

IN THE MATTER of Section 16 Resource
Management Act 1991

A N D

IN THE MATTER of the WESTERN
SPRINGS SPEEDWAY

**REPORT OF INDEPENDENT COMMISSIONER
HON PETER SALMON Q.C.**

INTRODUCTION

1. There has been a speedway at the Western Springs Stadium since 1929. Originally it was used for motor cycle racing. From about 1937 it began to be used for midget car racing. After a break during World War II, speedway racing has continued on a regular basis up to the present time. It seems that the intensity of the operation at the Stadium has varied over the years.
2. From time to time there have been complaints concerning the noise from speedway activities. At least since the early 1990s there have been regular complaints about noise but according to local residents, complaints to the Council in fact go back over decades. In December 1994 an Independent Hearings Commissioner heard submissions on the proposed Concept Plan for the Stadium and gave his decision in March of 1995. That decision, which became part of the Auckland City District Plan (Isthmus section) operative 1999, recommended certain noise limits and progressive reductions which have not been met and which it is claimed, cannot be met.

3. A group of residents incorporated themselves as the Springs Stadium Residents Association Inc. They made an application for an Enforcement Order to the Environment Court. In October 2005 the parties to that application, which included Springs Promotions Limited, the promoter of the speedway, and the Auckland City Council, participated in a mediation and reached agreement on various issues set out in a record of mediated agreements dated 5 October 2005.
4. Clause 4 of that record provided for the appointment of an independent commissioner to undertake *“a consultation process to inquire into the effects of the operation of Speedway at Western Springs with a view to establishing the Best Practicable Options for ensuring that noise and other speedway related effects are reasonable having regard to section 16 of the Resource Management Act.”* It was agreed by the parties that I be engaged as the independent commissioner.

THE MEDIATED AGREEMENTS

5. The record of mediated agreements sets out an event programme for the 2005/6 season. It provides that, for the duration of the agreement an event programme will be provided in draft to all parties by 30 June and shall comprise not more than 12 events and two practice sessions to be scheduled generally as set out in the agreement. There are provisions relating to floodlighting and the use of the grader. There is a provision requiring the Council to investigate noise attenuation measures (e.g., double glazing and forced ventilation) for houses along the rim of Old Mill Road and Westview Road shown on a map and there are noise levels set.
6. Paragraph 4 then refers to the proposed long-term solution. As already noted, it provides for the appointment of an independent commissioner.

Subsequently the parties agreed upon terms of reference. The following are the relevant provisions of those terms.

“6. The Commissioner is to follow the procedure set out in paragraph 11 of these terms of reference and report to the parties with his opinion on the questions in paragraph 7 below. The Commissioner may also report on any other related matter which he considers may be of assistance to the parties.

7. The questions are:

(a) What options/methods could be adopted when carrying out the speedway and related activities at Western Springs Stadium in order to ensure that the emission of noise from that land does not exceed a reasonable level having regard to section 16 of the Resource Management Act 1991 (“RMA”) and

(b) Of those options/methods, which is the best practicable option?

8. In answering the questions, the Commissioner will give consideration to such matters as he considers relevant, but including the following issues associated with the speedway racing at the Western Springs Stadium:

(a) noise effects and their mitigation from all related activities including use of grader and public address system;

(b) mechanical/engineering performance of speedway cars in relation to noise generation;

(c) use of alternative track surfaces to reduce noise generation;

(d) other measures to enable earlier start and/or finish time for racing;

- (e) *number of events held per season; and*
- (f) *internal noise environments of adjacent residents living within the area shown on appendix B (Concept Plan Map)*

9. *Any interested person is entitled to be involved in the process. Currently the following persons have been identified as interested parties:*

- *Auckland City Council*
- *Springs Promotions Limited;*
- *Springs Stadium Residents Association (“the parties”); and*
- *Speedway NZ.*

10 *In order to enable any other interested person to become involved the Auckland City Council will give public notice advising:*

- (a) *the appointment of the Commissioner and the process generally;*
- (b) *the questions on which the Commissioner is to report;*
- (c) *the right to make written comments to the Commissioner on any issue relevant to those questions and the time by which any comments must be received;*
- (d) *the nature of the procedure and in particular that there will be no oral hearings as of right before the Commissioner although the Commissioner will have a discretion to seek and obtain further information from , or interview, those people making written comments or other persons – see “Procedure” below;*
- (e) *any other relevant matter.*

7. The matters to which I am required to give consideration have been extended by including a reference to “Other methods of mitigating noise effects”. The terms of reference required the preparation of an agreed

bundle of documents which I have received and provided for the engagement by me at the Council's expense of independent experts. It provided for the parties to agree on a schedule of events and properties to be attended by me and the experts and provided for the giving of public notice and written comments by any interested party. It enabled me to seek and obtain further information from, or interview any person who made such comments and the parties. It provided for the independent experts to prepare draft reports and gave the opportunity for the parties and their experts to respond in writing to those independent draft reports and for those experts to be heard.

8. The final two steps are:

1. The preparation by me of a draft report and circulation to the parties for final comment.
2. The finalisation of my report.

My draft report was duly circulated and I have received comments from the parties. I have found those comments very helpful and where appropriate have amended this final report.

