

A REVIEW OF THE IMPLICATIONS OF LOCAL PLANNING AUTHORITIES' NOISE GUIDANCE IN SCOTLAND

A Leiper EnviroCentre Ltd, Glasgow, UK
C Cloy EnviroCentre Ltd, Glasgow, UK

1 INTRODUCTION

Planning Advice Note (PAN) 1/2011: Planning and Noise¹ provides guidance on the consideration of noise within the planning system in Scotland. The guidance promotes the avoidance of significant adverse impact from noise, and accompanying guidance recommends noise impact assessment methods to allow planning officers to make informed decisions. PAN 1/2011 consciously avoids prescribing noise criteria values, acknowledging that this may lead to varying limits within and outwith local authority areas. The Royal Environmental Health Institute of Scotland (REHIS) has produced a guidance document² for EHOs and developers with a view to harmonising assessment methods and criteria, which has been adopted by some local authorities as noise guidance. Disparities between the REHIS guidance and PAN 1/2011 regarding transportation noise are presented and the impact of the adoption of this guidance on planning in Scotland is explored, with a particular focus on the impact on the ability of local authorities to meet housing supply targets.

2 PLANNING AND NOISE IN SCOTLAND

Planning has been a devolved matter in Scotland since The Scotland Act 1998. As such, planning is informed by National Planning Framework 3³ and Scottish Planning Policy (SPP)⁴. Guidance on the assessment of noise is provided in PAN 1/2011. PAN 1/2011 promotes the principles of good acoustic design and sensitive approaches to the location of new development, while continuing to support sustainable economic growth. The avoidance of significant adverse noise impact from or on new developments is recommended and the application of reasonable criteria to assess noise impact is promoted. Similarly to Noise Policy Statement for England⁵ (NPSE), no specific target levels are provided, allowing for consideration of contextual and non-acoustic factors. A Technical Advice Note⁶ (TAN) provides recommended noise impact assessment methodologies.

TAN recommends a method of rating the magnitude of impact from noise, allowing planning officers to make objective and balanced decisions based on the wider adverse and beneficial impacts of the development. The magnitude of adverse impact ranges from negligible to major⁶, example descriptions of which are provided in Table 1, and are analogous to lowest observed adverse effect level (LOAEL) and significant observed adverse effect level⁷ (SOAEL) in NPSE, respectively.

TAN states that the setting of threshold criteria, from which the magnitude of impact is determined, is the responsibility of the local authority, clearly stating that criteria may vary between and within local authority areas. It is recommended that limits are derived from current best practice. Additionally, The Town and Country Planning (Scotland) Act 1997 dictates that local authorities must produce a local plan, which details policies and proposal for the use, development, protection and improvement of land, further clarifying that the responsibility of determining appropriate criteria is with local planning authorities.

Table 1: Description of Effects correlated with Negligible and Major Adverse Impacts

Magnitude of Impact	Description of Effect
Negligible adverse impact	Noise can be heard, but does not cause any change in behaviour or attitude, e.g. increasing volume of television; speaking more loudly; closing windows. Can slightly affect the character of the area but not such that there is a perceived change in the quality of life.
Major adverse impact	Significant changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm.

3 REHIS BRIEFING NOTE 017

3.1 Introduction to the Briefing Note

EHOs identified concerns regarding a lack of consistency between noise impact criteria and a tendency for the criteria to be determined by consultants or developers. A working group within REHIS drafted guidance for local authorities providing a more prescriptive approach to the assessment of noise. The guidance, The Briefing Note 017, explicitly states recommended target criteria for transportation and industrial noise. Further, prescribed ranges relating to magnitude of impact are recommended. A note on the origin of the guidance does state that it is intended as a starting point, acknowledging that the recommended criteria will not be appropriate in all scenarios. The Briefing Note makes a number of recommendations relating to transportation noise which are not covered by PAN 1/2011 or are more onerous than intended by PAN 1/2011, explored below.

