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NZ Vehicle Emissions Screening Programme

Submission to the Ministry of Transport
January 2005

Introduction

The IPENZ Transportation Group ("IPENZ TG") is pleased to present this submission on the New Zealand Vehicle Emissions Screening Programme Discussion Document. IPENZ TG consists of nearly 700 transportation and traffic engineering professionals working in central government, local government, academia and the private sector. IPENZ TG represents a segment of considerable expertise in the fields of traffic and transportation and has a significant interest in managing the effects of transportation on society and in managing vehicle emissions.

This submission has been prepared by the management committee of IPENZ TG, with limited additional input from members given the difficulty of preparing this submission over the Christmas / New Year period. Because of the diversity of members of IPENZ TG there is also a diversity of views on issues such as this and this submission may not represent the views of all members. However, IPENZ TG strongly supports the Government's intention to introduce mandatory emissions screening in mid 2006 and requests that the deadline not be relaxed.

Initial Comments

1. We recommend that this programme be renamed the New Zealand **Motor** Vehicle Emissions Screening Programme. Under the Road Code and supporting legislation, a bicycle is a vehicle. Clearly the programme is not intended to address emissions from bicycles, as they have none. Although the introduction to the Discussion Document specifies the vehicles to which the programme will apply, the programme title should include the word "motor" and references in the discussion document and the consequential Rule to "vehicles" could be changed to "motor vehicles".
2. We are concerned that it appears that a decision has already been made to adopt a minimalist approach to reducing vehicle emissions. The programme outlined in the discussion document seems to be too concerned with introducing change. More people are likely to be upset if the programme is ineffective and yet still increases costs to all parties (non motorists as well as motorists).
3. We feel that the emphasis on targeting "gross polluters" is not sufficiently ambitious for New Zealand's emissions screening programme. Eliminating gross polluters is easier than removing all polluters and is a long overdue goal. However, higher standards will be required within a few short years and we should be looking to implement international best practice as soon as practicable. The New Zealand Transport Strategy (NZTS), the Land Transport Management Act and the land transport programme process are aimed at a much longer term in transport planning than has been the case in the past. Therefore

the vehicle emissions screening programme should also involve planning further into the future than just dealing with "gross polluters." For example the motor vehicle screening programme should include a time frame for the implementation of stage 1 (screening gross polluters), then stage 2 comprehensive guidelines perhaps two years later.

4. We would be concerned if the emissions screening programme, if implemented as proposed, was likely to be biased in favour of diesel powered vehicles over petrol vehicles, as has occurred in the United States under the CAFE regulations (see our answer to question 3 below). We fear that this will result in more diesel vehicles being imported into New Zealand over the next few years. Already we have seen a rapid influx of diesel sport utility vehicles (SUVs) which are used predominantly for short urban trips. Cold start diesel engines perform poorly and emit excessive, bad smelling fumes even compared with cold-start petrol engines.
5. The government and local authorities are trying to increase the amount of walking and cycling through a whole range of initiatives, including the New Zealand Transport Strategy, the Land Transport Management Act, the national walking and cycling strategy and numerous local and regional walking and cycling strategies. Walking or cycling alongside motor vehicles on roads thick with exhaust fumes is very unpleasant and the lack of an effective emissions screening programme is considered to be a strong deterrent to increased levels of walking and cycling.
6. We would like consideration to be given to raising tailpipes on trucks and buses to the maximum practical height to reduce emissions at ground level. Pedestrians and cyclists are most susceptible to motor vehicle emissions and these large vehicles are relatively heavy polluters. Raising tailpipes could be a practical way of helping improve air quality for pedestrians and cyclists.

