

# Hawke's Bay Expressway

## Noise and air quality issues

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Figure 1 Hawke's Bay Expressway



## 1 About this report

### 1.1 Introduction

This report discusses and evaluates the impacts of the Hawke's Bay Expressway on people who live close to the road. A particular section of the Expressway has had significant adverse impacts on their health and well-being. The report was initiated in response to local residents expressing their concerns to the Parliamentary Commissioner for the Environment (PCE).

The report focuses on the concerns of residents who live near the Kennedy Road overbridge section of the expressway. However, the effects this report discusses – noise and vehicle particles – may not be confined to this stretch of the road.

The report:

- summarises the guidelines on noise produced by the World Health Organization (WHO) and the Organisation for Economic Co-operation and Development (OECD)
- summarises the recent legislative changes to land transport and how the Ministry for the Environment (MfE) has considered noise issues
- reviews the history of the expressway and places it in the context of the regional strategy documents produced by Transit New Zealand, the Hawke's Bay Regional Council, and the Napier City Council
- evaluates the perceived effects of noise and particles emanating from vehicles and discusses how these effects have been measured and managed.

## 2 The global context

### 2.1 Adverse noise effects

The effects of noise on human welfare are subjective and difficult to measure.<sup>1</sup> As WHO notes:

...there is a very complex multidimensional relationship between the various characteristics of the environmental noise and the effects it has on people...simple measures have the distinct advantage that they are relatively easy and inexpensive to obtain and hence are more likely to be widely adopted. On the other hand, they may ignore some details of the noise characteristics that relate to particular types of effects on people.<sup>2</sup>

Prolonged exposure to noise produces adverse effects such as annoyance, stress, sleep disturbance, hearing impairment, and other health-related effects. Past noise management practices have tended to undervalue the environmental and social effects of noise.

The predominant source of noise nuisance in urban areas comes from traffic. With levels of traffic and mobility increasing in most urban areas worldwide, the negative impacts of noise are intensifying, and increasingly occur outside normal working hours. This trend persists “despite technical progress to reduce noise at source and the introduction of low noise technologies”.<sup>3</sup> Transport planners and managers all over the world clearly face enormous challenges, particularly the mitigation of noise from existing roads.

## 2.2 Fundamental principles for noise management

Three fundamental principles should be followed in noise management:<sup>4</sup>

- The Precautionary Principle – where there is a reasonable possibility that adverse health effects are occurring, action should be taken to protect public health without awaiting full scientific proof
- The Polluter Pays Principle – the full costs associated with noise pollution (including monitoring, management, lowering levels and supervision) should be met by those responsible for the source of noise
- The Prevention Principle – action should be taken to reduce noise at the source. Land use planning should be guided by an environmental health impact assessment that considers noise as well as other pollutants.<sup>5</sup>

WHO recommends that all countries should adopt the ‘precautionary principle’ and that “[t]his principle should be applied to all noise situations where adverse noise effects are either expected or possible, even when the noise is below standard values”.<sup>6</sup> Noise standards, and the methodology used to set them, should be periodically reviewed, and if necessary, strengthened.

Moreover, while management efforts tend to concentrate on mitigating or avoiding adverse effects from new noise sources, the mitigation of noise from existing sources should not be neglected.<sup>7</sup> Long-term and continuous exposure to road traffic noise, particularly at night, is detrimental to human health and well-being.<sup>8</sup>

## 2.3 Importance of social and environmental factors

Past decisions on noise controls have also tended to be based primarily on economic efficiency and cost-effectiveness. It is now considered desirable that social and environmental factors be fully integrated into decision-making processes and that all

stakeholders have the opportunity to participate in the process. This is stressed by the OECD:

The current transport system is not on a sustainable path. Achievements in terms of mobility have at times come at considerable environmental, social and economic cost... In the long term, environmentally sustainable transport requires the integration of these concerns in the whole of transport policy.<sup>9</sup>

The Guidelines for community noise developed by WHO include the following recommendations:

- Governments should consider the protection of populations from community noise as an integral part of their policy for environmental protection
- Governments should include noise as an important issue when assessing public health matters and support more research related to the health effects of noise exposure
- Governments should consider implementing action plans with short-term, medium-term and long-term objectives for reducing noise
- Municipalities should develop low noise implementation plans.<sup>10</sup>

