

Applying health impact assessment to land transport planning

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An important note for the reader

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Conflict of interest statement

Quigley and Watts Ltd is a public health consultancy, and the authors of this report have practical experience in conducting impact assessments in the New Zealand context. Quigley and Watts Ltd conducted two of the four New Zealand HIA case studies outlined in this report. To ensure independence, each case study was undertaken by a researcher who was not involved in that particular HIA project.

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Executive summary

Applying health impact assessment to land transport planning

This research project draws on learning from New Zealand and other countries to produce recommendations on the best application of health impact assessment (HIA) in land transport planning in New Zealand. The research objectives were:

- 1 To assess the need for HIA, in the context of the New Zealand Transport Strategy (NZTS) and relevant legislation
- 2 To evaluate the role of HIA in land transport planning to date in New Zealand and explore barriers to the use of HIA
- 3 To understand the best point(s) for application of HIA within the New Zealand transport sector
- 4 To produce recommendations for better integration of HIA with other development processes in a transport context.

In order to meet these objectives, three separate data collection components were undertaken between September 2008 and January 2009:

- 1 an international literature review
- 2 a descriptive review of the various transport planning processes in New Zealand
- 3 four case studies examining how HIA has been applied to transport planning to date in New Zealand.

The New Zealand Transport Agency (NZTA) funded the research project with co-funding from the Ministry of Health. It was conducted by public health consultants Quigley and Watts Ltd and impact assessment specialist Martin Ward.

Background

Transport decisions have major impacts on the wellbeing of current and future generations. The effects of transport on public health and wellbeing may be direct or indirect, positive or negative, intended or unintended, and immediate or long term. The NZTS 2008 outlines five strategic objectives for the transport sector and one of these is 'protecting and promoting public health'.

HIA is a widely used process internationally that investigates the potential health and wellbeing implications of a proposed project, plan or policy. It offers a mix of procedures, methods and tools by which to judge a proposal's anticipated effects on the health of a population, and the distribution of those effects within a population. It has been widely used overseas in transport planning and is increasingly being used in New Zealand with initial application mostly in urban planning. The aim of HIA is to inform decision makers about the likely positive and negative effects of a proposal on public health and on health inequalities in order to avoid unintended consequences and to make informed decisions. HIA is underpinned by a social model of health. This understanding of health is similar to everyday

concepts of *wellbeing* or *quality of life* and incorporates a wide range of ‘determinants’ or factors that help people stay well or increase their risk of becoming ill.

Findings

The research highlighted several areas for improvement in New Zealand’s current transport planning and funding processes in relation to community health and wellbeing. Many of these areas have also been identified in previous New Zealand research and similar issues are discussed in the international literature. Key issues include:

- lack of guidance on what *protecting and promoting public health* means and how contributions to this objective should be measured
- use of narrow health-related targets and performance measures that do not reflect broader wellbeing and equity issues
- failure to identify positive, indirect, unintended and long-term impacts on wellbeing
- failure to address equity issues such as the effects of the distribution of impacts and transport for people on low incomes
- a narrow range of professionals making scaling and weighting decisions in assessment processes, with little guidance
- funding arrangements that favour roading solutions.

These shortcomings point to a need for improved assessment tools that can assist the transport sector to meet the broader range of strategic objectives that have been in place in New Zealand since 2003. Overseas findings indicate that a greater emphasis on health and wellbeing in transport planning will help to facilitate ‘people centred’, integrated planning and will contribute to economic, social and sustainability, as well as health, objectives.

International reviews and evaluations suggest HIA can help to improve transport planning by encouraging a longer-term focus, bringing attention to unintended impacts and inequalities, fostering interagency collaboration, and facilitating a more inclusive process that involves affected communities in the decision making. Evidence demonstrates that HIA can inform and influence transport sector policies and plans both directly (through the adoption of HIA recommendations) and indirectly by increasing decision-makers’ and community understanding about the impacts of transport on wellbeing, and by building relationships between health, transport and community sectors.

New Zealand experience is not yet extensive enough to draw firm conclusions about the role of HIA in transport planning. Nonetheless, much has been learned from experience to date. Many of HIA’s benefits found in international literature were demonstrated in the four New Zealand HIA case studies examined, such as highlighting unintended impacts and encouraging collaboration across organisations and professionals. Although only one of the four case study HIAs led to changes in the transport strategy or project being assessed, other indicators of effectiveness were apparent including greater understanding of the links between transport and health, and involvement of community groups and other stakeholders in planning processes.

New Zealand and international experience of transport HIA suggests that early application of HIA, at a point where a number of options are being considered, is advisable. A multi-disciplinary approach to HIA that involves partnership between public health specialists,

transport professionals, and the affected community is best practice. When engaging community input, it is vital that proactive efforts are made to identify and engage disadvantaged communities and Māori early in the HIA process, and public health sector networks are likely to assist with such engagement. Shared learning and relationship building between sectors has been demonstrated to be a key benefit of HIA, so opportunities to work together should be maximised. Research shows that another key 'value add' of HIA is assessment of the distribution of impacts and consideration of equity issues. Therefore equity issues should routinely be included in the scope of transport HIAs, where relevant.

Experience of applying HIA also highlights a number of barriers and pitfalls, for example the 'language barrier' that exists between health and transport sectors, which can thwart constructive communication. Transport sector awareness of HIA and understanding of health determinants appears to be limited in New Zealand, and professional values, beliefs and priorities may act as barriers to HIA in some instances. Poor understanding of transport sector processes amongst public health specialists may also be a barrier. Restricted resources and capacity to undertake HIA in both health and transport sectors may be a barrier in some areas. Lack of formal mandate or requirement is a key barrier to HIA both in New Zealand and in many overseas countries, and the current research has found that gaining 'buy in' and resources for HIA is difficult when the administrative framework for transport planning and funding does not require robust assessment of transport initiatives on the wider determinants of health.

The current research identifies a range of opportunities for using HIA to enhance transport planning in the New Zealand context. These include application and integration of HIA into regional land transport strategy (RLTS) development; corridor studies; mode or activity strategies, programmes and plans; ARTA's (2007) *Integrated transport assessment guidelines*; and individual projects. In addition, the current research identifies opportunities to improve administrative arrangements to better support the public health objective of the NZTS. Specifically, the NZTA's guidance for the preparation of RLTSs and regional land transport programmes (RLTPs), and its process for assessing and approving RLTPs need to clearly define the meaning of *protecting and promoting public health* and provide transparent criteria and performance measures to assess the contribution of proposals to this objective.

The funding allocation process has great potential to drive policy signals into the planning and funding application process. Analysis presented in this report demonstrates that it falls short of its potential in this respect. A more focused and robust allocation process providing for multi-scale assessment is needed using unambiguous criteria incorporating HIA. When applied in a firm and uniform way with good support to the users, it would go a long way to accelerating the transition from demand-driven transport planning to the more holistic and integrated approach that has been signalled for some time in high-level policy guidance and legislation.

Recommendations

The research has broad implications and leads to a number of recommendations.

Based on New Zealand experience and international best practice, it is recommended that the following HIA elements are incorporated into transport planning processes. These are applicable whether stand-alone HIA is used, or whether HIA is integrated into existing processes:

- Define public health appropriately to incorporate access to services, recreation, exercise, economic development, injuries, air and noise pollution, stress, loss of land and social use of outdoor spaces.
- Develop a collaborative, multi-disciplinary approach utilising public health, transport and planning expertise early in the process, while multiple options are being developed.
- Engage early with affected communities and stakeholders, including Māori.
- Focus on equity and the effects of the distribution of impacts.
- Assess the potential positive and negative impacts of the proposal on the broader determinants of health (see appendix B).
- Use evidence-based and transparent assessment processes.
- Make recommendations to enhance positive aspects and mitigate negative health implications of draft proposals.
- Attend HIA training courses offered by the Ministry of Health.

Although its effectiveness has been demonstrated in other jurisdictions, further application of HIA to New Zealand transport strategies and projects is required before firm conclusions can be drawn about its utility in the New Zealand setting. In particular, trial application of HIA early in transport planning processes, when a range of options is being considered, is recommended. Using HIA as a 'peer review' or final assessment on a draft strategy or preferred option is also possible, but not ideal. Further application of HIA to the development of RLTSs is recommended, as well as future opportunities to use HIA in corridor studies.

In addition, further recommendations are provided for the NZTA, the local government sector and the public health sector aimed at overcoming barriers to HIA and the achievement of the public health objective in the NZTS. Suggestions are also made for an appropriate definition of HIA and guidance documents for the New Zealand setting.

Abstract

This research draws on learning from New Zealand and other countries to meet the following research objectives:

- 1 To assess the need for health impact assessment (HIA), in the context of the New Zealand Transport Strategy and relevant legislation
- 2 To evaluate the role of HIA in land transport planning to date in New Zealand and explore barriers to the use of HIA
- 3 To understand the best point(s) for application of HIA within the New Zealand transport sector
- 4 To produce recommendations for better integration of HIA with other development processes in the transport context.

Three data collection components were undertaken between September 2008 and January 2009: (1) an international literature review; (2) a descriptive review of transport planning processes in New Zealand; and (3) four case studies examining application of HIA transport in New Zealand. Findings indicate deficiencies in current assessment processes and a need for HIA. The New Zealand case studies provide useful lessons about benefits of, and barriers to, HIA in the transport sector. Recommendations are made about applying and integrating HIA in transport planning processes. Administrative changes are suggested to support the transport sector to protect and promote public health.

1 Introduction

1.1 Purpose and objectives

Transport design and investment decisions have major impacts on the wellbeing of current and future generations. Effects of transport on public health may be direct or indirect, positive or negative, intended or unintended, and immediate or long term. 'Protecting and promoting public health' is one of five overarching objectives of the New Zealand Transport Strategy (NZTS), and it first appeared in statute in the Land Transport Management Act 2003 (LTMA). This reflects the importance and significance of the relationship between transport and public health. Health and wellbeing assessment is a vehicle for understanding that relationship and helping make it more effective.

Health impact assessment (HIA) has been defined as:

...a combination of procedures, methods and tools by which a policy program or project may be judged as to its potential effects on the health of the population, and the distribution of those effects within the population (European Centre for Health Policy 1999. Gothenburg Consensus Paper).

The aim of HIA is to inform decision makers about the likely positive and negative effects of a proposal on public health and inequalities in order to avoid unintended consequences and make informed decisions.

HIA as an approach has been evaluated both within New Zealand and internationally. It has been shown to be effective in informing decision makers about how proposals may protect and/or damage public health, and has resulted in subsequent changes to proposals. HIA is a well established and widely used methodology internationally with a credible record in transport applications at the project and strategy level. Internationally, HIA is more often used within the transport sector than in any other sector (Quigley 2004), whereas in New Zealand the most common application to date has been in urban planning¹. There is considerable and growing interest in the application of HIA to transport planning in metropolitan areas in New Zealand. HIAs have been completed or proposed for regional land transport strategies (RLTSs) in Auckland, Wellington and Christchurch and for corridor strategies and studies in Wellington and Auckland, for example.

Overseas evidence and initial work in New Zealand suggests HIA could potentially be of benefit for improving integrated planning processes, in particular by facilitating working relationships between planners, public health experts and other key stakeholders. There is also evidence that HIA may be a useful tool for facilitating 'people centred' and sustainable transport planning, and could thereby contribute to the achievement of all five NZTS objectives.² HIA may also provide a platform for the fulfilment of Treaty of Waitangi

¹ See the list of completed HIAs on the Ministry of Health's website, available at www.moh.govt.nz/moh.nsf/indexmh/hiasupportunit-casestudies

² The five objectives are ensuring environmental sustainability, assisting economic development, assisting safety and personal security, improving access and mobility, and promoting and protecting public health.

obligations, which are outlined in the LTMA. HIA has the potential to speed up planning and processes in the transport sector, and create evidence-based rationale for project approval and funding.

The purpose of this research was to draw on learning from overseas and New Zealand to understand why HIA is needed, and to produce recommendations on the best application of HIA in the transport sector in New Zealand. The research explored the key drivers, barriers and processes for HIA within the New Zealand transport setting, and analysed these in comparison with what occurs internationally. The research also reviewed current planning processes and considered at what point HIA best fits into these processes.

1.1.1 Research objectives:

- 1 To assess the need for HIA, in the context of the NZTA and relevant legislation.
- 2 To explore the role of HIA in land transport planning to date in New Zealand and explore barriers to the use of HIA.
- 3 To understand the best point(s) for application of HIA within the New Zealand transport sector.
- 4 To produce recommendations for better integration of HIA with other development processes in a transport context.

1.2 Structure of this report

In order to meet the research objectives above, three separate data collection components were undertaken:

- 1 an international literature review
- 2 a descriptive review of the various transport planning and funding processes in New Zealand
- 3 a series of case studies examining how HIA has been applied to transport planning to date in New Zealand.

The research methods are detailed in appendix A. The background section (chapter 2) provides important background information about the relationship between transport and health, the meaning of *protecting and promoting public health* in the NZTS, and about HIA. The following three sections (chapters 3, 4 and 5) present the findings of each of the three research components above. Chapter 6 discusses the research findings in relation to the research objectives, and the report ends with a final section (chapter 7) providing conclusions and recommendations.

2 Background

The first NZTS (2002) acknowledged both benefits and costs associated with transport exist, and ‘much of our transport development, especially the growth of the motor vehicle, has also brought a wide range of health and environmental problems’ (Ministry of Transport 2002, p 6). These problems are further spelt out in the current NZTS, released in 2008:

Growth in travel demand over recent years has resulted in undesirable environmental and social effects including congestion, air pollution, carbon emissions and noise [...] The challenge will be to better understand the public health and local environmental impacts of transport, and to develop fair and cost-effective solutions (Ministry of Transport 2008a, p 7).

2.1 Transport and public health

2.1.1 What is public health?

How can a society maximise the wellbeing of the whole population, minimise sickness and prevent people becoming unwell in the first place? These questions are at the heart of the public health approach. The most widely cited definition of public health is that ‘public health is the art and science of preventing disease, promoting health and prolonging life through the organised efforts of society’ (Department of Health and Social Security 1988). Modern urban planning and public health within western societies have their origins in 19th century Britain, where rapid industrialisation and urbanisation led to ‘foul and dangerous’ cities marred by overcrowding, infectious disease and social problems (Gleeson and Dodson 2008).

The public health approach is underpinned by a social model of health in which social conditions and environmental factors are seen as significant in determining the health of the population³. Within the public health sector, health is defined broadly, and is seen as ‘a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity’ (WHO 1948). This definition may be closer to everyday concepts of *wellbeing* or *quality of life* than to the common understanding of *health*, since a narrow biomedical view of health⁴ tends to predominate outside public health circles.

To have a healthy population it is not only necessary to heal people who are sick, but also to ensure that the physical and social environment supports the health and wellbeing of everyone. For example, a healthy population requires clean air and water, opportunities for regular physical exercise, access to adequate income, access to goods and services, supportive social relationships, and freedom from violence, injury and severe stress.

³ These factors are sometimes referred to as *determinants of health*. Appendix B provides a list of key determinants of health.

⁴ The biomedical model views health as freedom from disease, pain or defect, and focuses on physical processes such as pathology, biochemistry and physiology.

2.1.2 Evidence base for links between transport and health

The relationship between transport and the health and wellbeing of communities has been the focus of much scientific investigation over the past 20 years. A detailed overview is beyond the scope of the current research, but comprehensive reviews of evidence are now available that summarise knowledge to date about direct and indirect impacts of transport on health and wellbeing (for example, Kavanagh et al. 2005; Thomson et al. 2008; Watkiss et al. 2000). A New Zealand evidence review was completed in 2002 (Kjellstrom and Hill 2002), and a major study has recently updated evidence about air pollution and health in the New Zealand context (Fisher et al. 2007). The following table summarises the key impacts of transport on health and wellbeing through the determinants of health.

Table 2.1 Key impacts of transport on determinants of health

Health Impact	
Health promoting	Health damaging
Enabling access Employment Shops Recreation Social support Health services Countryside Recreation Exercise Economic development	Road traffic injuries Air pollution Particulates Carbon monoxide Nitrogen oxides Hydrocarbons Ozones Carbon dioxide Lead Noise pollution Stress and anxiety Danger Loss of land and planning blight Severance of communities by road Constraints on mobility access and independence Reduced social use of outdoor space due to traffic and streets

(Source: Kavanagh et al. 2005, p 11)

Transport (in all its forms) impacts positively on wellbeing by enabling people to actively participate in community life and have access to essentials such as shops, health care, employment and social life. Having said this, the terms ‘access’ and ‘mobility’ are not interchangeable (Macmillan and Woodward 2008). Mobility is a means to an end and is not always necessary for the benefits of ‘access’, outlined above, to accrue. There may often be alternative ways to fulfill people’s needs for community participation and access to goods and services *without* the need for transport (eg tele-working, growing food at home). Thus the so-called benefits of transport should in fact be viewed as the benefits of *access*, which may be gained through various means. Other benefits of transport are exercise provided by active transport (ie walking and cycling), recreation, and economic development which leads to wellbeing via employment and income.

It is well established that transport (particularly motorised transport) can have negative as well as positive impacts on wellbeing, through inactivity, air pollution, traffic crashes and noise in particular (Kavanagh et al. 2005; Kjellstrom and Hill 2002; Thomson et al. 2008; Watkiss et al. 2000). Household transport expenditure can also impact on wellbeing at the family level, since money spent on transport is not available for other necessities such as doctor's visits or healthy food (Health Development Agency 2005). Harder to measure are the effects of severance⁵ on communities, the impact of isolation and stress on social wellbeing, and the impact of unequal distribution of effects on health inequalities (Kavanagh et al. 2005; Kjellstrom and Hill 2002; Watkiss et al. 2000; Public Health Advisory Committee 2007). Although difficult to quantify, such impacts may significantly affect quality of life for some sectors of the community and must not be overlooked.

2.1.3 Transport and health inequalities

Those who are socio-economically well off tend to enjoy better health and live longer, on average, than those who are worse off (Wilkinson and Marmot 2003; Blakely et al. 2004). On average, Māori life expectancy is approximately eight years shorter than that of non-Māori in New Zealand (Ministry of Social Development 2008). The reasons behind social and ethnic health inequalities are complex and not completely understood, but differential exposure to risks (eg stress, unemployment, poor housing, pollution, violence, injuries) plays a substantial role. Transport contributes to health inequalities when the negative impacts of transport (eg noise, pollution, severance, injuries) fall disproportionately on low socio-economic groups and/or when the benefits of transport (eg access to services, reduced commuting time) accrue primarily to those with relative socio-economic advantage. Similarly ethnic inequalities are widened when effects are distributed unevenly by ethnicity. Thus, transport planning decisions can amplify or mitigate social and health inequalities and these equity effects are of public health concern.

The *inverse care law* states that 'the availability of good medical care tends to vary inversely with the need for the population served' (Hart 1971). Although this phenomenon was identified in the early 1970s, it is only in the past eight to 10 years that there has been widespread acknowledgement in the New Zealand health sector that designing programmes and services for 'everyone' inevitably benefits those who need them least, and increases the gap between the healthy middle class and the poor who are at greater risk of illness and injury (Ministry of Health 2002). This law can also be applied to social services and infrastructure, including transport. If everybody is to benefit equally from transport investments, then special efforts must be made to ensure that services and infrastructure are suitable for and accessible to disadvantaged groups and individuals including low income communities, people with disabilities and Māori (Ministry of Health 2002).

The NZTS recognises the need to ensure access and mobility for the 'transport disadvantaged'. Another landmark of recent years was the LTMA's inclusion of the statutory obligations of the transport sector in relation to the Treaty of Waitangi. The LTMA details principles and requirements in sections 4 and 5 which are intended to maintain and improve participation by Māori in land transport decision-making processes.

⁵ Severance refers to the range of community effects from small increases in journey lengths/times through to the situation where journeys are no longer made, or alternative facilities are visited, due to additional inconvenience or danger caused by a busy or wide road (Chinn and Davies 1995).

2.1.4 The New Zealand Transport Strategy and public health

As a result of a growing recognition of the impact of transport on the wellbeing of current and future generations, transport sector objectives and priorities are changing. Both in New Zealand and internationally, sustainability and public health are on the transport agenda. For example, the first NZTS (2002) introduced the five objectives that remain current today:

- ensuring environmental sustainability
- assisting economic development
- assisting safety and personal security
- improving access and mobility
- protecting and promoting public health.

These objectives were supported by legislation – the LTMA – and have been carried through and strengthened in the 2008 amendments to the Act, and the NZTS 2008.

2.1.5 What does ‘protecting and promoting public health’ mean?

As discussed above, one of the five transport objectives laid out in the NZTS 2008 is protecting and promoting public health. *Protecting* and *promoting* health have specific meanings within the discipline of public health.

Health protection is focused on keeping the physical environment safe (eg air, water supply, food) and controlling communicable disease. In the transport setting, this means ensuring that transport side effects such as noise, air pollution and run-off do not pose a danger to human health. The consent process associated with the Resource Management Act 1991 (RMA) is designed to identify potential risks to human health and could be described as a health protection mechanism.

However, the NZTS objective goes beyond identifying and mitigating negative effects and includes *promoting* public health. *Health promotion* is about creating an environment that supports wellbeing and reduces health inequalities. Health promotion is not only about the physical environment, but also the policy environment, the social environment and the rules, norms and infrastructure in settings such as workplaces or schools. Health promotion means enhancing the environment and reducing barriers to wellbeing through healthy public policy, a health-promoting built environment, community action, and initiatives to develop personal skills and change attitudes (WHO 1986). In the transport realm, health promotion includes:

- enabling access to essentials of daily life such as employment, shops, recreation opportunities, friends and family, health and social services for all New Zealanders
- promoting active transport (eg walking and cycling strategies, investment in walking and cycling infrastructure, ‘walking school bus’ initiatives, advertising to increase perceived safety and convenience of active modes)
- promoting personal safety and preventing transport-related injuries (from laws and policies, to roading design, to advertising campaigns etc)
- introducing initiatives that reduce air pollution and carbon emissions (eg laws and standards, mode shift to active transport, promotion of fuel-efficient and clean energy vehicles, congestion reduction)

- ensuring that disadvantaged communities receive the benefits of transport investment, and that negative impacts of transport do not disproportionately fall on those already disadvantaged.

Some aspects of *promoting public health* are currently well embedded in transport planning practice, while others are relatively new or undeveloped. Looking at the range of activities above, it is also clear that aspects of *promoting public health* contribute not only to the public health objective of the NZTS, but also to other objectives such as *ensuring environmental sustainability, assisting safety and personal security and improving access and mobility*.

Protecting and promoting public health is sometimes seen as an objective that is in opposition to other key transport objectives, but in fact all five objectives are inter-related and underpinned by the desire to improve quality of life for New Zealanders. The first NZTS (2002) called for a holistic approach and pointed out how the five objectives have the potential to support each other. The imperative to find win-win solutions that support environmental and social objectives as well as promoting economic growth is explicit in the current strategy, which states:

[The transport sector] needs to find affordable ways to support the economic transformation of New Zealand and improve the health, safety, security and accessibility of New Zealanders, while at the same time addressing climate change and other environmental impacts. Business as usual will not lead us to where we want to be in 2040 (Ministry of Transport 2008a, p 4).