3.2 Target Levels for Road Traffic and Rail Noise

The Briefing Note recommends external noise target levels of 50 dB $L_{Aeq,16h}$ during the daytime and 40 dB $L_{Aeq,8h}$ at night for both road traffic and rail noise. The World Health Organization Guidelines for Community Noise is paraphrased by REHIS, stating “*an outdoor, daytime level above 55 dB $L_{Aeq,16h}$ will result in the majority of people being seriously annoyed*”². This is subtly different to the guidelines⁸ which state that 55 dB $L_{Aeq,16h}$ represents a level “*below which a majority of the population will be protected from becoming... seriously annoyed few people are highly annoyed at L_{Aeq} levels below 55 dB(A)*”.

BS 8233:2014⁹ states that levels of below 50 dB $L_{Aeq,16h}$ are desirable, while levels up to 55 dB $L_{Aeq,16h}$ are acceptable, and that levels above 55 dB are likely in some scenarios. It is also recommended that external levels should never be sole grounds for refusal provided mitigation has been designed to reduce levels as low as practicable.

The recommended external night time noise limit of 40 dB $L_{Aeq,8h}$ appears to stem from the World Health Organization Night Noise Guidelines for Europe¹⁰ (NNG), despite the NNG stating that this target is optimistic, while suggesting a more realistic interim target.

3.3 Scale to Determine Magnitude of Impact

The Briefing Note recommends a scale of 5 dB, shown in Table 2, to represent magnitudes of impact from No Adverse Impact to Major Adverse Impact. This is compared with an example scale from TAN.

Assuming the target criteria discussed in Section 3.2, this scale suggests that a site with external noise levels marginally above 55 dB $L_{Aeq,16h}$ or 45 dB $L_{Aeq,8h}$ would constitute a Major Adverse Impact. Assuming no additional factors require consideration in the Qualitative Assessment, the resultant recommendation to the planning officer would be that the noise would be a key factor in the decision making process and could lead to the site being rejected on noise grounds alone.

Table 2: Comparison of REHIS and Example TAN Magnitude of Impact Scales

Magnitude of Impact	Exceedance of target threshold (dB)	
	REHIS	Example from TAN
No adverse impact	<0	<0
Negligible adverse impact	<1 but ≥0	<3 but ≥0
Minor adverse impact	<3 but ≥1	<5 but ≥3
Moderate adverse impact	<5 but ≥3	<10 but ≥5
Major adverse impact	>5	>10

As discussed above, a Major Adverse Impact is synonymous with a SOAEL value. The IEMA guidelines suggest 65 dB $L_{Aeq,16h}$ and 55 dB $L_{Aeq,8h}$ could be considered to represent daytime and night time SOAELs¹¹. A literature review of the health effects of noise conducted on behalf of DEFRA suggests external road traffic noise levels of 66 dB $L_{Aeq,16h}$ and 56 dB $L_{Aeq,8h}$ constitute SOAELs⁷. The recommendations of ProPG, co-authored by CIEH, the English equivalent of REHIS, suggest internal night time levels of 40 dB $L_{Aeq,8h}$ could be considered to represent a SOAEL¹², suggesting a 10 dB range of magnitude. The recommendations of The Briefing Note are in contrast to these values.

3.4 Requirement for Open Windows

The Briefing Note is clear in stating that only in exceptional circumstances should satisfactory internal noise levels be achievable with closed windows and other means of ventilation. The described exceptional circumstances are considered to promote sustainable development, and stem from a section of the withdrawn PAN 56¹³ relating to external noise levels. The exceptional circumstances, which do not fully encompass the 13 principles in the UK's Shared Framework for Sustainable Development¹⁴, are defined by the following attributes:

- Reduction in urban sprawl;
- Reduction in uptake of greenfield sites;
- Promotion of higher levels of density near transport hubs, town and local centres;
- Meeting of specific needs identified in the local development plan (LDP).

There is a clear preference for achieving internal noise targets with open windows^{1,12}. The benefits of open windows include ventilation and temperature control, as well as a sense of connection to the outside world and perception of fresh air¹⁵. PAN 1/2011 recommends that reasonable indoor noise levels are preferably achieved within dwellings with windows open to provide ventilation. However, it is advised that local circumstances should be considered when determining whether internal noise levels should be met with open or closed windows, acknowledging that a closed window approach may be unavoidable.

