

# ARE WE ASSESSING CHILD CARE NOISE FAIRLY?

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**ABSTRACT:** In recent years there has been a significant increase in the demand for child care, with many centres opening in 'normal' suburban streets, just a garden fence between the outdoor play area and the neighbour's garden. Some may feel that the sound of children playing is a happy sound; that childcare is part of life and should just be accepted. Others consider that child care can be a very profitable business and should be treated as any other commercial operation which has 'amenity' obligations to meet. Councils across NSW and the Land and Environment Court do not appear to have reached a clear decision on how to assess a child care centre.

## 1. INTRODUCTION

On 12 September 2007, the NSW Division of AAS held a technical meeting addressing noise issues in relation to childcare centres. Significant noise issues were discussed, but no clear consensus was reached that night. To follow up from the evening a questionnaire, based on the evening's questions and discussion was prepared and submitted to those who attended. It is noted that it was not the intention of the questionnaire to set down a clear policy guideline. Rather, its purpose was to record the opinions of those who attended, with the potential to assist in the future development of a policy on child care centre noise.

Approximately 45 people attended the evening and 26 questionnaires were returned. The majority of the responses were from consultants (20), with 2 responses from Council representatives and 3 responses from organisations other than Department of Environment and Climate Change (DECC). There was 1 anonymous response. DECC notified that they were not in a position to provide a response to the questionnaire, however they were considering the development of guidelines to assist Councils in developing criteria and assessing childcare centre noise. DECC indicated that the responses to the questionnaire would provide useful input should the guideline be developed.

Based on popular responses to the questionnaire, the following comments are made by the author in relation to the assessment of child care centre noise:

- Child care centres with 5-10 children or more should require noise impact assessment, not including home-based 'family day care';
- Outdoor play, mechanical plant and drop off/ pick up are the most significant noise issues that should be assessed. However, where relevant, indoor play, additional traffic on the existing road network and on-site traffic noise should also be assessed;
- A slim majority agreed that child care centres should be assessed in the same way as any other commercial premises (ie in accordance with the INP). However many suggested that outdoor noise be excluded from this or that a modified criterion should be applied;
- A minimum background noise level should apply when the background noise level is found to be low (eg 30 dB(A) when the background noise level is less than 30 dB(A), as per the NSW Industrial Noise Policy);

- Background + 10 dB, or 40 dB(A), whichever is higher, is an acceptable criterion for outdoor play noise. However, most comments suggested that duration should be attached to this criterion (1.5 to 3 hours). There was a slightly greater preference that this be determined on a site to site basis rather than applied as a blanket criterion applied to all centres;
- Where a receiver is affected by more than 1 identified noise source from a child care centre, and where background + 10 dB is adopted for outdoor play noise, background + 5 dB was the preferred criterion for other noise sources associated with the centre.
- Council (or Regional Organisation of Councils; or DECC) should provide a policy on child care centre noise, provided they are well informed. It was suggested that guidelines prepared by AAS or AAAC may be useful in achieving some conformity in child care centre noise policy across different Councils;
- There was no real consensus in relation to the correct assessment location, although the general preference was that assessment should not be 'at the boundary', rather at some other location within the boundary (eg free field; areas likely to be used for relaxing; at the building façade);
- The majority of respondents preferred that upper floors should always be considered for 2 storey houses overlooking an outdoor play area;
- No tonality adjustment is required;
- There is significant variation (7 to 11 dB) in the range of source sound power levels for children at play outdoors adopted by respondents when calculating noise impact from proposed centres;
- There was no clear response on the minimum background noise level where a child care centre is no longer feasible, although generally a background level of 30-40 dB(A) was considered the point where appropriate treatment becomes difficult in a residential area;
- The majority agreed that road, rail, aircraft and industrial noise impacts onto child care centres should be considered in a noise impact assessment.

