
In the Matter of: The Resource Management Act 1991

and

In the Matter of: An application to develop and operate a Regional Motor Sport Park at Stanley Brook

Application By: Adcock & Donaldson Properties Ltd

**Statement of Evidence of
Donald David Petrie**

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**Statement of Evidence of Donald David Petrie, B.E. (Civil), MS (Transportation),
Berkeley, MIPENZ**

Introduction

1. My full name is Donald David Petrie. I am a Civil Engineer with a Master's degree of Science in Transportation from the University of California, Berkeley. I have been a Member of the Institute of Professional Engineers of New Zealand for the last 30 years, and am also a member of its specialist Traffic and Transportation Group. My background of experience includes seventeen years with the Ministry of Works and Development, and two years with the National Roads Board. Since September 1989 I have worked for Traffic Design Group Limited of which I am a Senior Associate, practising as a traffic engineering specialist, and where I have been primarily responsible for traffic engineering design associated with a wide range of public, commercial and private developments throughout New Zealand. I am also an experienced safety auditor.
2. I have read the Code of Conduct for Expert Witnesses in the Environment Court Consolidated Practice Note (2006). I agree to comply with this Code of Conduct. This evidence is within my area of expertise, except where I state I am relying on what I have been told by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.
3. In this matter, I have been asked by Counsel for the Applicant to examine and describe the traffic and transportation effects of this proposed application for a Motor Sport Park at Stanley Brook. In my evidence I will briefly describe the existing road and traffic environment, the proposed access and parking arrangements, the expected change in traffic pattern as the Motor Sport Park is progressively developed, the proposed improvements to provide safe access, and any further mitigation measures as may be warranted in order to address any traffic issues raised in submissions and the Council Section 42A report.
4. I am familiar with the location of the proposed new Motor Sport Park within the local and wider road network of Tasman District and I have read and considered the various transportation-related submissions received in response to the application. I have also read and considered the Council's Section 42A report.
5. As a summary of my evidence which follows, it is my view that with some mitigation and traffic management measures as proposed, the proposed Motor Sport Park is able to be supported from a transportation perspective.

Traffic Design Group

Location in the Road Network

6. Figure 1 shows the location of the site within the wider context of the Tasman District and its strategic road network. As described in the application, it is approximately equidistant from Richmond (50km) and Motueka (55km) and is to be accessed from the Motueka Valley Highway via Olivers Road and Rabbit Gully Road.
7. Motueka Valley Road is an arterial route connecting Motueka with State Highway 6 at Kohatu via Tapawera. Olivers Road connects with Motueka Valley Road some 1.2km north of SH6. I understand that it is a local public road over its first 500m, beyond which it enters a Crown block leased to Nelson Forests Ltd. It winds up to a ridge where it connects onto Rabbit Gully Road that extends down to the site.

Existing Features of the Road Network

8. State Highway 6 connects with the Motueka Valley Highway via a tee intersection at Kohatu. This intersection has been upgraded by NZTA to provide separate left and right turn lanes on the State Highway approaches. Traffic on the Motueka Valley Highway approach is controlled by a Give-Way.
9. Motueka Valley Highway comprises two 3.6m wide lanes with nominal shoulders each side and is marked with a centreline and edge-lines. There is some additional seal widening opposite Olivers Road for the local school bus.
10. Olivers Road is sealed for the first 15m, only and thereafter provides a 4.6-5.2m wide gravel surface over the public section of road along the frontage of the Reisma property, and thereafter reduces to a 3-4m track with extra widening at bends through to Rabbit Gully Road, at 2.5km from the highway. There are a couple of log skid areas at 1.6km and 2.1km from the highway. Rabbit Gully Road is of a similar standard, ie a narrow unsealed two-way local private access road, some 2.5m in width.
11. There is a 50km/h speed limit sign within a larger sign at the start of Olivers Road; however actual speeds on Olivers Road and Rabbit Gully Road are typically around 20-40 km/h.
12. The low volume of existing traffic comprises mainly of forestry traffic for which the current road is fit for purpose.

Olivers Road Intersection

13. This intersection is designed to accommodate logging traffic from the forestry blocks, with generous 12m corner radii. However, the sightline to the south along the highway is restricted to 130m and as described in the application, does not meet minimum standards for the 100km/h speed environment. This has the effect of hiding the intersection on the approach from the state highway.