While the NZTS calls for a new holistic approach that addresses all five objectives, the meanings of the five objectives are not clearly defined within the strategy or elsewhere. Although the definition of *protecting and promoting public health* is understood and broadly agreed upon within the discipline of public health, these understandings are not necessarily shared within the transport sector, where little guidance exists as to the meaning of this objective. 'Health' tends to be narrowly defined within the transport sector, and this is reinforced by the transport monitoring indicator framework (TMIF) and the targets in the NZTS, which focus only on noise and air quality (as they are currently the most easily measured).

Public health and wellbeing is determined by the interplay between individual lifestyle factors, the environment in which people live and the services that people have access to, as well as broad social and economic factors. While individual lifestyle factors such as smoking or physical activity levels have an immediate effect on individual health, these factors are themselves fundamentally determined by the socioeconomic and built environment in which individuals live. Social and economic factors make a major contribution to wellbeing, such as sound and reliable governance, unemployment rates, general economic conditions and social support structures. And, as discussed further below, transport investment decisions play a large role in people's transport choices and population health outcomes.

2.2 How transport is linked to health trends

Evidence suggests that the transport sector is not effectively protecting and promoting public health at present. In New Zealand the negative impacts of transport such as physical exercise reduction, community disruption, noise and other environmental health hazards are primarily related to motor vehicle transport (Kjellstrom and Hill 2002). Out of the 10 most common causes of death in New Zealand⁶ (WHO 2006), eight are affected by transport through vehicle pollution and/or physical activity.

Although transport is generally a contributing factor rather than the sole cause of such deaths, this 'hidden road toll' has an enormous impact on community wellbeing because the number of people affected is so great. Unlike traffic accidents which are statistically rare and discrete events, the effects of sedentary lifestyles and air pollution affect a high proportion of the population continuously over many years. Therefore even small changes can have major impacts on health at the population level. For example, harmful vehicle emissions in New Zealand have been estimated to contribute to the premature mortality of approximately 500 people per year (Ministry of Transport 2008a).

Traffic crash injury is not one of our top overall killers, but is a leading cause of premature death, particularly amongst young men and young Māori (Ministry of Health 1999). In New Zealand, although traffic crash fatalities have been trending down in recent years, health problems associated with inactivity are on the rise, for example, obesity and diabetes (Ministry of Health 1999; 2008).

On the positive side, modelling suggests that even meagre increases in physical activity by a large number of people would lead to significant health improvements at the population level (Litman 2003). For example, a United Kingdom study showed the mortality reduction resulting from regular exercise dramatically outweighed the dangers of cycling. Based on a 1% increase in the number of people cycling regularly in Oxfordshire, the ratio of years of life gained (due to reduction in chronic diseases) to years of life lost (due to accidents) was estimated at 212:1 (Rutter 2000). In the United States it has been estimated that substituting driving with an hour a day of walking and cycling would burn 12–25 kg of fat per person per year, sharply reducing the proportion of the population that is overweight or obese (Higgins and Higgins 2005 cited in Macmillan and Woodward 2008).

2.2.1 Transport policy decisions are linked to transport choices and health outcomes

The following diagram shows the various pathways via which transport policy decisions can affect transport choices and health outcomes.

⁶ Ischemic heart disease; stroke; chronic obstructive pulmonary (respiratory) disease; lung, trachea and bronchial cancers; colon and rectum (bowel) cancers; diabetes; breast cancer; lower respiratory infections (eg influenza/pneumonia).

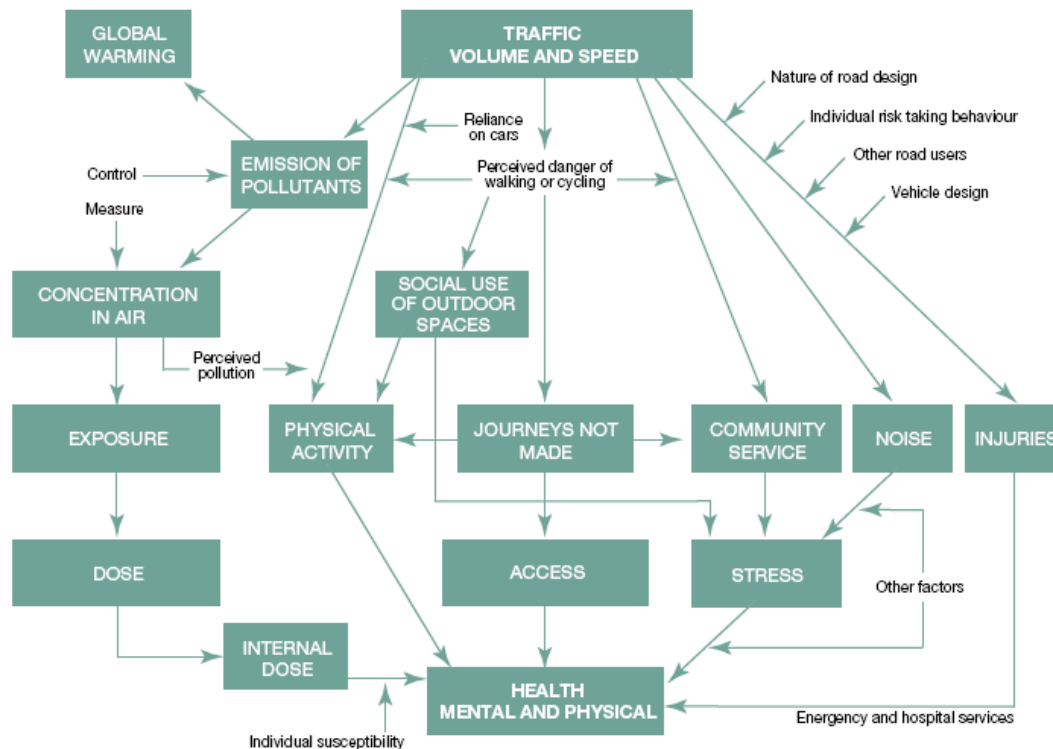


Figure 2.1 Pathways from transport policies to health outcomes

(Source: Kavanagh et al. 2005, p 19)

Winston Churchill's famous comment 'We shape our buildings; thereafter they shape us' can equally be applied to transport infrastructure and urban design; induced traffic is a real phenomenon for all modes (Goodwin 1996). Evidence shows that when we design primarily for cars, we get more cars, and active transport modes become less viable due to safety and pollution concerns. This is apparent in New Zealand where walking and cycling for transport has dropped dramatically in New Zealand over the past 20 years (Ministry of Transport 2008a). Between the years 1990 and 1998, there was a decrease of 39% in the number of cycling trips as a form of household travel. The decline in cycling trips is especially evident among the young (Ministry of Transport 2008a). Less than half of New Zealand children walk or cycle to school regularly, with parental concerns about traffic safety cited as one of the main reasons for driving children to school (Ministry of Health 2008).

Conversely, impressive changes can occur in a relatively short timeframe when investment is focused on walking and cycling infrastructure, public transport and a range of initiatives to reduce travel demand and promote modal shift. For example, in the United Kingdom three sustainable travel demonstration towns (Darlington, Worcester and Peterborough) achieved 11–13% reduction in car trips, 13–22% increase in public transport use, a 17–29% increase in walking and a 25–79% increase in cycling, in just over two years (Ministry of Transport 2008b). This evidence suggests that infrastructure and investment decisions have a significant impact on transport choices, and that people will choose to walk or cycle when infrastructure investments make active transport a safe and convenient option. It also shows that change can occur rapidly and therefore the targets set in the NZTS 2008 and the Government Policy Statement on Land Transport Funding 2009/10–2018/19 (GPS) are achievable.

2.2.2 Current challenges for the New Zealand transport sector

The NZTS 2002 represented a radical change in direction for the transport sector, which was further strengthened and implemented through the LTMA, and subsequently in the 2008 amendments to the Act and the revamped NZTS 2008. Other countries have also introduced similarly progressive new policies and strategies in recent years. Implementation of such a radical new agenda has presented many challenges, and continues to be challenging, both in New Zealand and overseas.

While much has been achieved, there is still a long way to go if the transport sector is to attain the objectives and targets outlined in the NZTS. Although the TMIF will help the sector to measure whether the desired outcomes are being achieved, tools for measuring the potential *contribution* of plans and proposals towards the five objectives of the NZTS remain under-developed. Investment in active transport is increasing, but remains tiny in comparison with spending on roads. Inequalities in the distribution of positive and negative transport impacts are not well addressed, and although there is now increasing policy attention given to the 'transport disadvantaged', there is still a lack of emphasis at the delivery level to ensure that disadvantaged communities and individuals are not further disadvantaged by transport decisions. There is also significant room for improving the participation of Māori in transport decision making. All of these shortcomings have an impact on the wellbeing of New Zealanders and are therefore of public health and transport concern.

2.3 Health impact assessment

Health impact assessment⁷ has been identified as one means of addressing some of the inadequacies of conventional transport planning approaches and improving the quality of decision making. HIA is a well-developed approach to assessing the positive and negative social and health consequences of policies, programmes and projects. Its importance has been endorsed by the New Zealand Government, which set up the HIA Support Unit within the Ministry of Health in 2007. In the foreword to the Public Health Advisory Committee's recent review of HIA, the Prime Minister at the time, Helen Clark, wrote:

HIA can be used to harness and co-ordinate government policies in ways that enhance health outcomes. The government is convinced of its benefits for public policy and has provided funding for three years to establish an HIA support team (Public Health Advisory Committee 2007 p iii).

As well as assisting central government, HIA can assist at a local government level in the promotion of social, cultural, economic and environmental wellbeing as set out in the Local Government Act 2002 (LGA).

HIA uses the broad definition of health promoted by the World Health Organization (WHO): 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (WHO 1948). The health and wellbeing of a population is not solely determined by the health sector. In fact, determinants of health and wellbeing such as education, employment, poverty and inequality tend to have a far more profound and long-lasting effect on health and wellbeing than curative services (National Health Committee 1998).

⁷ HIA is also called 'health and wellbeing assessment'.

When determinants of health and wellbeing are likely to be affected by a proposal, then health and wellbeing will also be affected, either directly or indirectly, positively or negatively.

2.3.1 What is health impact assessment?

HIA helps to assess how the broader determinants of health and wellbeing are likely to be affected by a proposal, and the likely outcomes with respect to population wellbeing and inequalities.

While there is a broad definition of HIA (as outlined in section 1.1), there is not one standard approach, and there has been much debate about what the defining features of HIA are (or *should* be) in the international literature over the years. Commentators bring their differing worldviews and disciplinary backgrounds to the debate, and emphasise the methods and models they see as most appropriate, debating about the merits of quantitative versus qualitative methods, a health versus disease model, or participatory versus expert-only processes. Some see HIA primarily as a technical tool and focus on the importance of robust scientific methods, reliable measurement and predictive power. Others see the value of HIA primarily in the ability to bring together ‘soft’ and ‘hard’ evidence, and use inclusive rationality to produce recommendations based on both objective and subjective knowledge.

However, almost all agree that HIA is a multi-disciplinary approach that investigates the potential health and wellbeing implications of a proposed project, plan or policy. It is also widely agreed that the aim of HIA is to deliver evidence-based recommendations to inform the decision-making process, in order to maximise gains in health and wellbeing and to reduce or remove negative impacts. HIA has also been identified as a mechanism by which potential health inequalities can be identified and redressed prior to implementation of a proposal (Acheson 1998). HIA is a well-established approach internationally and has been applied in a variety of sectors including transport, local government, economic development, urban planning and housing.

According to one commentator, the vigorous debate about the definition and methodology for HIA that previously dominated conferences and journals appears to have given way to a pragmatic pluralism, within which the emphasis is on finding the right approach for the job at hand:

In the early days of HIA, debate as to the merits of these differing camps was the norm; now however we seem to be moving to a position whereby any approach to undertaking HIA can be justified so long as it is ‘fit-for-purpose’
(Parry and Kemm 2004, p 411).

The authors of the present report agree with a pragmatic and pluralist approach. Within the broad definition provided above, a mix of procedures, methods and tools are available to assess a proposal in terms of anticipated effects on the health of a population, and the distribution of those effects within a population (European Centre for Health Policy 1999). Methodological flexibility is seen by many as an advantage of HIA, allowing practitioners to choose the most appropriate tools to suit the proposal at hand and meet the aims, timeframe, budget and other particularities of the HIA. Commentators have noted that in the dynamic world of policy making, flexibility and applicability is crucial (Parry and Kemm 2004).

Despite this pluralism, there is wide agreement about some features of best practice and a growing evidence base for what works well in HIAs. It is widely agreed, for example, that the

HIA approach is ideally applied on a draft proposal so that the HIA can influence the development of a final policy, project or plan. Other aspects of HIA on which there is reasonable consensus are outlined below.

The Gothenburg Consensus⁸ (European Centre for Health Policy 1999) outlines key elements of and values governing HIA, which are provided in the text box below.

Box 2.1 Elements of HIA as defined in the Gothenburg Consensus

HIA includes the following elements:

- Consideration of *evidence* about the anticipated relationships between a policy, programme or project and the health of a population
- Consideration of the *opinions*, experience and expectations of those who may be *affected* by the proposed policy, programme or project
- Provision of more *informed understanding* by decision makers and the public regarding the effects of the policy, programme or project on health
- Recommendations for *adjustments/options* to maximise the positive and minimise the negative health impacts.

(Source: European Centre for Health Policy 1999, p 5)

The Gothenburg Consensus suggests that in addition to promoting the health and wellbeing of the population, four values are particularly important for HIA: democracy, equity, sustainable development and ethical use of evidence.

The procedures of HIA are similar to those used in other types of impact assessment, such as environmental impact assessment or social impact assessment. HIA generally follows the five steps listed below, although many practitioners break these into sub-steps or use slightly different labels. The fifth step, evaluation, is often omitted.

- 1 Screening - determining if an HIA is warranted/required
- 2 Scoping - determining which impacts will be considered and the plan for the HIA
- 3 Appraisal or identification and assessment of impacts - determining the magnitude, nature, extent and likelihood of potential health impacts, using a variety of different methods and types of information
- 4 Reporting and recommendations - making explicit the trade-offs to be made in decision making and formulating evidence-informed recommendations
- 5 Evaluation, monitoring and follow-up - process and impact evaluation of the HIA and the monitoring and management of health impacts.

⁸ The Gothenburg Consensus paper is based on the results of a more comprehensive discussion document prepared by the WHO European Centre for Health Policy (ECHP) that reviewed existing HIA models. A preliminary draft of the consensus paper was presented at a meeting organised by the WHO/ECHP and the Nordic School of Public Health, with the collaboration of the European Commission, in Gothenburg, October 1999. On the basis of suggestions made by participants at the Gothenburg meeting, the consensus paper has been revised in its present form. It is therefore a product of the combined efforts of many partners.

HIAs vary greatly in the resources and time available for them. In order to distinguish small-scale or partial HIAs from 'full' or 'classic' HIAs that meet all of the criteria outlined above, a number of terms may be used. 'Mini-HIA' is a term sometimes applied to very small-scale HIAs completed in a short timeframe, while 'rapid HIA' generally implies an HIA that uses existing evidence, and does not involve new data collection (Parry and Kemm 2004). 'Desktop HIA' generally refers to an HIA that does not involve direct community participation, or input from experts from a range of agencies (Parry and Kemm 2004) and as such, may not be considered 'genuine' HIA by some commentators. It should be noted that these terms are used inconsistently, and that the question of what is and is not HIA becomes blurred at the margins where different camps hold differing views.

Many HIAs include a literature review, collection of local health and socio-economic data or more in-depth community profiling, and collection of information from a wide range of stakeholders (both community and expert) through workshops, interviews or surveys. Due to financial and time constraints, HIAs do not generally involve new research or the generation of original scientific knowledge. However, the findings of HIAs, especially where these have been monitored and evaluated over time, can be used to inform other HIAs in contexts that are similar.

There is wide agreement that participation of the affected community is an important aspect of HIA, with some commentators noting that the inclusion of lay knowledge and subjective viewpoints is essential for understanding the determinants of wellbeing for a particular community, and that 'technocratic approaches risk failing to address the concerns of key stakeholders' (Parry and Kemm 2004, p 413). However, Parry and Kemm also note that 'although community participation is intuitively appealing and (perhaps) theoretically appropriate, in practical terms it is extremely difficult to arrange adequately (*Ibid* 2004, p 413). This is particularly true for HIAs with very tight timeframes or budgets, or those where the affected population is vast and heterogeneous.

HIA is different from *health risk assessment* or *assessment of environment effects* (AEE) in that HIA explores a wide range of direct and indirect determinants of health. Both positive and negative impacts are assessed and a mix of quantitative and qualitative evidence is often drawn upon. Within HIA there is generally a focus on inequalities and the involvement of the affected community as well as a range of experts in the appraisal process. Health risk assessment and AEE, on the other hand, assess the risk of known direct negative impacts only, using largely quantitative approaches.

2.3.2 Strengths and limitations of health impact assessment

The particular strengths of the HIA method recognised in the literature (Dora 2003; Gorman et al. 2003; Kemm 2000; Kjellstrom et al. 2003; Krieger et al. 2003; McCarthy 2000a; Mindell et al. 2004; Public Health Advisory Committee 2007; Wismar et al. (Eds) 2007; O'Reilly et al. 2006) are that HIA can:

- bring attention to impacts previously unrecognised or seen as unimportant
- highlight the positive as well as negative impacts of a proposal
- focus on equity and the distribution of impacts
- be applied at all levels in all sectors
- expedite consent or approval processes.

HIA has also been shown to enhance current practices, for example it can:

- assist in democratic process through a structured participatory approach
- incorporate both expert and local knowledge
- lead to more robust, more transparent decision making
- improve intersectoral working relationships
- provide support for transport solutions that contribute to economic, sustainability and wellbeing objectives
- add evidence to positive aspects of a proposal to help garner support.

HIA is not a 'silver bullet'. Evaluation of HIA both in New Zealand and internationally suggests the usefulness and cost effectiveness of HIA depends largely on how, when and why it is applied. Nor is HIA the only way to introduce a wider understanding of public health and wellbeing aspects into transport planning. The strengths and limitations of HIA are discussed further in section 3.2.

2.3.3 Mandate for health impact assessment

HIA is widely used in many countries throughout the world, particularly in Europe, and is a compulsory part of resource applications in Tasmania, Canada and Thailand (Quigley 2006). It is an established methodology encouraged by the WHO, the European Union and the New Zealand Government. Although HIA in policy and planning is still in its infancy in New Zealand, this is rapidly changing. The Ministry of Health and the Public Health Advisory Committee have released guidance on carrying out policy-level HIA within New Zealand and an increasing number of HIAs are being undertaken at local and central levels. The Human Rights Commission recommends the use of HIA at a strategic level, and government legislation is placing public health and wellbeing higher on the agenda within transport and local government settings.

3 Literature review findings

A literature review was undertaken to explore the application of HIA to transport planning internationally, and to summarise key learning and best practice to date. This section presents the key findings of that review. The review included a) individual HIA reports and case studies published since 1999 in peer-reviewed academic journals or grey literature, and b) reviews and ‘think pieces’ about how health concerns are addressed in transport policy and planning, and about the effectiveness of HIA.

See appendix A for full details about the methods used for searching and selecting papers for inclusion. A summary table listing each individual HIA report/case study included in the literature review is available from the authors on request.

3.1 Why is HIA needed?

The changing global context including climate change, oil price fluctuations and the obesity epidemic, has major implications for human wellbeing and, in particular, for how we think about and ‘do’ transport.

3.1.1 Shortcomings in transport planning internationally

In recent years there has been increasing recognition internationally that traditional land-use and transport planning has led to motorised transport dependence and unhealthy, unsustainable cities (Barton and Grant 2008). It is argued that these negative outcomes are primarily due to deficiencies in transport planning and funding processes. According to one critic, ‘impact assessments of transport policies in Europe have largely failed to consider health’ (Dora 2003, p 401). In particular, commentators point out that transport planning and decision making does not sufficiently take account of indirect, unintended or long-term costs and benefits of proposed transport solutions (Barton and Grant 2008; Dora 2003; Handy 2008; Litman 2003, 2008; Thomson et al. 2008). ‘Conventional transport planning tends to overlook negative health impacts resulting from increased motor vehicle travel and potential health benefits from shifts to alternative modes’ (Litman 2003). When these impacts are overlooked, the benefits of road building tend to be exaggerated and alternative transport solutions that have health and environmental benefits as well as economic benefits tend to be undervalued (Litman 2008).

Further, research shows that ‘disadvantaged groups bear the heaviest burden of negative [health] impacts’ of transport decisions that promote private vehicle use (Gorman et al. 2008, p 22). However conventional transport planning has little focus on distributional issues – for example, whether a transport proposal will widen or narrow the gap between affluent and deprived sectors of the community. Equity is a key public health concern because the wellbeing of the population as a whole is negatively impacted by socio-economic and health inequalities (Woodward and Kawachi 2000). When the gap between rich and poor widens, the ‘average’ level of wellbeing generally drops, and there are negative ‘spillover’ impacts on the whole community (including wealthy people), eg increased rates of infectious diseases, increased violence and crime (Woodward and Kawachi 2000).

3.1.2 Existing tools not designed for new agenda

At the strategic level, there is an increasing recognition that the transport sector must contribute to environmental and social objectives, but commentators from Europe and North America note that existing planning tools are not designed for the new agenda and that 'changes in the technical aspects of the process are lagging changes in planning goals' (Handy 2008, p 113). It is argued that environmental impact assessment⁹ is geared towards the environmental agenda of the 1980s rather than today's issues, and, notwithstanding some specific instances of innovative practice, 'the generality of decision making and more specifically the environmental impact assessment process, has fallen behind' (Barton and Grant 2008, p 131). As a result, plans may implicitly emphasise congestion relief and road building even when a much broader range of objectives is sought (Handy 2008). Critics argue that car-centric approaches still dominate transport planning, and that the genuine costs and benefits to the long-term wellbeing of the environment and its human inhabitants are still not adequately considered. New tools and processes are required to produce a more radical change in transportation planning that puts people rather than cars at the centre of the process.

While environmental impact assessment is widely used internationally (often as a statutory requirement) there is wide agreement in the literature that the human health impacts of transport initiatives are poorly addressed within these impact assessment frameworks (Barton and Grant 2008; Dora 2003; Alenius 2001).

Tools, such as strategic environmental assessment and HIA that *are* likely to help transport plans meet new sustainability and health objectives are seldom used and/or are not applied in a way that maximises their usefulness (WHO Regional Office for Europe 2001; Public Health Advisory Committee 2007). In New Zealand for example, a recent study notes that strategic environmental assessment 'could help improve current practice' but 'despite a strong legal mandate, practical experience with considering sustainability issues in transport decision making in New Zealand has been mixed' (McGimpsey 2007, p 1). Strategic environmental assessment remains primarily a tool for assessing environmental impacts, and despite its potential, an international study by the WHO found that 'in practice the consideration of health impacts has largely been neglected or has been inadequate' within strategic environmental assessment (WHO Regional Office for Europe 2001). New Zealand's Public Health Advisory Committee notes that 'currently, consideration of potential health impacts tends to either take place in an ad hoc way [...] or not at all' (Public Health Advisory Committee 2007, p 32).