Answers to Discussion Document Questions

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| 1. | <p>Do you have any comments about how emissions screening might affect vehicle owners?</p> <p>Emissions screening will be good for all citizens, for all the reasons (both individual and collective) that the Ministry of Transport has cited for introducing screening. The health of vehicle owners will benefit through reduced emissions and the increased costs associated with the screening programme will be partially offset by reduced vehicle running costs. Pollution levels are often as high inside motor vehicles as they are outside, so improvements in emission performance will be good for vehicle owners.</p> <p>But "vehicle owners" includes more than motor vehicle owners. Those who own and operate bicycles are vehicle owners (as bicycles are legally vehicles) and their health will be improved by an emissions screening programme that reduces emissions.</p> <p>Just as important as how emissions screening will affect vehicle owners, is how it will affect the remaining millions of New Zealanders who are not motor vehicle owners. Decisions on the principle and details of the introduction of emissions screening should not be determined purely by its impacts on motor vehicle owners. A wider societal view should be predominant. Emissions screening based on international best practice will be good overall for New Zealanders.</p> <p>We support stringent, consistent and fair emissions screening across society, regardless of individual socio-economic circumstance, in the interests of public and individual health. There is some evidence that socially and economically deprived areas are more polluted, and their residents live closer to major traffic routes (PHAC</p> |
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| | <p>2002 <i>The health of people and communities: the effect of environmental factors on the health of New Zealanders</i>. Public Health Advisory Committee, Wellington. http://www.nhc.govt.nz/phac/publications/health_of_people.pdf.</p> <p>If the consequence of screening means reduced affordability of motor vehicles, then solutions other than exemptions should be used, such as the use of public or alternative transport, or where a motor vehicle is necessary (due to isolation), then some sort of subsidy on a case by case basis could be considered.</p> |
| 2. | <p>Do you have any comments about how emissions screening might affect the vehicle inspection and repair industries?</p> |
| | <p>Overall it should result in more business.</p> |
| 3. | <p>What sorts of vehicle characteristics should be used to establish vehicle bands for emissions performance limits? (For example, vehicle age, engine technology, and weight.)</p> |
| | <p>We are concerned that the emissions standards may be more easily met for diesel fuelled vehicles than petrol vehicles, resulting in a bias over time towards a higher proportion of diesel vehicles in the New Zealand fleet. Diesel engines pollute badly when cold, and increasing numbers of light diesel vehicles such as sport utility vehicles (SUVs) appearing on our roads, used for short urban trips, will result in declining air quality standards. The trend towards relatively more diesel vehicles with a consequential lowering of air quality has been evident in the United States and a contributing factor is widely regarded as the relatively lax CAFE¹ standards for “light trucks” (including SUVs) relative to petrol ones.</p> <p>We request that light petrol and diesel vehicles (typically cars and SUVs) be required to meet the same emissions standards. This also will be beneficial as vehicle fuel types diversify over time, to include CNG, LPG and other power sources.</p> <p>Relaxing standards for larger vehicles encourages vehicle owners to buy and use larger motor vehicles. Emissions screening is one way the Government can encourage vehicle owners to buy smaller, more efficient, less polluting vehicles. Care needs to be taken in setting the vehicle bands so that importers do not import more polluting vehicles (such as large or diesel powered vehicles) simply because they meet the emissions standards more easily.</p> |
| 4. | <p>Do you think the selection of pollutants for which performance limits are being proposed is appropriate?</p> |
| | <p>For in-service vehicle testing we believe the selection of pollutants chosen is adequate. For example, while the European Euro IV and American IM 240 and ASM tests include tests of oxides of nitrogen, these tests would be impractical for in-service testing. Testing for nitrous oxides is more relevant when testing as-built standards and therefore could be considered for vehicles as they are imported into the country.</p> <p>For diesel powered vehicles, we believe that limits for particulate matter only (as proposed) is adequate since emissions of carbon monoxide and hydrocarbons for diesel engines are very low compared to petrol engines. Again, for practical purposes, testing for such pollutants in diesel engines is more relevant when testing as-built standards.</p> |

¹ US Corporate Average Fuel Economy standards. See <http://www.aceee.org/energy/cafe.htm> for discussion.