## 2.4 Measurement of noise and its impacts

The measurement of noise and its impacts has traditionally been based on technical criteria. This runs counter to the fact that perception of noise is subjective. While it may be desirable to have some objective technical measurement criteria, monitoring should also incorporate a much wider and more sophisticated set of methods, including:

- assessing the number of persons exposed
- using research surveys to canvass community reactions and perceptions
- assessing land use planning and environmental impacts
- evaluating remedial measures
- monitoring trends.<sup>11</sup>



## 3 The New Zealand context

### 3.1 Noise and urban amenity values

Noise has not been considered to the same extent as other environmental standards in New Zealand. The Ministry for the Environment (MfE) did some work in 2002 developing guidelines for the control of noise, which it linked closely to the concept of urban amenity, but these were not pursued further:

Just as urban amenity can be tangible or intangible, the indicators of urban amenity can be physical or perceptual. Physical indicators measure the changes in tangible urban amenity. Perceptual indicators measure the changes in intangible urban amenity. Sometimes you'll need to measure change by using both a physical and a perceptual indicator. Noise is a good example. Noise could be measured by the physical indicator of decibels on a noise meter, and by the perceptual indicator of people's satisfaction with noise level.<sup>12</sup>

Urban amenity values include the "less tangible aspects of the environment such as people's perceptions, expectations, desires and tolerance".<sup>13</sup>

Section 7c of the Resource Management Act 1991 (RMA) states that the relevant agencies shall have particular regard to "the maintenance and enhancement of amenity values". Section 31 states that one of the functions of territorial authorities is "the control of the emission of noise and the mitigation of the effects of noise". Amenity values are defined as "those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes".

The control of noise is clearly related to the promotion of health and amenity values. The Land Transport Act 2003 does not refer specifically to urban amenity. However, part of the purpose of the Act is to "improve social and environmental responsibility in land transport funding, planning, and management". Relevant agencies must also take into account the protection and promotion of public health. This applies not just to the operations of transport agencies, but also to long-term community plans developed by local authorities.

### 3.2 National environmental standards

Although noise does not appear high on the list of MfE's national environmental standards programme, the Ministry of Transport (MoT) has been more active in the area. It recently released a report entitled *Noise impacts of land transport: Stage 3*.<sup>14</sup> This report comprehensively reviews the policy issues surrounding the management of noise from land transport. It attempts to connect the New Zealand Transport Strategy

to the New Zealand Health Strategy. Importantly, the review also highlights the potential for land use planning to mitigate the adverse impacts of transport noise.

So, while a gap remains between policy development and implementation, it is possible to build on this work and add noise to the list of national environmental standards. In 2004 the relevant agencies (MoT, MfE, and the Ministry of Economic Development (MED)) agreed to jointly develop a national policy statement on land transport noise under the RMA. This is expected to result in a national environmental standard.

Recent rule changes to the Land Transport Act 1998 state that a "driver must not operate a vehicle that creates noise that, having regard to all the circumstances, is excessive" (Part 7.4). While the recognition of excessive noise is encouraging, it would have been helpful to define 'excessive' more precisely, with reference to specific noise standards.

Transit New Zealand is presently developing a set of social and environmental criteria that include the management of noise. These form an integral part of the New Zealand Transport Strategy:

Transport will contribute to healthy communities and human interaction. Health outcomes will be improved through regulation, education, encouragement and investment. Walking and cycling for short trips will be promoted and reduced dependence on private vehicles for mobility is encouraged. The government will put in place policies that encourage modal shifts that enhance air and water quality and reduce exposure to transport noise or other aspects of transport systems that can impinge on community and personal health.<sup>15</sup>

### 3.3 Integrated approach to transport planning

In New Zealand the focus has shifted towards a more integrated approach to transport planning and the recognition that transport management means more than just building new roads. This challenges Transit New Zealand to broaden its culture by:

- building on traditional technical and engineering solutions
- including more interdisciplinary and pluralistic approaches.

The publication of an environmental plan is a promising step. However, while the above points may be necessary conditions for transport sustainability, they are unlikely to be sufficient until such time as a national environmental standard for noise is developed.