The international literature cites several reasons for poor implementation of comprehensive environmental and health assessment processes. Firstly, assessment tends to take place to the extent that it is required and seldom goes beyond minimum legal or administrative requirements. Barton and Grant (2008, p 131) argue that 'official requirements to assess sustainability have been strong on rhetoric but weak on legal obligations', and Handy (2008, p 124) concludes that 'goals without performance measures get the least weight in the planning process'. Secondly, it has been argued that the civil engineering roots of transport planning often lead to an ongoing narrow focus on engineering solutions, with 'competing

⁹ Note that the New Zealand equivalent of environmental impact assessment is assessment of environmental effects (AEE).

professional values systems' acting as a barrier to effective health assessment (Barton and Grant 2008). Thirdly, comprehensive health and environmental assessments may be avoided because the findings would be politically unpalatable.

3.1.3 Health promoting transport solutions have economic benefits

The assumption that economic growth is necessarily linked to increased demand for motorised transport has been shown to be false. In fact economists in Europe and North America have demonstrated the opposite – that 'some degree of decoupling [of transport demand from economic growth] is a necessary condition for economic growth rather than a barrier to it' (Niederl et al. 2003). For example, a recent Scottish study estimates that each additional car driver costs the economy £172–250 (approximately NZ\$477–693) per year, whereas switching 20% of Scottish car commutes to walking or cycling would lead to a £0.6–2.0 billion (NZ\$1.7–5.5 billion) saving per year. Canadian research also shows that greater consideration of health-promoting transport solutions is likely to have significant economic benefits (Litman 2003; 2008). Litman concludes:

Giving health a higher priority in transportation planning would increase emphasis on mobility management strategies, particularly those that increase non-motorised travel. Many mobility management strategies are justified by direct economic benefits such as congestion reduction, facility cost savings and vehicle cost savings and therefore can provide 'free' health benefits (Litman 2003, p 108).

Recent New Zealand research also concludes that promotion of walking and cycling is likely to have economic benefits,¹⁰ and the *Economic evaluation manual* (NZTA 2009) has been updated to better reflect the economic benefits of walking and cycling.

3.1.4 Health promoting transport solutions have environmental benefits

As Barton and Grant (2008) point out, the United Nations definition of sustainable development is not primarily about the natural environment but about people. Sustainable development 'meets the needs of the present while not compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development 1987 cited in Barton and Grant 2008). They argue, therefore, that 'health is not a bit player but *central* to sustainability' since human wellbeing is at the heart of the definition (Barton and Grant 2008, p 131).

If human wellbeing, now and in the future, is seen as the touchstone of sustainability, it is not surprising that public health advocates and sustainability advocates have largely shared agendas in relation to transport. For example, most of the recommended strategies for environmental sustainability put forward by the Intergovernmental Panel on Climate Change (2007) also provide immediate (as well as future) health and wellbeing benefits such as increased physical activity and improved air quality.

¹⁰ From a speech given by former Minister of Transport, Hon Annette King, at the Walking Conference 2008, www.beehive.govt.nz/speech/national+walking+conference

3.2 International application of HIA to land transport planning

3.2.1 How effective is HIA in ensuring public health concerns are adequately addressed?

A major review of the effectiveness of HIA in Europe¹¹ concludes that ‘all the HIAs analysed in the case studies modified certain aspects of the pending decision but not a single project or development was completely withdrawn because of the HIA’ (Wismar et al. 2007, p 21). In some cases (eg Berlin Brandenburg Airport HIA), the HIA had a direct influence on core aspects of the proposal (in this example, a night flight ban was introduced). In the majority of cases, the HIA did not affect the core proposal but led to changes or additions to mitigate negative health impacts or enhance positive impacts. In most cases the HIA also influenced decisions indirectly by ‘creating stronger health consciousnesses’ (*Ibid*, p 19) amongst decision makers, and by bringing health-related issues to the forefront of discussions. The authors point out:

The fact that none of the HIAs [...] resulted in the complete cancellation of the proposed plans shows that HIA is not intended to be a mechanism that hinders the planning and implementation of proposed projects, programmes and policies, but rather one that helps to show the implications of decisions in a clear light so that appropriate decisions can be made with regards health (Wismar et al. (Eds.) 2007, p 26).

The authors explain that attempts were not made to assess HIAs against health outcomes, because ‘the long latency of health effects, the changing composition of the affected population and the difficulties in controlling or adjusting for confounders would make an outcome-based effectiveness analysis very difficult, if not impossible’ (Wismar et al. (Eds.) 2007, p 20).

A recent cost-benefit analysis of 16 HIAs undertaken in the United Kingdom found that in all cases, the benefits were valued higher than the costs (O’Reilly et al. 2006). The authors noted that the financial cost of HIA was typically low as a proportion of the total development cost of a programme or project. They conclude: ‘the findings do seem to suggest that the stakeholders involved in HIA generally found the assessment exercise to be a valuable use of resources’ (*Ibid*, p 17).

One indicator of effectiveness is the adoption of HIA recommendations into the final development of a strategy or project. With many of the HIAs examined, information about how the HIA subsequently influenced decisions and implementation was not available. Of the seven cases where HIA outcomes were reported, three reported that the HIA directly resulted in changes to the proposal (Fleeman and Scott-Samuel 2000; Gorman 2003; Mindell et al. 2004). For instance, almost all of the recommendations of the Mayor of London’s draft transport strategy HIA were incorporated in the final strategy (Mindell et al. 2004). Significant changes included promoting sustainable travel plans for workplaces and schools, giving priority to infrastructure and services that serve deprived communities, increasing emphasis on walking and cycling, and reducing reliance on private cars. This HIA also had wide

¹¹ The review was completed in 2007 by 21 research teams from 19 countries. Of the 17 case studies examined as part of the review, five were transport sector HIAs.

stakeholder participation, including representatives from low-income and minority communities.

Several reports on individual HIAs noted other indicators of the effectiveness of HIA. A report on an HIA of a local transport plan in Merseyside commented the HIA had helped improve the quality of the final transport plan (LTP Environment and Sustainability Group 2005). The reports reviewed indicated that HIA increased understanding of determinants of health amongst policy makers and community members (Fleeman and Scott-Samuel 2000; Gorman 2003; Knutsson and Linell 2007, Lavin and Metcalfe 2007), and raised awareness of the need to have local transport policies that sought to reduce inequalities (Gorman 2003).

Some commentators reported HIA had not only enhanced individual transport strategies and plans, but had helped to put health on the transport agenda (Fleeman and Scott-Samuel 2000) and reinforced the link between public decisions and public health consequences (Georgia Institute of Technology 2007). These benefits were perceived to be ongoing. For example, it was reported that an HIA resulted in health and equity considerations becoming more 'ingrained' in transport policy development in Edinburgh (Gorman 2003).

3.2.2 HIA's strengths

This review indicates that HIA can help to encourage a longer-term focus rather than short-term, and to foster interagency collaboration and inclusion. A United Kingdom strategic-level HIA noted the HIA led to a more inclusive strategy development and implementation process (Abrahams and Doran 2008).

HIA's participatory and multi-disciplinary nature is often emphasised in evaluation reports. HIA can facilitate continuing dialogue and closer working between decision makers, city planners and public health experts. HIA has potential to influence future work and to make a contribution to future joint working. A common outcome of HIA was improved working relationships across disciplines and organisations, including better understanding of particular roles and constraints. Organisational effectiveness was highlighted as a positive outcome of HIA, such as increased awareness of other people's work (Lavin and Metcalfe 2007).

Particular strengths of HIA are the opportunity to draw attention to the positive aspects of a draft proposal as well as the opportunity to give the public information about a proposal which may allay potential public concern. HIA was seen to meet the needs of policymakers in its ability to be conducted rapidly where required. In one case in Ireland the report noted the HIA also raised the profile of other current projects (Lavin and Metcalfe 2007). A common strength outlined in the HIAs was the opportunity to highlight impacts that had previously had little or no attention, and to make explicit the unintended consequences of the proposal.

A greater focus on inequalities is another advantage. HIAs have often highlighted potential impacts on vulnerable groups and on inequalities across groups, including the need to plan to meet a diversity of needs (Gorman 2003). An outcome from one HIA was a new local community group to focus on health issues (Lavin and Metcalfe 2007). In this case an HIA report was used to help secure funding for the group locally and to demonstrate health needs. Participants who were interviewed following this HIA felt the HIA had drawn attention to equity issues.

3.2.3 HIA's limitations

Reviews of HIA point out that the predictive validity of HIA rests heavily on the availability and careful interpretation of supporting evidence (Thomson et al. 2008). There are evidence gaps and significant methodological challenges associated with predicting indirect and 'hard to measure' impacts such as community severance, stress or social cohesion. However 'while uncertainty needs explicit acknowledgement in HIA, there is still scope for best available evidence to inform healthy public policy' (*Ibid*, p 2).

Another review highlights both the potential of HIA and practical pitfalls which may limit the realisation of potential benefits (Krieger et al. 2003). These include the risk of HIA becoming a bureaucratic tickbox exercise; that it is conducted without the appropriate multi-disciplinary expertise; and that 'HIA might inadvertently imply that health is the key arbiter of all policy decisions, rather than promote recognition of health as one of many outcomes meriting policy attention' (*Ibid*, p 661). The authors also note that HIA is almost always applied to proposed public policies or projects, but seldom assesses the impact of governments *neglecting* to act. Policies that facilitate neglect may have serious and far-reaching health implications; failure to act to prevent climate change is a case in point.

Authors of the individual HIAs in this review raised several limitations, including that the main drivers for HIA were often from the health sector. This meant a council could potentially see HIA as a 'health initiative' and undervalue or dismiss the findings (Lavin and Metcalfe 2007).

Other limitations were related to the timing of the HIA. For instance, it was noted that retrospective HIAs were less desirable than prospective HIAs as they had a limited ability to influence decisions. A limitation from one project-level HIA was that the reconstruction was already committed to proceed and only minor modifications to the project were possible (Stricka et al. 2007).

3.2.4 What has driven HIA in various countries?

The perceived need for HIA appears to be strong in the United Kingdom and other European Union countries. The literature review identified a range of key drivers for HIA including the sustainability agenda, the presence of a formal mandate and champions for HIA, increased awareness of the links between transport and health, greater concern about inequalities in health, and increasing evidence and capacity for conducting HIA.

The agenda for sustainability was a common driver for HIA. For instance, a project-level HIA in Northern Ireland was explicitly linked to the Healthy Cities agenda (Ison 2007b). In several cases, the HIA was driven by concern that existing policies were inadequate to address environmental problems such as air quality, or socio-economic issues such as unemployment. In one case an innovative council that wanted more sustainable transport was a driver for HIA (Lavin and Metcalfe 2007). Another driver related to sustainability was the introduction of very large redevelopment projects, where there was concern about potential impacts on a substantial population (Ross 2007).

Despite sustainability concerns being a driving force for the application of HIA, potential impacts on climate change specifically were often not explored in the HIAs reviewed. In one HIA, impacts on climate change and sustainability were explicitly excluded as they were seen to be better addressed at international or national levels rather than local (Scottish Needs Assessment Programme 2001).

Another major driver for HIA in the United Kingdom and Europe is the presence of a formal mandate and 'champions' for HIA. The United Kingdom and the European Union, for example, have national and cross-national commitments to HIA. Formal mandates that have helped drive HIA include a statutory responsibility of local government to promote health and equity, and compliance with European Union air quality policies.

Legislation obliges the Mayor of London to consider health, equalities and sustainability as underpinning themes of all mayoral policies. A series of HIAs on London mayoral draft strategies, including transport, were initiated by a health representative seconded to local government. The health representative advised the Mayor that HIAs should be undertaken on all draft strategies in order to meet the Mayor's duty to promote health (Mindell et al. 2004). Secondments of public health staff into local government or transport planning roles may be an effective alternative way of contributing public health input to transport planning. In this case the seconded person was a direct advocate and initiator of HIA.

It was noted in this case that HIA was a novel approach for transport planners and they only cautiously agreed. In Lithuania, project-level HIA has been undertaken due to a requirement since 2004 for HIA to be conducted as part of any planned economic development (if negative health impacts are likely to be significant). In Sweden, a driver for a project-level HIA was a public health policy to undertake HIAs routinely.

The review showed that greater recognition of the links between transport and health was both a driver for HIA and a consequence of HIA. Some HIA reports included discussion of the overlap between health strategy and transport strategy. In a large rail project in London, an HIA was undertaken due to concern that the existing social impact assessment and environmental impact assessment processes did not adequately address health issues (Environmental Resources Management Consultants 2006b). Concern about health inequalities was another driver identified in the literature, especially in the United Kingdom and Ireland. Finally, a driver in one strategic HIA and several project-level HIAs was the opportunity to pilot the HIA method.

3.2.5 Who is driving HIA?

Transport-related HIAs have mostly been initiated and funded by the health sector rather than by the transport sector. Specific reasons for this include that transport is increasingly seen as a key issue for health planning and there is national and international impetus for HIA within the health sector. This impetus has been driven by publications such as the WHO's declaration on transport, environment and health (Dora and Phillips 2000).

There have been several exceptions, where transport or local government sectors have initiated and/or funded the HIA. An HIA on a local transport plan for Merseyside was driven by the transport sector (a partnership of five local authorities and the Merseyside transport authority), due to recognition of the importance of transport's influence on health (LTP Environment and Sustainability Group 2005). A strategic environmental assessment was required in this case but the partnership of local authorities and the transport authority also chose to do an HIA as well. Another HIA on regional planning guidance (West Midlands Public Health Observatory 2005) was driven by the regional government's Health Strategy Group. This HIA was unusual in that it was funded without any health sector contribution. It was undertaken with joint funding from various local government and regional bodies. Sustainable development funding from the EU was used to partially fund an HIA in Ireland (Lavin and Metcalfe 2007). An HIA on transport in Dublin was funded by URBAN (a European

Regional Development Fund initiative for disadvantaged urban areas), which provided opportunities to disseminate the HIA findings widely (Eastern Regional Health Authority 2004).

3.2.6 What have the barriers been to the widespread application of HIA in transport planning?

Key barriers identified from this review of the literature include a lack of priority or statutory mandate for HIA (O'Reilly et al. 2006), institutional barriers including protection of sector interests, and limited evidence on which to base HIA, or capacity to conduct HIA.

A commonly discussed barrier was the relative lack of priority given to HIA. One HIA report noted health was not as high on the agenda as other issues in transport decision making (Knuttsen and Linell 2007). Another report made the point that economic concerns in particular tended to override health concerns (Stricka et al. 2007).

Another barrier to the embedding of HIA was protection of sector interests. For instance, some key stakeholders interviewed as part of an HIA evaluation stated that a barrier to participation in the HIA was fear of the unknown and concern about professional boundaries (Lavin and Metcalfe 2007). A challenge for one HIA was that individual views of the people undertaking the HIA affected the process, for instance there was reluctance from those involved to reduce their own car use when the HIA was highlighting this need (Hooper 2000).

A perceived or actual lack of evidence for the impacts of transport on health was identified as a barrier to the embedding of HIA, as well as limitations of data sources such as transport and physical activity survey data (Pitches 2003). Lack of capacity is also a barrier. It was noted in one report that a Health White Paper in Scotland recommended HIA but failed to provide any practical guidance or advice on incorporating it into planning (Scottish Needs Assessment Programme 2001).

3.2.7 Challenges for HIA

A challenge for several HIAs was limited engagement from the community and difficulties in gaining wide public participation (Stricka et al. 2007; Environmental Resources Management Consultants 2006a). The challenge of fairly representing all interest groups was seen as especially difficult for strategic-level HIA as a strategy covered a whole population. The main barriers identified to achieving wide public participation were time constraints, the large size of populations affected and the need to represent a diverse range of people.

Some proposals may appear to be positive for health in principle but it is only when they are applied that health issues become apparent (West Midlands Public Health Observatory 2005). The West Midlands Regional Planning Guidance (RPG) HIA found it challenging in practice to follow the HIA process on a large scale and chose to distribute the draft HIA only to a selected group of people (*Ibid*).

3.2.8 How has HIA been applied? – process, methods and timeframe

Most HIAs in this review were rapid HIAs (eg one to three months) and several had very tight timeframes. Two exceptions were the Atlanta HIA in the United States which took more than one year and the Swedish HIA which was conducted over four years. The short timeframes are often unavoidable in order to provide useful information to policymakers at the right time (Gorman et al. 2003). One strategic-level HIA, conducted on draft regional planning guidance

at the local government level, estimated it took 480 hours in total to carry out the HIA (West Midlands Public Health Observatory 2005).

In this review most HIAs included a literature review (of evidence on the impacts of transport on health), community/population profiling and stakeholder input usually from workshop/s. Occasionally stakeholder input was sought using individual interviews, but this was in a minority of cases. The majority of HIAs used a steering group comprised of a range of stakeholders and used a broad definition of health such as the widely used WHO definition (WHO 1948). It was also common to focus the HIA on draft options or scenarios from the draft strategy or plan, and to focus on defined population groups of interest.

One HIA, on a local transport plan for Merseyside, consulted HIA guidance but adapted the HIA stages and questions to be consistent with the strategic environmental assessment that was being conducted in parallel (LTP Environment and Sustainability Group 2005).

3.2.9 At which stage in policy/plan/project development has HIA been applied most successfully?

The HIAs in this literature review were generally applied prior to a draft proposal going out to consultation. In one case the key findings and priorities of the HIA were promptly debated the day after the appraisal workshop by the strategy developers (London Health Commission 2001). For the London mayoral strategies an early confidential draft of the strategy was released for initial comments (by health staff seconded to the local authority). This was then followed by the full HIA.

Other literature suggests input from public health experts at an early planning stage, before a draft policy or project plan is available, may be the best way to ensure that potential effects on health are considered. Dora (2003) proposes HIA 'at least in minimal form' as a simple procedure to be applied systematically in this way. McCarthy (2000, p 5) also concludes that:

Early involvement in the planning process is best to direct the LTP (Local Transport Plan) towards health-promoting policies. This means joint planning before the LTP is written rather than an HIA on the LTP.

As both these authors point out, the HIA toolkit can be adapted to assist and structure this early public health input.

This literature review suggests HIA at the strategic level may be more effective as there is opportunity for greater influence. However, some HIAs also raised challenges in conducting HIA at a broad strategy level, such as the complexity of information in a long-term strategy compared with a discrete project, and the need to consider a large population group.

3.2.10 What practical lessons have been learned?

A key lesson from the HIAs in this review is the importance of the scoping stage in HIA and ensuring the steering group agrees on a clear scope. It is important to define the proposal that the HIA will focus on as tightly as possible, and to select a specific area of focus when dealing with a complex strategy (such as appraising the objectives or a set of specific proposals). One steering group agreed on a set of values for their project in the scoping stage to help with undertaking the work as a group.

Another lesson is the need for clear communication on health concepts, and recognition that transport and health often use different 'languages'. One commentator notes:

The term HIA itself has some inherent difficulties... There is still a tendency for health to be too narrowly interpreted...the meaning of impact is open to debate on what can be measured, while the term assessment seems to imply to some that it is a highly technical process that is in the domain of experts only (Breeze quoted in Parry and Kemm 2004, p 412).

Ways to support and encourage workers in transport and local government organisations to undertake HIA would be to include health and/or community wellbeing responsibilities in the job descriptions of appropriate transport or local government staff members, as well as legislative backing for HIA.

There is also a need to ensure realistic time allocation and methods for HIA. Where there are limitations in data sources, ways to make HIA more robust include consulting with relevant experts on the appraisal of likely impacts rather than undertaking a full evidence review. As in many instances it is not feasible to undertake a full HIA with wide community participation, it may be useful to consider alternative ways of providing public health input. One option could be to disseminate generic evidence reviews on the effects of public health on transport, which could be used in a variety of contexts. Another lesson from the review is that even individual HIA activities (such as screening) can be useful in themselves, and partially completed HIAs can then be developed into a full HIA (Knuttsen and Linell 2007).

3.2.11 Integration with environmental assessment

There is much discussion and debate in the literature about incorporating a stronger health focus into environmental impact assessment and/or strategic environmental assessment for example, rather than advocating for widespread implementation of stand-alone HIA. While some see strong practical and philosophical reasons for integrating environmental and HIAs (eg Barton and Grant 2008; Kemm 2000; Wright et al. 2005), others argue that combining HIA with environmental impact assessment and/or strategic environmental assessment will lead to a 'watered down' focus on health and inequalities (Kemm 2000; Stricka et al. 2007; Wright et al. 2005).

HIA authors have raised the potential for conducting an integrated impact assessment including both HIA and strategic environmental assessment in order to reduce duplication (eg LTP Environment and Sustainability Group 2005). Greater sharing of information between HIA and environmental impact assessment practitioners was recommended.

Legal frameworks for environmental impact assessment and strategic environmental assessment in many countries already include health as a compulsory element but, as discussed above, this tends to be poorly implemented. Banken (2003, p 389) argues that 'translating the legal framework into practice seems to require an administrative framework', and cites the example of a memorandum of understanding signed between the Quebec Ministry of Health and Ministry of Environment in 1987 which led to 'systematic and active' integrated HIA/environmental impact assessment practice at the project level in that province.

One HIA report raised caution about ensuring that HIA did not compromise existing statutory consultation requirements through additional consultation or duplication (West Midlands

Public Health Observatory 2005). In the HIA on the West Midlands RPG, the RPG had a legally prescribed consultation process so the HIA practitioners had to be careful not to affect that.

3.2.12 Factors for effectiveness

The key factors for effective HIA in transport planning, based on this review, include a formal mandate for HIA, collaboration across a wide variety of sectors and disciplines, and commitment to HIA by transport policymakers. Effective HIA is supported by a formal mandate such as a national directive for transport to incorporate health considerations (Hooper 2000).

Collaboration across sectors is a success factor, including willingness of key agencies to work together, combination of transport knowledge and health knowledge, frequent discussions across sectors and team effort/shared commitment. Related to this is commitment of policymakers to the HIA. Policymakers with a genuine interest in the findings of the HIA contribute to the success of HIA. Secondments of health staff to local government have been used as an effective strategy for encouraging and supporting the best use of HIA, for instance an internal health staff member can organise the timing of HIA to best fit with political or decision-making processes.

Finally, other factors linked with successful HIAs in this review included broad stakeholder participation (such as in the London mayoral strategy HIAs), a positive emphasis in the HIA and the right timing to contribute to decision-making processes.

3.3 Conclusion

The international literature shows HIA has been driven largely by the health sector, in response to deficiencies in traditional transport planning such as failure to consider indirect and long-term health effects and equity issues. It is argued that failure to assess the broader costs and benefits of transport proposals has contributed to road-building bias, and global health and environmental problems such as climate change and the obesity epidemic. In response to these problems, transport policy is placing greater emphasis on health and environmental outcomes in many countries. However, it is argued that existing tools and administrative structures were not designed to deliver the much broader objectives now demanded of the transport sector. In order to deliver on health objectives, transport planning tools and processes must identify and assess broader health and environmental benefits and disbenefits of proposals. HIA is seen as a tool to achieve this. Greater focus on achieving positive health outcomes is also likely to contribute towards sustainability and economic objectives.

Internationally, HIA case studies and evaluations suggest that HIA has helped to get health on the transport agenda, particularly in the United Kingdom and Europe, and has led to greater consideration of potential health impacts in transport planning. According to the literature HIA can help to encourage a longer-term focus, bring attention to unintended impacts and inequalities, foster interagency collaboration, and assist a more inclusive process that involves affected communities in the decision-making process. Successful HIA outcomes are more likely when there is a formal mandate for HIA and genuine commitment from policymakers to address health concerns. Practical lessons learnt include the importance of the scoping stage and awareness of the 'language barrier' that may hinder cross-sector communication. There is disagreement in the literature about whether HIA should be

conducted as a stand-alone assessment, or incorporated into environmental impact assessment or strategic environmental assessment processes. There are a variety of views about the ideal time for applying HIA, although it is agreed that HIA should be conducted early enough to allow changes to the policy or project, if necessary.