In sticking to a more rigid approach, The Briefing Note allows for little consideration of local context, and does not provide a framework to evaluate key factors such as:

- The impact of the location, design and orientation of the building on internal temperatures¹⁶, and whether open windows are necessary to avoid overheating;
- The impact of other planning objectives on the ability to meet internal levels with open windows, such as a requirement for positive frontage;
- The magnitude of physical mitigation that would be required to meet an open windows criteria;
- What proportion of the total development would require a closed window approach to meet agreed limits.

The recently published AVO Guide¹⁷ could provide a framework in which to balance internal levels with open windows against the frequency of open windows being necessary to avoid overheating.

3.5 Attenuation through Partially Open Windows

It is recommended in The Briefing Note that internal levels should be considered to be 10 dB below external levels when windows are partially open. The guidance does not clarify whether this relates to free-field or façade levels. Typical sound reduction values through an open window have been shown through research to be between 12 and 18 dB for road traffic noise from façade level¹⁸, with more recent meta-analysis reviews suggesting 13 dB from free-field levels is appropriate¹⁷.

A standardised value of attenuation through a normal partially open window should be encouraged. This avoids detailed calculations with unrealistically small open areas which would not provide the volume of air movement required to avoid overheating^{19,20}. However, there should be consideration to avoid inhibiting innovative solutions. Recent research has presented novel designs of openable windows which can provide attenuation of up to 26 dB R_w+C_{tr} ²¹, and have been found to be acceptable to residents²². Specially designed balconies can also be incorporated in the design to reduce the ingress of noise¹⁹.

4 ADOPTION OF REHIS BRIEFING NOTE 014

4.1 Adoption in Local Planning Authority Guidance

Aberdeenshire Council²³, North Lanarkshire Council²⁴ (NLC), South Ayrshire Council²⁵ and West Dunbartonshire Council²⁶ have all published noise guidance for new developments which faithfully adopt The Briefing Note, none of which have been consulted on. All councils amend the 40 dB $L_{Aeq,8h}$ external limit to a 30 dB $L_{Aeq,8h}$ internal limit. All councils specify a sound reduction through a partially open window from façade level, with Aberdeenshire Council stating 10 dB, while other councils specify 13 dB. With the exception of Aberdeenshire Council, all councils additionally recommend a fixed internal night time 42 dB L_{Amax} limit unrelated to the number of occurrences. No councils reiterate the recommendation that the fixed limits might not always be appropriate.

Fife Council circulated a draft noise guidance similar to that of the councils listed above²⁷. However an amended document was issued for consultation in 2020 alongside a policy document related to planning and noise^{28,29}. The new Fife Council noise guidance states clearly that it is up to the council to determine whether or not the site is considered to meet exceptional circumstances, although a more detailed and up to date definition of exceptional circumstances is provided. A limit of 42 dB L_{Amax} is proposed, however with recommendations that this limit shouldn't be exceeded more than 10 to 15 times per night in contrast to the fixed limit of other council areas. Neither the IOA nor the ANC were approached for consultation.

At least three other local authorities rely on the recommendations of The Briefing Note, without adopting it as guidance. South Lanarkshire Council refer to The Briefing Note in their LDP³⁰.

4.2 Planning Decisions Relating to The Briefing Note

In NLC two developments, both located on land allocated for housing within the LDP, were recommended for refusal solely due to noise and based on the recommendations of The Briefing Note. Coyle Drive³¹ was refused due to the impact of noise from the nearby M73 on the amenity of the development despite being allocated for housing in the LDP, with external noise levels exceeding 55 dB $L_{Aeq,16h}$. Best practicable mitigation was explored within the noise impact assessment, resulting in external levels of up to 60 dB $L_{Aeq,16h}$. Additionally, NLC found the proposed mitigation in the form of a 5 m bund / barrier combination unacceptable. Holytown Road³², also allocated within the LDP for housing, was rejected due to the requirement for closed windows to meet acceptable internal noise levels with no comment on why the site was not considered to meet exceptional circumstances. Both decisions were overturned at appeal. In each case the reporters independently came to the conclusion that The Briefing Note should not be used in place of PAN 1/2011 as it has not been issued

for consultation or formally adopted, and that both sites were shown to meet the recommendations of PAN 1/2011. Further, in both cases the reporters ruled that the council were misinterpreting The Briefing Note with regards to exceptional circumstances. While there have been other appeal decisions where The Briefing Note is of relevance^{33,34} and decisions have been upheld, these cases relate to industrial noise and the appeals have not centred on the validity of The Briefing Note itself.