Existing Traffic Patterns

Daily Flows

14. The following Table 1 is a summary of the most recently recorded daily traffic flows in the general locality as reported by Tasman District Council. The average daily traffic is measured in vehicles per day (vpd) total in both directions.

ROAD DESCRIPTION	ROAD TYPE	AVERAGE DAILY TRAFFIC (vpd)
Rabbit Gully Road	Local	Est <10vpd
Olivers Road	Local	Est 10vpd
Motueka Valley Highway	Arterial	1150
SH6	Arterial	2100

Table 1: Daily Traffic Flows

15. The traffic flows on the state highway are relatively low for a state highway arterial route, being relatively remote from centres of population. Likewise, the traffic flows along the Motueka Valley Highway are also very low for an arterial route, for which the Tasman Resource Management Plan (TRMP) expects typically in excess of 1500vpd. Each of these arterial routes is constructed to a relatively high standard, with ample capacity to safely carry considerably higher volumes of traffic.
16. The local forestry roads are of a low standard and not suitable for increased traffic in their current state.

School Bus

17. I have obtained details of the Tapawera Area School bus routes and timetables. Both the Korere and Kohatu Bus Runs use Motueka Valley Highway past the Olivers Road intersection each school weekday within the period 7:15am and 8:40am and between 3:20 and 4:50pm in the afternoon. These periods are outside the times when the majority of the traffic associated with the motorsport park is expected.

18. The local school bus stop is located within a sealed layby located on the opposite side of the road to Olivers Road and just to the south of the intersection.

Road Safety

19. I have updated the search of the national crash database for the most recent 5 year period 2007-2011 inclusive. A total of six crashes were reported, as follows:
20. Two crashes were reported at the intersection of SH6 and Motueka Valley Highway; one resulted when a through vehicle failed to slow in time for a car that had slowed to turn into Motueka Valley Highway. This crash occurred in early 2007, prior to the construction of a left turn lane on SH6. The second occurred in 2010 when a turning vehicle failed to give way to a through vehicle when turning right. Neither of these crashes involved injury.
21. The other four crashes were single vehicle crashes along the Motueka Valley Highway, one involving a collision with an animal and three involving loss of control.

The Proposal

22. The proposal is well described in the application, and will be developed progressively over time, as funding allows. As described, the day to day use of the park is expected to be relatively low given its distance from the main urban centres.

Traffic Generation

23. On a routine daily basis, I expect that the number of vehicle movements per day would be less than 50vpd, the majority of which would be after work hours, principally over the summer months. During the initial stage, only occasional events can be expected to be associated with the drag strip and can be expected to attract up to 1,500 people as they do at Motueka, or the equivalent of around 700 to 800 vehicles. In the long term when fully developed, more regular motor sport and other events will be held with attendance ultimately expected to be up to around a peak of 4,000 people (around 1750 vehicles and 3500vpd (total in and out) during a weekend, and typically less than 200vpd during the week for practice and/or recreation purposes.
24. It can be expected that traffic will distribute generally in accordance with the population distribution in the district for local district events, and on a wider basis for national or South Island events.

25. Briefly, for recreational use, practising, and for local district events, vehicle traffic is expected to be distributed as follows:
- (i) around 25-30% to/from the direction of Motueka
 - (ii) around 70% from the direction of Nelson
 - (iii) up to 5% from Kohatu and to the south
26. For national events or similar, I expect that there would be a larger proportion from further afield, eg Canterbury, Wellington, Marlborough in particular, increasing the traffic approaching from State Highway 6 to around 80%. However, I understand that such events would be relatively few and far between, even in the longer term.

Parking Provision

27. The application describes the proposed on-site provision of parking in some detail. Suffice to say that all parking associated with the comprehensive range of activities is to be provided fully within this large site. It is not intended that all of the parking areas will be sealed, given this remote rural location and low turn-over of the spaces. Some of the parking is dedicated to particular facilities, but for the most part it is intended that there be a shared use of the available parking and overflow area, as appropriate for the efficient use of this resource. Given the ample provision, there were no submissions among the large number received that raised any issues with the proposed parking provision.