1. What is the minimum number of children you think there should be before a noise assessment is required?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
0 0%	5 38%	10 <b>46%</b>	15 12%	20 8%
<i>Comments</i>				
<ul style="list-style-type: none"> <li>- The minimum number is irrelevant, the question should be is there a noise impact</li> <li>- All childcare centres, other than family day care centres, should be assessed</li> <li>- Dependent on background levels</li> <li>- Age group the children are in should come into it - ie 0-1 year olds shouldn't be counted as they don't spend time playing outdoors as 2-4 year olds might.</li> </ul>				
2. What noise impacts should be assessed (you may select more than 1 option)				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Indoor play 58%	Outdoor play <b>100%</b>	Mech. plant <b>100%</b>	Drop off/ pick up 96%	Additional traffic on road network 58%
<ul style="list-style-type: none"> <li>- Traffic noise assessed as traffic generating development.</li> <li>- Drop off / pick up more of an inconvenience/ access issue than a noise issue</li> <li>- No criteria for drop off/ pick up. Standard Fence size OK</li> <li>- Depends on site but potentially all 5 to be assessed and equally perhaps only one should be assessed</li> <li>- All noise sources must be assessed</li> <li>- Also on-site vehicle noise if this differs from "drop off/pick up". e.g. Staff</li> <li>- In a low traffic volume environment the basic <math>L_{Aeq}</math> criteria is a non-viable criteria. The annoyance of individual drive-by characteristics become more important than an energy averaged approach to annoyance</li> <li>- Depends on location</li> <li>- B &amp; C are the usual problem areas. Never had problems with the others.</li> <li>- Additional traffic only on local roads and possibly collector roads for larger centres</li> </ul>				
3. Should childcare centres be assessed the same as any commercial premises (ie in accordance with INP)?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Yes <b>58%</b>	No 46%	-	-	-
<ul style="list-style-type: none"> <li>- As an interim, however, worthwhile exploring the range of noise levels from the available data and identify reasonable target noise levels to be achieved based on rural/suburban/urban, range of noise levels experienced and typical distance setbacks involved. This could be expanded to include a secondary scale that weights annoyance in terms of adjoining land use type and sensitivity</li> <li>- Yes, with the exception of outdoor play</li> <li>- Yes, but with different criteria</li> <li>- Criteria should be more relaxed</li> <li>- Yes, except for human voices, require special consideration.</li> </ul>				

<ul style="list-style-type: none"> <li>- No, too different from commercial &amp; industrial processes</li> <li>- Yes, but no amenity criterion</li> <li>- Before attempting to deviate too far from the Industrial Noise Policy there is the need to be able to justify that deviation by scientifically rigorous peer-reviewed studies.</li> <li>- Generally in accordance with INP, exception modified duration factor.</li> <li>- INP based on industrial area levels. Amenity levels too high for some residential areas and intrusive level too low. Measurement locations are applicable.</li> </ul>				
4. As with the INP, should there be a minimum background noise, eg 30dBA?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Yes <b>81%</b>	No 19%	-	-	-
<ul style="list-style-type: none"> <li>- Need to balance the community need against reasonable management of noise issues</li> <li>- For consistency yes but one RBL may not be enough perhaps 3 RBLs during daytime period</li> <li>- Child Care Centres in semi-rural and rural areas may have much lower background noise levels and as a result the noise impact from CCC to residences will be greater</li> <li>- There should be a minimum facility Acceptable Noise Threshold for each area type (ie rural, suburban and urban), so that rural areas can generate up to 45dB(A), say, without it relying on background noise, which may be very low, in the assessment.</li> <li>- 30dB(A) is a traditional limit. This is into a region of perception and acceptance by lay persons.</li> </ul>				
5. What is a reasonable criterion to assess outdoor play?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Bg + 0 0%	Bg + 5 27%	Bg + 10 <b>69%</b>	Bg + 15 4%	Bg + 20 0%
<ul style="list-style-type: none"> <li>- Bg + 5 during the loudest 15 minute period when "planning noise levels for child care centres" exceeded.</li> <li>- Bg + 10 for 3 hours or less outdoor play time</li> <li>- Bg + 5 but duration allowance to Bg + 10 and half tonality penalty - 3 dB(pending research)</li> <li>- Dependent on the number of hours of outdoor activity. The longer the hours the lower the criterion. ie. time scale.</li> <li>- It depends on whether the centre is adjacent to a flight path, main arterial road, rail corridor and/or industrial precinct. AS1055 Part 3 states that you should use noise metrics pertinent to the environment that you are assessing and as a consequence of this the same would apply to the criteria adopted. If the assessment site is beneath the N-S runway and aircraft noise levels are say 90 dB(A) and background noise levels are say 38 dB(A), the criteria that would apply could be based on what is perceived by a reasonable person not to be offensive or otherwise a sliding scale. It would be too simplistic to just say <math>L_{90} + 10</math> or <math>L_{90} + 5</math>.</li> <li>- 5-10 dB depending on how much outdoor time, but only after the minimum acceptable facility noise threshold is exceeded for each area type.</li> <li>- Bg+10 with time limits</li> </ul>				