Despite the outcomes of recent appeals, local authorities such as NLC continue to make decisions based on the recommendations of The Briefing Note rather than PAN 1/2011³⁵. Additionally, while the intention of The Briefing Note is to harmonise criteria and methods, there remains inconsistencies in NLC's approach to exceptional circumstances³⁶ and break-in through partially open windows³⁷.

Similar decisions based on the recommendations of The Briefing Note can also be found in other local authority areas. At Cuddyhouse Road, Fife³⁸, the urban design officer requested that high quality positive frontage should be a requirement of the application to ensure consistency between the future development and existing village. The local planning authority were made aware of the fact that meeting internal noise targets with open windows while maintaining high quality positive frontage was not possible. In spite of this the fact that a closed window approach was necessary to meet acceptable internal night time levels while meeting the requirements of the urban design officer was a reason for refusal.

5 IMPACT OF THE CURRENT ADOPTION OF THE BRIEFING NOTE OF HOUSING LAND SUPPLY

LDPs have been produced without considering the impact of the more onerous recommendations of The Briefing Note. The result of this is that land that has been allocated for housing is being refused and at risk of being labelled as undevelopable, which could have a significant impact on the ability of local authorities to meet their housing supply demands. Should this be the case, according to SPP and recent case law³⁹, any development that is shown to address the shortfall in housing should be accepted unless adverse effects are shown to significantly and demonstrably outweigh the benefits. This ultimately opens a door to developments being accepted in higher noise level environments to ensure that the shortfall in housing is addressed. The continued use of The Briefing Note despite recommendations from appeal decisions is resulting in a delay to the delivery of housing, further impacting the ability of councils to meet targets.

The impact of the adoption of The Briefing Note on the ability to meet housing supply targets is explored for NLC. NLC has been chosen for the following reasons:

- NLC is a major commuting area to Glasgow with a high quantity of housing development, and has the third highest proportion of motorway to council area in Scotland. Additionally, NLC's LDP⁴⁰ promotes the siting of developments in proximity to road and rail networks⁴¹.
- NLC were early adopters of The Briefing Note in their own guidance²⁴. While their use of the guidance has been successfully challenged at appeals, decisions within NLC continue to be informed by The Briefing Note.
- NLC do not broadly subscribe to the opinion that either of the two following conditions result in the site being considered to meet exceptional circumstances:
 - A site being allocated within the LDP to meet housing requirements.
 - A site being located within an urban area.
- There are concerns that five year effective housing land supply in NLC is already in shortfall⁴².

Modelling was carried out to determine the impact of NLC's approach to new housing development sites in their draft LDP⁴⁰. Proposed housing sites were screened to discount those included in ongoing planning applications, resulting in 24 sites comprising 1942 housing units. Of these 24 sites, 18 were

identified as being subject to road traffic noise, of which, 13 were found to have open source traffic data available. These 13 housing development sites comprise 1310 housing units.

Modelling has been carried out based on the most onerous and difficult to mitigate condition in NLCs adoption of The Briefing Note; internal night time noise levels of 30 dB $L_{Aeq,8h}$ assuming open windows providing 13 dB attenuation from façade level, with a 5 dB exceedance of this target suggesting Major Adverse Impact. No mitigation in the form of barriers was considered as the majority of sites in NLC are suburban comprising two story houses, and any barrier to attenuate noise at first floor bedrooms would need to be of sufficient height that NLC typically reject from a landscape / external amenity perspective. It has been assumed that the developments comprise kit houses, with little or no opportunity to restrict the use of bedrooms on exposed facades of first floor levels.