IMPLEMENTATION OF TERMS OF REFERENCE

9. In accordance with the Terms of Reference I appointed an independent acoustic consultant, Mr Douglas Growcott from Melbourne. I also appointed an independent mechanical engineering expert, Dr Roy Nates from Auckland. I have received reports from each of these gentlemen. Both experts have attended speedway meetings, as have I. I have visited several residents' houses during speedway meetings. I have had discussions with representatives of the residents, the Council and the

promoters of the speedway. I have also had discussions with Speedway NZ Limited, the controlling body for speedway operations throughout New Zealand. The public notice attracted a large number of comments and I have perused these. I have received and read position statements from each of the three principal parties. I have held a meeting of the acoustic experts retained by each of the three principal parties and Mr Growcott. At this meeting Mr Growcott's report was discussed and a significant degree of agreement was reached in relation to his comments and conclusions.

10. It is proposed that my report will satisfy the Council's requirement to consult in relation to either the lodgement of a Resource Consent Application or the initiation of a plan change, to enable the continuation of speedway at Western Springs Stadium.

SECTION 16, RESOURCE MANAGEMENT ACT

11. Central to my consideration and recommendations, is s.16(1) of the Resource Management Act. It provides as follows:

“16. Duty to avoid unreasonable noise
(1) Every occupier of land (including any premises and any coastal marine area) and every person carrying out an activity in, on , or under a water body or ... the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level.

12. It is apparent from s.16 that mine is a two-part task. I must consider what level of noise from speedway operations is reasonable in the circumstances that exist and whether the speedway is adopting the best practicable option to ensure that that reasonable level is not exceeded.
13. Before addressing the particular questions and issues set out in the

Terms of Reference, it is helpful to refer to those authorities and legal definitions which assist in the interpretation of s.16. The Shorter Oxford English Dictionary defines the word “reasonable” as: “*Within the limits of reason; not greatly less or more than might be thought likely or appropriate; moderate.*” Webster’s Dictionary gives the words “sensible” and “equitable” as synonyms and comments that “*Reasonable has taken on the pragmatic idea of simple commonsense.*”

14. An appeal against an Environment Court decision relating to s.16 was recently decided in the High Court in Wellington. It is *Balfour & Others v. Central Hawke’s Bay District Council CIV 2005-485-1448*, a judgment of Miller J. on 29 May 2006. The section was not the subject of detailed analysis in that decision, but extensive reference was made to a decision of Judge Shepherd in which he analysed the section. That case was *Ngataringa Bay 2000 Inc v. Attorney General. Planning Tribunal A16/94*. Judge Shepherd referred to a number of tribunal decisions dealing with s.16 and said:

“Another Planning Tribunal decision in which the duty imposed by section 16 was considered was Auckland Kart Club v Auckland City Council A124/92. That was an appeal against an abatement notice in respect of go-kart racing. The Tribunal observed that what is reasonable in terms of section 16(1) is what is reasonable to the receiver of the noise (see page 13); that what is reasonable is a question of fact and degree (see page 21); that it was necessary to consider separately the technical options and the financial implications (see page 22; and after having done so, found that the best practicable option was the optimum combination of all the methods available to limit the noise to the residents to the greatest extent achievable (see page 22), and that the 60 dBA noise level was the best option available to protect the residents (see page 23).

There is also an oral decision in Cox v Kapiti Coast District Council W5/94 in which the Tribunal remarked that section 16 might even enable termination of a

permitted use if the best practicable option is not adopted.

The only other case I have found which dealt with section 16 is an unreported decision of the District Court at Tauranga, Groton v Tauranga District Council, given on 19 October 1992 by Judge J R Callender. That was an unsuccessful application for cancellation of an interim enforcement order made under the Resource Management Act. In the course of his reasoning, the learned Judge observed that the various enforcement procedures under the Act may be employed to enforce the general duty under section 16 to ensure the avoidance of unreasonable noise.”

15. The judge also noted that the focus of s.16(1) is not directly on the level of noise emitted but on taking the best practicable option to ensure that emission of noise does not exceed a reasonable level. He noted too that the duty imposed by the section is not necessarily avoided by compliance with a district rule on noise control *“nor is it necessarily avoided by an assessment that a particular noise emission is not deemed to be a danger to health, nor by reference to the general standards contained in the NZ Standard Assessment of Environmental Sound.”*

16. I also note what was said by Randerson J. in Springs Promotions Limited v. Springs Stadium Residents Association (Inc) and Another, CIV 2005-485-85, 7 October 2005. This was an appeal against an Environment Court decision preceding this inquiry. The question of existing use rights, although not directly in issue, was given some consideration in that decision. At para 89 the judge said, *“Mr Kirkpatrick properly acknowledged that any existing rights established are subject to the duties under sections 16 and 17. In those circumstances the existence or otherwise of existing use rights may be no more than a factor in the Environment Court’s overall considerations.”*

17. I note two further observations by the Planning Tribunal and the Environment Court. In *Speedy v. Rodney District Council* A134/93, it was observed that what amounts to a reasonable level depends on the context and in *Forrest Hill Childcare Centre v. North Shore City Council*, ENV CA90/98, it was noted that the qualitative component of sound is at least as important as its volume.

