

**Environmental Noise Directive**

**Action Plan Summary**

**STRATEGIC NOISE ACTION PLAN  
SUMMARY FOR THE GLASGOW  
AGGLOMERATION**

Prepared by the Glasgow Agglomeration Working Group

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## **1. Introduction**

This document is the summary of the Glasgow Agglomeration Action Plan and is submitted to the European Commission in accordance with Article 10.2 Annex VI 1.8 & 2.8 of 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.

The format of the summary follows the requirements of Appendix V of the directive.

Noise mapping and action planning are a new venture for the Scottish Government and the approach we have taken is evolving. Action Planning is seen as a process rather than an end point. The approach is multi-disciplinary, drawing on our experience of Air Quality Directives, involving many key partners, professions, and expertise. It is our intention to continue with this approach as we move to the implementation phase.

## **2. A description of the agglomeration, the major roads and major railways taken into account.**

Glasgow and the Clyde Valley have a population of 1.75 million and covers 3,376km<sup>2</sup>, encompassing the whole of the River Clyde catchment. 48% of Scotland's exports are produced within the area, making it critically important to the national economy.

Glasgow and the Clyde Valley is predominantly a lowland area surrounded by hill ranges and in recent times the area has experienced the same trends as the rest of Scotland where urban development has the biggest impact on the environment. This urban growth is projected to continue.

The GCV Area includes several landscapes that are recognised as being of national and regional importance including parts of the Loch Lomond National Park, the Campsie Fells, the Clyde Muirshiel Regional Park and the Southern Uplands.

Glasgow's network of green spaces (3,870ha) accounts for over 20% of the City's total area. The network consists of public parks, amenity open spaces, countryside areas, two local nature reserves, over 30 sites of City-wide importance for nature conservation and around 40 sites of local importance. The 1,790 listed buildings in the City represent the principal elements of Glasgow's architectural heritage. The City also has 19 conservation areas, which extend over 1,423 ha, each containing its own distinctive character.

Trips between Glasgow and the corridors account for 26 per cent of the total trips, with the largest proportion, 69 per cent, made up of trips within the city itself. The remaining five per cent consists of trips between corridors across Glasgow.

The Glasgow and Clyde Valley Joint Structure Plan 2000 as amended in 2006 and detailed in Section 6, has delivering sustained growth as the primary aim, with shared targets for integrating land use and transportation as a key indicator. It is only by integrating this END Noise Action Plan in with local and regional structural and transport plans will noise control be afforded similar priorities to air quality management.

## **3. The authority responsible.**

The Scottish Government is the Competent Authority for END and is responsible for drawing up Noise Action Plans except in the case of Airports where the Airport operator is the Competent Authority. In the development and preparation of the Noise Action Plans, the Scottish Government has worked with key partners involved in END.

The key stakeholders/partners who were involved in this one Action Plan are as follows:

- The Scottish Environment Protection Agency (SEPA)

- East Dunbartonshire Council
- East Renfrewshire Council
- Glasgow City Council
- North Lanarkshire Council
- Renfrewshire Council
- South Lanarkshire Council
- West Dunbartonshire Council
- Regional Transport Partnerships
- BAA Glasgow,
- Transport Scotland
- Network Rail
- For qualifying Airports, the airport operators are responsible for drawing up their own Noise Action Plans.
- Scottish Government consultants: Hamilton & McGregor now part of Faber Munsell.

BAA have worked very closely with the Scottish Governments' consultants to produce the required noise maps and have been fully involved in the Action Plan process in terms of both producing Action Plans for Glasgow and the Glasgow Agglomeration Noise Action Plan.

#### **4. The legal context.**

The regulations which transpose the Environmental Noise Directive in Scotland are [The Environmental Noise \(Scotland\) Regulations 2006](#). The regulations came into force on 5<sup>th</sup> October 2006 and apply to environmental noise to which humans are exposed, in particular in built up areas, public parks or other quiet areas in an agglomeration, near schools, hospitals, and other noise sensitive buildings and areas. The regulations apply to noise from road railway and airport sources, as well as industrial noise. The regulations do not apply to noise that is caused by the person exposed to the noise, noise from domestic activities, noise created by neighbours, noise at work places, or noise inside means of transport or due to military activities in military areas.

