or disturbed to some extent. The survey contains detailed comparative data for England and Wales for 1990 and 1999, but includes the rest of the UK for 2000. The Scottish sample was not significant and therefore the figures quoted are UK responses. 'Adversely affected' means that the respondent reported one or more of the following reactions to noise: (i) personally object, (ii) irritate, (iii) disturb, (iv) personally concerned, (v) annoys or upsets at times and (vi) nuisance to you personally. Hence, both the National Noise Incidence Study and the National Survey of Attitudes to Environmental Noise indicate that the current level of noise in some areas does adversely affect the quality of life and hence impose a burden (and costs) on society.

4.3 There is some evidence to suggest that long term exposure to noise may lead to ill health or that it can affect the cognitive development of children. However the research base is not conclusive at present.

4.4 Prior to the implementation of this Directive, noise tended to be assessed only when a change is expected to occur or has occurred. Environmental Impact legislation requires potential new noise making developments to be assessed, the impact understood and where necessary appropriate mitigation measures to be applied. When new noise sensitive developments are proposed, for example, housing or schools, legislation and guidance require that an assessment is made regarding the extent the prevailing noise would impact on the new development. This then requires the development to be designed to reflect the prevailing noise environment. In some instances, permission for such development may be refused because the existing noise is such that the location is unsuitable for the development proposed.

4.5 Noise is also investigated when complaints are made. Again, there has been a change. People who apparently were content with the noise environment are no longer content, and express their views by complaining. Such complaints may be directly related to a change in the noise environment that has been noticed, or, for some reason, people may have suddenly become aware of, and disturbed by a noise that has actually existed for some time.

⁴ Source: The National Noise Incidence Study 2000, BRE, Feb 2002.

⁵ The ranges quoted here and below represent the 95% confidence interval.

⁶ 'The 1999/2000 National Survey of Attitudes to Environmental Noise', Building Research Establishment (BRE). Prepared for DEFRA, the National Assembly for Wales, the Scottish Executive and the Department of the Environment for Northern Ireland . 2001.

4.6 Implementation of the END will provide information on the noise environment without any specific proposal or change in mind. It will provide data on the nature and extent of the noise impact and help identify:

- whether there are any people unnecessarily exposed to higher than desirable noise levels, suffering accordingly and causing a cost to society; and
- what areas of relative quiet we might or could have, thus enabling us to develop measures to protect them and not have the noise environment inadvertently eroded.

4.7 This information will enable us to understand better how the noise environment in our agglomerations and near our major roads, railways and airports is changing. Policies can be developed that will enable strategic noise management to be carried out alongside the processes and procedures that already exist to address individual situations.

Consultation

Within government

5. The European Commission has already undertaken extensive consultation with the Member States and stakeholders. All member states consulted on the draft proposals fully supported the need for proposals to address the issue of environmental noise. Regulations have been drawn up in consultation with other government departments including Defra and the other Devolved Administrations in Wales and Northern Ireland, the Department of Health, Department for Transport, Ministry of Defence, and the Department of Trade and Industry. Within the Scottish Executive we have consulted with Enterprise Transport and Lifelong Learning and Development Department.

Public consultation

5.1 A public consultation on proposals for transposition and Implementation of the Directive was carried out between March and June 2005. The consultation and the responses are published on the Scottish Executive website. Those consulted included industry, regulators, local authorities, professional bodies and environmental groups. 30 responses were submitted which were broadly supportive of the proposals in the consultation document. The final text of the Regulations takes into account comments made during the consultation.

Options

6. The following are options for implementation of the END:

Option 1: Do nothing.

Option 2: To undertake mapping to meet the requirements of the END, deriving the maps from individual measurement. In principle, the proposed Directive would allow for mapping by noise measurements, a method requiring less technical expertise than deriving maps from computer-based predictions.

Option 3: To undertake mapping to meet the requirements of the END, deriving the maps from computer-based noise modelling. The Executive proposes that the Scottish Ministers of State should be the competent authority for developing the noise maps and subsequent action plans, except in the case of airports. The Scottish Executive will engage consultants

or other parties to prepare the maps on the Scottish Ministers behalf but the Scottish Ministers would retain the legal responsibility. This is the recommended option.