18. Of particular relevance to this report is the finding that what is reasonable in terms of s.16(1) is what is reasonable to the receiver of the noise and that reasonableness is a question of fact and degree. It is obviously necessary to take into account in determining the question of reasonableness all the surrounding and historical circumstances. Thus, for example, the lengthy existence of the speedway at this site is relevant, as is the fact that the local residents, or at least the vast majority of them, have moved there since speedway racing and, in particular, its motor car component were established. Indeed, a number of the people to whom I spoke have moved into the area over the last 10 years or so. I also take into account, however, that the effect of the noise source is difficult to judge until it has been experienced and that someone who moved to the locality at a time when it was not possible to experience the noise, may well have completely underestimated the effect of the noise upon the enjoyment of their property.

THE POSITION STATEMENTS

The Auckland City Council

19. The Auckland City Council supports the continued operation of speedway at Western Springs Stadium. It owns the land on which the Stadium is situated and has an agreement with the promoter which

enables the promoter to undertake events at the Stadium. The agreement is, in fact, a licence to use the land, one of the conditions of which is that the promoter comply with the terms of the Resource Management Act. The Council's position statement outlined the current District Plan controls and the history of their development and it pointed out that notwithstanding the concession made in the High Court before Randerson J. and the comment made by him, the question of whether the speedway activity has existing use rights and if so what they may be, is not an issue which has been judicially determined.

20. The Council's position statement contains much helpful information about noise measurements and activities associated with the Stadium, including the grader operations and the public address systems. Its report includes the comment that the Council does not consider that ten meetings a year represents a sustainable solution and that a higher level is necessary to enable the continuation of the sport. In this regard I note that the number of race meetings claimed to be appropriate in terms of sustainability, varies between 12 and 20. The Council acknowledges that the internal noise environment of adjacent residents is an important issue which must be appropriately addressed and expresses the view that the current noise levels at source represent the quietest that can realistically be achieved. Therefore, further improvement should focus on mitigation measures such as length of the season, and number and spread of race meetings. The Council notes three sources of uncertainty in any noise measurements from the Stadium. They are the instrument used to take the measurements, (in October 2004 the Council installed a sophisticated permanent noise monitoring terminal at the stadium in order to reduce these uncertainties), the weather conditions and topographical influences. It is generally agreed by the acoustic experts that measurements must be taken in wind conditions of 5 metres per second or less. The Council considers that a finishing time of 10.30

pm is appropriate and consistent with the general provisions of its own District Plan and World Health Organisation guidelines. The Council has considered the question of the construction of noise-absorbent screens in front of the worst affected properties. Investigations suggest such a proposal is impractical. The Council has also considered the possibility of a screen to the north-west of the track to prevent sun strike from affecting drivers negotiating the northern corner of the track and thereby enabling an earlier race start time. Investigations show that such a proposal is also impractical.

The Springs Stadium Residents Association

21. The Springs Stadium Residents Association seek a rigorous examination of the proposition that speedway activities cannot be made quieter and they raise the issue as to whether better mufflers could be used. The Residents suggest that my findings should go beyond the issues of noise levels and that I should make recommendations as to practical measures that can be employed on all vehicles, the duration of racing and/or its timing and/or the length of the season. They refer to the decision of the Planning Tribunal in *Auckland Kart Club Incorporated v. Auckland City Council* and draw my attention to the observations in that case that the financial implications of the best practicable option do not “trump” the effects on the environment, but are merely one factor to be considered and that the best practicable option is the optimum combination of all methods available to limit the noise damage to residents. They adopt the definition of noise employed by Mr Christopher Day, the noise consultant for Springs Promotions Limited, in evidence given by him to the Environment Court, namely that noise is “*a sound that is unwanted by or distracting to the receiver.*” They ask that I consider all of the circumstances as they apply to Western Springs, including:

(a) Its densely populated residential catchment

- (b) The sensitivity of the receivers
- (c) The financial and practical implications to speedway of various measures
- (d) Current state of technical knowledge
- (e) How an unwanted sound can be kept to a reasonable level having regard to these considerations as a whole.

They note that a given level of sound during the day may be less unwanted than at night. They tentatively raise the issue of alternative sites.

22. I met with a group of local residents. They outlined to me their personal experiences and the effects, including health effects, on their families of frequent speedway events. Of particular interest were the comments of a lady who had lived in the area for 70 years. She was firmly of the view that the noise had become worse. She noted, for example, that in 1949 there were six cars on the track at one time; now there are 20 or 30. She said that so far as she was concerned, noise was not an issue prior to about 2002, but that from then on it had been really bad. In comments on the draft report, Springs Promotions Ltd take issue with the recollections of this lady. They have provided information which indicates that in 1949 there were between 18 and 22 races run with between 6 and 14 cars on the track, depending on the nature of the race. This indicates the difficulty with placing too much weight on historical recollection. People who have moved into the area recently commented that they did not appreciate that a problem existed until they moved in. They have found that they have not been able to entertain at home during the summertime and the unpredictability of the noise is a major concern. There is a view that a 10.30 pm finish is too late. Another resident mentioned that the problem was not a recent issue and that the

present promoter has intensified the level of the operations. A common complaint was that at least prior to the last season it was not possible to have people around in the summer on Saturday nights. There were a number of complaints about the grader used to prepare the track.