Noise from domestic activities or noise created by neighbours can be dealt with under the Environmental Protection Act 1990 and Antisocial Behaviour etc. (Scotland) Act 2004. Part 5 of the Antisocial Behaviour etc. (Scotland) Act 2004 contains provisions in relation to antisocial noise and in particular gives local authorities additional powers to tackle the problems of domestic noise in dwellings. Noise exposure at work is governed by the Control of Noise at Work Regulations 2005 and noise from construction sites is controlled by the Control of Pollution Act 1974. Further information on the legislation referred to here can be obtained from; [http://www.scotland.gov.uk/about/ERADEN/EcolAU/00017824/nlr\\_rpt.pdf](http://www.scotland.gov.uk/about/ERADEN/EcolAU/00017824/nlr_rpt.pdf).

Details of Draft Noise Management Guide Guidance on the Creation and Maintenance of Effective Noise Management Policies and Practice for Local Authorities and their Officers in Scotland can be obtained from; <http://www.scotland.gov.uk/Resource/Doc/77843/0018687.pdf>.

At present where noise from a new or altered road exceeds a certain trigger level, and meets other qualifying criteria, the Land Compensation (Scotland) Act 1973 provides for insulation work to be carried out or a grant to be made in respect of that insulation work. "Altered" road is defined within the Noise Insulation (Scotland) Regulations 1975 (NISR). Under the NISR, the Land Compensation (Scotland) Act 1973 also confers a right to compensation for depreciation in the value of land caused by public works. Public works do not include aerodromes.

Noise from lawful use of existing roads and railways cannot be construed as a noise nuisance in terms of the Environmental Protection Act. Noise from new roads and new railways may also be controlled by conditions attached as part of the Parliamentary Bill process.

The railway equivalent of the NISR is the Noise Insulation (Railways and other Guided Transport Systems) Regulations 1996. However, the provisions of the 1996 Regulations, which came into force under the Land Compensation Act 1973, do not extend to Scotland.

Noise from aircraft in flight is not treated as nuisance. Ground noise, other than normal aircraft movements, at the airport may be controlled by the local authority.

The Scottish Government also issues planning guidance in respect of various noise related issues in the form of planning advice notes such as Planning Advice Note 56 "Planning and Noise" and Planning Advice Note 50 "Controlling the Environmental Effects of Surface Mineral Working, Annex A: The Control of Noise at Surface Mineral Working." In more general terms Planning Advice Note 51: Planning, Environmental Protection and Regulation supports the existing policy on the role of the planning system in relation to the environmental protection regimes. As part of the Action Plan, PAN 56 will be revised to align with the Action Planning Process.

An environmental impact assessment is required for a large range of projects which are likely to have significant environmental effects. Noise emissions are one of the impacts which have to be considered and, if relevant, measures to mitigate the effects should be proposed. The implementation of the mitigation measures are a matter for the consenting procedure and the responsible authority.

Industrial noise for Part A process (as defined within the Pollution Prevention and Control (Scotland) Regulations 2000) is controlled through The Pollution Prevention and Control (Scotland) Regulations 2000 (the PPC Regulations). These regulations designate the Scottish Environment Protection Agency (SEPA) as the 'Regulator' responsible for enforcing the regime.

As part of its role as regulator, SEPA produces guidance for use in enforcing the PPC Regulations. SEPA has produced guidance on the control of noise at PPC installations, which will be used when considering applications for, and inspections of PPC installations. For non Part A processes the control of noise is exercised by the relevant local authority.

From the above it is clear that there are existing controls in respect of operational industrial sources, but at present controls over operational transportation sources are limited to the Motor Vehicles (Construction and Use) Regulations and BS3425 which although they provide a degree of control over excessive exhaust noise they provide a limited solution to the problem. The preparation of noise mapping and action plans affords an opportunity to inform policy on such matters.

It is important that the Action Planning process takes into account the existing legislative and guidance framework that exists within Scotland.

**5. Any limit values in place in accordance with Article 5.**

None

**6. A summary of the results of the noise mapping.**

All member states were required to produce agglomeration strategic noise maps for major roads, rail, airports, and industry (including port area if appropriate) by the end of June 2007. The Scottish Government met this target and the data, as required under Article 10(2) of the Environmental Noise Directive (2002/49/EC), was submitted by the Scottish Government on the 19th December 2007 to the European Commission.