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| | <p>Transportation generates about 40% of New Zealand's carbon dioxide emissions, or 15% of all greenhouse gas emissions. In parallel with the emissions screening programme, it would be beneficial to introduce carbon taxes on fuel, so that the polluter pays principle encourages restraint in the purchase and use of "gas guzzlers".</p> <p>"At the Kyoto Conference on Climate Change in December 1997 all developed countries agreed to legally binding targets to reduce their greenhouse gas emissions in response to warnings over global climate change. Following this the European Commission and the European Automobile Manufacturers Association (ACEA) came to an agreement in July 1998 that committed ACEA to reduce the CO₂ emissions from new passenger cars by over 25% to an average CO₂ emission figure of 140 g/km by 2008. This is one of the most significant industry agreements on reducing greenhouse gas emissions and it has led to more fuel efficient vehicles being brought to the market. Similar voluntary agreements have now been reached with Japanese and Korean motor manufacturers."² Again though, testing for carbon dioxide is more relevant when testing as-built standards, rather than when carrying out in-service testing.</p> <p>While sulphur emissions from motor vehicles are of concern, the government's proposed mechanism of dealing with this through fuel standards is considered more effective than through tailpipe emissions standards and testing.</p> |
| 5. | Should the performance limits for newly imported used vehicles be more stringent than the limits for vehicles that are in-service? |
| | Yes, and any programme for testing newly imported new or used vehicles should test for a wider range of pollutants, as outlined in 4 above or standards for new vehicles will be lax and ineffective. Limits for newly imported vehicles should also reduce over time but these reductions should not apply to in-service vehicles otherwise many in-service vehicles would be forced off the road. Over time, as the vehicle fleet replaces itself, average emissions should reduce. |
| 6. | Do you see any practical difficulties in implementing different performance limits for vehicles in different bands? How could these be overcome? |
| | No comment. |
| 7. | What is the best approach to ensure continuing improvements in the performance of the New Zealand fleet? |
| | <p>A mixture of continuously reviewed and improved standards, education, promotion and enforcement of regulations. Incentives for removing polluting vehicles may also be an option.</p> <p>Higher taxes on polluting vehicles such as diesel powered SUVs (especially as they are imported into the country) could also be used as an incentive to remove them from or keep them out of the fleet. Reducing the number of diesel powered SUV's on the road would also have many other benefits, notably safety benefits. Such vehicles typically have a high aggressivity rating (that is, they are more likely to cause injuries to the occupants of other vehicles they hit), roll over more readily, and restrict visibility for other road users.</p> |
| 8. | What is the best longer-term approach for improving the performance of diesel engines, particularly with respect to particulate emissions? |
| | Managing the number of diesel powered vehicles in the fleet and moving to international best practice such as the Euro IV emissions standards currently in use in |

² This paragraph extracted verbatim from: <http://www.vcacarfueldata.org.uk/information/index.asp#co2>

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| | Europe. In this respect, the programme proposed in Land Transport Rule: Vehicle Emissions 2003 is supported. Taxes on excessive polluters and “gas guzzlers” (as they are called in the United States) should also be part of the long term strategy to reduce emissions. |
| 9. | Do you agree that the proposed hybrid framework is the most appropriate for the New Zealand situation? |
| | No comment. |
| 10. | What would be the main issues for testing stations and WoF garages around participating in the proposed in-service emissions screening programme? |
| | No comment. |
| 11. | What would be the main issues for TSDAs around participating in the proposed entry emissions screening programme? |
| | No comment. |
| 12. | How much lead-in time would TSDAs and WoF or CoF garages require to be suitably equipped and trained to participate in the emissions screening programme? |
| | No comment. |
| 13. | What difficulties would you anticipate for smaller or geographically isolated garages? |
| | No comment. |
| 14. | What would you see as the major issues for garages wishing to outsource the emissions screening test in order to continue providing WoF services? |
| | No comment. |
| 15. | Do you believe the simple tests proposed are the most suitable tests for the New Zealand situation? |
| | We believe the simple tests proposed are a good start. We would prefer to see the more sophisticated Euro IV, and perhaps IM 240, ASM or similar tests (which have limits for carbon monoxide, hydrocarbons and oxides of nitrogen) used for testing newly imported vehicles. It should be a goal that suitable testing equipment should be installed at more sites over time and, as it becomes more practical to carry out these tests on a more wide-spread basis, they could be considered for in-service testing in future (as in Colorado.) |
| 16. | Are there any other practical implications of implementing simple testing that should be considered (including implications for equipment and facilities)? |
| | Gross emitting vehicles are only part of the problem. Dealing with only these will provide value for money for New Zealanders but will provide only a short term solution. Consideration should also be given to developing an in-service test for detecting diesel injection systems that have settings resulting in over-injection under loading. |
| 17. | Do you think new vehicles should be exempt from the screening programme? If yes, at what age should a new vehicle have its first emissions screening check? |
| | Follow best overseas practice. All new vehicles should undergo a screening test initially as a check to ensure they are working as intended and could undergo the more sophisticated tests in 15 above if they fail the screening. |
| 18. | If new vehicles are exempt from screening tests, what is the best way to ensure |

