

Planning for shooting and motor sport facilities

Prepared by: Sport and Recreation Services, Department of National Parks, Sport and Racing

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Purpose

This document includes information of relevance to the drafting of new or amended planning instruments and the consideration of development applications for either:

- shooting or motor sport facilities, or
- sensitive developments near existing or approved shooting or motor sport facilities.

It is intended that the information contained in this factsheet will assist in minimising the risk of conflict between these sport and recreation activities and sensitive land uses.

Activities likely to create nuisance through noise

Certain sport and recreation activities are considered by local governments to be difficult to locate in planning schemes, due to the challenges of finding places with appropriate qualities (i.e. that make them fit for purpose), sizes and accessibility, while avoiding conflict with nearby land uses.

Frequently, a key issue is the noise from activities such as shooting sports (e.g. rifle, shotgun, pistol) or motor sports (e.g. off-road motorcycling, circuit racing). There have been numerous cases in Queensland where facilities for these activities have been forced to close or, in some cases, operate under restrictive conditions due to complaints from residents of new developments that have been allowed to encroach upon the existing facilities.

For shooting sports consideration also needs to be given to a safety buffer, or Range Danger Area containing the possible ricochet of projectiles fired within the range.

Planning considerations

How planning for noisy sports is accommodated in planning instruments will vary, reflecting local contexts, including demand and factors that influence the carriage of noise, such as topography, vegetation and dominant winds.

A preliminary note about noise emissions and separation distances

The likelihood that noise will create a nuisance cannot be generalised but must be assessed on a case-by-case basis due to the variety of factors that affect either the transmission or experience of noise. Relevant factors include:

- the volume of the noise at its source
- atmospheric conditions including humidity, temperature, barometric pressure and prevailing winds
- surrounding topography and vegetation that may reflect or absorb noise
- surrounding built structures, including buildings, screens and berms
- the mix of frequencies in the noise (the human ear hears some frequencies more than others)
- the subjective interpretation of noises by individuals.

The final point above reflects the fact that noise is partly a subjective experience as individuals often associate particular types of noise with prior personal experiences and perceptions. As a result, some people may find certain noises more irritating than other people do.

Experience in Queensland has demonstrated that poor outcomes are likely when noisy sport and recreation facilities and sensitive land uses are developed in close proximity, however, it is not feasible to prescribe or defend a specific separation distance.

Where this guideline refers to separation distances between land uses these should be interpreted as suggestions or recommendations only, proposed to trigger consideration of the value of acoustic assessments to reduce the risks of conflict between land uses.

Acoustic quality objectives

Schedule 1 of the *Environmental Protection (Noise) Policy 2008* identifies desirable acoustic quality objectives for different contexts. For example, the Policy suggests maximum levels of noise experienced outside a dwelling during the daytime or evening should not exceed 50 dB(A)_{LAeq,adj,1hr}; 55 dB(A)_{LA10,adj,1hr}; or 65dB(A)_{LA1,adj,1hr}; each of these figures representing a different type of measurement.

A copy of the Policy can be found on the Queensland Legislation web-site at: <https://www.legislation.qld.gov.au/OQPChome.htm>.

Shooting sports

Shooting sports include pistol, rifle and shotgun disciplines as well as paintball shooting. They include indoor and outdoor disciplines, however, indoor shooting galleries are more easily accommodated due to the greater capacity for these facilities to contain noise emissions.

For the purpose of this document, shooting sports exclude archery.

For outdoor shooting ranges

Under the authority of the *Weapons Act 1990* shooting ranges, shooting galleries and shooting clubs must be approved by the Queensland Police Service (QPS). Information regarding how to seek these approvals is on the QPS web-site.

Factors considered by the QPS include the identification of Range Danger Areas and features determining the potential range and trajectories of projectiles discharged from firearms.

While QPS considerations have a strong focus on safety, local government planners also need to consider the potential for noise to create a nuisance for nearby residents or other sensitive land uses.

In particular, Section 440ZC of the *Environmental Protection Act 1994* identifies specific obligations relating to noise from outdoor shooting ranges that must be met under that Act. The noise standards identified in Section 440ZC are to be measured at affected buildings.

Penalties apply for breaches of the noise standards in Section 440ZC.

However, experience has demonstrated that even where the requirements of Section 440ZC are met, noise may still create annoyance for nearby communities. This can result in the closure of, or restrictions on well-used facilities and pressure to find space and resources for new facilities.

For this reason, as an additional measure, the Department of National Parks, Sport and Racing (NPSR) suggests that an acoustic assessment to support a proposal for a new outdoor shooting range should also assess the proposal's capacity to achieve the acoustic quality objectives in Schedule 1 to the *Environmental Protection (Noise) Policy 2008*.¹

For outdoor shooting ranges NPSR recommends that:

- a proposal for a new outdoor shooting range is informed by an independent acoustic assessment undertaken by a qualified acoustics engineer, that –
 - at a minimum, indicates the shooting range can comply with the requirements of Section 440ZC of the *Environmental Protection Act 1994*, and
 - assesses whether and how the acoustic quality objectives in Schedule 1 to the *Environmental Protection (Noise) Policy 2008* can be met at sensitive receptors.