4 Review of land transport planning and funding in New Zealand

Central to understanding the role HIA can play in improving land transport decisions is an understanding of the planning and decision-making processes themselves, in particular the role of any assessment processes used. This section of the report describes and unpacks the current transport planning and funding arrangements with a particular focus on assessment activities, setting the stage for analysis of where and when HIA might be used to improve understanding aspects of population health and wellbeing. It highlights a range of potential opportunities for HIA to strengthen or improve existing planning and assessment processes in the transport sector.

Planning and funding arrangements for land transport infrastructure and services are not straightforward. Planning activities may be parallel as well as sequential. Some have a statutory foundation but many do not. Both planning and funding decision processes are multi-staged. In some processes the planning and funding aspects are closely integrated, while in others they are not. Within land transport, infrastructure planning and funding shares some common paths with planning and funding for services, but sometimes there is a clear separation between the two.

Box 4.1 Definitions of transport infrastructure and transport services

Transport infrastructure for the purpose of this research includes pedestrian footpaths (both kerbside and 'stand-alone'), cycle ways, bus ways and roads and rail, including bridges, overpasses, and tunnels and traffic control measures. Passenger interchanges are also included.

Transport services for this research is principally public transport services but also includes travel demand management, education, promotion and social marketing.

4.1 Planning and funding

4.1.1 Planning and funding for infrastructure

Planning for local and district transport infrastructure is undertaken by local authorities and is guided and governed by a variety of planning instruments through the RMA, LGA and LTMA. Central government transport infrastructure planning is principally for state highway development, and now rail. Until August 2008 this was the responsibility of Transit NZ. It is now a function of the NZTA.

Statutory connections between land use and transport planning are weak. Increasing efforts to integrate planning reflect its potential to deliver cost-effective solutions for the health and wellbeing of communities. RMA consents are required for construction of most new infrastructure. Designations under the same legislation provide protection of land for later developments.

Funding for local and national transport infrastructure, with the exception of some direct Cabinet project specific allocations, is approximately 60% from the National Land Transport Fund (NLTF) and 40% from local authority rates.

The NLTF has been administered by the NZTA since 2008 when it absorbed the former Land Transport NZ. State highway funding is provided by the government mostly through the NLTF, while most local infrastructure projects are only part funded from the NLTF. For local authorities and other approved organisations, NZTF funding follows an allocation process administered by the NZTA and guided by operational manuals. The funding allocation process is described in detail below.

4.1.2 Planning and funding for services

Planning for transport services such as travel demand management and public transport is done by both central and regional government. Funding for transport services is partly from the NLTF but with significant contributions from regional councils and users of the services.

Planning for rail services is currently not well integrated with road-based activities. Rail passenger services are also jointly funded.

4.2 Policy and planning framework

Planning for land transport has been increasingly more firmly guided by central government since the mid-1990s. Current guidance from the centre is provided in the NZTS (a non-statutory document) and the GPS. The NZTS 2008 sets out a vision and objectives, targets and key challenges, and actions and monitoring. The strategy has five objectives as follows:

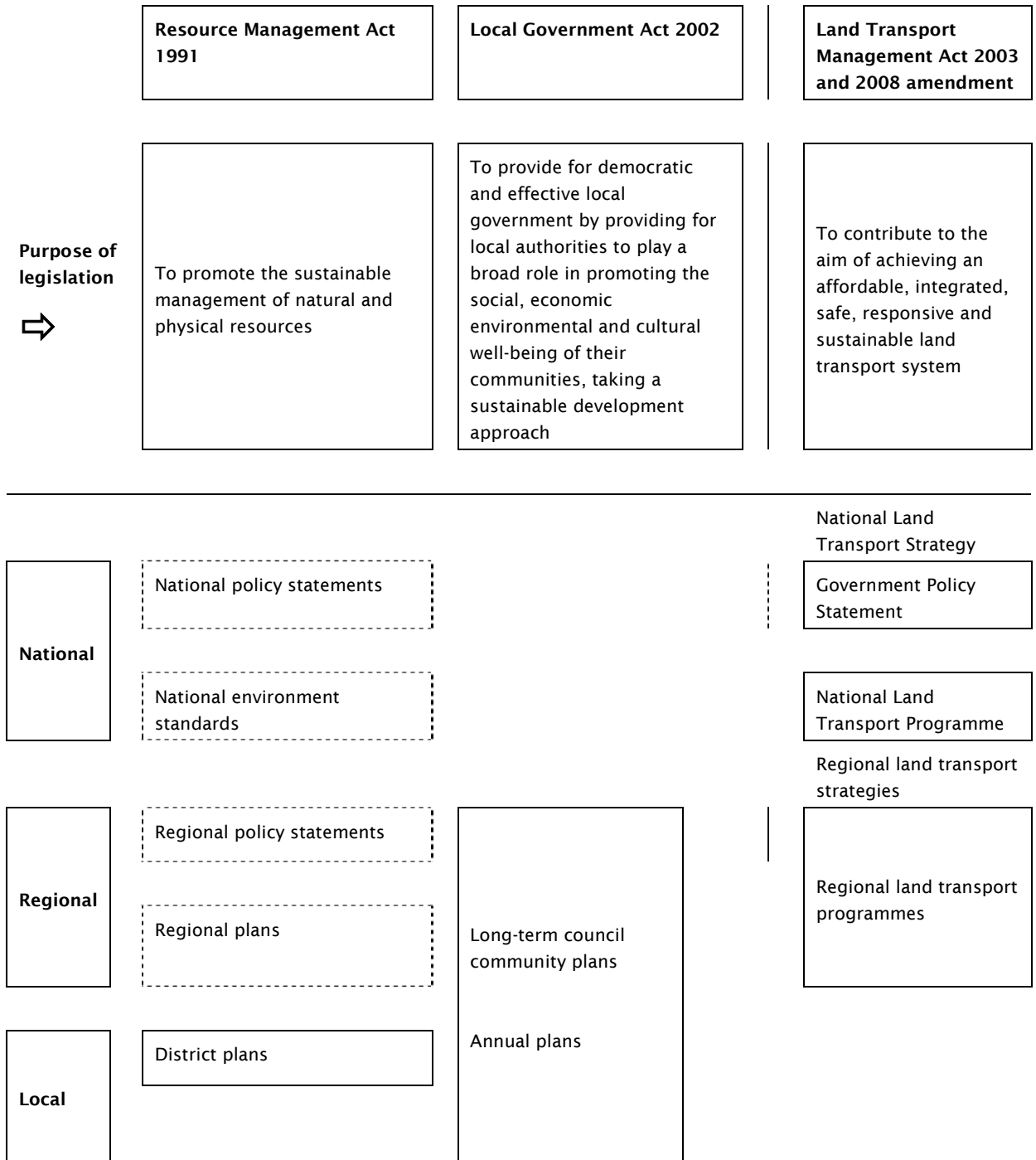
- ensuring environmental sustainability
- assisting economic development
- assisting safety and personal security
- improving access and mobility
- protecting and promoting public health.

Under each of these are specific targets. The 'five objectives' appear word for word in the LTMA as amended in 2008 (although in different order) with reference to a number of statutory planning and funding activities. Notwithstanding the separate listing of public health in the fifth objective, most public health professionals would recognise the first four objectives as important determinants of community health and wellbeing.

National policy statements and national environmental standards are another potential source of policy and practice guidance on land and resource use for transport infrastructure and services. Developed under the RMA, these are also required to reflect social, economic and cultural matters, recognisably determinants of health.

Linking both transport planning under the LTMA and resource management under the RMA, are legal requirements of varying levels of 'commitment' to reflect the National Energy Efficiency and Conservation Strategy.

Figure 4.1 (below) shows the relationship between different statutory planning instruments with reference to their governing legislation as in 2007 (Ward et al. 2007, p 23). Since 2008 national and regional transport strategies are subject to the LTMA.



(Source: Amended from Ward et al. 2007.)

Note: Discretionary planning documents are shown in dashed line boxes.

Figure 4.1 Key land use and transport legislation showing statutory planning activities

Separate from the activities listed in figure 4.1, a great deal of long-term land use and economic development planning is undertaken without specific statutory mandate under the general discretion provisions of the LGA. These include regional and inter-regional level strategic development/growth plans and at a local level, area plans. With a more specific transport focus, corridor plans and individual mode plans (eg walking and cycling strategies) are common.

For the Auckland region, the Local Government (Auckland) Amendment Act 2004 (LGAAA) introduced requirements for local authorities in that region to amend policy statements and

plans to integrate land-use and transport provisions and make them consistent with the Auckland Regional Growth Strategy (Auckland Regional Growth Forum 1999). To assist implement this requirement the Auckland Regional Transport Authority (ARTA) (2007) has produced *Integrated transport assessment guidelines*. These guidelines provide a structured framework in which to assess the integration of land use changes and transport solutions.

The guidelines state that their purpose is:

[T]o assist in identifying how a development will interact with the existing transport networks, where the traffic capacity constraints may occur, where passenger transport services are sufficient or where extra services are required and the level of accessibility for walking and cycling. The guidelines provide a process to ensure that a full assessment of transport opportunities and constraints is undertaken and proposed development accords with regional planning and transport policies. In particular, it seeks to ensure the integration of land use with all modes of transport (ARTA 2007, p A13).

There are potential opportunities to apply HIA in a range of statutory and non-statutory transport planning and assessment processes. The next section presents an overview of the legislative and policy context and the broad planning and funding framework. The chapter then discusses transport planning and funding activities in more detail, noting possible opportunities for HIA.

4.2.1 Changes arising from land transport legislation in 2008

Following an extensive review of transport legislation and administration in 2006–2008, amending legislation was passed to give effect to a new direction. Relevant to this study are changes to the LTMA and newly introduced Public Transport Management Act 2008.

4.2.1.1 Land Transport Management Act, amended 2008

For transport planning and in particular integration of transport and land-use planning, the 2008 amendment to the LTMA made some important changes. Significant for the current research are:

- 1 the introduction of a three-year planning cycle for transport planning aligned with the three-year long-term council community plan cycle
- 2 requirements for RLTSs to be consistent with the national policy statement, regional policy statements and regional plans, and to take account of strategic integration of transport infrastructure
- 3 the requirement for RLTSs to include state highway and public transport activities in addition to local roading
- 4 the introduction of a requirement for a government policy statement.

The first change provides an opportunity for better alignment between local government and transport planning. In particular it enables the explicit community wellbeing orientation of the LGA (which guides the preparation of the long-term council community plan) to give support to less commonly acknowledged and less explicit community wellbeing requirements of the ‘five objectives’ in transport legislation.

The second change strengthens and extends existing connections with the RMA and thus helps ensure a much closer integration of planning undertaken under resource management and transport statutes.

The third change effectively forces integration between local and national roading and public transport. This moves regions outside of Auckland closer to the integrated planning requirement that was introduced by the LGAAA in 2004.

Finally the new legislation also provides for Ministerial guidance of the land transport sector and the NZTA on outcomes the Crown wishes to achieve. The vehicle for this is a GPS issued every three financial years.

The first GPS, issued in August 2008, set targets for the period 2009/10–2014/15 as follows:

- reduce kilometres travelled by single occupancy vehicles in major urban areas on weekdays, by 10% per capita (and thus reduce greenhouse gas emissions)
- increase the mode share of transporting freight by coastal shipping and rail
- ensure no overall deterioration in travel times and reliability on critical routes
- reduce fatalities and hospitalisations from road crashes increase patronage on public transport by 3% per year
- increase the number of walking and cycling trips by 1% per year.

The principal vehicle for giving effect to the GPS in the short term is the NLTP. As RLTSs and regional land transport programmes (RLTPs) are prepared using the new guidance, they would be expected to reflect the targets.

4.2.1.2 Public Transport Management Act 2008

This legislation concerns planning and regulation of public transport. It confers powers on regional councils around the provision of commercial public transport. Amongst other things it addresses accessibility standards and recognises part of New Zealand society as ‘transport disadvantaged’.¹² Lack of access to services, activities and facilities is an important determinant of health.

The legislation requires regional councils that fund or control public transport service and total mobility type services to prepare regional public transport plans (RPTPs) within three years. When preparing or reviewing these plans the councils need to take account of the GPS, RLTS, RLTP and long-term council community plan.

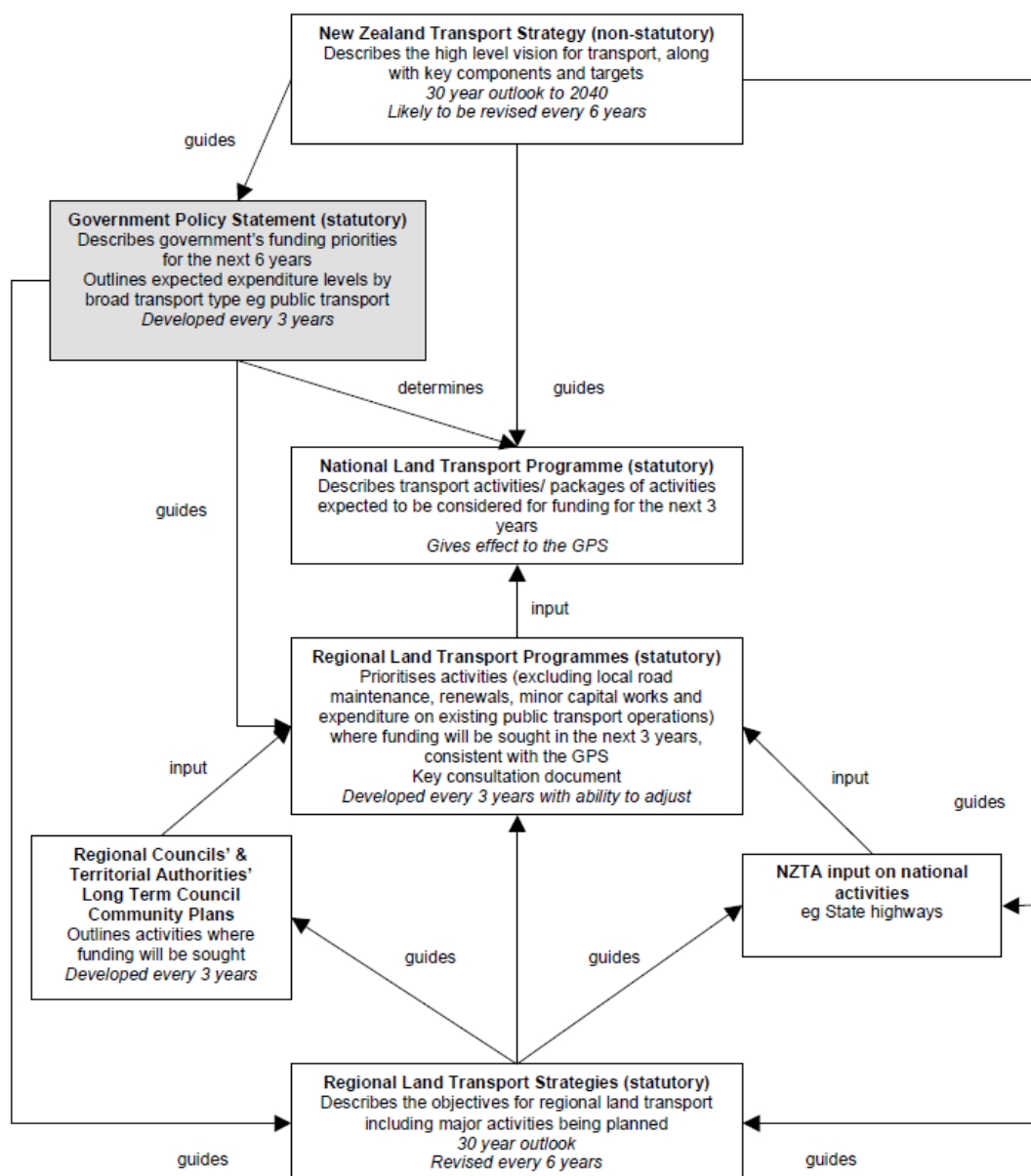
4.2.1.3 Transport monitoring indicator framework

Also in 2008 the Ministry of Transport introduced the TMIF. This is a useful addition to the suite of tools to assist transport planners. The TMIF sets out to provide a national, and where possible regional, framework for the robust monitoring of the New Zealand transport system. The framework enables:

¹² Transport disadvantaged are defined in the Act as people whom the regional council has reasonable grounds to believe are the least able to get to basic community activities and services (for example work, education, health care, welfare, and food shopping).

- progress to be measured against objectives, sector outcomes and targets in the NZTS and the GPS
- evaluation of transport-related policies and strategies.

Figure 4.2 describes the relationship and functions of the high-level planning and funding activities, reproduced from the GPS (New Zealand Government 2008 p 5).



(Source: Government Policy Statement on Land Transport Funding 2008, p 5)

Figure 4.2 High-level land transport planning and funding documents and the relationships between them

4.3 Planning and funding activities

4.3.1 Metaphor

To set the scene for a detailed explanation of the 'end to end' flow of transport planning and funding activities we suggest that planning activities for land transport in New Zealand can be pictorially described with reference to one of Canterbury's major rivers such as the Waimakariri River.

Catchment tributaries of individual transport projects arising from real or projected demand, from urban expansion or infill, from a political or professional desire for service improvement, all coalesce and combine as the river flows from the mountains. Towards the middle of its path to the sea the river passes through a narrow choke – a gorge; in planning terms this is the RLTS and the RLTP preparation processes.

Liberated from the narrowing constraints of the gorge, individual projects, or increasingly packages of projects and/or services that meet regional objectives, head off on different paths to a variety of programmes and plans for further development. They then proceed through funding processes and, for infrastructure, construction consent processes.¹³

The flow of the Canterbury river in braided form from its exit from the gorge and with minor lowland tributaries, well illustrates the interconnected and interactive nature of transport planning following on from the RLTS. The individual projects and packages of projects comprising the individual flow lines of a braided river continue until they are again confined. In the coastal plain the flattened gradient of the river and the tidal influence of the sea have the effect of bringing the river into a single, deeper channel. In this stretch the river moves more slowly. This is the funding process.

4.4 Principal planning activities at regional level

In this section we describe the principal statutory and non-statutory planning activities that involve or control transport infrastructure and service at the regional level and in which some form of assessment is undertaken or provided for. Led by regional government and with a transport solution orientation are:

- regional land transport strategies
- corridor studies
- other mode or activity plans
- regional public transport plans.

Planning activities under the RMA that guide or give effect to these strategies and studies are also described.

4.4.1 Regional land transport strategies

RLTSs have been prepared in a variety of forms and with varying levels of investment since their requirement was introduced by the 1995 amendment to the Land Transport Act 1993. All

¹³ The metaphor would record direct funding by Cabinet as a flood event!

regions currently have strategies in place. Since July 2008 the frequency requirement of RLTSs is every six financial years and their time horizon must be at least 30 years. In the past some councils have merely reviewed their previous RLTS investing more modestly in the process. None have yet been completed in full compliance with the 2008 transport amendment. Accordingly the planning process for the development of RLTSs may benefit from HIA.

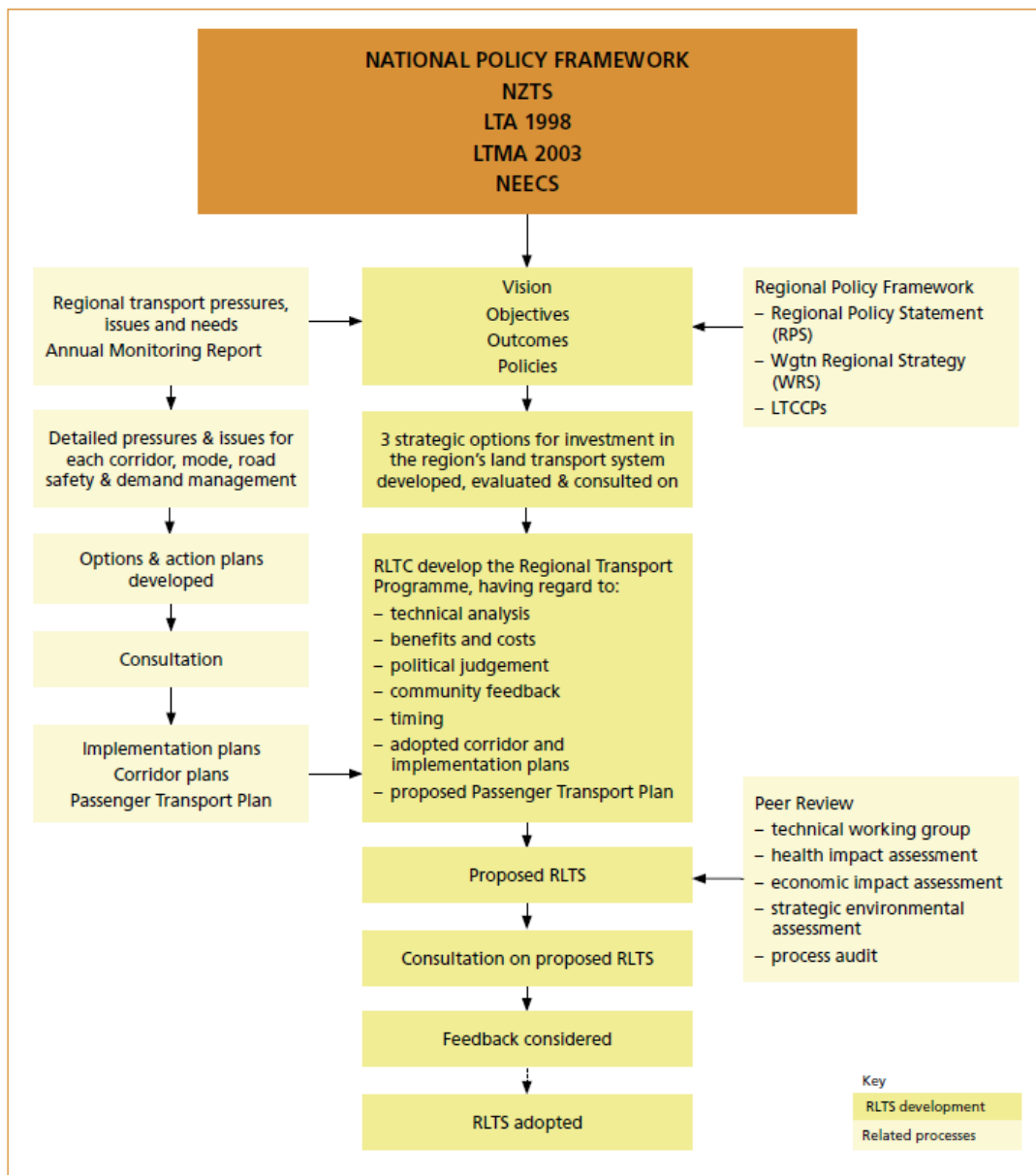
Regional land transport strategies¹⁴ are prepared by a regional transport committee (RTC)¹⁵ with membership and process guidance provided in the LTMA. Usually following the formal adoption of the RLTS, these same committees prepare the RLTPs; however, this will not always be sequential. These are discussed below.