The modelling exercise determines the proportion of deliverable properties using the average plot size for each development. The proportion of deliverable properties is calculated depending on housing orientation of the most exposed properties (positively fronted and gable-end on). The results are presented considering two scenarios, where whole sites are obliged to meet the agreed limit, representing no adverse impact, and where sites must avoid major adverse impact, representing a maximum of moderate adverse impact.

For comparison, the proportion of deliverable properties considering the AVO guide is also presented. In line with the Good Homes Alliance Early Stage Overheating Risk Tool¹⁶, most standard housing developments in Scotland would constitute a medium risk to overheating. Considering the night time AVO diagram, an internal level of approximately 38 dB $L_{Aeq,8h}$ constitutes a SOAEL value for property at medium risk of overheating. This has been considered alongside the assumptions discussed above and a break-in attenuation of 13 dB from free-field. Results are presented as a proportion of the modelled sites, and also as a proportion of all new sites not part of an existing application, assuming all sites not modelled are entirely developable. This latter scenario is presented to address the inherent bias towards high risk sites in the modelling. The results are presented in Table 3.

Table 3: Proportion of Deliverable Houses based on NLC Noise Guidance and AVO Guide

Acceptable Magnitude of Impact	NLC Noise Guidance		AVO Guide	
	Positive frontage	Gable-end on	Positive frontage	Gable-end on
Proportion of modelled sites				
No adverse impact	13%	23%	N/A	N/A
Moderate adverse impact	27%	34%	49%	59%
Proportion of total new sites				
No adverse impact	41%	48%	N/A	N/A
Moderate adverse impact	51%	56%	66%	72%

The use of NLC's guidance is found to result in only 13% to 34% of modelled properties being deliverable. Assuming all other newly proposed sites are acceptable in terms of noise, this still results in only 41% to 56% of properties being deliverable. This suggests that the use of NLCs noise guidance will significantly impact the council's ability to meet their housing supply targets.

If the AVO guide were to be adopted, this would increase the proportion of developable land. 49% to 59% of modelled properties would be developable, depending on housing orientation, which constitutes between 66% and 72% of all newly proposed properties.

While there are inherent uncertainties associated with the broad assumptions included in the modelling exercise, the results indicate the importance of the LDP being produced with consideration of noise guidelines, and that the implication of new and more onerous guidelines should be understood prior to their adoption. Should councils continue to use their interpretation of The Briefing Note, there is a risk to the ability to meet housing supply targets. If targets are found to be in short fall this opens an avenue for development in areas of even higher noise levels due to the tilted balance. Updating The Briefing Note to consider published research and new guidance, such as the AVO

Guide, along with a means through which to consider context in the determination of target noise criteria in line with PAN 1/2011 would significantly increase the number of developable properties.

6 CONCLUSIONS AND RECOMMENDATIONS

Following concerns raised by EHOs in Scotland regarding an inconsistency in noise criteria, REHIS produced The Briefing Note 017 with recommended fixed limits, despite these being consciously avoided in PAN 1/2011. A number of recommendations relating to transportation noise within The Briefing Note are more onerous than in PAN 1/2011 and other guidance documents, with The Briefing Note promoting both very high standards for noise levels and the rejection of sites that might otherwise be acceptable.

The Briefing Note has been adopted by various local planning authorities, and is still in use despite its recommendations having been successfully challenged at appeal. As LDPs have been adopted considering the recommendations of PAN 1/2011 rather than the more onerous Briefing Note, there is a concern that the use of The Briefing Note will significantly impact local planning authorities' ability to meet housing supply demands, and this has been confirmed through modelling. Recent case law suggests that should local planning authorities' housing supply be in shortfall, there is a concern that the requirement to address this shortfall could degrade noise standards for new developments.

It is recommended that the implications of onerous guidelines are explored within local planning authorities to allow for a considered balance between developments satisfying good rather than excellent noise standards, while ensuring this results in a manageable impact on housing supply. It is recommended that The Briefing Note is redrafted encompassing a wider range of input. More detail should be provided on how to consider contextual factors alongside recommendations on how to balance the requirement for ventilation from open windows with internal noise levels in line with the AVO Guide. If The Briefing Note, or any future revision is to be used in the determination of planning applications, it should be issued for consultation and its impact on the ability to deliver the recommendations of the LDP should be considered.

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