¹ The *Environmental Protection Act 1994* and the *Environmental Protection (Noise) Policy 2008* are available at: <https://www.legislation.qld.gov.au/OQPChome.htm>.

For new developments near existing outdoor shooting ranges

Very little data on noise impacts informs recommendations for separation distances between shooting ranges and sensitive land uses. Most guidance material in this area has been written to provide advice on the development or operation of shooting facilities, rather than informing the development of nearby land uses.

The threshold distance proposed immediately below is thought to offer a conservative position and is based on a 2003 United Kingdom guideline for clay target shooting.² The suggested separation distance of 1.5 kilometres in the general direction of fire and no less than 1 kilometre in the rearward arc was reported to be based on experience and proposed where shooting occurs on flat open land without significant sound reflecting media.

For new developments near existing outdoor shooting ranges, NPSR recommends:

- where a proposal for a sensitive land use is located closer than 1.5 kilometres from an existing or approved outdoor shooting range, an independent acoustic assessment is undertaken by a qualified acoustics engineer to assess whether and how the acoustic quality objectives in Schedule 1 to the *Environmental Protection (Noise) Policy 2008* can be met at sensitive receptors.

Motor sports

Motor sports are very diverse. Examples include drag races on purpose-built tracks, speedway events in showgrounds, recreational four-wheel driving, motocross circuits, recreational trail bike riding, and water-based activities involving motor boats or powered personal watercraft.

While both land and water-based motor sports can potentially create noise issues, land-based motor sports are likely to require greater separation distances from sensitive uses, or other noise buffering strategies, due to the probable higher numbers and density of riders or drivers per unit of space, resulting in higher noise emissions. In comparison, other than during competitive events, water-based activities are likely to involve fewer numbers of riders spread over larger expanses of water. Exceptions may arise on enclosed water bodies such as dams and lakes. For example, Seqwater has received complaints from residents living near lakes regarding noise from power-boats.

Some peak motor sport bodies proactively implement noise-management practices to mitigate impacts on neighbours and reduce health-risks for officials and participants. For example, Motorcycling Australia and the Australian Karting Association each have noise emission rules applicable for affiliated clubs and events^{3,4}

Work undertaken by Parsons Brinckerhoff Australia Pty Ltd on behalf of the Council of Mayors (SEQ) Pty Ltd suggests that as an approximate guide, on open flat land, or where there is a line-of-sight to a noise receptor, off-road motorcycling facilities are likely to meet a criteria of 45dB(A) $L_{Aeq,T}$ at a noise receptor 2 kilometres from the noise source without additional noise controls in place while up to 30 motorbikes are being ridden concurrently. With increasing numbers of bikes in use, either separation distances should increase or additional noise control measures are likely to be needed.⁵

² Chartered Institute of Environmental Health, (2003). *Clay Target Shooting: Guidance on the Control of Noise*. United Kingdom.

³ Motorcycling Australia (2013), *Manual of motorcycle sport*. Refer to Rule 12.10, pages 98-100. Available at: http://www.ma.org.au/fileadmin/user_upload/Documents/MOMS/2013_MoMS_Files/2013_MOMS_VERSION_2/C_HAPTERS_1-14_29JAN.pdf

⁴ Australian Karting Association (2016), *Karting Manual*. Refer to Chapter 5, pages 148-149. Available at: <http://www.karting.net.au/media/rules/2016/2016%20AKA%20Manual%20UPDATE%203%20230616.pdf>

⁵ Parsons Brinckerhoff Australia Pty Ltd (2009). *Preliminary Trail Bike Noise Planning Policy*. Reproduced with the permission of the Council of Mayors (SEQ) Pty Ltd, as an appendix to *Providing Opportunities for Off-Road*

As a guide, NPSR recommends that:

- sensitive land uses and motor sport facilities are separated by a minimum distance of 2 kilometres, or
- where a proposal suggests a smaller separation than this, an independent acoustic assessment is undertaken by a qualified acoustics engineer to assess whether and how the acoustic quality objectives in Schedule 1 to the *Environmental Protection (Noise) Policy 2008* can be met at sensitive receptors.

Additional guidance and information

NPSR has published *Providing Opportunities for Off-Road Motorcycling: A Guide for Local Governments* on its web-site at: <http://www.npsr.qld.gov.au/recreation/trail-bike/councils.html>.

While that publication relates specifically to off-road motorcycling, it includes information that would be relevant to other motor sport developments.

The appendices to the publication include:

- an *Example Motorsport Activity Code* prepared by the Council of Mayors (SEQ) Pty Ltd
- a *Preliminary Trail Bike Noise Planning Policy* prepared by Parsons Brinckerhoff Australia Pty Ltd for the Council of Mayors (SEQ) Pty Ltd.

The *Example Motorsport Activity Code* includes provisions for managing dust nuisance and noise impacts, among other provisions.

The *Preliminary Trail Bike Noise Planning Policy* includes a proposed screening test to facilitate assessment of the suitability of sites for trail bike riding in relation to noise, and recommends factors to consider in noise management plans.