Sectors and groups affected

7. Sectors and groups affected include;
- a) All those living near sources of environmental noise; such as major roads, airports and industry would ultimately benefit from measures to reduce noise in these sources.
 - b) Airport authorities would be responsible for producing strategic noise maps and implementing action plans.
 - c) Local authorities may be required to train staff in the procedures of implementing action plans for monitoring and reducing environmental noise.

Benefits

8. Noise mapping will not in itself reduce or control human exposure to noise and therefore offers no direct benefits. Its value lies in providing a tool to assess the noise climate, identify areas where action is most needed and which solutions would be most cost effective. The mapping will facilitate the formulation of action plans that can be used to improve or stabilise environmental noise. Mapping can also be used to evaluate the effectiveness of current measures and monitor the outcome of future measures.

8.1 The benefits of the options for implementation are presented below:

Option 1: Do nothing option. The costs of transposition, and in the short term, of implementation, would be avoided.

Option 2: To undertake mapping to meet the requirements of the END, deriving the maps from individual measurement. In principle, the proposed Directive would allow for mapping by noise measurements, a method requiring less technical expertise than deriving maps from computer-based predictions. However, there are a number of practical and theoretical difficulties with this approach. Capturing sufficient information at the necessary resolution through measurement would involve an extremely large survey that would be very resource intensive. Furthermore, unattended measurements, except in so far as peaks can be accurately attributed to known events, are indiscriminate and a noise level meter will measure the total noise at a location and not just the noise from one source in that area. It would not be possible to provide the level of detail required by the END through measurement alone.

Option 3: To undertake mapping to meet the requirements of the END, deriving the maps from computer-based noise modelling. The benefit of using computer-based modelling to produce noise maps is that it is significantly less resource intensive than using only measurements. Furthermore, it allows information to be gathered separately for the four sources of noise: road, rail, air traffic and industry, as required by the END. Computer-based noise modelling has been used for several years, in particular, as part of noise impact assessments for proposed noise-generating developments. Thus, the process itself is well established. This is the most cost effective option to meet the requirements of the END.

8.2 The END requires Member States to designate a competent authority or authorities to make noise action plans for agglomerations. For Scotland the Scottish Ministers should be the

competent authority for developing action plans for agglomerations, however other organisations and possibly commercial companies may be required to undertake duties to fulfil this role.

8.3 There are a number of options for designating competent authorities, but the preferred option of designating the Scottish Ministers in Scotland as competent authority for strategic noise maps (with the exception of major non-designated airports) and action plans in all cases (with the exception of major airports) has a number of benefits. These are in terms of

- having one organisation co-ordinating the mapping process which avoids duplication and ensures consistency in the quality and form of the data collected;
- providing consistency with the approach proposed to map the different transport sources and agglomerations;
- one organisation co-ordinating the effort of different organisations involved in the production of action plans for the major transport sources and agglomerations;
- in the case of agglomerations it avoids those bodies with no overall responsibility for agglomerations being given duties beyond the scope of those which they already have; and
- enabling the Scottish Ministers to ensure that the END's requirements are met with respect to noise mapping and the production of actions plans.

8.4 This approach to the regulations would also allow flexibility to address wider issues relating to noise mapping and the development of noise action plans.

8.5 It is recognised that there are disadvantages in designating the Scottish Ministers as the competent authority in Scotland including the fact that by not designating local authorities as the competent authorities, the potential for achieving effective co-ordination with local development plans may not be fully appropriated (except in the case of airports); and the responsibility for mapping and action planning is not given to those authorities with the most direct control over action at local level and the greater degree of local knowledge. However, these disadvantages would be overcome by the full involvement of those authorities responsible for the different transport sources and agglomerations. In Scotland the Scottish Executive proposes to give a greater role to local authorities and transport agencies in future rounds of mapping once greater experience has been built up.