Intersection Upgrading

28. As described in the application, it is proposed that the existing intersection of Olivers Road with Motueka Valley Highway be upgraded prior to the commencement of any construction on site, given its substandard sightline to and from the south, in particular. It is proposed that the local 'hump' be removed by lowering the vertical profile of the road by 0.8m. At the same time, a low berm to the north that intrudes on the sightline will be cut back.
29. Seal widening will also be provided at the intersection in general accordance with Diagram 3 of the TRMP, consistent with the provision for turning traffic clear of through traffic in this 100km/h speed environment. In order to achieve this in practical terms, there is a need for a minor realignment of the road centreline so that the additional widening occurs on the Olivers Road side of the highway, as I have discussed with Council's Development Engineer.

Road Upgrading

30. With the substantial improvement to the intersection, at the applicant's cost and to Council standards, safety is enhanced in the vicinity of the intersection. Beyond the intersection, Motueka Valley Road has more than ample capacity to accommodate all of the projected future traffic over the longer term, as acknowledged by Council.
31. However, considerable upgrading of Olivers Road through to Rabbit Gully Road and Rabbit Gully Road through to the site is required.
32. I am in agreement with Council that the carriageway be widened and upgraded with associated drainage and alignment improvements as needed to meet Council requirements for a minimum design speed of 30km/h. I also agree that sealing the public section of the road will need to be undertaken as a permanent dust control measure when justified by the traffic flows. This can be covered by conditions, as I discuss later.
33. Beyond the public road section, for the balance of Olivers Road and Rabbit Gully Road by way of private ROW through to the site, I agree with the upgrade proposed by Council, and for the reconstruction to be undertaken prior to commencement of any sport/recreation activity on site.

Traffic Management Plans

34. It is accepted that traffic management plans will need to be in place for major events. These will require separate Council approval, as covered by the proposed conditions of consent.

Construction Traffic

35. It will also be required to have an approved Construction Traffic Management Plan before commencing construction of the intersection and road upgrading, as proposed.

Resource Management Plan Provisions

36. The TRMP provisions have been well covered by the application and the Section 42A report, so I will not repeat them here.

Assessment of Traffic Effects

37. The day to day traffic that is generated by the motorsport park is expected to be relatively low, at less than 50vpd initially and increasing incrementally over time as

additional facilities are added to perhaps 200vpd in the longer term, as previously described.

38. When added to existing flows that are typically less than 20vpd on these forestry roads, the AADT is expected to remain below 100vpd for the foreseeable future. Sealing of roads is recognised to be unwarranted and uneconomic at traffic flow levels of less than 200vpd, and has the advantage of limiting vehicle speeds. This is consistent with Appendix 6.2 of the TDC Engineering Standards & Policies 2008, 'Rural, Forestry, Farming (Non Residential) Roads' within a 30-70km/h speed environment.
39. I would expect the existing alignment to require upgrading in places, along with vegetation control to meet a minimum 30km/h design speed. As identified in the application, additional clearances to meet minimum fire standards are also likely to be required. These requirements can be covered by conditions.
40. Given that events attracting larger volumes of traffic will initially be occasional, only, then sealing the road will not be warranted in the initial stages. Once the number of days when traffic volumes exceed 200vpd exceeds an 85th percentile design threshold, (ie total two-way traffic volumes exceed 200vpd for some 50 days of the year) then sealing of the road will be warranted. I therefore consider that sealing the road is unlikely to be warranted within the next 5 years, although this is totally dependent upon the traffic that is actually attracted to the site. This can be covered by a condition, as I will discuss later.
41. The proposed traffic management plans that will be subject to Council approval will ensure that when there are higher traffic demands with high concentrations of vehicle movements before and after events, the traffic is managed appropriately on those occasions.
42. Harvesting of the forestry blocks is currently envisaged to be at least some 5-10 years away, when logging traffic can be expected. However, as identified in the application, it is proposed that arrangements are made with the forestry companies so that no competitive events coincide with these operations.
43. I have noted that the school bus schedule before and after school will not be in conflict with weekday after-work motorsport practice, weekend events or recreational use. The upgrade of the intersection will be designed to continue to make adequate provision for the school bus to stop, noting that with the significantly improved sightlines, the safety environment for children crossing at or near the Oliver Road intersection will also be improved.

44. I propose that it would be advantageous to paint a 2.5m wide right-turn lane within the new widened seal formation so as to:
- Highlight the location of the intersection, and
 - Improve the lane discipline such that all right-turning vehicles use the lane in the centre of the road in this 100km/h environment.
45. In summary, it is my assessment that subject to the various measures that may be required over time as I have identified, the existing road network is able to accommodate the additional traffic generated by the proposed motorsport park, inclusive of anticipated traffic growth across the wider network.