A more-or-less standard approach has been adopted by the larger regional councils with one or two stages of consultation on vision and values, and strategic options before formal consultation on a draft RLTS. Assessment activities to consider proposals' impacts on different factors are undertaken formally or informally where options are being evaluated.

The flow diagram (figure 4.3) reproduced below from the current Wellington RLTS (Greater Wellington Regional Council 2007) illustrates a common approach.

¹⁴ The Auckland RLTS is subject to more demanding requirements as to content reflecting the complexity of local government arrangements in that region. The process of preparing the RLTS (by the ARC) and preparing the RLTP (by ARTA) is separated.

¹⁵ Formerly the Regional Land Transport Committee.



Source: Wellington Regional Land Transport Strategy 2007–2016

Figure 4.3 The Wellington RLTS development process

Core requirements for the preparation of RLTSs are set out in the legislation covering the content and preparation process. These include a requirement that in preparing the RLTS, the RTC must ensure¹⁶ the strategy contributes to each of the five objectives. While not a demanding test, it is nonetheless clear guidance. RLTSs must also take account of the GPS, the National Energy Efficiency and Conservation Strategy and relevant district plans. The core requirements of the RLTS are set out in box 4.2.

¹⁶ The 'Know How' guide on transport planning and funding notes that 'ensure' is an objective test 'requiring a level of certainty such that if the required components of the decision are not present, the decision maker cannot proceed'. (Ministry of Transport, NZ Transport Agency, Local Government New Zealand 2008, p 19.)

Box 4.2 Core requirements for regional land transport strategies

A regional transport committee must, when preparing a regional land transport strategy on behalf of a regional council,—

- (a) ensure that the regional land transport strategy—
 - (i) contributes to the aim of achieving an affordable, integrated, safe, responsive, and sustainable land transport system; and
 - (ii) contributes to each of the following:
 - (A) assisting economic development:
 - (B) assisting safety and personal security:
 - (C) improving access and mobility:
 - (D) protecting and promoting public health:
 - (E) ensuring environmental sustainability; and
 - (iii) is consistent with any—
 - (A) national land transport strategy; and
 - (B) relevant national policy statement or any relevant regional policy statement or regional plan that is for the time being in force under the Resource Management Act 1991; and
 - (iv) avoids, to the extent reasonable in the circumstances, adverse effects on the environment; and
- (b) take into account—
 - (i) the relevant GPS; and
 - (ii) any national energy efficiency and conservation strategy; and
 - (iii) any relevant district plans

(Source: Land Transport Management Act, s75)

RLTSs commonly involve numbers of technical studies addressing road capacity and with considerable investment of modelling of travel behaviour under selected scenarios. Strategic options, usually including contrasting traffic densities, are evaluated against performance criteria. The performance criteria are recognisably determinants of health and wellbeing for the most part as the following list from the 2005–2015 Canterbury RLTS illustrates (Ward et al. 2005).

Box 4.3 Qualitative criteria in the Canterbury RLTS 2005–2015

- facilities for the transport disadvantaged
- pleasant urban environment
- severance
- free from crime
- sense of community
- exposure to weather in walk/wait times
- facilities for social interaction
- qualities of urban environment
- consistency with other planning documents
- consolidated urban form.

Specific and demanding content and consultation requirements are set down in the LTMA. However, no direction or guidance is provided on assessment processes, performance indicators, criteria or weighting, in relation to trade-offs between objectives. This is a clear gap in current guidance which HIA could potentially assist with by contributing to existing assessment processes, assessing a wider range of performance indicators and/or providing a process for making trade-offs explicit.

RLTSs give rise to a variety of mode, location or activity focused corridor studies and implementation plans to provide specific project interventions to give effect to the RLTS vision, objectives, outcomes and policies. These plans form stand-alone documents which sit alongside or 'below' the RLTS. In reality much of this work is iterative and/or, in part at least, parallel.

The LGAAA set up particular arrangements for RLTS preparation in the Auckland region. It established ARTA, a subsidiary organisation to the Auckland Regional Council (ARC). ARTA's role is to implement the goals of the Auckland RLTS and to 'plan, fund, and develop the Auckland regional land transport system in a way that contributes to an integrated, safe, and sustainable land transport system for the Auckland Region' (LGAAA, s8).

Under Auckland's arrangements, the ARC sets the goals for land transport in the region while ARTA is responsible for their implementation. The LTMA and the five objectives guide the preparation of the Auckland RLTS. ARTA has specific responsibility for preparing the annual land transport programme for the whole region. The region's seven territorial authorities must not prepare separate land transport programmes.

4.4.2 Corridor studies

Corridor studies are a transport planning approach applied to a more-or-less linear area or zone and undertaken at a greater overall level of detail than is the case for a RLTS. As outlined above, corridor studies may feed into both the RLTS development process and the RLTP. Such studies have become routine and a number are currently underway in different regions at the present time. In the Wellington region, planners found it appropriate to take individual corridors separately and undertake a detailed investigation of projects that make up the corridor (Brennand 2001). Brennand records:

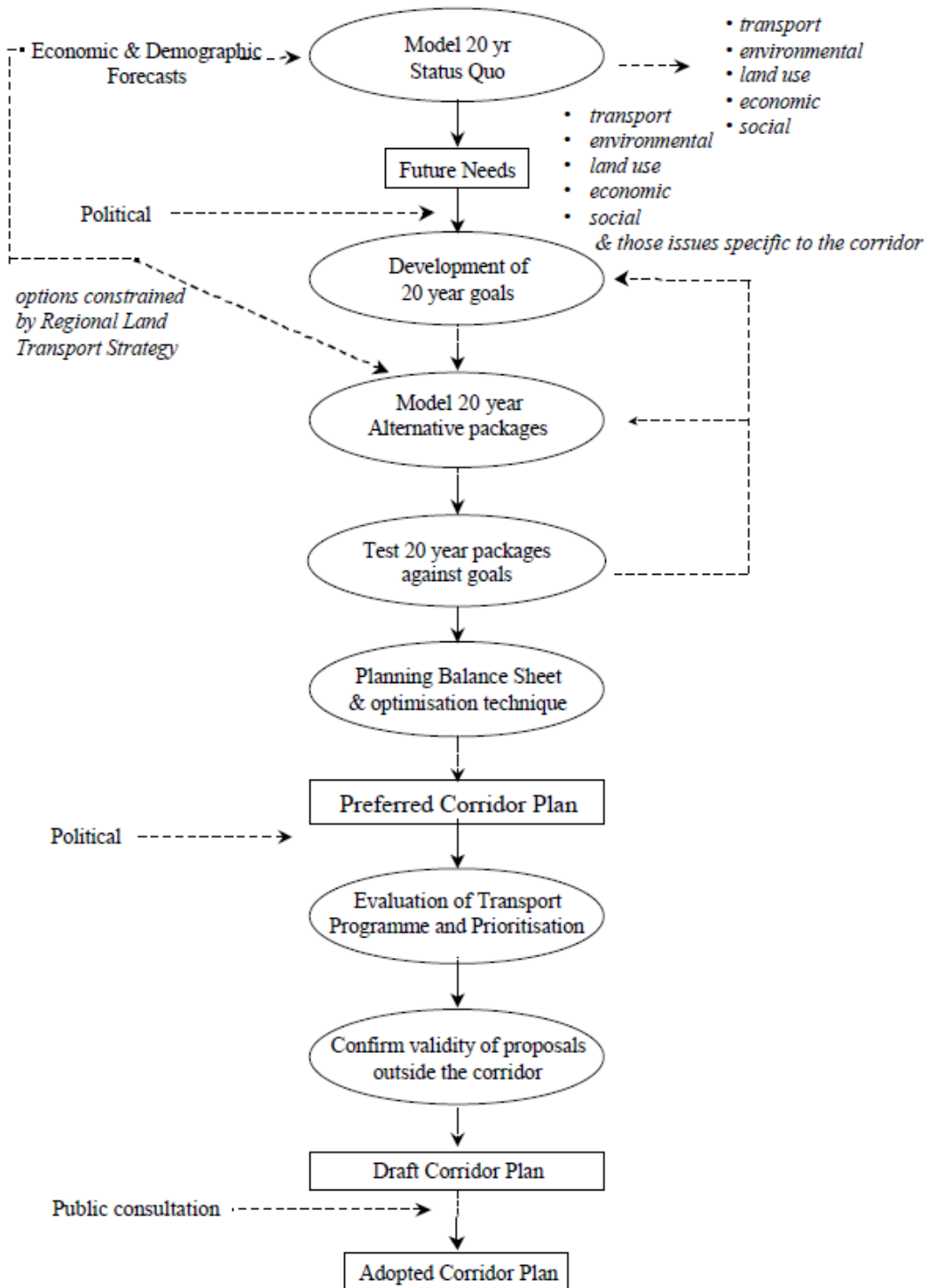
The corridor plan process is not unlike the RLTS process except that:

- i. projects in the strategy in other corridors are treated as a given
- ii. objectives, needs, issues and projects in the corridor are considered in much greater detail and those specific to the corridor can now be included
- iii. the range of options considered in the corridor are not as broad as those considered in strategy development
- iv. a check is made that the more tightly defined proposals for the corridor do not change the need for the proposals in other corridors' (*Ibid*, p 4)

Corridor studies are collaborative, integrated and multimodal studies, the majority funded from the NLTF and involving local, regional and central government agency staff generally operating as a task group. Consultants are generally engaged to carry out most of the technical work. The resulting corridor plans identify the needs and desired outcomes specific to each of the major transport corridors and provide comprehensive action programmes with

identified responsibilities, targets and timeframes. Development of implementation and corridor plans may involve extensive stakeholder consultation and enable early and focused public consultation on particular transport issues, options and proposed interventions. For many in the wider public, corridor plan consultation will provide the main opportunity for participation in the range of issues surrounding a proposed transport project. Accordingly HIA could provide useful assistance in strengthening and focusing consultation processes, enabling early input on health-related issues, and ensuring a wide range of potential health and wellbeing issues are considered.

The planning process used by the Greater Wellington Regional Council for corridor studies recorded by Brennand is set out in figure 4.5.



(Source: Brennand 2001)

Figure 4.5 Corridor plan process after Brennand 2001

As is the case with RLTS preparation, corridor studies commonly involve numbers of technical reports with considerable investment in modelling and, to a lesser degree, planning studies. Formal assessment using performance indicators, including determinants of health and wellbeing, is usually undertaken at least once. This may be before or after the selection of a preferred corridor plan.

Of relevance to this research is both the range of performance indicators used to assess the options and the methods used for weighting them. Contrasting performance indicators used for the Hutt Valley (Brennand 2002) and the Western Corridor (Brennand et al. 2005) clearly reflect changes introduced by the LTMA in 2003 (see table 4.1 below). Notwithstanding the much wider range of assessment criteria in use in the Western Corridor study, public concerns were widely expressed in submissions about both the range of options and the weightings used in their final analysis.

Table 4.1 Wellington Region Corridor Study performance indicators

Western Corridor	Hutt Valley
1 Economic and regional development <ul style="list-style-type: none"> • Average multi-modal user cost (time, vehicle operating costs etc) • Average road freight user cost • Changes to GDP 	
2 Safety and personal security <ul style="list-style-type: none"> • Economic cost of crashes • Personal security 	<ul style="list-style-type: none"> • Safety
3 Access, mobility and network reliability <ul style="list-style-type: none"> • Multi-modal accessibility and integration • Reliability of travel time for road • Network resilience for road and rail • Mode option choice 	<ul style="list-style-type: none"> • Vehicle time to work • PT statistics • MV statistics
4 Public health <ul style="list-style-type: none"> • Air quality • Noise • Active travel • Community severance and related effects • Community displacement, construction disruption • Crashes 	
5 Environmental sustainability <ul style="list-style-type: none"> • Iwi values • Greenhouse gases • Indigenous habitats • Significant ecosystems • Landscape and visual including recreational values • Archaeology and heritage 	<ul style="list-style-type: none"> • Environment • Fuel • V/C ratio
6 Economic efficiency and affordability <ul style="list-style-type: none"> • Affordability • Economic efficiency 	<ul style="list-style-type: none"> • Affordability • Economic efficiency

Ranking and weighting of indicators for the Western Corridor Transportation Study was undertaken using a 'planning balance sheet', an approach commonly used in such studies

where there is a mixture of qualitative and quantitative measures being assessed. The planning balance sheet technique offers a scoring and weighting framework for the evaluation of options against stated criteria or objectives. The indicators selected for use in the planning balance sheet were themselves subject to public consultation and the planning balance sheet assessment report included a commentary on public health impacts.

The selection of standard indicators and the weighting they are given in any assessment process determines the soundness of the planning process and its ability to meet a wide range of community outcomes reflecting a wide range of determinants of health and wellbeing. Commonly the performance indicators selected for transport studies such as corridor studies are a mix of measures that can be calculated directly from models (eg multi-modal transportation model) and those where 'an expert makes an assessment', (Brennand et al. 2005, p 3). This group of latter indicators do not lend themselves readily to quantification. In the Wellington Western Corridor Transportation Study, performance indicators that fell into this category included the impact of transport activities in the corridor on adjacent communities particularly in terms of severance and noise.

Clearly the selection of 'experts' to undertake the assessment can influence the outcome. Recent research on RLTS preparation found a number of shortcomings in the assessment process for RLTS. These included a lack of definition and common understandings of what performance measures meant and the restricted range of professionals making the scaling and weighting decisions (Ward et al. 2005)

In a more recent study of the Ngauranga to Airport Corridor in Wellington, no formal assessment was undertaken. Four packages of measures to address demand growth in the corridor were developed with reference to (but not tested against) a strategic framework comprising five elements which closely resemble the objectives of the NZTS – minus the public health objective. These were:

- assist economic and regional development
- assist safety and personal security
- improve access, mobility and reliability
- ensure environmental sustainability
- consider economic efficiency and affordability.

This section has highlighted the wide range of assessment activities. At times formal assessment processes are used in transport planning activities, but in other cases no formal assessment is undertaken. The example above demonstrates how public health can easily be sidelined when formal health assessments are not undertaken. Limitations with RLTS assessment processes include a lack of shared understanding of what performance measures mean and a narrow range of professionals involved in making weighting decisions.

4.4.3 Other regional and sub-regional land transport planning activities

Contributing to or following from technical work and political decisions for the RLTS are a wide range of mode, service, location or intervention orientated studies. In addition to corridor studies discussed above, these include metropolitan passenger transport strategies or plans, travel demand management plans, walking and cycling plans, etc.

Neither the content nor process of any of the examples listed here are subject to legal requirement or administrative guidance. However if funding is eventually sought from the NLTF, compliance with the LTMA is necessary. Accordingly when including any aspect of these studies in the RLTP the RTC 'must be satisfied that the regional land transport programme contributes to...' each of the 'five objectives'. HIA could potentially add value to assessment processes in relation to mode or intervention studies.

Implementation plans include comprehensive action programmes with project specific targets and timeframes identified. The plans also identify the agency responsible for each activity in the action programmes. In Wellington, for example, implementation plans have been developed for the following:

- travel demand management
- road safety
- cycling
- pedestrians
- freight.

A new implementation plan to be developed is a regional rail plan.

Other examples are identified in the current Canterbury RLTS which notes a large number of additional plans that play a part in delivering the RLTS (See box 4.4). Most are regional or local.

Box 4.4 Plans to assist delivery of Canterbury RLTS

- Canterbury Regional Land Transport Freight Action Plan 2005
- Cycling in Canterbury 2005
- Canterbury Regional Passenger Transport Plan 2006
- Christchurch Metro Public Passenger Transport Strategy 2006 - 2012
- Christchurch Cycling Strategy 2005
- Christchurch Pedestrian Strategy 2001
- Christchurch Parking Strategy 2003
- Christchurch Road Safety Strategy 2004
- Canterbury Regional Travel Demand Management Strategy 2008
- the Greater Christchurch Urban Development Strategy 2007 (including the draft Greater Christchurch Transportation Implementation Plan)
- the Timaru Public Passenger Transport Strategy

Source: Amended from Canterbury Regional Land Transport Strategy 2008–2018, (Environment Canterbury 2008).

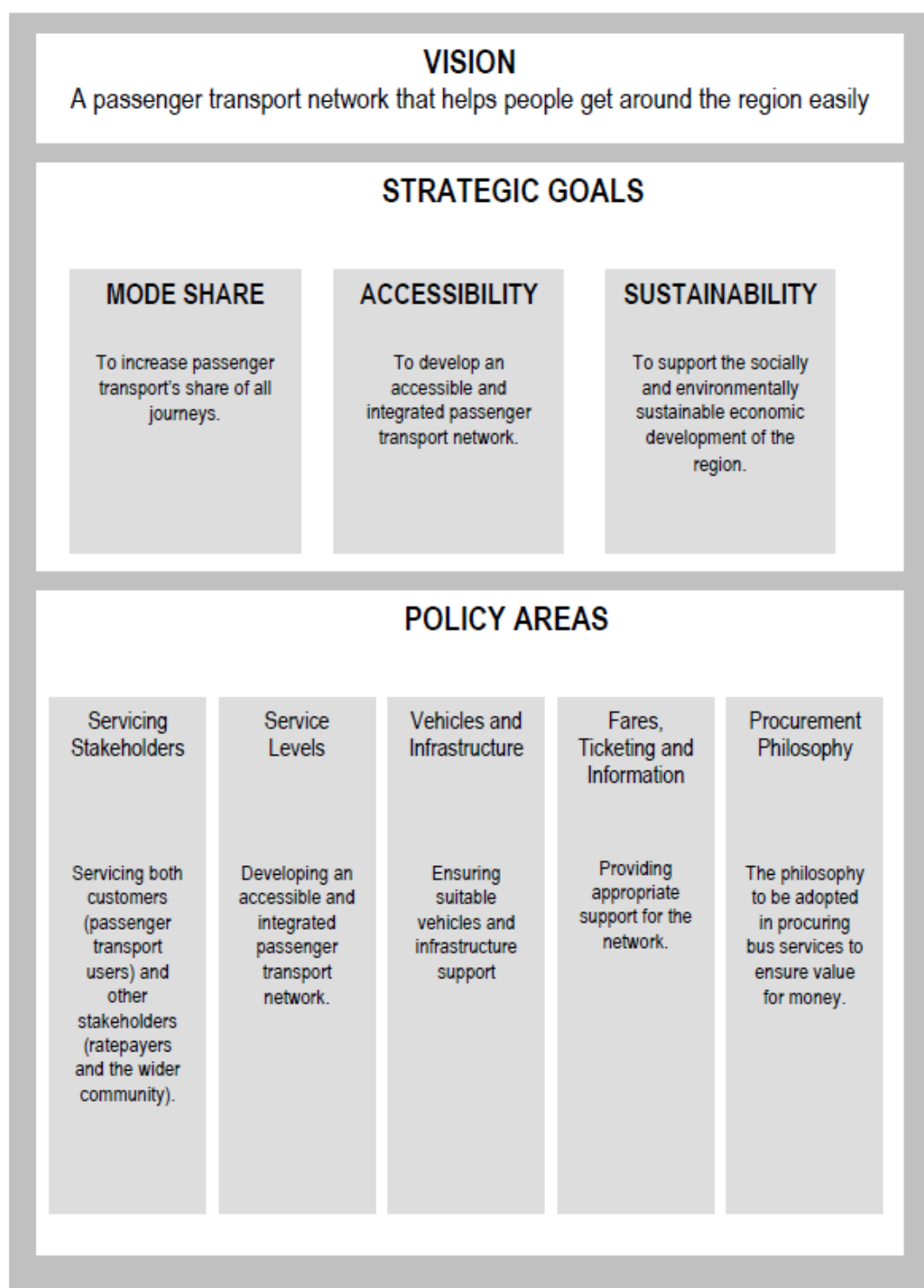
4.4.4 Regional public transport plans

The preparation of regional public transport plans has been a statutory requirement only since the enactment of the Public Transport Management Act in 2008.¹⁷ Prior to this time metropolitan and regional public transport plans had been prepared by some councils. Earlier legislation required any regional public transport plan prepared to be part of a RLTS. For instance a regional passenger transport plan has been developed separately by Greater Wellington's Passenger Transport Committee. The Greater Wellington Regional Passenger Transport Plan (Greater Wellington Regional Council 2007), adopted in August 2007, records that it reflects outcomes sought and integration needed for the RLTS which was adopted in July 2007.

Public transport plans or strategies are a particular example of implementation plans with important population health and wellbeing considerations. Consultation for plan preparation is required using the LGA special consultative procedure. Submissions are required to be sought from a wide range of organisations and individuals including 'groups that the regional council has reasonable grounds to believe represent the transport disadvantaged'.

There is little published guidance available on the process to be followed in preparing public transport plans. Figure 4.6, from the Greater Wellington Draft Regional Public Transport Plan, shows the process followed by that council. In this case no formal assessment process was undertaken; however it is clear that equity issues, for example, would need to be thoroughly considered if the strategic goals were to be met. HIA could be useful in encouraging or strengthening assessment processes in cases such as this in relation to health and equity issues.

¹⁷ It is subject to 'opt out' provisions if a regional council does not intend to contract or control public transport services or provide financial assistance to taxi or shuttle services (for mobility assistance).



Source: Greater Wellington Regional Council 2006

Figure 4.6 Greater Wellington Draft Regional Passenger Transport Plan outline

4.4.5 Statutory planning activities

The RMA provides a hierarchy of planning instruments to guide resource use and development and may influence transport outcomes. This includes provision for national policy statements and regional policy statements that set a statutory framework within which

regional and district plans are prepared (see figure 4.1). Regional policy statements prepared by regional councils, and district plans prepared by district and city councils, are mandatory. Plans establish rules for undertaking activities and set criteria for the application of different types of resource consents that may be required for development activities.

The purpose of the Act is 'to promote the sustainable management of natural and physical resources. Sustainable management means 'managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well being and for their health and safety ...', (RMA, s5). In this way council policy statements and plans developed under the RMA are referenced to recognisable determinants of health such as housing and transport, and determine the policy framework within which development proposals are considered.

Few of the first generation of regional policy statements produced in the early 1990s addressed issues of land use and transport integration in any substantial way.¹⁸ A recent study reported that most regional councils in the early 1990s did not see the interrelationship of land use, transport planning and urban form as a highly significant issue for inclusion in regional policy statements or plans (Ward et al. 2007).

Lack of attention to infrastructure planning by councils including transport led to an amendment to the RMA in 2005 to specify 'the strategic integration of infrastructure with land use through objectives, policies and methods' (s30(1)(gb) as a function of regional councils. As noted above the LTMA now references this responsibility.

4.4.5.1 Designations

At the district level, district plans may include zones or corridors designated for future transport infrastructure. Designations as a planning instrument are provided for under the RMA and have been used to set aside land for future road projects. A designation is a form of 'spot zoning' over a site or a route in a district plan (Ministry for the Environment 2003, p 4). It enables an organisation with requiring authority status to undertake work on the site or route without land use consent from the territorial authority.

Designation procedures involve the serving of a notice of requirement with an assessment of environmental effects (AEE). This procedure involves public notification, council hearings and recommendations to the requiring authority and a decision from that authority. The procedure followed is effectively the same as seeking a resource consent.

When a designation has been in place for some time, outline plans may be required which enable more detailed consideration of the project than when the notice of requirement was originally heard. The outline plan might cover issues such as earthworks, noise mitigation, transport movement, landscaping and so on. In theory, the provision for outline plans allows the designation process to be used as an 'approval in principle'.