## 4 Roles and responsibilities in transport management

The following agencies have roles and responsibilities in transport management in New Zealand.

Transit New Zealand:

- operates the state highway system in a way that contributes to an integrated, safe, responsive, and sustainable land transport system<sup>16</sup>
- improves the contribution of state highways to the environmental and social well-being of New Zealand, including public health<sup>17</sup>
- is responsible for noise emanating from road surfaces (influenced by a range of variables including the road surface used, the design of bridges and intersections, and the speed limit) but not from individual vehicles.

Regional councils:

- are guided by national standards
- monitor air quality and discharge of contaminants under the RMA
- produce regional land transport strategies and passenger transport plans under the Land Transport Management Act 2003 that are not inconsistent with the National Land Transport Strategy and the Regional Policy Statement (RPS).

Territorial local authorities:

- are responsible for land use and local transport planning and management not inconsistent with the Regional Land Transport Strategy (RLTS) and RPS
- produce long-term council community plans under the Local Government Act 2002, which must have a land transport programme either as part of the plan or as a separate document
- protect and promote public health (including noise control) and environmental sustainability under the Land Transport Act 2003.

## 5 The Hawke's Bay Expressway: Background

### 5.1 Designation of the expressway

The Hawke's Bay Expressway was designated<sup>18</sup> in 1959, primarily to create a more convenient transport link between Hastings and Napier. In 1961 the Government decided to build a single airport at Napier to service the Hawke's Bay region. The expressway was intended to provide the major arterial route between Hastings and Napier and links to the other major roads in the region. It would eventually become a four-lane carriageway.

### 5.2 Changes to the expressway

The expressway has been developed in several stages over the last 40 years. The first stage was completed in 1970. The speed limit on the road has varied from 50 to 100 kph in some sections. The speed limit around the Kennedy Road intersection stood at 50 kph until the overbridge was completed and traffic lights were removed in 2003 – it was then increased to 100 kph. Transit New Zealand has operated on the assumption that the entire expressway will eventually have a 100 kph speed limit.

While most of the expressway has been developed on flat land, an overbridge was recently constructed over Kennedy Road. This raised the level of the road above that of nearby residential housing. Overbridges such as this one have long been part of the development planning for the expressway, but this one has exacerbated the impacts of noise and particles (soot and tyre/road dust) from vehicles using the road.

### 5.3 Residential development near the expressway

The expressway's designation originally passed through mainly rural land – the limit of residential development was well clear of the designation. The Napier City Council has progressively zoned for residential development on both sides of the expressway corridor. Residential development now lies close to about a fifth of the expressway's length. Many houses are close to the expressway and several hundred people reside within 60 metres of it.

These residential areas were designed and built with very little effective protection from the adverse effects of expressway traffic. This is testament to past approaches to urban and transport planning being quite different to those that prevail today.

### 5.4 Changes in traffic movement

Traffic in and around Napier has grown significantly since 1964. Much of this is heavy vehicle traffic associated with the Port of Napier. Increasing levels of road traffic have been exacerbated by the decline in the movement of freight by rail. It has been

estimated that heavy goods vehicle (HGV) traffic to and from the port will almost double by 2026.<sup>19</sup> Vehicle traffic movement elsewhere in the region has also grown significantly since the 1960s.

More recently, the rail network has suffered from a lack of investment. The PCE hopes that the new institutional arrangements for the management of the rail network will:

- improve the viability of the network
- reduce the present inequity between the costs charged to rail users compared to road users
- enable a greater proportion of freight to be moved by rail rather than by road.

During the progressive development of the expressway, it has attracted traffic from alternative routes. However, a significant amount of heavy traffic continues to use the coastal route to the port along Marine Parade. The Napier City Council has identified this road as an important tourist area. The council is keen to see more HGV traffic using the expressway instead and is considering introducing a by-law banning HGV traffic from Marine Parade.

## 6 Heretaunga Plains traffic study

### 6.1 Focus of the traffic study

The Heretaunga Plains traffic study was prepared in 2004 for the Hawke's Bay Regional Council, the Napier City Council, the Hastings District Council, and Transit New Zealand. The study aims to:

...identify the best way to move people and goods within the study area, including movements to and from the Port of Napier, with maximum efficiency and effective use of the roading network and least environmental effects within the study area.<sup>20</sup>

The study reiterates the objective of encouraging more traffic to use the expressway.

