

Designation of 'Quiet Areas'

Under the Environmental Noise Directive 2002/49/EC several responsibilities were introduced that member states were required to adopt. Under the Environmental Noise Directive the Environmental Noise (England) Regulations 2006 were introduced. These require the competent authority, the Secretary of State for Environment, Food and Rural Affairs, to conduct noise mapping of certain urban areas. Noise maps have been produced by the Department for Environment, Food and Rural Affairs (Defra). The purpose of the maps is to monitor the environmental problem of noise and to assess the number of people annoyed and sleep disturbed throughout Europe (EUROPA 2008). The maps are intended to inform the production of Noise Action Plans. The Noise Action Plan for the Brighton agglomeration was produced in March 2010 (Defra) and includes information on identification and management of Quiet Areas and gives a timetable of progress. The Environmental Noise (England) Regulations 2006 as amended, Regulation 13 (1) and Regulation 15 (1) (c) provide the formal legislative basis that require Action Plans include provisions with the intention to protect any formally identified Quiet Areas in the agglomeration from an increase in noise (Defra, 2010).

Brighton and Hove City Council were approached by Environmental Protection UK and Defra in 2011 to develop an assessment method for the identification of Quiet Areas within urban locations. A project was conducted to establish a method for identification and designation of quiet areas. This involved collecting primary data by carrying out noise measurements at 11 identified locations across the Brighton Agglomeration (as defined in the Action Plan) and using supporting data in the form of face to face interviews, an on-line survey and soundscape notations.

Policy context

Environmental Noise Directive (END)

Defra (2005) reported that Local Environmental Quality Minister Ben Bradshaw announced that Defra has commissioned research to map out noise levels along major roads and in over 20 major towns, cities, and regions across England, as part of its Noise Mapping England project, itself a stage in the development of a 'National Ambient Noise Strategy for England'. This essentially was the beginning of noise mapping in England as a result of the Environmental Noise Directive.

The Environmental Noise Directive (END) was implemented by the European Union following the development of a European Union Noise Policy based on the Noise Policy Green Paper from 1996 (Brueel and

Kjaer 2001). Under the terms of the END a programme of actions on noise is set out for member states (Environmental Protection UK 2008).

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 known as the Environmental Noise Directive gives four main objectives:

- Monitoring the environmental problem; by requiring competent authorities in Member States to draw up "strategic noise maps" for major roads, railways, airports and agglomerations, using harmonised noise indicators *Lden* (day-evening-night equivalent level) and *Lnight* (night equivalent level). These maps will be used to assess the number of people annoyed and sleep-disturbed respectively throughout Europe.
- Informing and consulting the public about noise exposure, its effects, and the measures considered to address noise, in line with the principles of the Aarhus Convention.
- Addressing local noise issues by requiring competent authorities to draw up action plans to reduce noise where necessary and maintain environmental noise quality where it is good. The directive does not set any limit value, nor does it prescribe the measures to be used in the action plans, which remain at the discretion of the competent authorities.
- Developing a long-term EU strategy, which includes objectives to reduce the number of people affected by noise in the longer term, and provides a framework for developing existing Community policy on noise reduction from source. With this respect, the Commission has made a declaration concerning the provisions laid down in article 1.2 with regard to the preparation of legislation relating to sources of noise (EUROPA 2008).

The competent authority as referred to above for England is the Secretary of State for Environment, Food and Rural Affairs.

The Environmental Noise Directive (END) aims to complement the EU objectives of *"achieving a high level of protection of the environment and health achieving a common understanding of the noise problem"* within Member States (MS) through an assessment of major noise sources associated with transport and industrial activity, and then through the *"adoption of action plans by Member States"*. In order for this to be achieved, the Directive recognises the need to augment the current *"lack of reliable, comparable data regarding the situation of*

the various noise sources" by undertaking an assessment of environmental noise exposure (Defra, 2005).

European Working Group guidance

The working group guidance (2006) suggests that 'quiet' could be described by a value of L_{den} or by another appropriate noise indicator, which has to be defined by the Member States. As discussed the use of an indicator as an absolute level may not be appropriate and it is necessary to consider other factors. Within appendix 3 the working group recommend that plans to protect quiet areas against noise increase should be included in any action plans produced under the requirements of the END.