Springs Promotions Ltd

23. The position statement of Springs Promotions Ltd notes that they successfully tendered to the Council for the right to promote events at the Stadium in 2002 and that crowd numbers have increased by 30% each year since they have been the promoter. They say that it was not until 2004 that they learned that speedway events were certainly exceeding the boundary noise limit of L_{10} 85 dB(A) and that the consultation they have undertaken with their acoustic consultants reveals that the speedway cannot operate as a professional sport within the boundary noise limit. They maintain that the noise generated is no greater than it has been for a number of years. They acknowledge the desirability of a test for identifying excessively noisy cars, but say that the present prescribed test is ineffective and should be replaced by a stationary test. They would not consider an earlier start to be possible. One of the reasons is that if the surface of the track dries out in the hot sun, it becomes slick and dusty and becomes more difficult to control the race cars. They also point out that people have other commitments during the daytime so a start time of 6.00 to 6.30 pm for race warm-up is workable, but any earlier would have the direct sun on the track for too long and track conditions would suffer. They seek some degree of flexibility with the current finish time of 10.30 pm. They acknowledge that if a meeting concludes later than 10.30 pm, then it should finish earlier by a similar period at another meeting. In their position statement, it is claimed that 20 race meetings per season are necessary, although not every season might require that number. They are not willing to contribute to any costs involved in providing noise insulation for

any of the relevant homes.

24. The position statement emphasises the history of speedway at Western Springs, the fact that it is an international sport and the important place that Western Springs plays in terms of the sport generally and its international component in particular. They seek that the season be extended so that the earlier start could be the last Saturday in October and the latest finish could be the last Saturday in March. This would enable more time between meetings and allow for speedway-free weekends for the community. They say too that a longer season would bring the calendar in line with other tracks across New Zealand. I understand this issue to be a matter principally for the Council because of winter sporting commitments at Western Springs. As to the number of cars racing, they claim that generally the numbers are somewhere between eight and 18, but that they need to be able to race a maximum of 22 per race for national races and 26 for international races. They consider that there should not be any limit placed on the number of cars in any race as any reduction would compromise speedway as a sport. They seek the ability to have mid-week meetings when required and are willing to agree that there should be at least one speedway-free weekend per month during the race season.
25. I met with representatives of the promoters. They tell me that tracks which move out of the city do not do as well as those in a city. They emphasise the international events as being an extremely important part of their programme and claim that 16 races was the minimum necessary, together with rain-out days.

Other Comments

26. I also met with representatives of Speedway New Zealand Inc., the governing body of the sport. Speedway New Zealand complains that

comments made in my draft report are either out of context or incorrect. I do not accept that I incorrectly recorded what I was told, but I do accept that the final report should record as the views of Speedway New Zealand those contained in their comments on the draft report. Accordingly I note that their view is that an organisation the size of Western Springs would be expected to run a minimum of 3 practice sessions and 15 race meetings, with a maximum of 3 practice meetings and 22 race meetings with provision made for re-runs in the event of rain-outs. They said that while Tauranga had a 10pm finish for racing, there are tolerable allowances to this conclusion time.

27. I referred earlier to the Auckland City Council's public notice inviting comments. Over 220 people responded to the Council's invitation. A substantial majority of those supported the continuation of the speedway at Western Springs. However, as best as I can ascertain from those who gave addresses, only a very small number of the supporters actually live close to venue. A little over 60 of the responses either sought to have the speedway stopped or its activities restricted. The supporters of the speedway in general emphasised the length of time that it has been operating and the enjoyment that people obtained from it. Those opposed seek a restriction on the number of events and finishing times and want the permitted noise level reduced. Some consider that the speedway should be relocated.

THE EXPERT'S REPORTS

The Report of Dr Nates

28. Dr Nates is an experienced academic engineer with specialist skills in the thermo-fluids fields of engineering. He is a principal lecturer at AUT. He understands the relationship between mechanical performance and

noise mitigation devices. His report presents 10 different concept strategies for noise control. These include track testing, dynamometer testing and standardisation of operating conditions and components. He concluded that a standardisation of the exhaust muffler may prove to be the best practical option in this case. A secondary option would be the addition of a standard “rev-limiter” to the vehicles. He anticipated that tyre, or roadway noise would be small as compared to that of the engine.

29. He considered the issue of sound measurement at the speedway. He discussed a number of different possibilities and concluded that the best of them would be, what he called, multiple sound measurement at the speedway which would involve the installation of a number of sound level meters around the track which could be connected to a data logger or computer. He considered that a standardised muffler and/or a standardised rev-limiter would have the advantage that it would be easy to check compliance by simple vehicle inspection, although he acknowledged that the difficulty with this approach lay with the initial sound testing and the choosing of the standard muffler or the maximum speed. He considered the muffler to be the better of these two solutions. Mr Growcott commented on Dr Nates suggestions and I will refer to these comments later.

30. The City Council expressed a view on Dr Nates’ report. It agreed with Dr Nates’ observation that the measurement of the noise of an individual car during races is impractical because of the inability to identify with any certainty which car is being recorded when there are a number circulating together on the track. The Council considered that time considerations argued against testing each vehicle individually, that it would also expose the residents to more noise and sees dynamometer testing as being the more practical management tool. The City Council agrees with design of muffler and exhaust systems being used as a

management tool which could form part of the annual noise management plan. It suggests that compliance might be implemented through Speedway NZ Rules.