<ul style="list-style-type: none"> <li>- Bg+10 can be very easily challenged in Court as "personal opinion" rather than scientifically sustainable criteria.</li> <li>- Depending on location</li> <li>- Depending on the area where the childcare is located.</li> <li>- Higher for shorter time outdoors. Bg + 10 for 1.5 hours.</li> <li>- Bg + 10 precedents set by L &amp; E court. Think this is reasonable</li> <li>- Bg +10 time limited - 1.5 to 3 hrs</li> <li>- Bg+10 criteria to ASSESS only, not to set limits</li> </ul>				
6. In relation to Q5, should this be adopted:				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
For all centres 42%	On an individual site basis <b>58%</b>	Other 0%	-	-
<ul style="list-style-type: none"> <li>- As this is a learning institution, it should also apply to schools undergoing new developments or new schools.</li> <li>- If <math>L_{90}</math> is low then a greater allowance may be appropriate</li> <li>- Subject to duration and proximity of receivers to other noise sources</li> <li>- Some variation may apply between open air centres and fully enclosed centres and centres in residential / commercial environments. Each needs to be assessed on its merits and placed within context.</li> <li>- In residential areas this would be applicable. In industrial and commercial areas noise may not be an issue due to higher background and the nature of the receiver.</li> </ul>				
7. When a receiver is affected by more than 1 activity from a centre, and if outdoor play is assessed against background +10 dB based on limited duration, all other noise sources (indoor noise; mech plant; pick up/drop off) should be limited to:				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Inaudible (Bg - 10) 0%	Barely audible (Bg - 5) 8%	Audible (Bg + 0) 19%	Clearly audible (Bg +5) <b>62%</b>	Bg + 10 0%
<ul style="list-style-type: none"> <li>- Mech plant and indoor should be BG+0 but traffic difficult to treat so BG+5???? for traffic only???</li> <li>- Bg+0 is achievable for mech plant but maybe not pickup and drop-off</li> <li>- This site specific and the site needs to be considered in terms of multiple components based on layout and emission patterns.</li> <li>- Mechanical plant as per normal consent conditions</li> <li>- Mechanical plant would appear to be the only other issue. Consistent with normal assessment.</li> <li>- Indoor noise - no limit; mechanical plant - bg+5; Pick up/ drop off - bg+10 + manage</li> </ul>				
8. Who should determine the applicable criteria?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Council <b>50%</b>	Acoustic consultant 19%	Land & Env Court 12%	DECC 38%	Other 12%

<ul style="list-style-type: none"> <li>- AAS. If the AAS develops a Child Care Centre Noise Code this could be useful in court assessment.</li> <li>- AAAC</li> <li>- Council - Only if well informed</li> <li>- Council is representative of local community therefore they know the value of a proposed childcare in that community and also unbiased</li> <li>- Council, in consultation with acoustic consultant</li> <li>- Council should determine, with guidance from acoustic consultant, DECC and LEC case law A policy (from DECC?) for childcare centres would be good.</li> <li>- Council provided they are briefed by an Acoustic consultant based on guidelines produced by AAS &amp; AAAC</li> <li>- Regional Organisations of Councils should develop appropriate criteria in conjunction with, a sub-Committee of the Australian Acoustical Society (AAS), rather than individual consultants of limited exposure.</li> <li>- A separate Child Care Centre Noise Guideline ought to be prepared by the DoP with assistance from DECC</li> <li>- DECC expert in their research could consider the criteria of health impacts</li> <li>- DECC need to provide guidance on the issue</li> <li>- We should have a code adopted by the DECC for not only Child Care Centres but for road &amp; rail noise. More consistent approach from Councils across NSW.</li> <li>- Ultimately the Government, but under advisement.</li> </ul>				
9. What is the correct assessment location?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
At boundary 19%	Within boundary (free field) 23%	Areas likely to be used for relaxing <b>27%</b>	At nearest building facade <b>27%</b>	Other 12%
<ul style="list-style-type: none"> <li>- Location representative of boundary to be determined by acoustician</li> <li>- Areas likely to be used by the neighbour</li> <li>- Boundary irrelevant, within boundary may not be worst case, relax areas too subjective and build façade not fair if outside</li> <li>- Outdoors at a min. 3.5m from any vertical reflecting surface, and for 1<sup>st</sup> floor and above at balconies and / or at the plane of windows/doors in the façade.</li> <li>- Varies depending on the site specific nature of the application</li> <li>- Any location on adjoining properties</li> <li>- At a reasonably realistic habitable location on the neighbouring property/s, i.e. 1 to 2 metres from the boundary fence/ line</li> <li>- There should be a return to some fundamental of environmental background noise monitoring practices. There have been several very practical wordings issued the SPCC / the EPA, that should be revisited.</li> <li>- The promulgation of "at the boundary" should be investigated to find the source of this overly simplistic and acoustically illogical requirement.</li> <li>- Assuming no pending redevelopment</li> <li>- As per INP</li> </ul>				