Response to Submissions

46. I have reviewed the various traffic related submissions and respond, as follows.
47. The submission from Joanna Leyland raises several traffic related issues. Firstly, with regard to travel implications, it is acknowledged that this regional facility is remote from the ferry terminal in relation to national events, but these are few and far between. On the other hand, the site is closer to Christchurch than Nelson, for South Island events. In terms of regional events, it is relatively central to the main centres of population of Nelson, Richmond and Motueka. It is not on a public transport route as identified, and neither is any such multi-sport motor park that I am aware of, that by their nature are generally located remotely from population centres for amenity/reverse sensitivity reasons.
48. With regard to Road Safety issues raised by this submitter, consideration has been given to emergency vehicle access and to fire risk from for instance, a road crash. Firstly, the site includes an airstrip which will provide for any rapid response required. Also, the forestry roads are to be widened to provide more than adequately for two-way vehicle traffic as required, and the adjoining berms will provide areas where vehicles can safely pull over to let emergency vehicles past. Specific traffic management plans for major events will also enable traffic management personnel to close sections of road if and when required for emergency vehicle access. As described in the application, adequate set-backs from the road to the forests by way of mitigating fire risk are an integral part of the application, the details of which are addressed by others.
49. The submitter is critical of the extent of the crash search that has been undertaken, and that I have updated for the most recent 5 year period. The extent of the search does not

extend beyond Tapawera and the State Highway because simply, those sections of road are already designed by the respective roading authorities to accommodate the projected future traffic demands in their existing form with the exception that specific temporary traffic management may be required at the state highway intersection for major events.

50. The evidence clearly shows that there have been no accidents at the Olivers Road intersection but it is to be upgraded, anyway, and that all reported crashes along the section of the Motueka Valley Highway involved single vehicles, only, and were as a result of driver error. It can also be expected that Police will be on hand, if considered warranted for particular events.
51. In respect of consultation with NZTA or its local agents, I have assessed that there will not be adverse effects upon the State Highway, particularly with the recent upgrade of the intersection with the Motueka Valley Highway. Even so, this application has been publicly notified and NZTA have not made a submission.
52. Mike Drake in his submission refers to the 'Traffic Hazard' of the proposal, and makes the point that 'cyclists' (and in particular road cyclists such as himself) 'would be at greater risk' due to the traffic attracted by the motorsport park. The very fact of increasing traffic, whatever the source, will lead to a greater 'exposure' of cyclists to other traffic, wherever a motorsport park is located. However, Motueka Valley Highway is an arterial road that can be expected to accommodate all road users including cyclists, but it is not a designated cycle route whereby specific on-road cycle provisions are warranted.
53. A submission was received from Stuart and Joanne Bryant requesting barriers across the entranceways to their property and this is able to form part of the traffic management plan for major events, if warranted. Adequate signposting is also sought and I support the signage conditions proposed in the Council officers' report.
54. The K & J Rowe Family Trust states that *'the increase in vehicle numbers will create an unsafe traffic environment and will affect the safety of both local residents and those using and visiting the motorsport park'* without clarifying exactly why this will be the case. Similarly the submission from S Udy and J Blount states that *'the increase in vehicle numbers would create an unsafe traffic environment'*. As I have outlined, substantial improvements to Council requirements are proposed by the applicant to upgrade the Olivers road intersection and the full length of the route into the site that in my assessment will avoid any potential for an unsafe traffic environment.