Mr Growcott's Report

31. Mr Growcott is a partner in Watson Ross Growcott Acoustics Pty Ltd of Melbourne. He has been in practice as an acoustic consulting engineer for 32 years. He has a qualification in mechanical engineering, as well as acoustical engineering qualifications. His areas of expertise include mechanical equipment noise control. He has had specific experience in relation to noise measurement of raceways. He owns an historic racing car and has built and tunes his own engines. He identified the following factors as having influences over the perception of what constituted a reasonable level of noise:-
1. The level of the noise.
 2. The number of events each year or season.
 3. The time of the day or night that the events take place
 4. The spread of events during the year or season
 5. The amount of prior notification provided to residents about upcoming events.
32. He first considered noise measurement parameters and the commonly used descriptors. After discussing the three possibilities of L_{10} dB(A), L_{90} dB(A) and L_{eq} dB(A) he supported the use of the latter because it supports the “noise dose” concept and can be used to demonstrate a progressive reduction of noise dose at the residences during racing events. He noted that the L_{eq} descriptor or equivalent continuous level, is a special energy average value for a noise varying in level over a period. The L_{eq} parameter derives from the concept of a “noise dose”, i.e, a noise can be very loud for a short time and quiet for a longer time and this has the same equivalent noise dose or energy of a constant

medium level noise over the same period. Most research shows that this approach demonstrates greatest correlation with human reaction response. The acoustic consultants for the three principal parties all agree that the L_{eq} method of measurement is the most appropriate in the circumstances.

33. Mr Growcott then went on to consider whether the current noise terminal's location inside the venue within 10 metres of the boundary with the adjoining nearest houses was a suitable location. He concluded that it was because it has a history of recording events. Again, the other noise consultants agreed with this conclusion. Mr Growcott noted the effect of weather influences. He noted that potentially intruding noise usually has the greatest impact during gentle breeze conditions and that in such conditions the received noise will be plus or minus (\pm) 7dB(A), dependent on whether the breeze blows towards or away from the receiver. This change will be regarded subjectively as large. This effect must be taken into consideration when setting design objective noise limits, but only for distant locations. He noted that this aspect would not be critical at Western Springs, as the largest impact occurs very close to the circuit.

34. He referred to various noise guidelines, including those of the World Health Organisation and, in particular, levels set in relation to circuit racing in Australia and other countries. Based on his review, he concluded that the maximum possible design objective levels during actual racing should, for a new site, be 65 dB(A) L_{eq} . This would be approximately 68 dB(A) L_{10} during actual racing and would therefore be measured over about 12 to 25 minutes for individual speedway events. He referred to two instances where for particular reasons a higher level than 65 dB(A) L_{eq} had been set in Australia. The maximum figure referred to in each of these cases was 75 dB(A) L_{eq} . Mr Growcott noted

that the highest noise levels observed at residential properties during his visit to the speedway were in the order of 20 dB(A) higher than the 65 level. He noted that the latest attempt to provide motor racing noise controls in Australasia was in Canberra in December 2005. The approach adopted was to have as a starting point the existing industrial noise legislation noise limit requirements. There was a Council directed points allocation system. The higher the racing noise exceeded the regulated industrial noise limits, the greater number of points were consumed per event. Applied to Western Springs scenario, the number of events allowed by applying this system would be significantly less than 10.

35. Mr Growcott then went on to consider race car noise. He noted that once the unattenuated exhaust noise has been reduced by about 10 dB(A) by the fitting of a relatively modest sized muffler, the remaining noise strengths of the other sources will be of similar magnitude. He noted that the New Zealand Speedway Regulations required race cars to limit noise for a vehicle to 95 dB(A) when measured at 25 metres. He said that this value was very similar for circuit racing cars in Australia. To achieve that level, all race cars require the fitting of mufflers producing about a 10 dB(A) reduction when the car operates under load at close to maximum engine revolutions. Under this head he concludes that noise control for race cars over and above what can be achieved with modest sized mufflers would require lengthy research and development and the associated time and money and that none of this work has been attempted to date in New Zealand or Australia, or indeed anywhere else of which he is aware. Noise-reduced speedway cars would resemble high performance road cars and include partial enclosure of engines, radiator fans and multiple exhaust mufflers.
36. As to engine speed reduction of current format engines, he considered

that concept has merit as part of a possible package of longer term management measures and that engine revolution limiters are readily and cheaply available and rapidly deployed and would allow current format engines to run unrestricted at other racetracks. As to regulation of race car noise, he agreed with others that the present system of measurement is inadequate. He proposes a stationary test which would involve operating the vehicle in the pits at three-quarters maximum power engine revs and measuring noise 500 mm from, and at 45° to, the exhaust pipe outlets. An alternative would be to have the noise output measured at the exhaust outlet while operating on a chassis dynamometer. Mr Growcott suggests that to ensure that racers take the procedure seriously, if a stationary test indicated a likely excess noise on the track, the racer could be offered the choice of reducing the noise before racing, or racing a noise test lap. If the race car failed the circuit test, the car could be banned from racing at the event. Mr Growcott considered the question of tyre-generated noise and concluded that further effort should not be expended on this issue. He did not consider that noise barriers were practical. He did consider that a significant improvement in the present noise environment could be made by a change to the public address system. He suggests that the promoters should install a low-level directional system and if funds were not available to do so, then the present method of broadcasting race commentaries over radio receivers could be extended to the entire event. He suggested it would be reasonable to set a single design objective of 50 dB(A) L_{eq} during announcements measured over a two minute sample for announcements during the later hours of an event.