Major transport projects generally require resource consents from regional and/or territorial authorities subject to provisions in the district plan although a raft of more minor developments such as pedestrian crossings, cycle lanes, bus shelters and so on may not.

¹⁸The RMA itself makes little reference to the urban environment or indeed planning.

Plans must anticipate the likely suite of transport-related activities; where they have not, plan changes may need to be initiated.

4.4.5.2 Assessment of environmental effects

All resource consent applications must be accompanied by an AEE. The AEE identifies the effects of a proposal early on in the process and, if necessary, provides the measures to reduce any adverse effects. It is in the AEE where the impacts of land use on the environment are assessed. The grant and/or any conditions on a resource consent are subject to Part II of the Act, including its purpose which is to enable 'people and communities to provide for their social, economic and cultural wellbeing and for their health and safety' (RMA 5(2)).

In terms of health, New Zealand research shows that the standard of project level AEEs is variable (Morgan 2006). To the extent that they address health at all, AEEs typically only focus on environmental health aspects (eg air quality, noise) ignoring the wider social and cultural determinants of health (eg access to services, physical activity levels) and impacts on future generations (eg carbon emissions). HIA could potentially be integrated with existing AEE processes in order to broaden the range of health impacts included.

4.4.5.3 Integrated transport assessment

To implement the integrated planning requirements of the LGAAA, the ARTA and the ARC have produced guidelines on the requirement for an integrated transport assessment, introduced by Plan Change 6 to the Auckland Regional Policy Statement.

An ITA [integrated transport assessment] is a comprehensive review of all the potential transport impacts from a Structure Plan, proposed Plan Change, a Metropolitan Urban Limits (MUL) shift or a major trip generating activity. It is expected the ITA would be undertaken at the beginning of the planning process and the findings of the assessment would be taken into consideration to identify and inform any actions required to avoid, remedy or mitigate adverse effects of the development proposal on the transport system (ARTA 2007, p 2).

The current integrated transport assessment process could be reviewed to identify whether HIA could strengthen consideration of health and wellbeing. As the ITA is undertaken early on in the planning process, HIA activities and principles could be feasibly integrated into the current assessment process.

4.4.6 Non-statutory planning

Increasingly non-statutory planning activities are being undertaken at a regional and local level. Some are more or less traditional spatial or land use plans and others are more specialised contributions to those plans

4.4.6.1 Spatial planning

Regional growth strategies, which are not formally required by the RMA or LGA, have emerged as an important form of non-statutory spatial planning. Auckland led the way with the production of its regional growth strategy in 1999. More recent examples are the Greater Christchurch Urban Development Strategy (Christchurch City Council et al. 2007), the Wellington Regional Strategy (Greater Wellington Regional Council 2007) and Smart Growth Bay of Plenty (Tauranga City Council et al. 2007). Only the Auckland strategy has been

recognised in legislation to date. HIAs have been undertaken on the Greater Christchurch Urban Development Strategy (Canterbury District Health Board, 2006) and the Wellington Regional Policy Statement (Jaine 2008). An evaluation of the Greater Christchurch Urban Development HIA found that the HIA was effective in influencing the final strategy (Mathias 2005). This suggests HIA can be usefully applied to non-statutory planning documents such as regional growth or urban development strategies.

All of the recent plans were driven by concerns about transport infrastructure to one degree or another. These more traditional spatial plans are recognised as a key input to RLTS preparation and since the LTMA 2008 amendments must be reflected in the RLTS. The Greater Christchurch strategy had the then Transit NZ as a formal partner in the strategy development.

Another emergent non-statutory planning activity at a sub-district level is an area plan. An area plan is a broadly focused planning document that takes a long-term view of a particular area and takes into account the local community's preferences on how it should or should not be developed. A current example from Christchurch is the South-West Area Plan. These spatial plans involve land use and transport planning with public consultation followed by a plan change under the RMA. Area plan recommendations are usually implemented via changes to the zoning and rules applicable to the land and/or non-regulatory methods, such as public land acquisition, the capital works programme and design guidance. Area plans are a means of meeting a variety of the council's strategic objectives for the city and improving environmental, social and economic sustainability. Area plans present another potential opportunity for input from health via an HIA or alternative ways to consider health implications.

All these planning activities entail assessments of different aspects, most commonly social and environmental. These may be formal and involve consultation, or be undertaken informally by project teams.

4.4.6.2 Accessibility planning

Accessibility planning is a form of planning that explores the relationship between accessibility and social inclusion/exclusion. It can be done on a project level for instance to inform site selection for social infrastructure or as a systematic aid to land use and transport planning. The purpose is to ensure that all citizens, and in particular the 'transport disadvantaged', are able to fully participate in personal, social and economic activities. Accessibility is a determinant of health and wellbeing and is variously defined around the ability of people to get goods, services and activities with ease (time, cost exertion). Mobility, the ability or ease of movement or travel, is frequently confused with accessibility.

Accessibility planning is a systematic process that assesses accessibility levels and barriers to identify accessibility problems and susceptibilities so these may be prioritised and addressed. It is not widely undertaken in New Zealand currently. A report on accessibility planning was commissioned by the Ministry of Transport in 2006 to deliver on the NZTS objective of 'developing a framework to measure improvements in access and mobility' (Booz Allen Hamilton 2008). The report identified the United Kingdom approach to accessibility planning as the most comprehensive and records the following characteristics:

- a focus on accessibility and social exclusion as its central objectives
- consideration of the location, design and delivery of all key services

- a structured process
- evidence-based
- consideration of the access needs of all groups, in particular, those of groups identified as being vulnerable to exclusion
- a consistent approach over a large geographic area
- a coordinated cross-agency approach
- clearly assigned responsibility and accountability
- coordination between transport objectives and other public policy objectives
- highlighting the accessibility and social implications of alternative aspects of service delivery
- consideration of the needs of minority groups encouraged.

HIA practitioners will recognise that this approach has much in common with HIA, and a HIA that included social connectedness as a focus, would contribute to all stages of a typical accessibility planning approach.

Current practice guidance recommends a five-stage process:

- Strategic accessibility assessment
 - identify priority areas/groups
 - check on existing policies and programmes
- Local accessibility assessment
 - identify local needs and objectives
 - develop set of requirements for local schemes
- Option appraisal
 - consider full range of solutions
 - identify most practical and beneficial subset of options
- Accessibility plan preparation
 - develop tightly defined action plan
- Performance monitoring and evaluation

Following this approach local transport authorities identify barriers and vulnerabilities to accessibility to inform and guide transport and land-use planning. A pilot project is planned by the NZTA. The crossover between this approach and integrated transport assessment is clear, and this further strengthens the call for consideration of how the integrated transport assessment might incorporate HIA, and also accessibility planning.

4.5 Planning meets funding

4.5.1 Introduction

Central government makes a significant funding contribution to most urban passenger land transport services and transport infrastructure from the national land transport fund. Specific proposals are set out in the national land transport programme which is assembled from the country's 16 RLTPs. Local/regional funding contributions come from rates and loans, and users' fares, and are expended after identification in councils' annual plans and within councils' long-term council community plans.

Most large-scale activities for which there is joint central and regional/local funding would arise from joint NZTA/territorial authority planning activities. Smaller or more routine local activities and in particular local road maintenance may not involve joint planning activities.

This section reviews aspects of long-term council community plan preparation and examines the preparation of RLTPs and the NLTP. The various assessment steps required of the NLTP and the funding allocation process are discussed in detail.

4.5.2 Long-term council community plans

Long-term council community plans introduced by the LGA in 2002 are key strategic planning documents developed by local authorities in a prescribed and deliberative manner with significant public involvement. Long-term council community plans are the reference framework for resource allocation decisions for all council activities including transport. Councils are also required to prepare annual plans setting the proposed budget and a funding impact statement for the year (s95).

Long-term council community plans are mandatory and are required of all councils every three years. Notably the LGA does not contain any specific requirements for councils to align their long-term council community plans or annual plans with plans developed under the RMA or transport legislation. As noted above, however, the 2008 amendment to the LTMA ties transport planning and funding to the long-term council community plan cycle through the RLTP. The long-term council community plans is another process where HIA could potentially play a role in strengthening consideration of health and wellbeing.

The long-term council community plan process involves the development of agreed community outcomes through an open and consultative process. In Christchurch's case for instance, these are expressed against the following headings:

- safety
- community
- environment
- governance
- prosperity
- health
- recreation
- knowledge
- development.

Christchurch City's long-term council community plan section on transport entitled 'Streets and transport' includes street-road corridors, cycle and pedestrian linkages, public pedestrian malls, off-street parking and public transport. It sets out the council's objectives for each of these forms, identifies its current activities and those planned for out years. The means of achieving the outcomes and measures and targets for monitoring those outcomes are described. Finally the costs are scheduled.

Wellington City Council has a raft of affirming and aspirational community outcomes which were adopted ('set') by the public review panel in September 2005. It adopts seven subject areas:

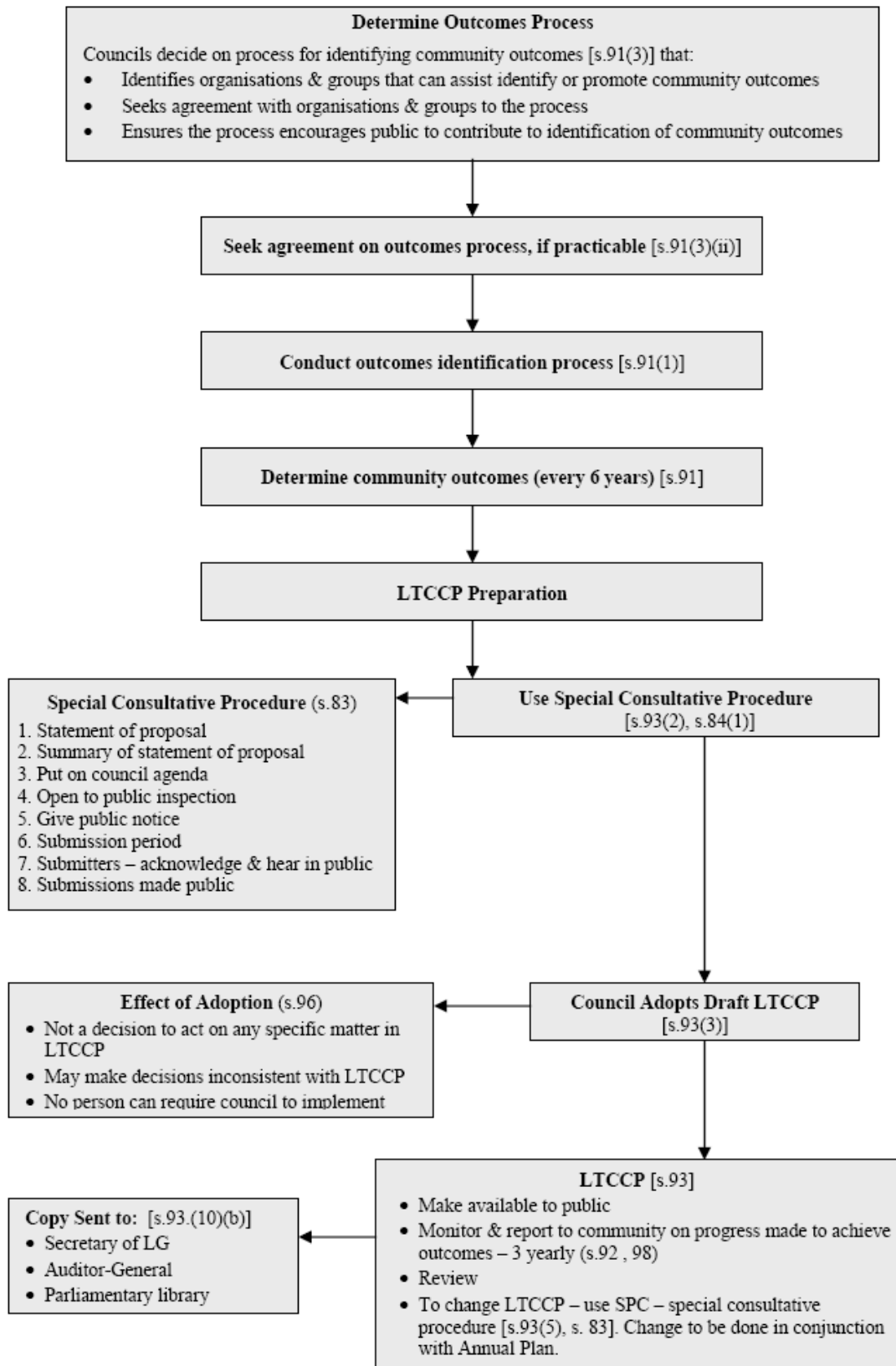
- urban development
- transport
- economic development
- environmental
- cultural wellbeing
- social and recreational
- governance.

In each area the council has set its outcomes to align with the community outcomes, for instance for 'urban development', these are listed as more liveable, more sustainable, better connected, more prosperous, more compact, safer and support a stronger sense of place. Under 'transport', the council's long-term outcomes are listed as follows: more liveable, more prosperous, more sustainable, better connected, healthier and safer. The community outcomes are for the most part recognisably determinants of health and wellbeing. There is potential for councils to use HIA to assess whether proposed actions are likely to lead to desired community outcomes.

The long-term council community plan sets out a long-term funding plan for services referenced to selected measures and targets and with clear performance measures. Annual plans record budgets for each financial year.

Consultation undertaken for the preparation of the long-term council community plan or annual plan, if conducted in accordance with the LGA, can deliver on the consultation requirements of regional transport committees for RLTSs (LTMA s18A(2)). This has the potential to assist integration of council and NLTF funding applications.

The following flow diagram (figure 4.7) illustrates the process to be followed in preparing long-term council community plans (from Borrie and Memon 2005).



Source: Long-term council community plans: A scoping survey of local authorities, Borrie and Memon 2005

Figure 4.7 Process for preparing long-term council community plan based on the Local Government Act 2002 provisions.

4.5.3 Regional land transport programmes

An RLTP is the vehicle for local authorities, other approved organisations and the NZTA to recommend 'funding for land transport activities or combinations of activities from the NLTP'. The programme must include proposals for the following three years, an indication of significant activities for the following three years and a 10-year forecast. Regional land transport programmes present a potential opportunity to apply or integrate HIA with existing assessment, consultation and analysis procedures.

RLTPs are prepared by the same regional transport committee that is responsible for the RLTS (except for Auckland as noted above). The form and content of the RLTP are prescribed in the legislation. There are consultation requirements as well. The legislation has the same test for RLTP 'compliance' with the requirements of the five objectives as it does for the RLTS, that is the committee must be satisfied that it contributes to each objective. Administrative guidance on the content of the RLTP is provided by the NZTA through the *Planning, programming and funding manual* (NZTA 2008a), the *Economic evaluation manuals* (NZTA 2008c and 2009), and *Regional land transport programme guidelines* (NZTA 2008b).

The RLTP guidelines include information for each activity class¹⁹ for which funding ranges have been set by the NZTA. It has firm emphasis on integrated planning, with a section addressing 'Expectations of integrated planning'. It identifies land-use planning decisions and demand management as important pathways to:

- avoiding high costs associated with serving dispersed patterns of development
- avoiding the social costs of isolating communities.

Under the heading 'Interaction between transport and land use', the guidelines note that there is a two-way interaction between transport and land use:

- transport investment can contribute positively to community and economic development
- sustainable development strategies and incorporating travel plans can reduce the need for transport infrastructure and improve modal choice, therefore reducing ongoing costs to the community.

'We encourage approved organisations and the NZTA to test land use and economic growth assumptions alongside transport planning. This is to enable delivery of a land transport system that provides social, environmental and economic objectives' (NZTA 2008, p 9). This important recognition of the public health and wellbeing consideration in transport planning is further underscored with guidance for the activity class 'transport planning' as shown in box 4.5.

¹⁹ Activity classes are: transport planning; sector training and support; sector research; demand management and community programmes; public transport services; public transport infrastructure; walking and cycling facilities; new and improved infrastructure for state highways; renewal of state highways; maintenance and operation of state highways; new and improved infrastructure for local roads; renewal of local roads; maintenance and operation of local roads; rail and sea freight; domestic sea freight development; road policing; performance monitoring; and management of the funding allocation system.

Box 4.5 Guidance for 'transport planning'

The NZTA would like to see the following demonstrated over the next three years:

- Strategies should be integrated with land use and all modes should be considered and addressed. If included, the decisions for exclusion should be clearly documented.
- Studies should contain sufficient detail to enable assessment of the recommendations. Support may be given where the recommendations support the transport sector outcomes. Implementation plans should contain detailed costs and timing of interventions.
- Activity management plans should help integrate strategic planning into an asset management framework, rather than focus simply on operational management. These plans should clearly show:
 - how requirements of road controlling authorities, road users and other stakeholders are understood and integrated into policy and investment decisions
 - how value-for-money considerations have been built into the activity management programme
- Approved organisations are encouraged to have dedicated walking and cycling strategies to assist in focusing on delivery of the GPS targets.
- Development of strategies and plans should consider a hierarchy of interventions for:
 - demand management
 - walking and cycling
 - public transport
 - operations of roads
 - maintenance of roads
 - renewal of roads
 - minor improvement projects
 - major improvement projects.

Source: NZTA Regional Land Transport Programme Guideline 2008

The LTMA has particular and explicit assessment requirements for RLTPs as follows.

Section 16 of the LTMA says

(2) A regional land transport programme must contain assessments by the regional transport committee of –

(a) how the programme complies with section 14....

Section 14 addresses the core requirements of RLTPs and states:

When a regional transport committee prepares a regional land transport programme on behalf of the relevant regional council, the regional transport committee must –

(a) Be satisfied that the regional land transport programme - ...

(ii) contributes to each of the following:

- (A) assisting economic development:
- (B) assisting safety and personal security:
- (C) improving access and mobility:
- (D) protecting and promoting public health:
- (E) ensuring environmental sustainability.

No guidance is provided on how to conduct the assessment required by section 16; however, the 'Know how' guide notes that assessing the programme as a whole in this way allows the committee to consider issues 'such as the mix between construction and maintenance in the region and the relative importance of the five objectives' (*Ibid* p 44).

4.5.4 Funding the National Land Transport Programme and the assessment and allocation process

The NLTP will be produced every three years from 2009 and includes activities and combinations of activities from RLTPs as well as research, education, training and other activities that the agency is responsible for delivery. The NZTA's planning, programming and funding manual identifies the process by which the NLTP is prepared.

As with earlier stages in the funding process, the 2008 amendment to the LTMA specifically requires as a 'core requirement' for the NLTP that the NZTA ensures the programme contributes to each of the 'five objectives'.

The process of preparing a NLTP is described in the *Planning programming and funding manual* as involving three assessment steps as follows:

- **assessment (inclusion)**
- prioritisation
- programme funding plan
- **assessment (NLTP)**
- **assessment (funding)**
- approval.

(NZTA 2008a, pp A1-4)

The first assessment step is a check by the NZTA of the submitting organisation's own assessment of compliance with ss14-18 of the LTMA which relate to process and content of the RLTP. This includes consultation and meeting each of the five objectives as outlined above.

The second assessment, by the NZTA, is a formal step to ensure that overall the NLTP meets all legal requirements, including meeting the five objectives. Questions have been raised as to the extent that this is actually done (D. Wignall, pers comms. 2003).

The third assessment is to meet the s20 'test' which requires the NZTA to be satisfied that the five objectives 'have been taken into account'. (This is the lowest test of all with regard to the five objectives). This is done via the on-line funding allocation process (LT On-line), requires organisations seeking release of funds to prepare an assessment profile and to address legal and practical requirements through a series of checklists and/or dialogue boxes.²⁰

In the process, funding for smaller budget activities or those of selected activity classes such as road maintenance are challenged through a tick box check against the five objectives. For projects involving larger budgets at least a paragraph of explanation is required.

NZTA's *Planning, programming and funding manual* presents the methods used by the agency to assess activities and combinations of activities for the purpose of approving them for funding and the process of creating an assessment profile. (This same process is recommended for use by approved organisations when considering studies, packages and projects that are to be considered for inclusion in the RLTP.)

An assessment profile involves rating the package or project across three factors:

- 1 the seriousness and urgency of the transport issue or problem addressed
- 2 the effectiveness of the proposed solution in dealing with the issue
- 3 the economic efficiency of the proposal.

The procedure provides for a three scale rating for each factor – low, medium, high.

4.5.4.1 Limitations of current assessment processes

The funding assessment process is the final and most influential step in the planning and funding continuum for transport activities. If well designed and operated, it has the potential to 'drive back up' the transport planning process clear signals about integration, multi-objective planning and specific planning requirements set out in the LTMA and the GPS. This applies not only to the matters concerning the five objectives that are the subject of this research, but also to other criteria. In its present shape it appears unlikely to be doing this, although it may be too early to see significant changes. The assessment process has a number of shortcomings which are described below.

The applicant (approved organisation) completes the profile via an unrecorded self assessment. The profile then may or may not be checked and adjusted by the NZTA. The aspects of the proposal that impact on the five objectives are assessed through two rating frameworks, one for seriousness and urgency, and one for effectiveness. No detailed advice is provided, unlike the benefit cost ratio (BCR) for which there are two detailed manuals. No weighting or scaling criteria or other guidance is provided to assist this ranking process. Note is made in the *Planning, programming and funding manual* that there may be additional factors not captured by these three (ie serious and urgency, effectiveness, efficiency) but further guidance is not provided.

²⁰ Examples can be found on www.smartmovez.org.nz/tools/ltp_online/documents_that_assist_in_preparing_for_ltp_online.

The following two tables identify 'what would be considered serious issues' (factor 1) in table 4.2 and high rating for effectiveness (factor 2) in table 4.3.

Table 4.2 Planning, Programming and Funding Manual – guidance on seriousness and urgency rating

Objective	Serious issues
Economic development	<ul style="list-style-type: none"> • Deterioration in travel times and reliability on critical routes* • Route security issues that endanger reliability of critical routes* • Deterioration in travel times and reliability that impact on freight, commercial traffic and interregional movements, and around areas with strong growth of business activity or tourism • Transport requirements of good urban growth strategies, including lead infrastructure and services
Safety and security	<ul style="list-style-type: none"> • High incidence of accidents, especially severe ones* • Demonstrated personal security risks • Safety and personal security issues of vulnerable users of transport • Preventive measures to minimise risks
Access and mobility	<ul style="list-style-type: none"> • Low public transport mode share in major urban areas* • Low walking and cycling mode share in major suburban areas* • Lack of transport options to major centres, to new development areas or to areas of high social deprivation • Lack of integration between modes and between land use and transport • Accessibility of vital emergency and social services
Public health	<ul style="list-style-type: none"> • People exposed to health-endangering noise levels from transport • People exposed to health-endangering concentrations of air pollution in locations where the impact of emissions arising from transport is significant • Promotion of walking and cycling to reduce obesity-related health problems
Environmental sustainability	<ul style="list-style-type: none"> • Emission of CO2 due to high use of single occupancy vehicles* • Opportunities for coastal shipping and rail for freight transport* • Pollution of protected areas (water catchments, vulnerable ecosystems) • Promotion of transport options that protect and enhance the quality of areas of special environmental interest
<p>Note: Items marked * are areas of land transport where, according to the GPS, funding is most likely to have the most positive impact.</p>	

(Source: NZTA 2008a)

Monetisation of these inputs for inclusion in BCR calculation is provided under only one heading - environmental sustainability. These are carbon dioxide and noise, both of which are optional. It is noteworthy that there is no accounting for items such as the public health disbenefits (reduced walking and cycling) that may be caused by the expansion of additional road capacity for instance.