A summary of the population exposure from noise sources covered by the Directive is presented below for the Glasgow Agglomeration.

Noise Source / Noise Level	L <sub>den</sub> >= 55 (dB)	L <sub>den</sub> >= 65 (dB)	L <sub>den</sub> >= 75 (dB)
<b>All Mapped Roads Within Glasgow</b>	533,800	171,100	3,900
<b>Major Roads Glasgow</b>	261,200	65,800	3,300
<b>All Mapped Railways Within Glasgow</b>	123,400	30,000	2,300
<b>Major Railways Glasgow</b>	44,200	10,700	200
<b>Industrial Glasgow</b>	316,100	64,700	700
<b>Glasgow Airport (Inside the Agglomeration)</b>	63,500	400	0

Glasgow Airport (Outside the Agglomeration)	0	0	0
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## 7. An evaluation of the estimated number of people exposed to noise.

It is important to remember that the noise maps are strategic and present the information in terms of 5dB noise contours. The maps produced show an average noise level for an average day in the year calculated on the basis of a 10m grid at a height of 4m above ground. They should not be taken to be fully representative of all local circumstances for example, localised garden walls and fences are not taken into account.

As a first step in applying the information obtained by mapping the agglomeration, it was decided that in order to select appropriate Candidate Noise Management Areas it would be necessary to introduce a prioritisation methodology. It was recognised that analysing the noise contours alone would not necessarily achieve this. This need for prioritisation resulted in the development of the Source Prioritisation Scores (SPS) which are described at appendix 2 of the Action Plan. This prioritisation is seen as making the cost benefit analysis an integral part of the Action Planning process.

The prioritisation methodology is summarised in the next section.

## 8. Identification of problems and situations that need to be improved.

In order to identify areas that may require noise intervention or management, in what order and by what process a prioritisation matrix was developed. In line with the aim of Article 1 of the directive, the prioritisation matrix has been developed to evaluate strategic noise levels within the first round noise maps in terms of the road and railway sources. A full description of the methodology is given in section 4 and Appendix 2 of the Action Plan. The prioritisation will enable appropriate actions to be determined on the basis of a consideration of noise levels, the number of people potentially affected and the annoyance response to road, railway and aircraft noise. The prioritisation matrix identifies areas where the predicted noise levels are most likely to cause annoyance to people potentially affected. The prioritisation enables appropriate actions required to be determined on the basis of a consideration of noise levels, the number of people potentially affected and the annoyance response to road and railway noise.

The matrix developed is straightforward, transparent, and consistent. Although the matrix provides a focus for action planning, a reality check on the strategic noise levels, all matrix input data and any proposed interventions prior to the implementation of any suggested actions is essential. This reality check will, in essence, be the first step in the action planning process.

The derivation of the Prioritisation Matrix is fully explained in Appendix 2 of the Action Plan, however in summary the resultant Source Prioritisation Scores (SPS) takes into account the predicted noise contours at each building, the number of people assumed to live in each building and the annoyance response relative to the transportation source in question. The SPS for road and rail is based on the roads and railways being segmented into 100m sections. For each of the 100m section of road or railway every building within the segment is assigned a score based on the predicted noise level, number of people living in that building and the annoyance response; these scores are known as Building Prioritisation Scores (BPSs). Every building (with its associated BPS) then effectively assigns itself to whatever 100m road/ rail section is the closest to it and each of the BPSs within that segment is logarithmically summed to give a resultant SPS.

All the SPSs then require to be prioritised in a manageable list for consideration in the action planning process. Whilst it is clearly desirable to start with the sources which have the highest SPS the question of "how high does the SPS have to be before consideration is given in the first round of actions?" arose. Therefore a basic statistical analysis of the SPSs was undertaken and it was found that the top 1% of SPSs (normally distributed) corresponded to the mean SPS plus two standard deviations. Consequently, following consultation with END working groups it was decided to identify the top 3% of road and railway network in terms of the top three 1% bands with the top 1% being

colour coded red, the next 1% colour coded amber, the next 1% colour coded green and the rest colour coded as grey/black.