European Environment Agency Good Practice Guide

This technical guide (European Environment Agency 2010) is intended to be used by policy makers and competent authorities to meet the requirements of the END. The guide makes specific reference to quiet areas and suggests that perhaps one of the aims of an action plan would be to identify and quantify the number of people who benefit in terms of annoyance or improvement of the quality of the living environment. The development of 'Annoyance Maps' along with noise maps is also suggested as a way of adding a meaningful dimension to any action plan.

END Implementation Report

A small section is presented on quiet areas within the European Commission Implementation Report (2011). The report states that quiet areas make a beneficial contribution to public health, particularly for people living in noisy city areas. The report acknowledges that the END provided discretion to the Member States to produce action plans and introduce specific measures to protect quiet areas. The report recognises that the consequence of this discretion led to very conflicting approaches across the EU. The report states the majority of Member States designated quiet areas in agglomerations, many have not yet done so in open country.

Policy Drivers and Legislative background England

Noise Policy Statement for England

The Noise Policy Statement for England (Defra 2010) provides three aims to support the long term vision of '*Promote good health and a good quality of life through the effective management of noise within the context of Government policy on sustainable development.*' The

third aim seeks to improve health and quality of life through pro-active management of noise while considering sustainable development principles. This aim specifically relates to quiet areas stating '*protection of quiet places and quiet times as well as the enhancement of the acoustic environment will assist with delivering this aim.*'

The Natural Environment White Paper

The white paper titled The Natural Choice – securing the value of nature (Defra 2011) provides a series of commitments from the authors. It is recognised that for many people, a sense of tranquillity contributes to their enjoyment of the natural environment. The following commitment is detailed in the document and specifically relates to quiet areas:

- We will work with local authorities to establish mechanisms for formally identifying and protecting urban Quiet Areas, so that people living in cities can benefit from access to areas of relative quiet for relaxation and contemplation.

National Planning Policy Framework

The Department for Communities and Local Government (2012) state that planning policies and decisions should aim to identify and protect areas of tranquillity. Areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason. It should also be noted that the National Planning Policy Framework also includes the provision for designating land as Local Green Space local communities will be able to rule out new development other than in very special circumstances. It may be that these two aspects of the framework combined would assist in the identification and designation process of quiet areas.

Public Health Outcomes Framework

The Department of Health (2012) document provides a series of indicators for public health. Noise is considered as one of these being identified as a 'placeholder' indicator – having regards to the number of complaints received per local authority and the proportion of the population exposed to transport noise levels.

Public Health White Paper

This paper Healthy Lives, Healthy People: Our strategy for public health in England (Department of Health 2010) comments that the quality of the environment around us also affects any community. The paper makes reference to the importance of noise and the availability of

green and open spaces, amongst other factors, as influencing the health and wellbeing of the local population.

Joint Strategic Needs Assessment - BHCC

Section 6.4.10, titled Noise Pollution, of the Joint Strategic Needs Assessment Summary 2012 states:

'The Noise Action Plan for the Brighton Agglomeration was produced by Defra in 2010. This identifies priority areas for action. The City Council have trialled a "Noise Action Plan Support Tool" & reported the findings to Defra.

In response to the noise maps, the City Council are currently working with Environmental Protection UK & Defra advisors on designating some local open spaces as 'quiet areas'.'

Equality and Inclusion Policy - BHCC

Quiet areas policy can also be linked to BHCC's Equality and Inclusion Policy (2012) which replaces the Single Equality Scheme which intends to provide better access to public spaces.

Quiet Areas

The need for Quiet Areas

In 1996, the European Commission published a Green Paper on Future Noise Policy. The paper claimed that around 20% of the population of the European Union, i.e. 80 million people, suffer from environmental noise levels that health experts and scientists consider unacceptable. A further 170 million people live in so-called grey areas, where noise levels are such as to cause annoyance during daytime (Penn 2002).