Costs

9. The costs of the options for implementation are presented below.

Option 1: Do nothing option. There would be no costs in the initial stages. However, this would be a breach of Community law and ultimately result in infraction proceedings against the UK and would incur heavy penalties for failure to transpose the Directive into UK law.

Option 2: To undertake mapping to meet the requirements of the END, deriving the maps from individual measurement. The cost of completing the mapping by measurement would depend on the level of accuracy to be achieved. This is largely determined by the number of measurements taken in the area to be mapped, but even a minimal level of accuracy would be far more expensive to produce by this method than by computational methods. Actual costings data is scarce but an important example is provided by a project undertaken by the City of Birmingham. The computer-based mapping undertaken by the City of Birmingham in 2000, cost £211,000. To produce a map of this accuracy covering a similar area by measurements alone would require 3.3 million measurements costing between £300

and £400 each, *i.e.* a total of over £900 million. Hence the costs of mapping the requirements for the END for the UK would be considerable under this option.

Option 3: To undertake mapping to meet the requirements of the END, deriving the maps from computer-based noise modelling. The following presents a detailed analysis of the estimated costs for Option 3 for:

- (i) Costs of mapping using computer-based methods
- (ii) Costs of producing noise action plans.

Total cost for the UK with disaggregated costs for Scotland is shown in Table 4.

Cost of noise maps by computer-based predictions

9.1 Defra commissioned environmental consultants Bureau Veritas to provide estimated costs for undertaking noise mapping to enable the UK to meet the requirements of the Environmental Noise Directive. These detailed costings relate to the first round of mapping in 2007 only. Although costings for the second round were provided in the partial RIA it has now become evident that there are too many uncertainties surrounding costings in future years to give an accurate estimate. Although the scope of the mapping and action planning are wider, it is expected that these will be offset by economies of scale and savings arising from systems set up for the first round. Total cost of future years are therefore expected to be lower than in 2007. The following section describes the approach used and their results

9.2 It should be noted that the costs presented in this section represent total costs, assuming a baseline for comparison of no existing mapping. Whilst in reality, there are a number of mapping programmes in existence (*e.g.* by major airports), it is not clear that such existing programmes would fully meet the requirements of the END. Therefore total costs are presented throughout, even though incremental costs may be lower.

9.3 Detailed analysis was undertaken to cost the following aspects of noise mapping:

- The cost of mapping roads;
- The cost of mapping railways;
- The cost of mapping authorized industrial processes;
- The cost of action planning;
- The cost for collating mapping results and undertaking exposure analysis.

Approach

9.4 The costs for noise mapping have been produced in a variety of manners. Where possible costs have been based upon available mapping costs from projects which have been undertaken within the UK and applied to information on the extent and location of noise sources.

9.5 Where detailed costs have proven to be unobtainable, judgements about the likely costs have been derived from costs for mapping similar types of feature. This relates to the costs for mapping rail noise and ports, which have been based upon roads and Part A1 industry respectively.

9.6 Where detailed information has been unobtainable for particular areas of the UK, costs have been extrapolated from data available for other areas of the UK where information is available. This relates to Part A2 process inside agglomerations in Scotland.

9.7 The overall costs for mapping have been broken down to enable the following details to be seen:

- The costs for mapping Scotland, England, Wales and Northern Ireland;
- The total costs for mapping in 2007;
- The costs of mapping individual noise sources (roads, rail, industry, ports and aviation);
- The costs for mapping inside and outside agglomerations;

Presentation of mapping cost information

(A) Mapping Roads

9.8 The cost of mapping roads was estimated from the length of road to be mapped. The length of roads within agglomerations was calculated from 2005 Ordnance Survey mapping datasets. The cost of mapping roads inside agglomerations has been derived from the Central Data Service (CDS) data acquisition contract and the current Noise Mapping England Roads projects being undertaken by Defra.

9.9 The length of major roads outside agglomerations was estimated from road data provided by the DfT TSR Major Roads Links 2003 dataset made available through the Road Transport Statistics Unit. The dataset contains all roads at and above A-road classification. The unit cost of mapping major roads outside agglomerations has been derived from the CDS and the current Noise Mapping England Roads projects being undertaken by Defra.