37. Mr Growcott then considered event durations, finishing times and frequency. He noted that it was common for environment noise regulations in Australia and other countries to adopt three time periods: Daytime – 7.00 am to 6.00 pm; Evening – 6.00 pm to 10.00 pm; and

Night time – 10.00 pm to 7.00 am. The regulations treat Saturday afternoons and Sundays as time equally sensitive as weekday evenings. He considers that it is not reasonable to finish any event at 11.00 pm with the observed noise levels of 75 to 85 dB(A) L_{eq} and proposes an absolute finishing time for racing of 10.00 pm. He goes further and suggests that if there is any racing on a Sunday, that it should stop at 9.00 pm.

38. Mr Growcott considered noise reduction for residents to improve internal amenities. He observed racing noise inside two houses close to the speedway with doors and windows closed as being in the range 57 to 63 dB(A) L_{eq} . He did not assess the acoustic performance of the construction of any particular house. He noted that some of the opinions received from residents confirmed tolerance of noise levels described above in the racing season during events. He said that for living areas, continuous residential noise levels of 35 to 45 dB(A) L_{eq} would be deemed reasonable design objectives for continuous noise exposure. Short-term intrusions may be deemed tolerable with values of 10 dB(A) higher. He noted that this outcome would be supported by a review of sleep disturbance studies by the New South Wales EPA where they concluded that short-term events of 50 to 55 dB(A) from transportation vehicle sources would have minimised disruption to sleep. His conclusions under this head were as follows:

“For houses requiring in the order of 5 dB(A) noise reduction this will likely be achieved by sealing fixed windows with resilient mastics around perimeters. For openable doors and windows it will require the fitting of acoustic grade perimeter proprietary seals such as the range supplied by Raven or Lorient. Ventilation would need to be considered and supplemented from within the house or from other sources.

For houses requiring 10 dB(A) noise reduction treatments will likely include providing seals to doors and windows and supplementing

existing windows and doors with a second layer of glass with air gaps of 50 – 100 mm between. Upgrading other lightweight facades (not masonry) elements would also likely be necessary.

In retaining the concept of “practical” and “reasonable” it may be appropriate to provide one room of refuge. By doing so it may be possible to ventilate the room from other areas within the house and not have the added complication of needing to supplement ventilation from external areas by mechanical means.”

It is fair to note that Mr Growcott’s focus was on noise levels received during racing and his comments regarding mitigation of internal noise by way of building improvements should be regarded as a guide, rather than being as a result of a particular study of this issue in relation to the houses in question.

THE MEETING OF ACOUSTIC EXPERTS

39. I met with Mr Growcott, Mr Michael Sullivan of Norman Disney and Young, who were instructed by the Council, Mr Jon Styles, who is employed by the Council to take noise measurements, Mr John Cawley, the acoustic engineer instructed by the Residents Association and Mr Christopher Day, instructed by Springs Promotions Ltd.

40. As already indicated, all experts prefer the L_{eq} method of measurement, although Mr Cawley would like to see a maximum L_{eq} established for any particular race. All experts agree that the present noise assessment location is satisfactory and they agree on the effect of weather on the measurement of noise. No one questioned Mr Growcott’s conclusions that Australian and overseas criteria generally set a maximum design objective level during actual racing of 65 dB(A) L_{eq} at the nearest residential boundary. It is noted that the measurement location at the stadium is not the nearest residential boundary, but 10 metres from that boundary, namely at the noise monitoring terminal. As to race car noise control, there was general agreement with Mr Growcott’s view that while

a muffler providing a 10 dB(A) noise reduction was appropriate and practical, anything in excess of this would be difficult to achieve. Nor was there any disagreement with his conclusion that a reduction in engine speed was worth investigation as a method of reducing noise, provided the engine speed reduction was associated with current format engines.

41. On the question of single car noise level compliance checks there was general agreement that the present system of measuring the noise level of individual cars was unsatisfactory. A more satisfactory system would involve a process such as that suggested by Mr Growcott.
42. Whilst there was general agreement that the issue of tyre noise was not worth pursuing at this stage, there was a view that it was one of the noise sources and should be mentioned as such. In paragraph 7 of his report, Mr Growcott dealt with the question of noise barriers. Whilst there was no disagreement with what he said, it was thought that the possibility of a transparent screen should be considered in appropriate cases, where it is acceptable to residents.
43. As far as the public address system is concerned Mr Day sought a limit of 60 dB(A) L_{eq} rather than the time limited 60 dB(A) and 50 dB(A) suggested by Mr Growcott. Others expressed the view that 55 would be the appropriate level.
44. On the question of number of events, days between events and finishing times, there were some differences of opinion.
45. Particular reference should be made to the report by Mr Sullivan. He considered that the most relevant assessment approach was the noise limit versus trade off criteria suggested by the New South Wales EPA

and incorporated into the noise guidelines for local government (Department of Environment and Conservation). Under that regime a noise limit of 75 dB(A) L_{10} at nearby residential locations would be acceptable for 10 events per year and a limit of 72 for 12 events per year. If there were to be 15 events the limit would be 68 dB(A) L_{10} . By way of comparison it should be noted that 68 dB(A) L_{10} is approximately the equivalent of 65 dB(A) L_{eq} , which is the limit referred to by Mr Growcott as used in Australia and other locations.