With increased traffic levels on roads, rail and in the air some areas are experiencing more noise – which is reaching levels that could affect our quality of life and health. The European Union (EU) adopted legislation which aims to avoid, prevent or reduce, on a prioritised basis, harmful effects due to exposure to environmental noise - the Environmental Noise Directive (END) (Environmental Protection UK 2010).

Nelson (1987) comments that research has consistently shown that transportation noise not only affects the users of transportation systems but also affects the quality of life and activities of people when they are passive observers of the transportation process. By comparing the reactions of people living in different types of noise environments it is found that high transportation noise levels are associated with adverse effects on communities.

Cridland (2007) reports that Environment Minister Jonathan Shaw said “Noise is an inescapable fact of modern life but we need to do what we can to manage it. A great deal has already been done to reduce noise from transport and industry but we need to build on and continue this work. These maps are part of that process and will enable us to better understand noise and deal with it.”

Defining Quiet and Quiet Areas

Research in the UK in defining and identifying quiet areas has principally been conducted to assist with the requirements under the Environmental Noise Directive (Directive 2002/49/EC) which defines quiet areas as being:

"quiet area in an agglomeration" shall mean an area, delimited by the competent authority, for instance which is not exposed to a value of L_{den} or of another appropriate noise indicator greater than a certain value set by the Member State, from any noise source.

"quiet area in open country" shall mean an area, delimited by the competent authority, that is undisturbed by noise from traffic, industry or recreational activities.

This definition is broad and as such has been interpreted by different researches in different ways. In the paper produced by Botteldooren and De Coensel (2006) it is stated that a quiet area is generally defined as an area that is quieter than the surrounding region and has a psychological restoring effect on people visiting it. Although this statement is provided as a general definition by the authors it is also acknowledged that a clear and objective definition of what

constitutes a quiet area and how its quality can be assessed has not been developed.

Morgan et al. (2006) determine that research into defining, identifying and appreciating the benefits of preserving quiet or relatively Quiet Areas in urban areas covers an array of fields including health, physical and psycho-acoustics, environmental psychology. The authors continue to comment that an important aspect of the research carried out into Quiet Areas has been to establish the positive effect natural sounds have on health and well-being.

As identified in the report produced by the Symonds Group in 2003 'quiet' implies the absence of sound indicated by low noise levels and having regard to this it would be fair to assume that it should be possible to describe and define a quiet area using purely acoustic terms and quantities. However, the authors continue to comment that if the purpose of quiet areas is to provide areas that act as peaceful places that are areas for users to relax and enjoy there will be the requirement to consider other environmental qualities, such as land use or visual attractiveness, into the description of the area. The authors summarise by questioning whether a broader concept should be considered in terms of quiet areas and if so the process of defining and assessment such areas would need to encompass other important factors that might contribute to the overall perception of an area.

The URS/Scott Wilson (2011) report provides information on approaches taken to identify quiet areas and separates these into the following four categories:

- Quantitative methods based on noise levels – using measured and/or predicted levels and relate to absolute or relative quiet.
- Quantitative methods based on location or distance from major noise sources
- Subjective methods based on users identification with the use of quiet areas
- Subjective methods based on audibility of acoustic features, natural sounds

Having regard to the above approaches for the purposes of the project URS/Scott Wilson suggest the use of a subjective definition of quiet (as this is often left open to the respondents interpretation) and propose the following key defining points:

The sound quality test – natural sounds are audible and not masked by man-made sounds

The relatively quiet test – the area is noticeably less noisy than its surrounding areas

Potential use – an area users choose to visit due to its quiet nature

Potential use – an area used for quiet activities

In 2008 Scott Wilson, commissioned by Westminster City Council undertook a tranquillity study of 20 open spaces within the area of Westminster. The study developed a tranquillity rating system using both questionnaires and acoustic measurements. Overall no strong correlation between tranquillity score and noise level was seen. Analysis of the findings showed that positive visual factors are of equal or greater importance than noise factors when defining tranquillity. This research reinforces the importance to consider factors other than quiet when assessing and identifying quiet areas.