Following the process described, 53 Candidate Noise Management Areas (CNMAs) have been identified within the Glasgow agglomeration. 42 of these are associated with road traffic and 11 with railway noise. Each of these areas will be examined in more detail prior to any decision to promote it as a Noise Management Area (NMA).

The Candidate Noise Management Areas can be seen on the maps accompanying the Action Plan. It should be noted that the areas are deliberately not precisely defined. This is because the manner in which CNMAs have been identified is based upon the strategic noise contours and other data, such as population figures, which is less certain at a local level. Additionally, some data can only be gathered from an on site investigation. Any actions that might be taken, in the event that a CNMA is promoted to a Noise Management area, may extend beyond a specific contour line.

It is anticipated that certain areas will not become Noise Management Areas for various reasons. It was however decided to include all the areas identified at this stage for the sake of completeness and transparency.

During implementation of the Action Plan, a review process will be applied to each CNMA to determine whether it should become a Noise Management Area (NMA). To support this review process, separate Technical Guidance will be provided. The Technical Guidance will also assist the key organisations and their stakeholders in addressing the technical detail of the Noise Action Planning process.

## **9. A record of the public consultations organised in accordance with Article 8(7).**

The Glasgow Agglomeration Action Plan is one of 6 plans which have all been the subject of consultation under the Environmental Noise Directive. The Transportation Action Plan, the Edinburgh Agglomeration Plan and the Plans for Edinburgh Aberdeen and Glasgow Airports are also published on the Scottish Government website and on the Scottish Noise mapping website. Consultations relating to the Directive are summarised below;

**16 November 2005** Publication of research by Consultants Hamilton &McGregor Acoustics Division to inform the strategic noise mapping process required under the terms of the Directive. [This research](#) identified where the process of data handling can be automated with minimal manual intervention.

**9 March - 1 June 2005** A [consultation](#), supported by a partial Regulatory Impact Assessment, sought views from all stakeholders with an interest in environmental noise issues on proposals to transpose and implement Directive 2002/49/EC on the assessment and management of environmental noise.

**September 2006** Series of workshops and brainstorming sessions held, with interested stakeholders, to inform Action Planning process.

**24 August -12 October 2007** [Consultation](#) on Noise Action Planning Guidance, sought views from all stakeholders on our approach to Noise Action planning and responses to this document were generally supportive. It is considered that the Action Plans follow the Guidance issued.

**September 2007** Noise Conference held to Discuss noise maps and Action Planning process.

**25 May - 21 July 2008** draft plans were the subject of a public consultation.

**22 October - 19 December 2008** The plans were subject to a Strategic Environmental Assessment which also covered the airport plans.

Responses to the consultation documents have been published on the Scottish Government website. Consultation exercises have been accompanied by press releases and media interviews by the Scottish Government, its partners and its consultants in order to raise awareness of the issues.

## **10. Any noise-reduction measures already in force and any projects in preparation.**

These measures are identified in Section 6 of the plan and are reported separately. See DF 7  
It is important to note that The local authorities have been proactive in managing noise for many years and current good practice has been established over the past 30 to 40 years. In particular Environmental Health Officers responsible for the enforcement of noise and nuisance legislation have developed good working relationships with planning, and transport professions within the local authorities in order that Environmental Noise issues are addressed directly and/or indirectly through:

- the Planning and Development Management process
- the design and maintenance of transport infrastructure, road and rail
- Air Quality Action Plans
- Regional Transport Strategies and Local Plans

## **11. Actions which the competent authorities intend to take in the next five years, including any measures to preserve quiet areas.**

The Action Plan process requires, a review process to be applied to each CNMA to determine whether it should become a Noise Management Area (NMA). To support this review process, separate Technical Guidance will be provided. The Technical Guidance will also assist the key organisations and their stakeholders in addressing the technical detail of the Noise Action Planning process.

For quiet areas a similar review will be undertaken. Candidate Quiet Areas will be subject to a review process and separate Technical Guidance will be provided which will assist the key organisations and their stakeholders in addressing the technical detail of the Noise Action Planning process.

### **Potential Actions**

It is important to note that the potential actions listed below are relevant to the Transportation Action Plan and indeed the potential actions contained in the Transportation Action Plan are equally relevant to this plan.