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| | new vehicles maintain their emissions performance? |
| | No comment. |
| 19. | Do you think older vehicles should be exempt from the screening programme? If yes, from what age should older vehicles be exempt and why? |
| | No, although exceptions might be considered for vintage cars. In Colorado, USA, motor vehicles older than Model Year 1982 are tested every year with the “two speed idle” test, while vehicles between two years old and Model Year 1982 are required to comply with the IM 240 test every second year. |
| 20. | Should any other vehicle types be exempt from the emissions screening programme and, if so, why? |
| | Consideration should be given to including power assisted cycles (vehicle class AB) and motor cycles (vehicle classes LA to LE) in the emissions screening programme. Two stroke engines, in particular, can be gross emitters. |
| 21. | Do you think emissions screening should be required at every WoF? |
| | Probably not. Use international best practice for guidance for testing frequency. However, it would be appropriate to use the WoF testing infrastructure and systems to test emissions every second or fourth WoF (rather than at every Wof). The screening is essentially a test of how well vehicles are tuned and a vehicle could easily go “out of tune” between six-monthly warrants. An annual test would be a compromise between ensuring compliance and a practical outcome. |
| 22. | Do you think emissions screening should be required at every CoF? |
| | No. See also our response to question 21. |
| 23. | Do you agree that newer vehicles should have less frequent emissions screening checks than older vehicles? If yes, at what age should screening start and at what age should it become more frequent? |
| | No. Research international best practice. See 21 above. Since newer vehicles only need to be presented for a WoF annually they could be screened at every WoF test. |
| 24. | Do you think any changes should be made to regulation 28 of the <i>Traffic Regulations 1976</i>, if this section is transferred into the Land Transport Rule? |
| | The “10 second smoky vehicle rule” has been on the books since 2001 as a mechanism for preventing/enforcing against the emission of excessive exhaust smoke. We recommend consideration be given to changing this to three seconds, not ten, if the regulation is to be retained. |
| 25. | What would you see as the main advantages and limitations of enforcing the emissions performance limits? |
| | In our view, the main potential limitation is that the bar will be set too low and that emissions will not be managed to international practice levels. We strongly recommend that the programme should take a longer term view than just dealing with “gross emitters”, consistent with the intent of the NZTS and the Land Transport Management Act. Similarly, we trust that there will be a robust monitoring programme put in place before and after implementation to determine the effectiveness of the programme. |
| 26. | Do you have any views or opinions about the use of supplementary on-road enforcement options? |
| | Random roadside vehicle inspections and remote sensing would help maintain quality and consistency across the country and could be targeted within urban areas. It would |

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| | also help keep vehicle owners honest between one check and the next. Such inspections or remote sensing could also form the on-road part of the monitoring and evaluation of the screening programme. |
| 27. | Do you have any further suggestions on how the introduction of the emissions screening programme could be managed to ensure vehicle owners are prepared for the introduction of emissions performance requirements? |
| | No comment. |

For further clarification of the points raised in this submission, please contact Andrew Macbeth (andrew.g.macbeth@mwhglobal.com or phone (03) 343-8756), or contact the undersigned.

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