The European Commission's Working Group – Assessment of Exposure to Noise (WG-AEN) (2006) recommends that, whilst it is recognised that a quiet area in an agglomeration could be determined by an indicator such as Lden, other criteria may need to be used. In addition, it may be that the use of absolute levels, in any indicator, is not appropriate for the assessment of quiet areas. It is apparent that the European Commission acknowledge that acoustic measurements need to be considered in conjunction with other factors.

Selection of suitable areas

Initially 9 areas were selected, these were identified geographically with the assistance of the project group and the Parks and Countryside Manager at BHCC. A variety of areas were purposely selected to provide some very urban areas and others more rural.

The following open spaces were initially selected:

Duke's Mound – opposite Volks railway stop
 Easthill Park Portslade – walled garden – Green Flag
 Kipling Gardens – Green Flag
 Preston Park – walled garden – Green Flag
 Queens Park – quiet garden
 Royal Pavilion Gardens – bench near to New Road (mixed use space)
 Saunders Park – community garden area
 St Nicholas Church Gardens – play park and community garden section
 Withdean Park – bog garden

Following assessment of the online survey two further spaces were identified for assessment.

Preston Park – rose garden – Green Flag
 St Ann's Well – sensory garden – Green Flag

Methodology

Bottledoren (2012) proposes a model of a combination of three dimensions: mental worlds - sensory input – physical world that he names Triangulation to measure soundscape:

- 1- measuring persons - questionnaires, surveys
- 2 -measuring with people in place - analyses of narrative, deep interview
- 3- measuring sound - recording, acoustic measuring

Following recognition both the above method and of previous research methods undertaken in similar studies, three methods were selected.

Online survey – an online survey was developed by Environmental Protection UK using Survey Monkey with input from all other project partners. The aims of the survey were to find out why people in Brighton and Hove visit open spaces, which open spaces visitors and people living and working in the city visit for quiet and their views on quiet space in the city. Questions were linked as much as possible to the face-to-face surveys as well as to the policy relating to the research.

Face-to-face survey/interviews – the face-to-face survey was developed by project partners using surveys previously used in research on quiet areas – including a 'Value of Quiet' survey that was used in Westminster. Adjustments were made following a small trial. It was developed having regard to the fact that the majority of the surveyors were volunteers. The survey aimed to determine people's reasons for visiting a particular open space, how they perceived any noise and sound affecting it, and how this impacted on their enjoyment of the space. A copy of the survey and explanatory notes can be found in appendix 2.

Noise monitoring (including soundscape assessment) – static measurements to provide a level within the area and a walk round monitoring route to give an understanding of the levels that users may be exposed to when approaching the area. The main purpose of the measurements was to benchmark the subjective findings from public surveys. During static monitoring constant note taking of the soundscape heard was recorded.

Results

Online Survey

- There were areas identified by open space users that were not considered in the project

- Three main reasons people visit open spaces in Brighton and Hove are, in descending order of importance:
 1. Exercise/fitness
 2. Connection with nature
 3. Escape hustle and bustle
- Although not identified as one of the main reasons, almost 90% of respondents visit an open space or park in Brighton and Hove to find peace and quiet.
- Some open spaces are considered very special despite small numbers of respondents.
- The top 5 open spaces considered, by respondents, to be the most special are:
 1. Hollingbury and Bursted Woods
 2. Undercliff Walk
 3. St Ann's Well Gardens
 4. Kipling Gardens
 5. Queens Park
- The majority of respondents were female and in the age group 35-50 years
- Most respondents lived within the Brighton Agglomeration area

Face-to-face Surveys

- The most likely reasons of importance for people to visit open spaces are connection with nature, visual appeal and escape from hustle/bustle.
- The most common factors to spoil enjoyment in open spaces are verbal abuse/physical threat, litter and smell.
- Considering all areas together participants generally reside in locations that are quieter than the open space they choose to visit.
- Depending on the source of a noise people will tolerate noise in open spaces for differing durations, ranging from no time at all to 60 minutes.
- Most respondents feel that an area should be quiet for between 50-80 per cent of the time for it to be considered a 'quiet area'.
- Most of those asked regard quiet as being important to them all the time.

Noise Monitoring

- Royal Pavilion Gardens and Withdean Park demonstrate the largest sound level difference (18 dB(A)) between monitoring carried out within and outside of the areas.
- Monitoring carried out within and around Queens Park demonstrates that this area has the smallest change in recorded sound levels.