46. Discussing the current speedway noise environment, Mr Sullivan agrees with Mr Growcott and indeed I think all the experts, that in the case of some backyards of adjoining properties, the speedway is generating levels of noise during the 12 event season that most people would find unacceptable. He considers therefore that the noise must be reduced through following one or a combination of three identified paths, they being the reduction in the noise output from the vehicles, reduction of the noise received by the most affected properties through the introduction of a barrier, or insulating the houses. He concludes that, based on a review of current NSW E.P.A. guidelines, an acceptable noise limit outside the residential locations surrounding the speedway based on 10 events per year, would be 75 dB(A) L_{10} . He notes that levels considerably higher than that have been recorded at affected properties. Mr Sullivan provides some very useful detail relating to internal upgrade standards and I will refer to these again later in this report.

MY CONCLUSIONS

47. There is no doubt that a number of houses immediately adjoining Western Springs and situated in Old Mill Road and Westview Road, are subject to levels of noise in their backyards from racing events which would commonly be regarded as unacceptable. Indeed based on my observation from two of the most affected houses, the level of noise

when standing outside was such that conversation was impossible and staying outside unpleasant. I think it highly probable that should an application be made today to permit car racing at Western Springs in a situation where no history of such racing existed, that application would be declined. However, the fact of the matter is that there is a long-established history of motor racing at Western Springs and this factor is entitled to considerable weight in determining a way forward for the future.

48. Springs Promotion acknowledges that it cannot operate within the limits set by the current Auckland City Council controls and it is therefore, in my view, necessary to attempt to provide relief for residents in other ways. A major part of the difficulty is the historic situation which has seen a motor racing venue situated in a natural amphitheatre with a number of residences looking down into it. The reaction of many people is to say, that those who moved there must have known that they would be subjected to these levels of noise. There are at least two answers to that proposition: first, as I have already noted, it may well be difficult to assess the quantity and effect of noise until it is experienced. Secondly, such an approach, other than as a factor to be taken into account, ignores section 16 of the Resource Management Act. I conclude that the acoustic experts are right in supporting the adoption of the L_{eq} method of noise assessment. This allows consideration of the “dose” of noise that would be acceptable for any one racing event. I use the word acceptable to mean not acceptable in an absolute sense, but acceptable in a pragmatic sense, taking into account the wide range of factors which must be considered in determining what in this situation is a reasonable level of noise. Neither Mr Growcott’s level of 65 dB(A) L_{eq} nor Mr Sullivan’s limit of 75 dB(A) L_{10} (for 10 events per year) seems at this stage to be achievable at the backyards of adjoining properties. If racing is to continue it must, it seems to me, be on a basis that provides a

balance between that continuation and the enjoyment by the residents of a reasonable standard of residential amenity. It would be expected that residential amenity would include the ability to entertain outside during the summer months on weekend evenings. In a number of properties, this is just not possible while racing is occurring.

49. The exercise then is to find a commonsense solution to this problem. It seems that best practicable options do not lie to any great extent in the area of reduction of vehicle noise, although some reduction may be possible in the longer term. There are certain things that need to be done. All vehicles must have mufflers. Proper attention to the track would ensure that any tyre noise component is kept to a minimum. But generally speaking, the best practicable option must be found in the area of limiting the number of events and the time that they finish and ensuring in this way that the residents have certainty as to the times when they will be free of speedway noise.
50. This, however, in my view will not be sufficient. Those who live closest to the speedway (i.e. adjacent to the track along Old Mill Road and in West View Road) are subjected to noise even inside their houses in excess of reasonable levels. Part of the solution must lie in the area of addressing that issue so that those who live in these locations can at least be comfortable inside their houses on speedway nights, even if they are not able to be comfortable outside.
51. To achieve these objectives, I propose the following methods as being necessary to achieve the best practicable option to ensure that speedway noise at and adjacent to the stadium is reasonable. I understand that these methods could be incorporated into either a resource consent or a plan change process. Apart from the specific noise levels that I have determined to represent the reasonable noise level that should be

complied with, in order for Speedway to continue at Western Springs, it is the intent of these methods of noise control that needs to be followed, rather than the exact wording I have chosen. For example, some methods I will identify may be more appropriate for inclusion in a noise management plan than as actual conditions of resource consent.

1. There can be a maximum of two practice days and 12 event days. Practice days and two of the event days must finish no later than 6.00 pm. The remaining event days must finish no later than 10.00 pm, except for two events held on Saturday nights which may finish at 10.30 pm. (Explanation: Mr Growcott recommended 10 event days. The lowest estimate put forward on behalf of the promoters regarding the necessary number of event days was 12. In order to cater for this I have recommended 12 event days, but with two of them in the afternoon, which will be less of an imposition on the residents. I am conscious of the problems identified by the promoters in relation to other than evening meetings, but anticipate that afternoon meetings early in the season would be acceptable).
2. There must be an average of 12 race-free days between any scheduled racing event or two racing events on successive days over the racing season. The racing season will begin at the first racing event (not including practice) at the start of the season and will finish at the last scheduled racing event. There must be at least six race-free days between any two actual racing events (other than in the case of two events on successive days, when the minimum must be five days). No scheduled event can be on a Sunday evening, unless the following day is a gazetted public holiday. Where a rain-out event is held on a Sunday evening, finish time must be 9.30 pm. This restriction will also occur on other event days when the following day will be a normal public

working day, i.e. other than Saturday, Sunday or a public holiday.

The purpose of the above controls is to ensure that on average there are two race-free weekends every month.