Table 4.3 Planning, Programming and Funding Manual – guidance on effectiveness rating

Objective	GPS and NZTS targets
Economic development	<ul style="list-style-type: none"> No overall deterioration in travel times and reliability on critical routes by 2015
Safety and security	<ul style="list-style-type: none"> Reduce fatalities and hospitalisations from road crashes by 2015 Reduce road deaths to no more than 200 per annum by 2040 Reduce serious injuries on roads to no more than 1500 per annum by 2040
Access and mobility	<ul style="list-style-type: none"> Increase patronage on public transport by 3% per year through to 2015 Increase overall public transport mode share to 7% of all trips by 2040 Increase number of walking and cycling trips by 1% per year through to 2015 Increase walking and cycling and other active modes to 30% of total trips in urban areas by 2040
Public health	<ul style="list-style-type: none"> Reduce the number of people exposed to health endangering noise levels from transport Reduce the number of people exposed to health endangering concentrations of air pollution in locations where the impact of emissions arising from transport is significant
Environmental sustainability	<ul style="list-style-type: none"> Reduce kilometres travelled by single-occupancy vehicles in major urban areas on weekdays by 10% per capita by 2015 Increase freight mode share for coastal shipping and rail by 2015 Halve per capita greenhouse gas emissions from domestic transport by 2040 Increase coastal shipping's share of inter-regional freight to 30% of tonne-kilometres by 2040 Increase rail's share of freight to 25% of tonne kilometres by 2040 Become one of the first countries in the world to widely deploy electric vehicles Reduce the rated CO₂ emissions per kilometre of combined average new and used vehicles entering the light vehicle fleet to 170 grams CO₂ per kilometre by 2015, with a corresponding reduction in average fuel used per kilometre

(Source: NZTA 2008a)

For the third assessment factor, economic efficiency, the *Planning, programming and funding manual* gives the following guidance:

BCR > 4 is high

BCR > 2 and < 4 is medium

BCR > 1 and < 2 is low

A two-volume *Economic evaluation manual* (EEM) is provided to assist calculating the BCR. The EEM references to the other inputs to funding allocation process are listed under six headings: economic development, safety and personal security, accessibility and mobility, public health, environmental sustainability and integration. This list is not entirely aligned with the five objectives more faithfully recorded in the two preceding assessment tables.

This very basic assessment profiling uses just three scale steps in each assessment factor, with no weighting or scaling criteria within or between the three factors. This results in many projects and packages assembling the same score. Accordingly, further ranking may be done using a variety of approaches. ARTA for instance has additional assessment factors which it

uses as a second assessment step testing the ranked projects and packages across five focus areas reflecting regional priorities. These are:

- 1 greater focus on regional arterials
- 2 greater focus on safety engineering for streets and roads
- 3 optimising the use of existing transport system to move people and goods
- 4 strong focus on transport investments that are supportive of the regional growth strategy and integrated transport and land use planning
- 5 completing the key elements of the strategic roading, passenger transport, walking and cycling networks.

A stocktake of the funding allocation process used by Land Transport NZ (now absorbed into the NZTA), completed by TRL Limited in early 2008 (Dalkmann et al. 2008), found many areas for improvement in the assessment stage. According to this evaluation:

‘Significant opportunities exist for enhancing the assessment stage including developing a clear differentiation between assessment factors and criteria. Issues could also be weighted to reflect the length of impact of a factor or category’ (*Ibid*, p 2).

The TRL report identifies considerations for a second phase of the work to improve the effectiveness of the funding allocation process. This includes a number of specific references to rationalisation and improved guidance for seriousness and urgency, and effectiveness as follows:

- consolidation of criteria is feasible and desirable
- development of improved guidance and assessment methodologies to improve the robustness of qualitative and quantitative assessments
- reviewing current priorities and scanning the horizon for further aspects (eg wider health impacts, accessibility, adapting to climate change).

And with reference to recognising the needs for the ‘transport disadvantaged’, the report notes that the assessment process could:

- be reviewed in terms of the way that community impacts/equality impacts are recognised and mitigated.

It is clear therefore that the NZTA’s funding allocation process assessment requirements are an important way of introducing public health and wellbeing (amongst other matters newly in the legislation) into strategy and project development. This could be by introduction of HIA-sourced assessment approaches or by other means.

4.6 Conclusion

This review of New Zealand’s current transport planning and funding processes identifies a range of assessment activities where HIA could be used on its own or with other assessment approaches. It also identifies important drivers for assessment in relation to the five objectives. These are summarised in box 4.6. The review highlights several important gaps and areas for improvement. For instance assessment processes vary greatly and recent

reports have identified problems with existing procedures (Ward et al. 2005; Dalkmann et al. 2008).

Box 4.6 Transport legislation references to the five objectives

4.6.1.1 Land Transport Management Act, amended 2008

- s14 When preparing a RLTP the RTC *must be satisfied* the RLTP contributes to each objective
- s18J Before recommending Police activities for funding, the NZTA *must be satisfied* they contribute to each objective
- 19B When preparing a NLTP the NZTA *must ensure* the NLTP contributes to each objective
- s20 In approving a proposed activity for funding the NZTA *must be satisfied* that each objective *has been taken into account*
- s68 When preparing a NLTS the Minister *must ensure* the NLTS contributes to each objective
- s75 When preparing a RLTS the RTC *must ensure* the RLTS contributes to each objective
- s87 When preparing a GPS the Minister *must be satisfied* that the GPS contributes to each objective

4.6.1.2 Public Transport Management Act 2008

- s19 When preparing a statement of proposal to adopt a RPTP the regional council *must be satisfied* that the RPTP contributes to **each** objective

Problems included a lack of definition and understanding of performance measures, and a narrow range of professionals making scaling and weighting decisions. At times no formal assessment at all is undertaken. A need for more robust qualitative assessment methods, greater consideration of the 'transport disadvantaged' and equity issues, and consideration of a wider range of health impacts were other gaps identified.

In addition, New Zealand research indicates the standard of assessment of health impacts in project level AEE is variable (Morgan 2006). Often only a narrow set of health determinants such as noise or air quality are taken into consideration.

The review also highlights recent steps toward more integrated planning, such as the important interconnections between transport, planning and local government legislation introduced by the amended LTMA. Closer integration arising from this will, however, take a long time to deliver changes on the ground due to the long lead time between planning and delivering infrastructure. Eventually it will contribute to improved health and wellbeing outcomes, more holistic consideration of impacts, and less chance of unintended outcomes with adverse effects on health and wellbeing.

Whether by introduction of HIA sourced assessment approaches or other means, the NZTA's funding allocation process and assessment requirements appear to be an important way of introducing public health and wellbeing (amongst other matters now in the legislation) into strategy and project development. There is no stronger means of ensuring proposals are aligned with legal and GPS requirements than by control of funding.

The issue with the funding allocation process is twofold. Firstly the operation of the 'serious and urgency', and 'effectiveness' rating parts of the assessment profiling is problematic. Both address the five objectives but use different ranking criteria. Furthermore there is no guidance on what criteria apply to rate or rank the issues within each of the tables. While some of the issues listed are quite specific, others lend themselves to wide interpretation for which no guidance or instruction is given. Also, the criteria are particularly narrow, and reinforce old-school understanding of public health as just noise and air pollution.

While these may be argued to be of little moment when a simple three-step scale is used, the scale itself is the other issue and arguably a major shortcoming. A three step scale fails to provide the basis for an indepth comparison between different projects or packages. Meaningful differentiation is just not possible.

Accordingly, in its present form the funding allocation process is highly unlikely to be able to drive back into the project planning, and 'above' that, into the strategy development, the changes toward more the holistic and integrated planning the LTMA and the GPS require.

In light of the current limitations with current planning and assessment processes, the following possible opportunities for HIA are identified:

4.6.1.3 Potential opportunities for HIA in current transport planning and funding processes:

- regional land transport strategies
- regional land transport programmes, especially the assessment process
- corridor studies
- assessment of environmental effects in the resource consent process
- mode or implementation studies, especially public transport
- integrated transport assessment, Auckland
- area plans
- accessibility planning
- regional growth strategies (outside scope of this report)
- long-term council community plan (outside scope of this report).

There is also a role for HIA-derived methodologies to enhance the funding allocation process assessment steps.

5 New Zealand case studies

The following four case studies were undertaken in order to evaluate the role of HIA in land transport planning to date in New Zealand and to explore drivers and barriers to the use of HIA. The focus of the case studies was primarily to document the HIA *process*, ie how, when and why the HIA was undertaken, its impact on the planning process, and its perceived utility to transport planners and other key stakeholders. One of the case studies also explores a case where a full HIA was not undertaken, to gain further insight into the barriers to applying HIA. The aim is to critically reflect and to learn from experience thus far in the New Zealand context. The case studies do not attempt to evaluate the HIAs from a technical perspective, or examine the validity of the HIA findings or recommendations.

The range of case studies was chosen to provide a geographical spread and a balance between strategic-level and project-level HIAs. The findings below are based on a) interviews with key informants, b) the HIA report itself (where available) and c) other project documentation in the public realm. A full account of the case study methods and procedure is provided in appendix A.

The information gathering for the case studies was undertaken in November 2008, and the events of the case studies largely occurred before the 2008 changes in the transport sector which are outlined in chapter 2. Therefore the terminology that was current at the time the events took place is used in the case studies (eg Transit, regional land transport committees (RLTCs)).

5.1 Greater Wellington Regional Land Transport Strategy HIA

This case study provides an example of HIA applied to a RLTS. As discussed in chapter 4, RLTSs have been prepared in various ways by RLTCs²¹ since 1995 (see figure 4.3). The HIA was carried out from late 2005 to mid-2006.

This HIA closely followed the HIA process as defined in the background (section 2.2), although a formal evaluation was not undertaken. HIA guidance (Public Health Advisory Committee 2005) was used and the four steps of screening, scoping, appraisal of impacts and reporting/recommendations were carried out using a participatory process with a range of experts and community representatives. Because the affected population was large and diverse, the extent to which community participation was achieved was limited, but efforts were made to include a wide range of stakeholders. This HIA also included the four elements outlined in the Gothenburg Consensus (see box 2.1), and was underpinned by the HIA values of democracy, equity, sustainable development and ethical use of evidence.

5.1.1 Context

5.1.1.1 *Problem the strategy was trying to address*

The strategy aimed to meet the Greater Wellington region's transport needs from 2006–2016 given projected population growth, increasing congestion, commuters and freight movement,

²¹ Now called regional transport committees.

and an ageing rail network requiring investment. The context included a large geographic area, significant amount of investment (\$4.3 billion over 10 years) and unique transport issues due to Wellington's geographic location. Under the LTMA, the strategy had to reflect five broad objectives (economic development, environmental sustainability, public health, access and mobility, and safety/security).

5.1.1.2 Challenges in development of strategy

A key challenge was the complexity of the issues. It was perceived that trade-offs had to be made in the strategy's development due to the need to meet a wide range of objectives. Two key informants expressed a view that economic growth tended to be prioritised over other considerations by the RLTC. There were also varying interpretations of what 'sustainability' meant and what would be an appropriate focus on sustainability in the RLTS.

Another major challenge was political issues, for instance there were strong interest groups (including on roading and public transport) and a wide diversity of views on what should be done in the Wellington region.

Other challenges included changes in the relative importance of issues over time, especially growing public concern about climate change and peak oil. Another challenge mentioned was that decisions on individual transport projects were made prior to this RLTS development process. For example, the decision to build Transmission Gully had been made (costing approximately \$1 billion, consuming a large proportion of future budgets).

5.1.1.3 How the HIA was initiated

The public health sector had an increasing emphasis on HIA in 2004 and 2005 including the provision of training in HIA. Public health staff promoted HIA and training opportunities to transport and other sectors, and HIA was increasingly included in public health submissions to transport policies and plans.

Building on this momentum, Regional Public Health (RPH) organised a 'mini HIA' workshop in July 2005 to explore options for conducting an HIA in the Wellington region. The workshop comprised a range of councils, including Greater Wellington Regional Council, and participants in the workshop group on the Wellington RLTS agreed that an HIA on the RLTS would be appropriate. Greater Wellington wanted to use innovative approaches to meet the requirements of the LTMA, and decided to seek health input to the draft RLTS using an HIA.

A key contributor to the HIA going ahead was public health representation on both the RLTC and the technical working group to the RLTC. The technical working group discussed the potential HIA work and there was a strong public health 'voice' in regular meetings for both of these forums. Positive working relationships were formed between public health staff and council staff through the transport forums and also through one-to-one meetings. RPH and Greater Wellington agreed to share the costs of carrying out an HIA. Greater Wellington also decided to commission an economic impact assessment and an environmental impact assessment of the draft RLTS at the same time.

5.1.1.4 Decisions the HIA was informing

The HIA informed decisions on the draft of the strategy in mid-2006 prior to going out to public consultation. The initial draft strategy was adequate to use for a scoping meeting for

the HIA, but was not detailed enough to use for the full HIA. The second draft strategy, available six months later, was sufficiently developed to assess with HIA.

5.1.1.5 *Timing and budget of the HIA*

A scoping workshop for the HIA was held in November 2005. There was then a six-month wait while further development of the draft strategy was completed. The revised draft strategy became available on 12 July 2006. The draft HIA report was given to the council on 21 August and the final HIA report was submitted on 4 September 2006. The majority of work for the HIA was done in approximately six weeks, although a literature review and community profile had been undertaken during the six-month delay period.

The available budget for the HIA was \$20,000 provided by Greater Wellington and with in-kind staff support provided by RPH. Greater Wellington commissioned Quigley and Watts Ltd to carry out the HIA using a team approach involving two seconded staff from RPH. RPH also contracted Martin Ward as a consultant.

5.1.2 Use of HIA

5.1.2.1 *Brief description of methods and tool*

The HIA used a combination of the Public Health Advisory Committee's (2005) HIA guide and a United Kingdom rapid appraisal tool (Ison 2002). The guide and the HIA training were useful to those carrying out the HIA, but there was some adaptation of questions for the scoping and appraisal workshops to make them more relevant and user-friendly. The HIA used standard methods of scoping and appraisal with one workshop held for each of these stages. The appraisal workshop included four small groups.

5.1.2.2 *Process of developing recommendations*

The four facilitators in the appraisal workshop drafted the findings and recommendations for each of their four areas. The draft recommendations were then discussed with the Greater Wellington council staff (and minor amendments made), although the council staff members were not in agreement with all of the recommendations. The recommendations were from the HIA practitioners and were not 'owned' by the council. In particular there was some disagreement over the draft recommendations on inequalities and affordability. There were different understandings of what 'transport affordability' meant in the LTMA - whether this was about affordability for the region or affordability for individuals on low incomes. Affordability in relation to people on low incomes was advocated for in the HIA and was included in the final transport strategy.

5.1.2.3 *What worked well in the HIA process?*

Key informants said the co-funding arrangement worked well, and it was useful to have wider support for the HIA from senior staff at both RPH and Greater Wellington. Teamwork between the people doing the HIA also seemed to work well with good partnerships and working relationships between RPH and the HIA consultants. One key informant spoke highly of the committed and competent individuals involved in the HIA. According to key informants, another factor that worked well was having senior public health practitioners in roles in the transport sector (on committees/working groups etc).

Other aspects that key informants felt worked well included a high level of agreement amongst participants in both the HIA workshops (scoping and appraisal). Participants in the scoping workshop were realistic about the tight timeframe and narrowed the scope of the HIA appropriately. It worked well in the scoping workshop to have the environmental impact assessment consultant present, so efforts could be made to avoid duplication. Use of an iterative process within the workshop for deciding the priority population groups by consensus was useful and it helped to have an experienced impact assessor involved in the workshop without being in a facilitation role. The HIA workshops were also an opportunity to communicate information about the broad determinants of health to other sectors. Phoning people to invite them to come to workshops (instead of relying on email) also worked well and resulted in a good turnout of relevant individuals from a range of organisations.

From the transport planners' perspective, the highlighting of research evidence showing the links between determinants and health in the HIA was useful (eg the National Health Committee's report on social, cultural and economic determinants of health). Council staff also highlighted that having a relatively well resourced transport planning section was important. They felt that some other regional councils in New Zealand may not have the capacity to be able to commission or undertake a full HIA.

There were mixed views from participants on the breadth of participation in the HIA. One key informant said it was useful to have a wide range of participants in the workshops including the council planners. However, another key informant said there was not an adequate breadth of participation (see below).

5.1.2.4 What didn't work well in the HIA process?

A significant problem in this HIA appeared to be differing expectations of the HIA by public health/HIA practitioners and the regional council staff. The public health practitioners saw strong links between health and all five of the transport objectives, and therefore felt the HIA could improve the RLTS in relation to all of the objectives, not only public health, while realising that the HIA recommendations can be accepted or rejected by decision makers. A HIA practitioner noted that:

Our job was to run a public health lens over the strategy, and that's what we did, and of course we included recommendations on how to uphold that NZTS objective, yet that was seen to be going beyond our mandate.

The council staff, however, saw HIA as just one input to the process out of many inputs. They felt the public health practitioners viewed HIA as a tool to improve the strategy from a health perspective. They emphasised the need for trade-offs and lining up health considerations alongside a wide range of other issues. There appeared to be some fundamental tensions over what the HIA could do and how far it could go in its scope. There was an apparent disjunct between the public health views on what should happen as a result of the HIA and the transport planners' needs. One transport planner expressed the tension as follows:

Where the HIA thing almost lost a little bit of credibility really was trying to get too much from it, you know, there was a large expectation from the relatively small health sector in this thing...[they thought] if we got in early we could shape it [the strategy] all up to meet our objectives, failing to see there's a bigger picture in this transport game, [transport is] the lifeblood of the whole community for all their purposes, it's not just about their health..[Health is] part

of the picture but it's got to be stacked up against the economy, the environment, all that stuff...there are overlaps, opportunities for integration and synergy...but [health] is just one perspective.

There were differing views on the appropriate level of detail to go into with the HIA. For instance, transport planners felt the HIA tried to go into too much detail, especially with the Granada to Gracefield case study used in the HIA.

Another area of disagreement was the application of HIA to both the strategy (front of the draft document) and the RLTP projects (back of the draft document). Transport planners felt the HIA worked better and recommendations were more realistic and achievable at the strategic level rather than the specific programme or project level. An apparent challenge was that the programme in the draft strategy was not current and needed to be better aligned with the strategy itself. As the strategy was finalised the programme was separated out into another document. As discussed in chapter 4, the RLTS and the RLTP are now carried out as separate processes. From the transport planners' point of view, attempting to assess both the strategy and the programme did not work well as they felt the programme was at a more detailed level and out of date, and it was confusing to attempt to assess it. An HIA practitioner, however, believed assessing both areas was appropriate as both were components of the draft RLTS, and at that stage were planned to complement each other within a single document. This key informant said the assessment also highlighted examples of alignments as well as 'mismatches' between the goals at the front of the document and the programme of work at the back.

Another important issue raised by several key informants was the difficult process of the HIA report's release. Copies of the HIA report were left in the council room after a closed council session, and a journalist picked one up and reported on it on the front page of the next day's newspaper. This unplanned release of the report resulted in some damage to the relationship between Greater Wellington and Quigley and Watts Ltd. Disagreement over the scope of some of the recommendations also affected the relationship.

Other factors affecting the process included the tight timeframe and delay in receiving the draft RLTS before the HIA could proceed. However, while informants stated more time would be ideal they also said it was often unrealistic to have longer timeframes given other time commitments and the reality of finite resources. Some key informants noted there was a lack of Māori and Pacific participation in the HIA and one person said a greater variety of participants in the appraisal workshop would have been useful. There were challenges in achieving a consensus in terms of which population groups should be prioritised in the HIA, including rural residents and Māori.

5.1.3 Impact of the HIA

5.1.3.1 Communication of recommendations to decision makers

After the HIA report was finalised, one of the HIA practitioners did a presentation of the HIA's findings and recommendations to the RLTC. Prior to the meeting the council officers had gone through the recommendations in detail and written a response to each of the HIA recommendations with reasons for why each recommendation should be accepted or rejected. The process of responding to the recommendations was transparent and the information was made available for this case study.

5.1.3.2 *How the recommendations were received*

The RLTC accepted some changes suggested in the HIA but not all of them. The RLTC followed the advice of the council staff in terms of which recommendations to adopt. In general the recommendations relating to the beginning of the strategy (eg on the transport disadvantaged/affordability issues) were accepted but the recommendations relating to the programme were not accepted. The number of recommendations adopted was fewer than expected by the HIA consultants who were disappointed by the 'relatively limited impact'.

The HIA was extensively discussed in the RLTC meeting (more so than the other impact assessments) but it did not get the traction that was being sought by the public health practitioners. The HIA appeared to lose some credibility with the RLTC as members were concerned that health was the main focus without taking into account other implications or considerations. In contrast the HIA consultants and public health practitioners felt it was appropriate to have a focus on health since it was a HIA, and other consultants were undertaking other assessments such as environmental and economic. An HIA consultant felt that as the other four objectives in the LTMA (access and mobility, safety, economic development and environmental sustainability) were also determinants of health, these other objectives would always be assessed in a thorough HIA.

The HIA seemed to uncover an underlying tension about responsibility for funding. Transport representatives felt the transport sector should not be expected to fund areas that they felt were health's responsibility. Council officials felt the HIA's position was too 'black and white' (eg a perception of cars being presented as 'bad' and public/active transport being presented as 'good'). Ultimately the RLTC members were not convinced by the rationale for the HIA's recommendations, yet the HIA consultant described the arguments put forward as based on evidence.

One area where the HIA had a particular impact was in strengthening the emphasis on inequalities in the final strategy especially in relation to lower socioeconomic groups and access issues. The HIA resulted in some changes to wording in the strategy to increase consideration of people on low incomes and disabled people in particular. As one key informant said:

I think HIAs tend to now pick up on the inequalities issue and...that's an issue that's not handled very well by anything to do with local and regional government.

Some of the HIA's recommendations were referred to the Passenger Transport Committee²² for consideration. However a review of fare zones, recommended in the HIA, was not accepted by the council officers who provided advice to the RLTC on the recommendations. A recommended funding shift away from investment in roading and towards public transport and active travel was also not adopted, although a question was added to the subsequent public consultation process to seek further public input on this.

While the HIA was credited with increasing awareness and consideration of inequalities to some degree, there was also resistance at both council officer and RLTC levels to trying to address inequalities. One key informant said there was an underlying issue where councils

²² Now called the Transport and Access Committee.

tended to prioritise ratepayers over those who are most disadvantaged. This informant expressed the view that the HIA's recommendations on inequalities were 'deemed unpalatable and quietly ignored' by the RLTC.

In carrying out the HIA, the HIA practitioners strongly questioned some of the underlying assumptions made by transport planners in the development of the strategy, eg the assumption that an increase in public transport funding would increase road congestion (as it was assumed the community has a preference for private road travel which would not significantly change over time) and that funding for public transport would have a negative impact on economic growth of the region.

In addition, there were quite differing views across transport and health interviewees on the overall assessment of the HIA. For instance one transport planner said 'we didn't get an A pass but we got adequate passes, which we were satisfied with given everything else we're trying to do.' In contrast, the HIA and public health practitioners did not talk about the draft strategy as getting a 'pass' in terms of protecting and promoting public health. The findings of the HIA were that the strategy would be detrimental to public health, if implemented unamended.