55. I acknowledge the thorough submission from Oliver Road residents L Reitsma and D McQueen in relation to their anticipated traffic effects. I understand that their property fronts the public section of Olivers Road and the Motueka Valley Highway. Their access is some 390m along Olivers Road, and this section of the public road is to be upgraded, initially by widening and then by sealing when justified by the traffic volumes, and is able to be controlled by a condition of consent. Good sightlines are available and it is therefore my assessment that the safety of accessing this property will not be compromised as suggested. The volumes quoted from the traffic report are those anticipated at full development which is likely to be many years away, and at which time both the widening and sealing of Olivers Road will have been completed.
56. With regard to the school bus, as I have already observed and as acknowledged later in this submission, the increased traffic will be outside school bus times, and crossing the highway to or from the bus will be significantly safer after the 'hump' is taken out of Motueka Valley Highway.
57. As noted by Mr Dugald Ley in his report, if safety of children walking along the side of Olivers Road remains an issue for the submitter, they could provide a path through their own property to the highway, directly.
58. With regard to one-way traffic, this was recommended in the traffic report on the expectation that it would be needed if the road is not to be widened. With the road improvements proposed, a restriction to one-way traffic would not be required.
59. I acknowledge that recreational walking or running on the road may become less pleasant with increased vehicle traffic. However, this is not the primary function of a road carriageway, and pedestrians/runners would in my view be well advised to use the roadside berms as far as practicable.
60. The applicant has accepted in principle a condition to seal the public section of the road across the site frontage when warranted, by way of a condition, and until such time to suppress dust by means of a watercart, as needed. These measures can be expected to mitigate road traffic noise or dust issues in respect of the submitters' residence and crops. It is also proposing to provide a lockable gate to protect the privacy of the submitters.
61. The submission from K Renton & C Dempster seeks reassurance that the road would be upgraded early and this is covered by a condition of consent as described. Likewise the intersection will be upgraded as sought in the submission of B Carleton.

Section 42A Report

62. I have read the Council's Section 42A report and I am generally supportive of its findings and recommendations with respect to transport related matters.
63. Firstly, I acknowledge the report from Council's Roading Engineer, My Ley, attached to the Section 42A report that confirms that with the mitigation measures proposed, the roading network has the capacity to accommodate the increased traffic flows without significant effect, consistent with my own analysis.
64. I agree that for all major events, there will be a need to form at least two to three lanes through the ticketing area to avoid excessive queuing of in-bound vehicles, and that the ticketing area itself be clear of the private road/ROW. Again, the specific details are best covered by way of a Temporary Traffic Management Plan
65. I further agree with the principle of upgrading the road in stages, as traffic demands warrant, and with one minor proviso, I agree with Mr Ley's recommended conditions. Since these are reiterated in the Council Planners' report, I address them as they appear in that report, as follows:
- (i) Condition 4(a), (b), and (c): I agree with these conditions for the upgrade of the intersection, and to be generally in accordance with diagram 3 as sought, and recognising that a minor local realignment of the existing road intersection is likely to be necessary.
 - (ii) 5(k) and (b): I agree with these, without change
 - (iii) 5(c): I agree with the need for traffic counting, but only until such time as the road is sealed all the way to the site. However, I do not agree that the count should be confined to the weekend. Rather, I propose that it include a full two-week count in each case that includes the two busiest weekends expected each year, (total of 4 weeks count) with the individual daily flows identified as well as the overall average daily traffic (ADT) identified for a minimum 4 week period. This is for the reason I outlined earlier that road improvements are not and should not be designed to take account of absolute peaks that may be few and far between, but are to be designed to accommodate the 50th highest hour. In this case, I propose that the ADT as averaged from a four week period including the two busiest days of the year is an appropriate measure.
 - (iv) 6. As identified in the application, it is projected that the very first dragstrip event is likely to meet or exceed Council's proposed threshold. I therefore propose that the ADT be calculated from the daily average of total vehicles in & out each day

across the four busiest weeks of the year, with a threshold ADT of 200vpd being the trigger for sealing. This is consistent with Council's own Engineering Standards. Mr Quickfall will present an amended condition, accordingly.