- Consideration should be given to the benefits of replacing the road surface with a low noise surface when the road is next due for resurfacing. Further research should be encouraged into the comparative benefits of different surfaces.
- Consider asking EU/ Defra to carry out further annoyance research
- Consideration should be given to the possibility of reducing the number of vehicles / HGVs using this stretch of road.
- Consideration should be given to the possibility of reducing the speed limit on this stretch of road.
- Consideration should be given to the construction of a barrier along this stretch of road/rail
- Any further construction of noise sensitive developments in this area / along this stretch of road should be afforded protection from noise using a noise reduction technique appropriate to the design.
- Consideration should be given to updating the Local Transport Strategy to include transport noise and noise reduction as explicit objectives in the next review of the transport strategy
- Consider how the objectives of the Strategic Noise Action Plan may need to be reflected in development plans and/or relevant supplementary planning guidance.
- Consideration should be given to expanding the Scottish Noise Mapping Website to include clear guidance as to when members of the Public affected by noise should contact their Local Authority and when they should contact SEPA in relation to noise from industrial and port areas.
- Keep in place the working group so that it can co-ordinate the taking forward of the Action Planning Process.
- Air Quality Action Plans should take into account noise e.g. when redirecting traffic.

The following recommendations concern possible improvements to the noise model. Any potential improvements to the model will have to be evaluated in conjunction with the Scottish Governments noise mapping contractors to establish if they are practical, feasible and worthwhile. For example

some data requirements can push the limits of available technology and have implications for processing time.

- Consideration should be given to how the data used in the model can be improved in ways that will increase the accuracy of the maps in future years. This should be consistent with any developments on noise mapping developed within the EU.
- Consideration should be given to improving the data available on road surfaces within the agglomeration in order to improve the accuracy of the model.
- Consideration should be given to improving the data available on night time noise in order to give a more accurate  $L_{\text{night}}$  and therefore  $L_{\text{den}}$ .

#### **Intervention Types**

- Reduce speed limits
- Limit numbers of vehicles
- Limit time of day vehicles have access
- Restrict certain types of vehicles
- Redirect vehicles
- Reduce volume of traffic (encouraging modal shift etc)
- Use low noise road surface
- Introduce speed control measures e.g. chicanes, narrow roads, road markings, bends, Changing vehicle priority.
- Introduce a barrier
- Require the use of low noise tyres ( national / international support & research needed)
- Variable speed limits (related to time of day)
- Through EC press for quieter vehicle requirements e.g. exhaust noise limits, quieter tyres, further research into low noise road surface
- Consider locating taxi ranks / bus stops away from residential property
- Consider location of pedestrian crossings, with due regard to road safety

## **12. Long-term strategy.**

The current working group system has proved effective in developing this action plan. The group will continue in order to facilitate implementation and the development of future plans following the required 5 yearly review of the noise maps.

## **13. Financial information (if available): budgets, cost-effectiveness assessment, cost-benefit assessment.**

This prioritisation matrix fully described in the action plan is seen as making the cost benefit analysis an integral part of the Action Planning process.

During implementation of the Action Plan, a review process will be applied to each CNMA to determine whether it should become a Noise Management Area (NMA). To support this review process, separate Technical Guidance will be provided. The Technical Guidance will also assist the key organisations and their stakeholders in addressing the technical detail of the Noise Action Planning process

Prior to any CNMA being promoted to a NMA it will be subject to detailed scrutiny. In so far as is reasonably practical efforts will be made to ensure that noise contours are accurate and the numbers of people believed to be affected are correct. Where the CNMA status appears to be inaccurate either as a result of erroneous data or where local topography and design have reduced the number of people affected then the area will not be promoted to a NMA. The potential remedial actions will be the subject of a cost benefit analysis.

**14. Estimates in terms of the reduction of the number of people affected (annoyed, sleep, disturbed, or other).**

There are a number of strategic policies that have the potential to affect the whole agglomeration and consequently the whole population. However, within the Candidate Noise Management Areas it is estimated that approximately 29,300 people will be affected by any measures that may be taken to manage environmental noise.

**15. Provisions envisaged for evaluating the implementation and the results of the action plan.**

The Action Plan will be evaluated and reviewed in accordance with the 5 year cycle as required by the directive and as outlined in the flow chat in appendix 2