Table 1. Road length (km) and estimated cost of mapping roads by Devolved Administration under the Environmental Noise Directive within the UK.

	2007				
	Length of roads inside agglomerations (km)	Length of Major Roads (km)	Total length (km)	Average cost (£/km)	Cost(£)
Scotland	6,554	2,378	8,932	78.33	699,630
England	72,525	24,951	97,476	64.82	6,318,582
Wales	2,211	1,585	3,796	70.86	268,986
Total	81,290	28,914	110,204	66.12	7,287,198
Additional cost: manipulation of data					50,000
Grand Total	81,290	28,914	110,204		7,337,198

(B) Mapping Railways

9.10 The length of railway within agglomerations was calculated from 2005 Ordnance Survey mapping datasets.

9.11 Costs for mapping the railway network are based on ongoing discussions with Network rail.

9.12 The projected costs for mapping Network Rail do not provide for preparing the data for mapping sources such as Tramways, London Underground, and the Channel Tunnel Rail Link. The estimated total length for these sources is approximately 586km and the cost of mapping these sources is estimated at £299,171. An additional £10,000 is projected to be required to include the railway wheel roughness correction into the mapping process.

Table 2. Table setting out estimated cost of mapping rail noise by Devolved Administration.

	2007				
	Length of rail inside agglomerations (km)	Length of major railways (km)	Total length of railways (km)	Average Unit cost (km)(£)	Cost(£)
Scotland	277	110	387	536.89	207,780
England	2,343	1,244	3,587	337.93	1,212,159
Wales	87	35	122	535.61	65,345
TOTAL	2,707	1,389	4,096	362.61	1,485,284
Additional costs:					299,171
Tramways					
wheel roughness correction					10,000
GRAND TOTAL	2,707	1,389	4,096		1,794,455

(C) Mapping Aviation

9.13 The cost of mapping aviation was estimated from the number of airports required to be mapped in 2007. The number of major airports (being defined as a airport with total movements of greater than 50,000 per annum) was determined from Aircraft Movements ‘UK Airport and Statistics 2004’ published by the Civil Aviation Authority (CAA).

9.14 In addition to major airports, airports inside or within 5 km of an agglomeration have been included in the costs of mapping. In order to determine the number of such airports the 2005 Ordnance Survey dataset was used.

9.15 The cost of mapping airports has been based on past noise mapping projects undertaken by the CAA and other noise mapping projects. A maximum estimated cost per airport of £40,000, based on current mapping conditions has been applied to all airports.

Table 3. Table setting out the cost of mapping aviation noise sources for the Environmental Noise Directive within the UK.

	2007		
	Number of Major Airports	Number of airports within 5 km of agglomerations	Cost (£)
Scotland	3	0	120,000
England	18	13	1,240,000
Wales	0	0	£0
TOTAL	21	13	1,360,000

(D) Mapping Industry and Ports

9.16 Final costs for mapping industrial and port noise within the UK have been derived from estimated costs presented in Casella Stanger Report CS/AQ/CSIS/2197⁷.

Cost of Action Plans

9.17 The END requires the competent authorities, designated by the Member States to develop and adopt action plans 'designed to manage, within their territories, noise issues and effects, including noise reduction if necessary' (Article 8, paragraph 1). The END also lists the minimum which each plan should contain (Annex V). This includes:

- a description of the agglomeration or major noise source to be considered;
- the authority responsible;
- the legal context; any limit values in place;
- a summary of the results of the noise mapping;
- an evaluation of the estimated number of people exposed to noise, identification of problems and situations which need to be improved;
- a record of the public consultation;
- current noise reduction measures in force or in preparation;
- actions which the competent authorities intend to take in the next five years (including preservation of quiet areas);
- long-term strategy;
- financial information (this includes cost effectiveness); and
- provisions for evaluation of the action plans.