3. A maximum of two "rain-out" event day changes may occur during a race season.
4. All classes of vehicles at race meetings must comply with the following noise limits during any 15 minute sample period at the current assessment locations using existing or equal quality equipment at the noise monitoring terminal:

87 dB(A) L_{eq} for 60% of the number of races held each night

84 dB(A) L_{eq} for 40% of the number of races held each night

(these values have been increased from those in the draft report, but Mr Growcott's view is that they nevertheless represent no more than existing noise levels)

Within one year the dB(A) L_{eq} for the entire event must not exceed 82 dB(A) L_{eq} and after a further two years it must not exceed 80 dB(A) L_{eq} .

Noise contribution to these values will be determined during a race event when the wind speed remains below 5 metres per second.

5. The public address system must not be used for broadcasts during races. The noise from the public address system when measured at the current assessment locations must not exceed 55 dB(A) L_{eq} assessed over any one-minute period over an event day after 6.00

pm. Prior to 6.00 pm on an event day the noise level must not exceed 60 dB(A).

6. The noise, measured as dB(A) L_{eq} , of race track preparation on any day must not exceed 55 dB(A) L_{eq} .
7. Mechanical car park sweeping noise must comply with the noise limits set in the preceding paragraph.
8. The matters referred to in this paragraph are likely to be appropriate for the noise management plan. No racing car operating at the venue shall generate noise levels greater than 95 dB(A) L_{eq} at any location around the track assessed at 25 metres. The assessment may be carried out at any time when the noise influence from any other racing will not significantly influence the measured value.

The period of measurement will be for any 4 – 6 second period during which time the race car must pass the measurement location at no more than 25 metres and with the engine under near maximum load.

The race car, when being tested, must be operating at a circulating speed within one second of the race car's best qualifying lap times.

Race cars, which the assessing officer determines have exhaust noise containing excessive backfiring, will have 3 dB(A) L_{eq} added to the measured values before comparing the race car noise levels with the criterion level.

The measurement location will provide an uninterrupted view to the race car exhaust outlet when the exhaust outlet will be facing an

outside track measurement location.

During a racing event day within one hour of the commencement of circuit events, the promoter will arrange 10 stationary noise checks on randomly chosen race cars when the race cars remain in the pit area. Where possible, the testing location should be screened from view from any nearby houses. The screening material must weigh at least 12 kg/m^2 and must be twice the car length and 1.5 times higher than the highest part of the roll cage. A building may be used to provide screening.

The purpose of the test will be to identify cars that may be required to carry out formal testing on the circuit.

A type 1 grade sound level meter will be placed within 525mm of any exhaust outlet.

The engine of the race car will be revved to three-quarters of maximum engine power revs and held for a period of 2 – 5 seconds. The noise level recorded will be the $\text{dB(A)} L_{\text{eq}}$ for the period.

The test will be repeated three times and the arithmetic average of the recorded values reported. The noise level qualifying for a race car to be considered for formal circuit testing will be determined by correlation testing at a circuit but is expected to be in the order of $120 \text{ dB(A)} L_{\text{eq}}$.

Owners of cars with stationary test noise levels greater than the criterion level will be provided with three options:

1. Reduce the noise and re-test
2. Request a full circuit test
3. Not race at the event

Any race car owner requesting a full circuit test and failing the test will be banned from the event .

During the racing events any race car identified during racing as having significantly higher noise levels than the rest of the cars will be considered for a stationary test at least and if failing the first stationary test offered the same options described above.

9. 10 days prior to the first practice day at the commencement of a racing season, the promoter will be required to deliver to each household within 150 metres of the circuit a written schedule of dates, start and finish times of events and the procedure for determining "rain-out" day alternative and the earlier finishing times on these occasions.

The promoter will also advertise the same schedules in a local newspaper and on a Web Site identified therein on three occasions before 31 December of each season and seven days before any event.

10. The Auckland Council will assist a review of noise levels and testing procedures described in these methods following the 2006/2007 season and will give consideration to any changes provided those changes do not alter the intent of the conditions which have been designed to improve the acoustic amenity at the residences nearby to the Western Springs Speedway.

11. Except as provided in these methods, the provisions of Council's concept plan should continue to apply.
 13. The promoter shall prepare a noise management plan, demonstrating compliance with these methods. That plan should be reviewed after two years and thereafter in three-yearly reviews, unless circumstances require more frequent review. The management plan should be prepared in consultation with the community and must be approved by the Council.
 14. The Council must undertake a programme of noise reduction to the interior of affected houses. For this purpose, values in the range 50 to 55 dB(A) L_{eq} are to be deemed reasonable values inside rooms with windows and doors closed. The Council will find guidance in the preparation of such a plan from para 10 of Mr Growcott's report, paras 2.3 and 2.4 of the Norman Disney & Young report and (to the extent they are relevant) from the acoustic treatment packages prepared by Auckland International Airport Limited. The Council will need to address the question of payment for such upgrades as between the promoters, the residents and the Council. This programme of acoustic upgrading should be considered as a matter of urgency to provide home-owners with the earliest possible protection from excessive speedway noise inside their homes.
52. I consider the above methods to be the minimum necessary to ensure compliance with s.16 Resource Management Act. A failure to comply would, in my view, cast serious doubt on the suitability of the continued use of the speedway.

P.M.Salmon

11th September 2006