10. For 2 storey houses overlooking a play area, should we consider upper floors:				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
always <b>46%</b>	only if they are not bedrooms 19%	never, assume all are bedrooms 23%	other 8%	-
<ul style="list-style-type: none"> <li>- Sensitivity is not restricted to ground level</li> <li>- Emphasis on consider... may not be a big issue</li> <li>- A sick person may be bed ridden; therefore their bedroom may be their place of rest, sleep and work. any habitable rooms</li> <li>- Determination should be made however as to their usage</li> <li>- Too much effort required and may not be practical to find out type of occupancies of surrounding houses facing a play area.</li> <li>- Do not consider noise to upper floors if there are no noise generating sources at night (plant or outdoor noise)</li> <li>- Upper storeys should have more lenient criterion, say bg + 10, where they are not used 100% of the time as there is opportunity to reschedule activities around outdoor play times.</li> </ul>				
11. Does child care require any adjustment for character, eg tonality				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Yes 31%	No <b>77%</b>	-	-	-
<ul style="list-style-type: none"> <li>- This could be addressed through selection of base targets.</li> <li>- Research into the tonality prop of kid noise needed</li> <li>- Hard to assess as children noise varies.</li> <li>- The spectral characteristics of normal play are not tonal, unless there is no supervision.</li> <li>- Squealing or Screeching</li> <li>- Research carried out by Day Design shows that child noise is tonal over short durations, but not tonal over 15 minutes.</li> <li>- Only if relating to plant noise</li> </ul>				
12. What range in noise levels do you adopt for 10 children at play outdoors (SWL re: 1pW)?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
0-2 yo 45, 75-82 dB(A)	2-3 yo 55, 80-91 dB(A)	3-5 yo 55, 82-92 dB(A)	other - dB(A)	-
<ul style="list-style-type: none"> <li>- Should collate all available data before setting a position + should not be based on age but just the activity</li> <li>- There is no lineal relationship here. Noise levels vary as a function of available space (ie. density of children per surface area); existing background noise levels; and the children themselves</li> <li>- Far more research is required in this area.</li> </ul>				
13. In your experience, is there a minimum background noise level where the centre is no longer feasible?				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
30dB(A) 15%	35dB(A) 19%	40dB(A) <b>23%</b>	45dB(A) 0%	50dB(A) 8%