Referring to the effects of the expressway, the study says, "houses that have been built or purchased alongside the routes have had full knowledge of the traffic flows that could be expected". It is perhaps a leap of faith to assume that residents could have fully anticipated the growth of traffic in the region, particularly HGVs, and the decline in rail transport. It is also unlikely that residents could have known in advance the scale of the adverse effects or the extent to which they would, or would not, be controlled.

The Heretaunga Plains traffic study focuses on providing for future growth in traffic and offers very little in the way of initiatives to restrict future traffic growth:

...the Expressway ... has been designed to enable it to be converted into a four lane median-divided grade separated road as and when traffic considerations warrant it.<sup>21</sup>

So, while the primary aim is to divert traffic away from other routes, the study also aims to facilitate growth in traffic on the expressway itself. There is very little discussion as to what measures might be used to limit the growth in traffic across the region. This perhaps reflects the fact that the RLTS was prepared before the New Zealand Transport Strategy and the Land Transport Act 2003. The RLTS is currently under review. The traffic study does note that an inland port in the region would encourage greater use of rail transport.

## 6.2 Duty to avoid unreasonable noise

While it may be true that highways that have been designated in a district plan are not necessarily subject to any noise rules contained in the plan, there is nonetheless a duty to avoid unreasonable noise.<sup>22</sup> The WHO guidelines clearly state that the relevant authorities should protect people from the adverse effects of noise, irrespective of whether the noise source is a new or existing one. The problem is that these guidelines have not been incorporated into the relevant regulations in New Zealand.

## 6.3 Public transport

Public transport receives only superficial coverage in the traffic study, although the Hawke's Bay RLTS did recommend that:

...a cost-effective passenger transport service is provided that meets the needs of the community, on a fully commercial basis wherever this is possible, while supporting groups that are transport disadvantaged, where their needs are unlikely to be met by passenger transport services operating on a fully commercial basis.<sup>23</sup>

In its 1999 Urban growth strategy review, the Napier City Council states that:

...road improvements that provide for other traffic also provide for public transport. General studies of energy efficiency in cities in New Zealand and overseas suggest that sustainable management is best achieved by catering for private passenger trips in New Zealand towns the size of Napier.<sup>24</sup>

Transport planning literature shows that building new roads or widening existing ones both attracts vehicles from other parts of the roading network, and encourages people to make more private vehicle trips. This discourages people from using public transport.

## 6.4 Demand-management methods of transport planning

An integrated approach to transport planning now gives much greater weight to demand-management methods. These include congestion charging, tolls, and support for alternative modes of transport such as buses, trains, and cycles.

The RLTS highlights the decline in cycling around Napier. It aims to address this decline by recognising existing cycle routes and planning for new ones. With its flat terrain and mild climate, Napier is particularly well suited to cycling. While better cycling routes will not assist in reducing HGV traffic, they will make it more attractive for people to cycle rather than using private cars. Public transport could also be given more support.

Attitudes to, and understanding of, transport management have changed quite significantly since the 1960s. It is no longer considered sustainable to simply build more and bigger roads to manage transport demand.

## 6.5 Urban design protocol

It is also important to integrate transport planning with land use planning, as noted in the recently published New Zealand urban design protocol.<sup>25</sup> The protocol states that:

Quality urban design recognises how all networks – streets, railways, walking and cycle routes, services, infrastructure and communication networks – connect and support healthy neighbourhoods, towns and cities.<sup>26</sup>

Furthermore:

Quality urban design ... places a high priority on walking, cycling and public transport; anticipates travel demand and provides a sustainable choice of integrated transport modes ... [and] treats streets and other thoroughfares as positive spaces with multiple functions.<sup>27</sup>

Neither the Napier City Council nor the Hawke's Bay Regional Council has signed the protocol.

Appropriately planned subdivisions and suburbs can reduce the need for vehicle trips (for example, by providing amenities that can be easily reached on foot or by cycle). The viability of public transport depends not just on the size of the population, but also on population density. By 2025, a much higher proportion of the Napier population will be elderly and more likely to need public transport. Greater consideration can also be given to separating residential areas from major roads and to creating appropriate noise buffers, noise barriers, noise insulation, and appropriate design standards.