- Frequency data from all areas shows that a similar frequency range is recorded both within and outside the selected areas.
- The frequency data mainly constitutes low frequency noise likely to be traffic noise in all locations.
- The measurement method selected for the external walk round has been demonstrated to provide a representative measurement.

Soundscape

- In all areas traffic noise was audible
- Sounds specific to certain areas were present
- Seagulls were also heard in most locations

Conclusions

The areas that would be most suitable to be designated as quiet areas, having regard to all the information available would be Queens Park – Quiet Garden, St Ann's Well Gardens and Kipling Gardens as well as the potential for Royal Pavilion Gardens.

Having regards to the triangulation method identified by Botteldooren (2012) it is fair to comment that the assessment methods selected fit within this method. This method provides a good overall measurement procedure taking into account both subjective and acoustic measurement.

The triangulation method of assessment in relation to quiet areas provides a good overall measurement procedure taking into account both subjective and acoustic measurement.

This method could be implemented by other local authorities, and taking into account the limitations of the project, could be successfully implemented to identify and possibly determine quiet areas.

Acoustic measurements alone would not be suitable for identifying and assessing quiet areas.

Public engagement is essential to ensure that areas selected for investigation are used frequently.

Areas that may be acoustically quiet are not necessarily the ones that open space users visit for quiet.

The public engagement aspects of the project have led to a large amount of data that has been required to be interpreted, however, some of this has proved invaluable to the project.

The majority of respondents want to see a reduction in traffic noise affected the open spaces that were investigated.

Following consultation with the planning department at Brighton and Hove City Council it has been confirmed that quiet area and preservation of such areas will be considered within the next local planning policy document.

Quiet areas may not be the most suitable name to use for these open spaces, the definition provided in the END is not suitable.

Proposed areas

The research undertaken has demonstrated that many factors influence people's use of open spaces. Considering the information collected it would be fair to consider areas that users perceive as being peaceful/quiet/tranquil as those that should be considered as being designated as quiet spaces.

Queens Park – Quiet Area

There was confusion over the location of the selected area in Queens Park. The Quiet Garden was a very obvious choice for the project, however, some of the surveys undertaken were not carried out within this area. For this reason for the purposes of discussion it is considered appropriate to take into consideration the park as a whole.

Queens Park itself is made up of several separate areas, there is a playground, a large pond and a wild garden as well as the quiet garden. Ironically the quiet garden is located on the edge of the Queens Park adjacent to a residential road. Although the road is not especially busy, whilst undertaking monitoring and surveys it was noted that traffic noise was audible within the quiet garden. Many people visited the park do so for several reasons and it should be recognised that on several visits to the quiet garden there was a range of users observed including a family with small children and individuals reading books or doing yoga.

Queens Park was considered as the fifth most special area, out of 18 by the respondents of the online survey. This area ranks fairly high and out of the areas that were considered for the project purposes Queens Park is ranked third out of eleven.

The face-to-face survey results demonstrated that 82 per cent of those asked felt that the area was quiet most of the time. This is a high percentage and recognises that those who visit the area are aware of the quiet noise levels within it.

Noise monitoring carried out within and around Queens Park demonstrates that this area has the smallest change in recorded sound levels within and around the park. The level recorded within the area was the second lowest at 49 dB (A) and the external level monitored as 57 dB (A) equal lowest with Easthill Park.

Queens Park is a multifunctional area that can be used by a large range of various people for many different purposes. The quiet garden is already publicised as such and is therefore a place where people go to purposely seek peace and quiet. Considering this aspect and taking into account the above evidence obtained through the differing research methods Queens Park Quiet Garden should be considered for designation as a Quiet Area.

Kipling Gardens

Kipling Gardens are of historical interest and attract visitors for this reason. There are also two schools located nearby and on several occasions visiting the gardens school children and their parents were making use of the space. Kipling Gardens are located in the heart of the village of Rottingdean, on the outskirts of Brighton. The green space management of Kipling Gardens is excellent, having been observed by both surveyors and being mentioned within several survey responses. Kipling Gardens are made up of several areas contributing to the gardens as a whole.