9.18 The approach to developing action plans, for all the sources considered, is likely to consist of 5 steps:

- To carry out a more detailed noise assessment of areas which appear as high noise areas on the strategic noise maps.
- Once priorities for noise reduction are identified, the Scottish Executive could appoint a key body to investigate potential actions considering the effectiveness of any actions and appropriate cost-benefit analysis in consultation with certain stakeholders.
- After drawing up initial options, there would be a public consultation as required by the END (Article 8, paragraph 7).
- To publicise the revised action plans in light of the consultation.
- To review the action plan every five years, as required by the END.

9.19 The costs of the action plans will vary depending on the source of noise and whether it is an action plan for an agglomeration. Hence, the costs for the different sources will be investigated separately.

(A) Roads

9.20 The production of action plans for major roads outside agglomerations would be the responsibility of the Scottish Ministers. However, the Scottish Ministers may enter into agreements with Transport Scotland Agency and local authorities, to carry out the action plans or consult on them, as these authorities have the power to implement any actions arising from the plans.

9.21 There are no parallels to road noise action plans to be able to draw any quantitative information from and therefore it would be difficult to estimate the costs of producing an action

⁷Casella Stanger Report CS/AQ/CSIS/2197, WG-AEN Good Practice Guide Toolkit: Industrial Noise Mapping Feasibility Study, Draft Report, 21 June 2004

plan for the major road network. However, the cost is likely to be significantly lower than the costs of producing action plans for agglomerations.

(B) Rail

9.22 Similar to the action plans for roads, the production of action plans for major railways outside agglomerations would be the responsibility of the Scottish Ministers. However, the Scottish Ministers may enter into agreements with or consult relevant organisations including:

- Network Rail;
- operators of other guided rail systems;
- Office of the Rail Regulator; and
- train operating companies (passenger and freight).

9.23 It is difficult to estimate the cost of producing action plans due to the lack of data and precedent.

(C) Air Traffic

9.24 The Scottish Executive favours the airport operators being designated as the competent authority for the production of action plans relating to major airports. In practice, airports already act as the day-to-day regulators of operational noise from aircraft, by monitoring and enforcing adherence to their noise control procedures and the Scottish Executive believes that those with the powers to implement measures to control noise are best placed to draw up the action plans. In the case of air noise, this would mean that the airport operators for both the designated and non-designated airports would draw up the plan or plans to manage noise for the airports for which they are responsible – in the former case, of course, the action plan must be consistent with the airport’s legal duties under s.78 of the Civil Aviation Act 1982.

9.25 It is difficult to estimate the cost of producing action plans for airports due to the lack of data and precedent. The cost, however is likely to be smaller than the cost of producing agglomeration action plans as each airport operator will have to produce and implement an action plan for just one airport. Hence, there will not be a need to coordinate a number of different bodies, nor to draw up action plans for a number of different sources. In any case, the White Paper *'The Future of Air Transport'*⁸ paragraphs 12.7 – 12.9 requests airport operators to produce master plans. These plans should include detailed proposals for environmental controls, including noise controls. Assuming, therefore, that airports do produce and maintain such plans, as we are confident they will, the incremental cost of ensuring that the noise-related element conforms with the END requirements for action plans, should be relatively modest.

Summary of total estimated costs of Option 3

9.26 The following table summarises the costs for mapping and action planning within the UK.

Table 4 Summary of costs for 2007 by Source and Devolved Administration (figures rounded)

	Scotland	England	Wales	Northern Ireland	United Kingdom
Road	£700,000	£6,400,000	£269,000	£295,000	£7,664,000
Rail	£208,000	£1,212,000	£65,000	£106,000	£1,591,000
Aviation	£120,000	£1,240,000	£0	£39,000	£1,399,000

⁸ White Paper *'The Future of Air Transport'*. Department for Transport, December 2003.