In summary, the 2002 RLTS does discuss the roles of public transport and cycling in future transport planning. However, the 2004 multi-agency Heretaunga Plains

traffic study is heavily focused on further developing the expressway and diverting traffic away from the coastal road. While the report is primarily a technical traffic study, it is unclear how it integrates with other aspects of transportation planning and management. (Integration is one of the four key principles of the New Zealand Transport Strategy.) Notwithstanding that there are no easy solutions for managing the transportation network in the region, it is to be hoped that the next RLTS takes a proactive approach to manage traffic demand rather than just cater for it.

## 7 Adverse effects of the Hawke's Bay Expressway

### 7.1 Noise and vehicle particles

The segment of expressway centred on the Kennedy Road overbridge appears to be the area of greatest concern at the moment. The two main adverse effects on residents who live adjacent to the expressway are exposure to noise and particles from vehicles. The PCE has been informed that many residents are experiencing adverse effects from living close to the expressway. Residents believe general noise levels are higher, especially at night. Some houses are experiencing deposits of particles, which residents believe come from the exhausts and tyres of vehicles (especially HGVs) using the expressway.

### 7.2 Noise effects: Reports

Transit New Zealand has commissioned three reports since 1995, all carried out by Opus Consultants, on the effects of noise on this section of the expressway.<sup>28</sup> These reports all focused on measuring and estimating noise levels. No surveys were commissioned to canvass the residents' perceptions of noise levels.

Unpublished noise surveys have also been carried out at the request of resident groups by CER Environmental Monitoring and Hegley Consultants. As well, there have been several exchanges of information on noise issues between Transit New Zealand and the advocacy group representing local residents.

The three Opus reports reveal that since 1995 noise levels have progressively increased at most of the sites measured. This is consistent with the growth in traffic using the expressway and an increase in the percentage of heavy vehicles. The most recent report, released in 2004, states that present estimates of noise levels still lie within Transit New Zealand's national guidelines. The methodology used by Opus estimated noise levels using the  $L_{eq}$  criterion. This gives a measure of the equivalent continuous noise energy over the measurement period, in this case 24 hours. While this method is commonly used in noise assessment, "[t]he universal use of the  $L_{eq}$  measure as a unifying index for noise annoyance appears not to be strongly substantiated for all types of traffic noise".<sup>29</sup>



By contrast, the monitoring carried out by CER quotes  $L_{\max}$  figures, which are the maximum values recorded over the 24-hour period. These peak values significantly exceed Transit New Zealand's guidelines, but it is not clear from the data how many peak events occurred. Transit New Zealand has recently stated that they would be concerned if peak levels of 78 decibels were occurring more than 10 times a night. (No explanation was offered as to why 10 times is considered to be a significant frequency.)

Transit New Zealand has reiterated that, based on the distances of the houses from the expressway, their national guidelines do not require monitoring of  $L_{\max}$  levels. It is unclear from any of the surveys how the noise measurements varied diurnally. Information received from both Transit New Zealand and MoT suggests that, when national standards for noise are developed, categories that differentiate between daytime and night-time noise may be included. In the meantime, Transit New Zealand is considering using a day–night descriptor for future noise monitoring of the expressway.

### 7.3 Effects of the Kennedy Road overbridge

The latest Opus report (May 2004) also discussed mitigation measures that might be needed as a result of the construction of the Kennedy Road overbridge, which raised the level of the expressway. It concluded that only one section of one road (Downing Avenue) required a noise barrier. Transit New Zealand has acknowledged that “[t]he raising of the road levels on the bridge approaches meant that these physical obstacles [i.e. residents’ fences, sheds, and garages] were less of a barrier to noise from the expressway than anticipated”.<sup>30</sup>

Transit New Zealand's conclusions on noise levels differ from local residents' perceptions of noise. Following the construction of the Kennedy Road overbridge, Transit New Zealand concluded that:

The post construction noise levels measured in March 2004 show that at all locations around the site, with the exception of a group of houses on Downing Avenue, the noise levels are essentially as predicted and are all comfortably [emphasis added] within the Transit NZ guidelines.<sup>31</sup>

A resident at the other end of Downing Avenue made the following statement:

I am personally affected through lack of sleep at night, being woken by trucks air braking and changing gears, either slowing down or speeding up ... from the new roundabout. During the day the traffic noise and fumes makes it almost impossible to hold any kind of social life outdoors.