Out of the 18 open spaces provided to online survey participants Kipling Gardens was considered as fourth most special and the second most special of the areas considered for the project. Half of the participants of the online survey considered this area to be very special. This was the highest percentage of all areas that were assessed for the purposes of the project.

Eight out of the 14 persons questioned commented that they are attracted to the area of Kipling Gardens because of quiet. The highest percentage of respondents, 71 per cent rated the sound quality of Kipling Gardens as being very good. One third of respondents felt that the area is quiet all of the time. These factors lead to the belief that quiet is especially important to the visitors of Kipling Gardens.

Kipling Gardens has a low monitored noise level within the open space, 49 dB (A) with a considerable higher external level monitored at 65 dB (A). Showing a fairly significant difference of 16 dB (A). The gardens are located at the centre of a one way system and although fairly low noise levels were recorded the soundscape recorded at the time of visits recognises that traffic noise is regularly noticeable.

Considering this open space is regarded as being particularly special by many participants and having regard to other quiet related aspects, Kipling Gardens is being considered as an open space suitable for designation as a quiet area.

St Ann's Well – Sensory Garden

St Ann's Well Gardens are located within a residential area of Hove, surrounded by domestic properties and minor roads. The council website comments that there is a wide range of native and exotic trees giving the gardens their unique character and providing shelter and tranquillity for wildlife (BHCC ca. 2012). Included in the gardens is a Sensory Garden that was specifically developed and designed for the visually impaired, this area was selected to be assessed.

St Ann's Well was an additional area that was included in the project following the results online survey. The online survey demonstrated that St Ann's Well was the area considered as most special out of the ones that were assessed. 52% of respondents considered the area as being very special. Respondents also identified that the Sensory Garden was particularly special.

Face-to-face survey results demonstrated that Majority of people said they value the park for reasons including natural features, trees and wildlife and recreational usage. The top three importance reasons were provided as escape, rest/relaxation and visual appeal. Of the people asked 87 per cent described the noise and sound environment of St Ann's Well Gardens being very good or good. 75 per cent of respondents felt that the area was quiet most of the time.

Noise monitoring results demonstrated that a difference of 11 dB(A) between levels monitored within and around the gardens. The monitored level within the area was 49 dB(A), comparable to Kipling Gardens and Queens Park. This supports the face-to-face survey results that showed that respondents visited the area for escape and rest/relaxation.

Having regard to the answers and opinions that have been received from respondents of both the online and face-to-face surveys it has

been demonstrated that St Ann's Well Gardens should be designated as a quiet area.

Possible – Royal Pavilion Garden

Royal Pavilion Gardens is a central city open space that houses the Royal Pavilion. As such this area is frequently visited by those who are resident to the City, are employed locally or are tourist. There were a large amount of face-to-face surveys collected for Pavilion Gardens this could indicate several matters – that there are a lot of visitors to the area, that those questioned wanted to participate in the survey or that the surveyors favoured this area over others. Royal Pavilion Gardens scored fairly high on the online survey and was considered to be very special by 37.5%, ranking the area as 9th out of the 18 areas that were provided.

Successful responses to the face-to-face survey were obtained with relative quiet and escape from hustle and bustle both falling within the top three reasons for people to visit the area. The majority of respondents to the face-to-face survey reside in areas that are exposed to higher noise levels than Royal Pavilion Gardens. The majority of those question felt that Royal Pavilion Gardens is quiet most of the time, demonstrating the perception of the quietness of the space.

Noise monitoring results demonstrate that there is a large difference, 18 dB (A) between the noise monitored within the area and the monitored level in the surrounding area. This difference was equal to that of Withdean Park, which is located next to main London Road,

Patcham. This difference supports the fact that respondents visited this area to escape the hustle and bustle of the City. Although the online survey results may not have indicated this for potential designation both the face-to-face survey and noise monitoring suggest otherwise.

Considering all of these factors it has been determined that Royal Pavilion Gardens is visited frequently by many people for them to seek peace and quiet and for this reason it is felt that this area would be suitable for designation as a quiet area.

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