<ul style="list-style-type: none"> <li>- No, depends on the size of the plot</li> <li>- No, depends on no. of children and fence heights allowable</li> <li>- No, suggest minimum Acceptable Noise Threshold (ANT)</li> <li>- No, depends on the local area in which the centre is proposed.</li> <li>- Depends on the proximity of neighbours.</li> <li>- I would allow a child care centre in an industrial area</li> <li>- 35, assuming the applicable criteria is BG + 5</li> <li>- In the 35-40dBA range, a centre becomes difficult and other strategies need to be employed.</li> <li>- Have successfully addressed Centres where the next door neighbour noise limit had been 25-30dBA.</li> <li>- 40 dB(A) - Noise barriers go up to 3 + metres</li> <li>- Depends on circumstances and location. 30 &amp; 35 are going to be difficult to treat in a denser residential area</li> </ul>				
14. What should a Noise Management Plan address (open question)?				
<ul style="list-style-type: none"> <li>- Summary of relevant noise criteria for the centre</li> <li>- Summary of indoor and outdoor play times (including seasonal variations); limitations on total time spent outdoors; limitations on number of children outside at any one time; ages of children; activities (general) and measures proposed to mitigate noise by supervisors; supervision of children both indoors and outdoors; and managing distressed children.</li> <li>- Signage</li> <li>- Management of parent/ carer behaviour – parents calling out to children; no slamming of gates; quiet and efficient drop off and pick up of children; car park noise management</li> <li>- Education to new carers/ parents in welcome package</li> <li>- One off functions outside normal play times – how these are handled, notification of neighbours etc</li> <li>- Regular consultation with community re issues.</li> <li>- Contact number for the director, which should be provided to residents for addressing complaints.</li> <li>- Sunset clause for review of NMP.</li> <li>- Provides transparency for neighbours, which hopefully assists a good relationship with the neighbours</li> <li>- Consent Conditions should refer to the specific Noise Management Plan prepared for the Centre by its reference number and date, and state clearly that amendments to the NMP should be approved by Council before implemented.</li> <li>- A standard Plan of Management should be developed within and in conjunction with a Sub-Committee of the AAS.</li> </ul>				
15. Should there be limits on noise ingress to outdoor and indoor areas? (you may select more than 1 option)				
<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>
Road traffic noise <b>92%</b>	Rail noise <b>81%</b>	Aircraft noise <b>81%</b>	Industrial noise <b>88%</b>	No limit 4%
<ul style="list-style-type: none"> <li>- Children are learning therefore limits same as schools</li> <li>- No, the proprietor will soon mitigate noise when they discover that there is a direct relationship between what you spend is proportional to their returns.</li> <li>- Yes to indoor areas, possibly no to outdoor areas. I would allow a child care centre in an industrial area</li> </ul>				



- Yes - like all other noise sensitive developments!
- all mentioned sources must be considered in assessment if the area is affected by these sources
- Indoor noise only
- Yes, design goals should be in accordance with the relevant policies and regs as well as AS 2107.- Aircraft and rail indoors only
- AS2107, ECRTN, AS2021 etc
- Internal noise limits are of importance and to ignore them is to be professionally negligent.
- Children are people too.
- Even if not overtly indicated within a noise report the consultant has a basic professional responsibility to assess the significance of these other intruding noises.
- Depends on situation and location
- Design and construct so that criteria are not exceeded

assessed with a degree of leniency not afforded to other commercial or industrial noise sources. People should be able to enjoy peace and quiet in their own home.

- More resources and workshops should be created for Council EHO's when assessing all types of acoustical applications as this is done well by few but done poorly by a greater number of people in the industry.
- DECC needs to take charge and lead by example when it comes to noise policies. The INP is good but does require reviewing as ideas and concepts change.
- More discussion is required in relation to minimum background noise level monitoring timeframe.
- It would be good for a professional body such as the Australian Institute of Environmental Health or Child Care Associations Australia to put on a one day workshop in conjunction with the AAS or AAAC on assessing acoustical assessments with a further focus on childcare centres.
- The "Social Worth" of the activity needs to be taken into account.
- Noise walls in excess of 2.5 metres are not appropriate in residential areas due to over shadowing and visual amenity issues. Consideration should be given to offsetting from the boundary a noise wall in excess of 2.5 metres in height.

### ADDITIONAL COMMENTS

At the end of the questionnaire there was space provided for additional comments on child care centre noise from questionnaire respondents. These additional comments are summarised by the author below.

- Rural areas present greater flexibility for site choice and land size so a more stringent criteria could be developed than compared to areas with little flexibility and small land size
- These criteria should apply to schools. This questionnaire is based on a small number of children compared to a larger number in school yards during morning, recess, lunch, sporting activities and after-school activities.
- From the Technical Talk it was apparent that the legal people are struggling with the issues of so called experts in this area in conflict with each other over the descriptors to be applied in assessing a child care centre. In preparing NIS's for child care centres an approach could be to dwell at length on the most technically advanced, best available technology, worlds best practice noise control measures to contain noise, as well as having a comprehensive, readily enforceable, mutually agreeable, management plan. This approach may be more useful than dwelling on not very well understood noise descriptors in the general community.
- The most important point to be assessed is the children's activities (screaming, crying, playing, talking loudly) and to be based on typical conversation sound (50 - 55 dBA) steady acoustic solutions, assuming as a community gathering.
- Air conditioning assessment should be dealt with as a residential development and based on AS 1668.1 - 1991 & AS 1668.2 - 1991
- Not all people like children and in particular other people's children. Child care centres are commercial activities, set up to earn money. Child care centres in residential areas should NOT be