A resident from Hamlin Place commented on:

...the vast increase in traffic noise that has been noticed since the completion of the new overbridge on Kennedy Road. The roar of trucks can be heard long before they come into view and the noise peaks as they pass Hamlin Place, Atherford Crescent and Clarence Cox Crescent.

Similar concerns were expressed in 2003 by many other residents at a public meeting to discuss the effects of the expressway. It seems clear that the construction of the Kennedy Road overbridge has significantly exacerbated the adverse effects on nearby residents. Other significant factors are an increase in the speed limit to 100 kph along this stretch and the choice of road surface, which is not the quietest available.

#### 7.4 Noise barrier on Downing Avenue

In response to these concerns, Transit New Zealand recently decided to construct a noise barrier along that part of Downing Avenue considered to be the worst affected. They stated that further measures would be employed if subsequent tests deemed it necessary. While the barrier chosen was not the best available for controlling noise, it was the most cost-effective under Transit New Zealand's cost-benefit criteria, and taking into consideration safety and amenity issues. The barrier has helped some residents, but has created disquiet among the adversely affected residents further down the street and in other nearby streets.

#### 7.5 Retrofitting programme

In a further recent development, Transit New Zealand will also shortly commence a 2-year programme to retrofit some sections of the expressway, including the area that has been the focus of the PCE's report, with a lower-noise surface. Transit New Zealand may also reduce the speed limit to 80 kph near some intersections. This would be primarily for safety reasons but would also reduce noise.

#### 7.6 Engine braking

Noise from the expressway seems also to be exacerbated by the practice of engine braking by HGVs. Although there are signs on the expressway asking drivers to refrain from engine braking, it appears that not all comply. It should be noted that while Transit New Zealand can mitigate some of the noise generated by roads, it has no direct control over noise generated from individual vehicles, such as noisy exhausts and engine braking.

## 7.7 Air quality monitoring

Monitoring of air quality is the responsibility of the Hawke's Bay Regional Council. In its Proposed Regional Resource Management Plan (2005) the council's primary objective for air quality management in the region is:

The maintenance of a standard of ambient and local air quality that is not detrimental to human health, amenity values or the life-supporting capacity of air.

The most recent State of the environment report<sup>32</sup> notes that "[t]he regional council has not yet been monitoring air quality long enough to identify trends". In respect of particulate matter, the Hawke's Bay Regional Council's Proposed Regional Resource Management Plan<sup>33</sup> states that "[t]here should be no objectionable deposition of particulate matter on any land or structure beyond the boundary of the subject property".

Under certain atmospheric conditions, an inversion layer can trap pollutants from a variety of sources in the region (including domestic fires). The growth in traffic in the region means that emissions from vehicles may become a significant contributor to smog in the future.

The PCE has received reports from residents living near the expressway that they periodically have to clean deposits of particles from their houses. These particles could be a combination of exhaust emissions from dirty vehicles and dust fragments that break off tyres when they are in contact with the road surface.<sup>34</sup> Or, as the regional council believes, particles could be generated by domestic fires in the area. It should be relatively straightforward for the regional council to identify the source(s) of these deposits by sampling and analysing them.

The Heretaunga Plains traffic study (2004) predicts significant reductions in emissions of nitrogen oxides and total particulate matter on Marine Parade (the coastal route) if HGVs are actively discouraged from using this road. Assuming that HGVs will use the expressway instead, there may be a consequential increase in emissions along the expressway. The regional council is presently monitoring for PM<sub>10</sub><sup>35</sup> near the expressway, at Pirimai. They also periodically measure air quality in other parts of the city.

MfE has just released new air quality standards and stricter requirements for monitoring air quality. These standards are to be progressively phased in by 2013. They are designed to complement the introduction of more effective national controls on fuel standards and vehicle emissions. The recent announcement that the proposed national screening programme for vehicle emissions has been delayed is disappointing.

## 8 Assessment

### 8.1 Adverse effects on residents

A steadier flow of traffic can reduce noise and air pollution. However, the adverse effects of the expressway on some local residents have intensified. This is because of a combination of:

- an increase in traffic (particularly HGVs, and at night)
- an increase in the speed limit
- the raising of the expressway above Kennedy Road.