Industry (inc. Ports)	£31,000	£348,000	£21,000	£153,000	£553,000
Population Exposure	£106,000	£1,333,000	£36,000	-	£1,475,000
Action Plans	£159,000	£2,000,000	£54,000	£44,000	£2,257,000
Additional costs	-		-	-	360,000
TOTAL	£1,324,000	£12,533,000	£445,000	£637,000	£15,299,000

Small Firms Impact Test

10. The costs of the proposals in Scotland and England will fall mainly on Scottish Ministers and the Secretary of State as the designated competent authority. In Wales the financial implications of implementing the END rest with the National Assembly of Wales as the designated competent authority major airport operators. Other organisations that may bear some of the costs, are large organisations such as Transport Scotland, the Highways Agency, Network Rail, Local Authorities and major airport operators. It is anticipated that the role of other industrial organisations will be limited to those that operate major plants and would only involve participation in any consultation on the formulation of action plans. The costs for noise mapping and action planning will lie with the relevant competent authorities.

10.1 The implementation of the proposed Directives is not expected to have any real direct impact on small businesses or airports which have fewer than 50,000 aircraft movements per annum.

Enforcement, sanctions and monitoring

11. It is intended that in Scotland transposition will be by way of regulations under section 2(2) of the European Communities Act 1972. Hence, the Scottish Ministers , through legislation' will be responsible for ensuring the requirements of the END are being met, or the Scottish Executive will ultimately face infraction proceedings in the European Court of Justice.

11.1 Monitoring whether the requirements of the END have been met will be undertaken by the European Commission as the outputs of the noise mapping and the action planning are submitted .

11.2 The strategic noise maps will be reviewed and revised if necessary , at least every five years after the date of their preparation.

Implementation and delivery plan

12. Devolved Administrations are responsible for ensuring implementing Regulations are in place to meet the various deadlines for mapping and action planning set out in the END.

Post-implementation review

13. The End will be formally reviewed in 2009 after the first round of noise maps and action plans have been completed. This could result in changes to the approach required to implement the second round of mapping and action planning.. It is also envisaged that a review of the designated competent authorities will take place.

Summary and recommendation

14. On the basis of the results of this RIA, the Scottish Executive recommends Option 3, mapping by computer-based noise modelling, for the implementation of the Environmental Noise Directive.

14.1 Noise mapping and the preparation of action plans would improve the way that expenditure on controlling noise is targeted. It has not been possible to quantify this benefit but, as current expenditure on noise control is large, it could be substantial.

14.2 Of the technical options – mapping by computation or by measurement – the former would be the most cost effective and useful. It is a less resource intensive method of collecting data and enables information to be gathered separately for the four sources of noise, as required by END. The estimates of costs using computer-based modelling are far lower than by individual measurement. Furthermore, the costs of mapping by computation are likely to fall in the future, as data acquisition and management becomes more consistent across the organisations involved in the strategic mapping process.

14.3 The proposition that the Scottish Ministers be designated the competent authority will minimise the organisational costs by avoiding duplication and ensuring consistency of the data collected. The impact on business will also be minimised as most of the cost will fall on the Scottish Ministers.

Table 6 – Summary of UK costs and benefits for the proposed options

Option	Costs	Benefits
Option 1: Do nothing	<ul style="list-style-type: none"> No costs (initially). 	<ul style="list-style-type: none"> Some mapping is already being undertaken. Directive requirements will not be met.
Option 2: To undertake mapping to meet the requirements of the END in 2007 and 2012, deriving the maps from <u>individual measurement</u> .	Considerable costs and much greater than option 3. For example, a 2000 noise mapping project within the City of Birmingham cost £211, 000 using computer-based modelling. The equivalent cost for mapping using individual measurement is estimated at >£900M	<ul style="list-style-type: none"> Mapping by measurements could be used in principle. Would be too resource intensive and approach would not satisfy all the END's requirements.
Option 3: To undertake mapping to meet the requirements of the END in, deriving the maps from <u>computer-based noise modelling</u> .	<ul style="list-style-type: none"> Total costs 2007-08 – £15,299,000 	<ul style="list-style-type: none"> Meets the END's requirements at least cost. Designating the Scottish Ministers as the competent authority avoids duplication of resources and ensures consistency in the mapping.

Declaration and publication

I have read the regulatory impact assessment and I am satisfied that the benefits justify the costs

Signed

Date

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