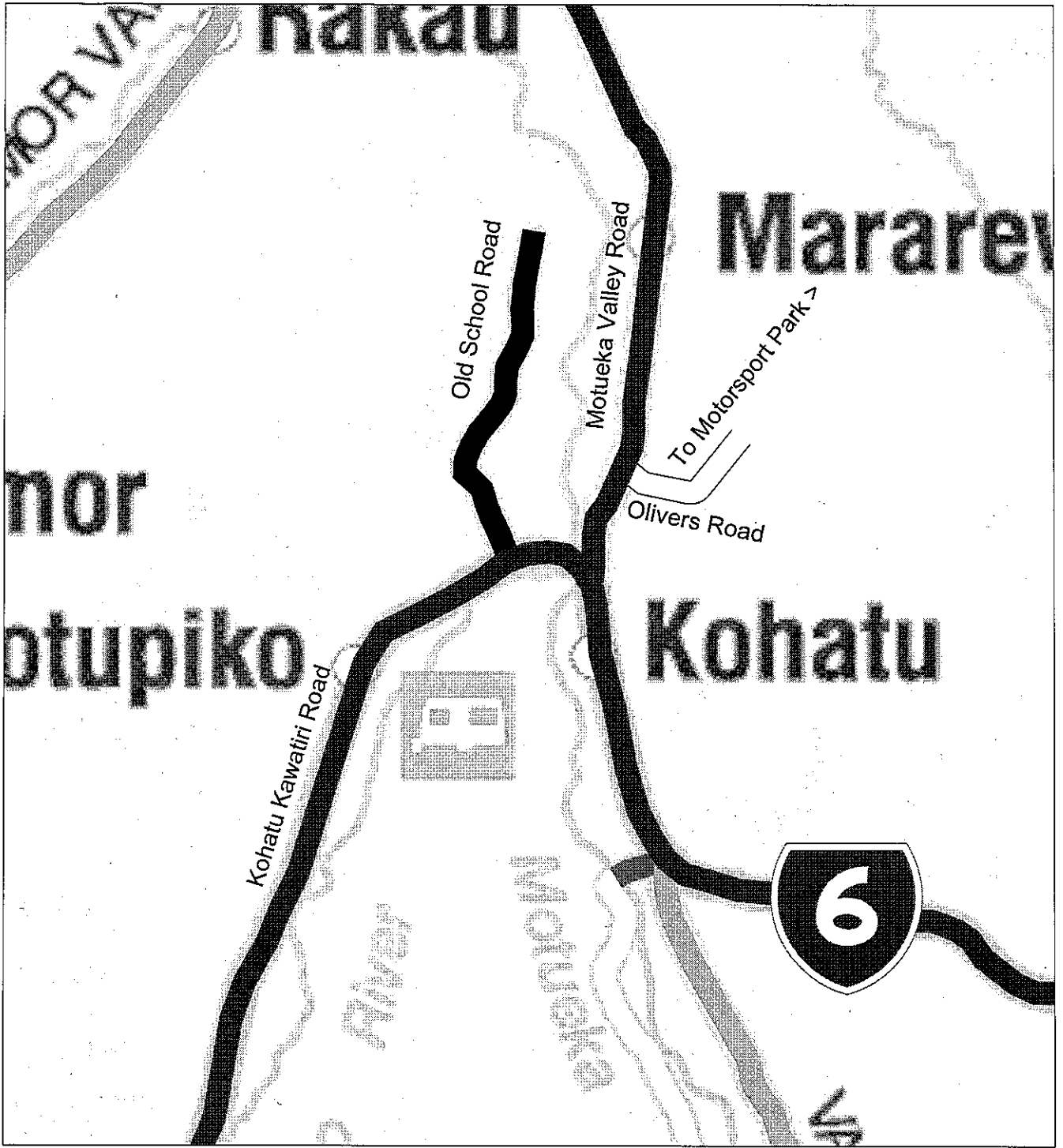
- (v) 7. Agreed
- (vi) 8 (a)(i): I agreed in principle, except that construction should be to Council's Engineering standards rather than NZ4404, as I think was inadvertently proposed. I also believe that minimum 0.6m feather edges in accordance with the Engineering standards should be applied rather than two x 1m feather edges as proposed. Again, Mr Quickfall will introduce an amended condition in this regard.
- (vii) 8 (a) (ii) I agree with this condition subject to more flexible requirements to meet fire service requirements as proposed by way of a revised condition by Mr Quickfall.
- (viii) 8(b) Agreed
- (ix) 10-14 Signs: Agreed
- (x) 15, 16. Carparks: Agreed
- (xi) 30 (g) & 31. New Activity Management Plan: Agreed in respect of the need for a large event management plan as defined in 31.






Conclusions

66. In summary, with the mitigation measures as covered by conditions, amended in respect of traffic related matters as I have described, the proposed motorsport park is able to be accommodated as proposed without measurable adverse traffic effects on other road users or adjoining property owners.

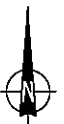
Donald David Petrie
Traffic Design Group Ltd

29 February 2012



-  Arterial
-  Distributor
-  Collector
-  Access Road
-  Access Place

Tuesday, 9 November 2010



Tapawera Motorsport Park
Site Location in the Road Network

Traffic Design Group

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SCALE: 1:50,000