Transit New Zealand has endeavoured to reduce some of these adverse effects. However, the cost–benefit criteria under which it operates and the initial standard of the road surface have meant that more effective (and costly) measures have not been employed. More effective measures include a quieter road surface and better noise barriers. The 'precautionary principle' has not really been applied and no national standards exist against which to evaluate Transit New Zealand's guidelines. On a positive note, Transit New Zealand has recently allocated extra resources to some of these noise reduction methods.

Transit New Zealand has emphasised that it has operated according to its mandate and within its own national guidelines for noise. It is concerned that providing remedies that go beyond the guidelines will set a precedent (and possibly open the floodgates in other parts of the country).

Transit New Zealand recently won an environmental award for its construction of a stretch of the expressway that crosses an environmentally sensitive estuary. While its efforts to apply best practice to environmental management are commendable, it has not gone to the same lengths over its management of noise.

### 8.2 Need for national environmental standards for road traffic noise

It is inappropriate for Transit New Zealand to set traffic noise guidelines and to expect residents to accept such guidelines. The need for national environmental standards for road traffic noise is long overdue. Recent research on land transport noise could now be incorporated into a set of national environmental standards for new or altered highways under the RMA.

While the Land Transport Act and the New Zealand Transport Strategy provide for stronger and more comprehensive avoidance and mitigation measures, it is much more complex to apply them to existing roads than to new ones.

Transit New Zealand has made some effort to mitigate the adverse effects of noise (though it is claimed that measures have been budget-constrained). However, they still fall short of best practice principles and the expectations of residents. The Government's Sustainable development programme of action (2003) compels public agencies to effectively infuse and integrate the three spheres of sustainable development – economic, social and environmental – into decision-making processes.

### 8.3 Effectiveness of noise measurement methods

Doubt exists over the effectiveness of the methodology used to measure the effects of noise. There is a clear difference between what is acceptable under Transit New Zealand's guidelines and what affected residents see as acceptable.

Some significant externalities have not been incorporated into the cost-benefit analysis of the expressway. The benefits to road users, particularly HGVs, and to the Port of Napier, have come at a significant social and environmental cost to some local residents. This is inconsistent with the 'polluter pays principle'.

### 8.4 Effect of freight movement

The Napier City Council can be commended on its management of environmental impacts on some of the other arterial roads in the district. However, its general approach to transport is heavily focused on economic criteria, such as the efficient movement of freight to and from the port. Less consideration has been given to the implications of concentrating the movement of traffic onto the expressway. It is to be hoped that the review of the RLTS will address this issue.

### 8.5 Past land use planning

The adverse effects have been exacerbated by past eras of land use planning. Residential areas were developed close to the expressway and houses were not required to be effectively soundproofed.

The caveat emptor principle<sup>36</sup> could be applied. It is debatable, though, whether residents were fully informed about the potential adverse effects. Also debatable is whether the Napier City Council fully anticipated the growth of road traffic in the region. The WHO guidelines stress that relevant authorities have a duty to protect residents from the adverse effects of noise. However, what constitutes 'unreasonable' noise is difficult to determine.

## 8.6 Need for more data on air quality

Past monitoring of air quality in the region has been fairly limited. However, the Hawke's Bay Regional Council is starting to recognise that more data is needed. The recent decision by MfE to phase in national standards means that regional councils will have to monitor air quality more comprehensively and to higher standards.

## 8.7 Positions of the interested parties

The various positions of all the groups and agencies with an interest in the expressway appear to be quite entrenched. Unless this situation changes, the controversy surrounding the expressway can only worsen.

# 9 Recommendations

The PCE recommends that:

1. A national environmental standard for road traffic noise under the Resource Management Act 1991 be developed as a matter of priority
2. The national environmental standard encompass all sources of traffic-related noise, that is, from traffic surfaces as well as from individual vehicles
3. Transit New Zealand undertake further monitoring of nearby residential areas and amend its methodology to include measurements of peak noise events and day-night differences
4. Monitoring be carried out in consultation with residents, so that the consultants employed and the methods used are acceptable to all parties
5. Transit New Zealand and the Napier City Council canvass residents' perceptions of expressway noise and air quality and their effects
6. The review of the Regional Land Transport Strategy develop a more balanced approach to transport planning and management in the region, rather than the strong focus on catering for future traffic demand
7. The Napier City Council and Transit New Zealand fully consider the alternatives to widening the expressway to four lanes
8. Transit New Zealand consider reducing the maximum speed on the expressway to 80 kph
9. The Napier City Council (with the Port of Napier and the Road Users Association) liaise with trucking companies to encourage drivers to refrain from engine braking, or consider a by-law if this liaison proves ineffective

10. The Hawke's Bay Regional Council undertake a long-term monitoring programme to measure air quality close to the expressway, and publish the results on a regular basis
11. The Hawke's Bay Regional Council, as the major shareholder in the Port of Napier, assess the economic benefit of the expressway to the port and evaluate this against the external costs associated with the growth in HGV traffic on the expressway
12. Transit New Zealand's social and environmental objectives be fully integrated with its economic criteria and given greater weight in its operational decisions (consistent with the principles of the Government's Sustainable development programme of action)
13. Transit New Zealand guide its regional offices in developing a more integrated and interdisciplinary approach to the management of its roading network
14. Transit New Zealand seek additional funding for a retrofitting programme to further reduce the adverse effects of existing designations carrying significantly more traffic and that this be considered as part of the development of national standards for road traffic noise.

## Acronyms

HBRC	Hawke's Bay Regional Council
HGV	heavy goods vehicle
kph	kilometres per hour
MED	Ministry of Economic Development
MfE	Ministry for the Environment
MoT	Ministry of Transport
NZTS	New Zealand Transport Strategy
OECD	Organisation for Economic Co-operation and Development
PCE	Parliamentary Commissioner for the Environment
RMA	Resource Management Act 1991
RLTS	Regional Land Transport Strategy
RPS	Regional Policy Statement
UNCED	United Nations Conference on Environment and Development
WHO	World Health Organization



## Endnotes

- <sup>1</sup> Ouis, 2001.
- <sup>2</sup> WHO, 1999a: p26.
- <sup>3</sup> OECD, 2001a: p175.
- <sup>4</sup> WHO, 1999b; UNCED, 1992; WHO, 1999a.
- <sup>5</sup> WHO, 1999a: p66.
- <sup>6</sup> WHO, 1999a: p74.
- <sup>7</sup> WHO, 1999a.
- <sup>8</sup> Ouis, 2001.
- <sup>9</sup> OECD, 2001b: p1.
- <sup>10</sup> WHO, 1999a: p1.
- <sup>11</sup> WHO, 1999a.
- <sup>12</sup> MfE, 2002.
- <sup>13</sup> MfE, 2000: p6.
- <sup>14</sup> MoT, 2004.
- <sup>15</sup> New Zealand Government, 2004, Chapter 5: p1.
- <sup>16</sup> Land Transport Management Act 2003: Section 77.
- <sup>17</sup> Transit New Zealand, 2004c.
- <sup>18</sup> A designation is a legal tool used to protect land for future public works.
- <sup>19</sup> Gabites Porter and Opus Consultants, 2004.
- <sup>20</sup> Gabites Porter and Opus Consultants, 2004: p1.
- <sup>21</sup> Gabites Porter and Opus Consultants, 2004: p26.
- <sup>22</sup> MfE, 2004.
- <sup>23</sup> HBRC, 2002: p27.
- <sup>24</sup> Napier City Council, 1999: p77.
- <sup>25</sup> MfE, 2005: p21.
- <sup>26</sup> *ibid.*
- <sup>27</sup> *ibid.*
- <sup>28</sup> Opus, 1995; Opus, 2001; and Opus, 2004.
- <sup>29</sup> Ouis, 2001: p112.
- <sup>30</sup> Transit New Zealand, 2004a.
- <sup>31</sup> Transit New Zealand, 2004b.
- <sup>32</sup> HBRC, 2003: p27.
- <sup>33</sup> HBRC, 2005: p113.
- <sup>34</sup> See Miguel et al., 1996.
- <sup>35</sup> Particulate matter up to 10 micrometres in size.
- <sup>36</sup> 'Let the buyer beware.'

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