5.1.3.3 Wider impact of the HIA

An evaluation of the HIA was initiated but had not been completed at the time of writing.

Transport planners felt the HIA increased their awareness of the determinants of health and enabled consideration of the draft strategy with health in mind. This helped in analysing a full range of considerations. Two transport planners made the following comments.

[The HIA] raised my awareness of what is public health and what determines and contributes to that – [it is] wider than what I thought before.

[The HIA] helped us join some dots. I think we're wiser because of it and that's a good thing.

Some key informants felt there could have been other ways to ensure discussion of determinants of health without doing a full HIA. The transport planners expressed doubt about whether it added sufficient value and said they would not take the same approach again. They said that as the HIA had been done in this one case, there would be some continued benefit in terms of considering health more explicitly in the future (without doing an actual HIA). As one transport planner said:

There was some benefit to [the HIA], but whether that was 20 or 40 grand worth that's something else...The research side of it, and some of the discussion around the table was useful, that was good, and some of the recommendations were alright, but they tried to take it a step too far I think ... I think there was a benefit, some learnings in it but I certainly wouldn't do it the same way again.

Key informants mentioned a range of other ways to increase health discussion (without doing an HIA) including workshops with transport planners, having evidence available on the impacts of transport on health, and involvement of public health representatives on transport forums such as the RLTC, associated technical working groups and hearings committees/subcommittees. Other suggestions were smaller meetings with officers, and

having greater communication/working together of the various representatives of the objectives on the RLTC (access, safety, environment etc).

One key informant felt the HIA had a positive impact on relationships, especially between RPH and the RLTC members and the technical working group. However other key informants felt the HIA had a more damaging effect especially at the time of the report's release.

In contrast to other key informants in this case study, one participant argued that despite limited impact in altering the final draft strategy that went out for public consultation, there was a more significant impact through HIA being used and cited in the public submissions process on the draft RLTS. This key informant reported that many submitters (including central government agencies) stated in their submissions that the HIA was an important document and should be given weight. The HIA was seen to play an important role in informing the community on potential health implications of the transport strategy. The key informant said:

ultimately [the HIA] had quite considerable impact ... the community actually picked up on it and related to it much more than the officers... I think that was part of the real value of it when I look back ... [the HIA] gave the community a background and information that they could actually use to articulate their thoughts better.

This suggests HIA evidence can be directly useful and relevant to communities. The HIA also played a part in increasing the profile of HIA and guiding future work in transport and public health.

5.1.4 Drivers for HIA

5.1.4.1 What were the main drivers for this HIA?

The key drivers for this HIA were relationships between the council and public health staff, and the legislative requirement to promote and protect public health. Positive working relationships between Greater Wellington Regional Council and RPH were crucial at both at an individual level and also through two public health representatives on the RLTC and the technical working group to the RLTC. The council viewed HIA as a way to provide documentation towards meeting the LTMA requirement to promote and protect public health. Transport planners saw HIA as a 'test' of the draft strategy from a health perspective. '[Public health] was an area of policy work we hadn't explicitly considered before'. Joint funding between the transport sector and the public health sector to undertake the HIA was also important in facilitating the HIA to happen.

Additional drivers were the growing momentum for HIA at RPH in both undertaking HIA training and proactively looking for opportunities to trial HIA, and the commitment of individual people to HIA. Commitment and capacity from both RPH and Greater Wellington Regional Council was required to make the HIA happen. Finally, another factor that helped in the HIA process was support, ideas and resources from the Public Health Advisory Committee to undertake HIA.

5.1.5 Conclusion

5.1.5.1 Need for HIA

This case study examines the first major HIA on transport planning at a strategic level in New Zealand. The need for transport planners to meet the legislative requirement to promote and protect public health was a key reason why the HIA was conducted. Transport planners viewed HIA as a practical way to demonstrate they were addressing the public health objective in the development of the RLTS. An economic impact assessment and an environmental impact assessment were contracted out at the same time.

5.1.5.2 Role of HIA in this case, and barriers to HIA

The HIA's recommendations were critical of the draft strategy in terms of implications for public health. Although many of the HIA's recommendations were not implemented in this case, some key informants felt the HIA had other positive impacts including influencing and informing public submissions and increasing transport planners' awareness of the determinants of health and inequalities. Factors facilitating this HIA were working relationships between transport and public health, and health representation on transport committees.

There was a tension between the transport planners' view that HIA should provide one strand of input from a health perspective, and the broader approach of the HIA practitioners who considered all of the five transport objectives as relevant to public health. Key challenges included the different perspectives on determinants of health and the scope of the HIA, and challenges with applying HIA to a large complex strategy with an associated programme of projects where most of the decisions had already been made.

5.1.5.3 Best point of application and integration of HIA

This case study suggests HIA can be usefully applied at a draft, pre-consultation stage. Although there were challenges in applying HIA to the level of complexity and detail in the strategy, the HIA still identified gaps such as equity issues and encouraged greater consideration of the needs of low income groups. Transport planners felt that HIA was most useful at the strategy level, whereas the HIA included both the high-level strategy objectives and the detail of the RLTP. However, the fact that the HIA was applied to both levels meant discrepancies between the high-level objectives and the proposed programme of work could be identified. A fundamental issue was that many of the decisions regarding the programme had already been made so there was not an opportunity for the HIA to influence these decisions.

5.2 North Nelson to Brightwater Corridor Study

This case study provides an example of the development of a corridor study, and public health advocacy (a desk-top HIA, and advocacy for a full HIA) in relation to the corridor study. As discussed in chapter 4, corridor studies are a transport planning approach applied to a more-or-less linear area or zone and undertaken at a greater overall level of detail than is the case for a RLTS. Corridor studies may feed into both the RLTS development process and the RLTP.

The HIA outlined in this case study differed in several ways from the HIA process outlined in the background to this report (section 2.2). HIA guidance (Public Health Advisory Committee,

2005) was used and the four steps of screening, scoping, appraisal of impacts and reporting/recommendations were carried out; however, these were completed 'in house' by a multi-disciplinary team within the public health service, rather than involving experts from a range of agencies and community stakeholders. The evaluation step was not completed, but the HIA included all four elements outlined in the Gothenburg Consensus (see box 2.1). Although the opinions of the affected community were not directly sought, the issues were considered from the perspective of the affected communities, particularly deprived communities. The HIA appeared to be underpinned by the HIA values of democracy, equity, sustainable development and ethical use of evidence.

5.2.1 Context

5.2.1.1 Background

Due to very rapid growth in the Nelson–Tasman area in the past 15 years, peak hour congestion has become a perceived problem on the two arterial roads coming in and out of Nelson. In 2007, Transit NZ forecasted that the average travel time from Annesbrook to Nelson CBD via Rocks Road would increase from eight minutes (the 2006 estimate) to a possible 26 minutes by 2021 unless changes were made. Planning for arterial route development between Nelson and Richmond has been ongoing for many years, and public interest and debate about the various options has been strong.

In 2003 Transit NZ made an application to the Environment Court for a designation to build the Southern Link, re-routing State Highway 6 from the current route along Rocks Rd to a route using the old railway corridor, which is current cycle/walkway, and joining to Whakatu Drive. In 2004 the application was turned down by the Environment Court, which said it was an inappropriate place to put a state highway. A key informant explained that the application was turned down for two main reasons:

One was severance, but the big issue was that the Victory Square air-shed probably has the worst air quality of any residential area in New Zealand and to be adding a load of car fumes to that - the Environment Court found it unacceptable (Nelson Marlborough Public Health Service representative).

5.2.1.2 Problem the corridor study was trying to address

The present case study focuses on the subsequent North Nelson to Brightwater Corridor Study, which was initiated by Nelson City Council, Tasman District Council, and Transit NZ after the Southern Link proposal was rejected. This corridor study was part of the development of a long-term transport strategy for the Greater Nelson and Richmond areas in order to accommodate projected growth, and relieve congestion. The corridor study included consideration of state highways and local roads, walking and cycling, public transport and travel demand management. It was undertaken in conjunction with the development of a new RLTS, a draft of which was released in October 2008.

5.2.1.3 Corridor study process

The corridor study broadly followed the process described in figure 4.4. It was a three-stage process which began with stage 1 consultation in late 2004. The aim of stage 1 was to identify the perceived transport problems and issues for the area, and clarify needs and goals. The results of stage 1 consultation, along with a planning evaluation and

transportation modelling of various scenarios led to an *Issues, options and alternatives paper*, which was released on Oct 31 2005. Stage 2 consultation was based on this document, which included four main packages comprising individual elements or projects. The objectives for the stage 2 consultation were: firstly, to provide information to interested parties on the alternative scenarios and the evaluation process; and secondly, to provide an opportunity for the community to express its views and preferences on the scenarios being considered.

Stage 3 involved development of a preferred corridor plan package, and consultation on the package in mid-2007. The package included walking, cycling, travel demand management and public transport components, plus two alternative options for increasing road capacity between Nelson and Stoke.

An unusual part of the process was a transport forum, which was held after the submission process was complete. A group of about 30 people, including all the major interest groups and lobby groups, were brought together with an independent facilitator to workshop the findings of the submissions and come up with a preferred roading option. The submissions showed that there was broad agreement about the need for travel demand management, public transport and improved walking and cycling facilities; however, opinion was polarised about the roading options: road widening of Rocks Rd and Waimea Rd versus an amended version of the Southern Link. The outcome of the forum was to reject both roading options. According to one participant:

Over two meetings that group came up with a consensus that neither roading option was needed, and really the investment needed to be made in the public transport, the travel demand management and the walking and cycling infrastructure.

The findings of the corridor study and the transport forum fed into the development of the Nelson City RLTS which sets the direction for the development of Nelson's land transport system for the next 30 years. A draft of the RLTS was distributed for consultation in October 2008.

5.2.1.4 Challenges in the development of the corridor study and regional land transport strategy

Key informants described the issues as highly contentious. Strong lobbying for and against the roading options by community groups, and 'political interference' were cited by key informants as key challenges to the corridor plan development process.

There was politics between the representatives of the two councils, there was politics between the two road options - the whole process became very political (Representative of the Nelson Transport Committee).

As a result of this conflict, Tasman District Council withdrew from the process in mid-2007, and there is no longer a joint Transport Committee or RLTS between the two unitary councils, as had been the case previously.

The Transport Committee representative also commented on the importance and difficulty of engaging communities constructively at an early stage:

Community engagement is the big challenge in hindsight. It would be good to find a way to engage the public in a meaningful way at an early stage in planning at a regional level. It's always hard to get input at an early stage, but as the proposal became more concrete, and people could see that it might impact on them and their castles, then you get this reactionary response. It's much easier to get input at a local neighbourhood level, once a concrete proposal has been developed, but much harder at an early stage at a regional or national level – I don't know how you overcome that.

Informants also expressed concerns about perceived weaknesses of conventional consultation processes as inputs to the planning process: a) systematic bias towards the interests of groups and individuals who have the resources to argue their case forcefully, and b) perception that the process can become a 'numbers game' in which the informed opinions of expert stakeholders such as the public health service are lost amongst the noise.

5.2.1.5 How the HIA was initiated

This case study relates to a desk-top HIA undertaken by the Nelson Marlborough Regional Public Health Service to inform their stage 2 submission on the North Nelson to Brightwater Corridor Study. It was initiated by three key public health professionals within the service, and did not involve any external agencies or funders.

This case study also explores the barriers to a full HIA being undertaken, despite the public health service recommending this and offering resources for its completion.

5.2.1.6 Decisions the HIA was intended to inform

The desktop HIA informed the public health service's submission on stage 2 of the corridor study in late 2005, which in turn was intended to inform the regional land transport committee's decisions regarding the development of stage 3 of the corridor plan.

A full HIA (at stage 3 of the corridor study or on the draft RLTS) would have informed the RLTS development process, but was not undertaken.

5.2.1.7 Budget for the HIA

The desktop HIA was resourced through existing programmes and contract areas within the public health service.

The full HIA that the public health service advocated for would have been largely resourced by the district health board, although those advocating for the HIA were hopeful that the two councils and Transit NZ would also part-fund it.

5.2.2 Use of HIA

5.2.2.1 Brief description of method and tools used

The HIA undertaken to inform the public health service's stage 2 submission utilised the method outlined in the Public Health Advisory Committee's (2004) guidance document. However, the screening, scoping and appraisal stages were all undertaken in-house, rather than collaboratively with planners or other key stakeholders as is more commonly the case.

At the scoping stage, the public health service team selected a number of health determinants that would likely be influenced by proposed changes to the transport network. These are shown in the table below.

Determinants of health	
Social and cultural	Population-based services
Social support/social cohesion	Access to hospital
Participation in community/public affairs	Social services
Perceptions of safety	Disability services
Access to facilities	
Relationship with land and water	Environmental factors
Equity	Air quality
	Land use
Individual/behaviour factors	Waste disposal
Physical activity	Historic sites
Social cohesion	Energy
Safety	Noise
Control over life	Greenhouse gases
	Sustainability
Economic factors	
Flow of goods/access	Biological factors
Access to employment/education/training	Age of population
Housing	

Each of the four packages (and sub-options) outlined in the *Issues, options and alternatives paper* consultation document was evaluated against each of these determinants in a workshop setting by a team of public health professionals including a medical officer from the Ministry of Health. The aim was to see which (if any) of the packages was likely to meet the NZTS objective to 'protect and promote public health'.

The evaluation was based on the expertise of the team and supported by overseas evidence reviews and transport HIAs such as the 1999 WHO Charter on Transport Environment and Health, the British Medical Association's *Road transport and health* review, and HIA reports on draft Edinburgh and London transport strategies.

The findings of the HIA appraisal suggested that only one out of the ten options examined was likely to have a small positive impact on public health. The other options were likely to have a detrimental impact on health and wellbeing.

This HIA finding was contrary to the view presented by the authors of the *Issues, options and alternatives* stage 2 consultation document (prepared on behalf of Transit NZ and the two councils), who claimed that six of the options were likely to be positive in terms of public health, and four were seen as neutral or negative. The process for arriving at these conclusions is not stated in the consultation document; however, it appears that these public

health ‘ticks’ and ‘crosses’ relate to the likely ability of the various options to proceed through the consent process (under the RMA) and meet criteria for funding.

5.2.2.2 Process of developing recommendations

Recommendations were developed by the public health service team, based on the findings of the HIA and the literature on what works to protect and promote public health in the transport sector. The first of four recommendations in the submission was:

We strongly support the use of HIA in the planning stage with Public Health representation throughout the process. The strength of and most effective use of an HIA is that it is a systematic approach used at a planning stage of policy development. We would encourage any further planning to include HIA and the public health service would like to work with relevant organisations in this process (Public health service submission on stage 2 of the corridor study)

The authors of the HIA pointed out that all but one option was heavily focused on private car use. The submission states:

In order to meet the NZ Transport Strategy objective to ‘Protect and Promote Public Health’, we suggest that the study look beyond a future based on the current use of private cars.

5.2.3 Impact of HIA

5.2.3.1 Communication of recommendations to decision makers

The findings of the HIA and recommendations were written up as a written submission to the RLTC as part of the consultation process on stage 2 of the corridor study.

5.2.3.2 Impact of recommendations

The HIA had little direct impact on decision makers, since it was one of 474 submissions received at stage 2. RLTC members did not read each submission individually. Instead, the Committee received a 14-page *Consultation findings* document which collated and summarised the submissions.

The public health service’s recommendation to conduct an HIA was not included in the *Consultation findings* document; however, the summary noted that 10 submissions had said that ‘options need to include more analysis of social and health effects’. A key informant who was a member of the RLTC at the time said ‘I wasn’t aware of the detail of [the public health service’s] submission on the second stage’ nor of subsequent advocacy for HIA. However he was aware of the Public Health Unit’s recommendation for HIA in their later 2007 submission, since this submission was provided to each RLTC member.

According to several key informants, the public controversy surrounding the roading options was also a factor in the lack of council and committee response to the public health service submission, since it overshadowed any wider discussion about the future of transport and collaborative approaches to developing sustainable and health-promoting transport options.

5.2.3.3 What worked well?

The public health service staff involved with the desktop HIA found it useful as a way of systematically evaluating each of the transport packages and options in terms of public health costs and benefits. Having the input of various staff with different disciplinary backgrounds was seen as an advantage, and one informant commented that working through the appraisal process as a group was invaluable. The findings provided useful input into the submission writing process. 'In terms of the submission I think it gave us a far clearer look at what the issues were' commented one public health advocate.

The HIA also highlighted the inadequacy of the standard approach to evaluating options at the concept stage in terms of public health. According to a former Nelson City Council transport planner, the evaluation of various options at stage 2 was based primarily on a) their ability to relieve congestion and b) their affordability to the region. From an environmental point of view, the key concern was: 'is the option consent-able?' He commented that although there was no formal process for evaluating each option against the five objectives of the NZTS at stage 2, the parties involved were aware that consent and funding 'hurdles' would need to be jumped at later stages. Therefore the stage 2 consultation document focused on flagging potential compliance barriers associated with the various proposals.

The desktop HIA was also valued by the public health service staff as a further opportunity to gain experience with the HIA toolkit and extend knowledge about HIA to others within the organisation.

5.2.3.4 What didn't work so well?

Two of the informants involved with the HIA commented that it was challenging trying to compare options at an early stage when there were so many different combinations on the table. 'At that stage it was so broad, but once they'd narrowed it down to a few options, that would have been the time to do an HIA'.

Informants also reflected that, while there were good reasons for undertaking the HIA 'in house', this approach severely limited its impact on decision makers, since there was no buy-in or even awareness of the HIA.

5.2.3.5 Impact of the Transport Forum

It is interesting to contrast the impact of the desk top HIA with the impact of the Transport Forum, which, in fact, was similar to the appraisal workshop stage of a participatory HIA. One informant commented: 'I was really surprised by those transport forums - it took just six hours to reach consensus amongst very divided constituents. A bit of magic happened there'.

Informants said that the success was attributable to a number of factors. Having all the main stakeholder groups represented was important, including experts from various fields and representatives of the communities likely to be affected by the plan. One informant felt that the presentation of information showing that the congestion projections were based on flawed assumptions (i.e. continuing population growth at previous rates and stable oil prices) was helpful, and enabled agreement that the roading options could be put on hold. Another commented:

It was critical to have an independent facilitator, and a deliberate consensus building process, you know - 'what do we all agree on? How can we move

forward'? It mirrored the workshop process within HIA. [...] The Transport Forum was really successful, and that almost is the heart of what HIA is about – although HIA is far more formal – the shared learning and consensus building.

5.2.4 Drivers for the desktop HIA

HIA was seen by public health advocates as a tool for trying to influence the environments that affect the health of the population, which was a growing focus of their work. One informant commented, 'We were really interested in the HIA methodology because it fitted really well with the direction we were taking.' It was seen as a way of starting the conversation about how the council and the District Health Board could work more closely together.

A desire to see better transport decisions being made was also a key driver for HIA. Public health professionals were concerned that major decisions which would impact on public health in the long term were being made from a narrow and short-sighted perspective. One public health advocate commented that HIA was seen as particularly important in 'areas [such as transport] that council didn't automatically see had a health component, but we could see it very strongly'.

There was also a concern about health inequalities, with the Southern Link proposal going through one of the most socio-economically deprived areas in the region. One key informant commented:

There's a whole socio-economic dynamic to this thing as well, in that there are a lot of wealthy people who live along the current state highway [Rocks Rd] and the neighbourhood they planned to put it through is the highest deprivation community we've got in the top of the south. The people along Rocks Rd right the way through have been able to secure the media, secure consultants to advocate on their behalf, and by contrast the Victory community didn't have those skills or resources.

The importance of ensuring that the risks and benefits to vulnerable communities were taken into account in the planning process was also a key driver for this HIA. One informant commented that HIA provided an objective process that took into account the opinions of various groups but made rational recommendations rather than responding to the 'squeakiest wheel'.

Several public health service staff members had recently undertaken training in the use of the Public Health Advisory Committee's HIA approach, and were keen to test the approach and gain confidence with it before attempting to engage outside agencies in the HIA process.

5.2.5 Advocacy for a full HIA

The first attempt to advocate for an HIA via the submission process did not even reach decision makers, since the recommendation to undertake an HIA was not specifically included in the *Consultation findings* which was read by RLT Committee members.

There was subsequent contact between the public health service and the Transit NZ (now NZTA) project manager regarding HIA. According to one informant, this led to an 'in principal' agreement on the merits of HIA for this project. Another recalled that the project

manager had suggested that HIA was more appropriate at the draft RLTS stage. However there appears to have been no further follow up on either side.

In the District Health Board's 2007 submission on stage 3 of the corridor study, a full HIA was recommended again, and it is understood that an offer to resource the HIA was made at this time by the public health service. The public health representative on the RTC reportedly emailed the submission directly to each of the committee members, but there was no formal discussion on whether an HIA should go ahead, because no one on the committee proposed or pushed it. Talking about the public health representative, one of the Committee members commented:

I think he was pretty happy with the direction that the committee was going, so he didn't push the HIA process during our deliberations on the draft RLTS. Which I half expected him to do, because in [the DHB's] submission on the third round of the corridor study they did very clearly express the view that they wanted an HIA process to be considered. [...] So I'm surmising that the committee was heading in a direction that the DHB would have been pretty comfortable with anyway.

5.2.6 Barriers to undertaking a full HIA

One key informant commented that 'An HIA is not accepted or standard practice for a traffic study of this type'. The onus is therefore on HIA advocates to prove that HIA is a worthwhile addition.

One informant felt that the public health service had 'dropped the ball' on HIA, and this was attributed to the loss of two key staff members, and difficulty in prioritising time for promoting and conducting HIA in the face of considerable other pressures.

The highly politicised environment that developed within the Committee and the community, which was strongly focused on arguments for or against particular roading solutions, was also seen as non-conducive to prioritising HIA in the community and political context.

Perceptions amongst councillors or transport planners that 'health is not our business' or that the health sector was 'sticking its nose in' inappropriately were also thought to be barriers to the uptake of HIA. Several informants commented on the barrier that was created by the word 'health', which had a much narrower meaning for most people than it did for public health professionals. Referring to another HIA that was undertaken in the region, one informant commented:

Just listening to the reactions around the council table indicated that a lot of them still saw health in a relatively narrow way, rather than thinking of wider community wellbeing, which we're obligated under the LGA to consider. I sometimes wonder whether a better name for that process might have helped it get more traction.

This informant from the RLTC also acknowledged that a shift in thinking was necessary, and said that many members of the previous council had out-dated and fixed ideas about transport solutions.

People were still wedded to what the country has always done in the past, and that's build roads to cater for perceived congestion and growth [...] it was still 'roads are the answer', no matter what the question is.

5.2.7 Conclusion

5.2.7.1 Need for HIA

This case study demonstrates how congestion relief can dominate as a transport goal, and how public and planning attention can become fixed on roading options to the detriment of the overall goals of the transport sector. Assessment of the various corridor plan options against the five transport objectives of the NZTS is not strongly evident as part of the planning process in this case. It appears that in the weighing up of options, public health was only considered in terms of consent-ability. Serious consideration of whether an option would have a negative or positive effect on the overall wellbeing of the community was not part of the corridor planning process. Nor was consideration of the distribution of effects. The failure to address distribution of effects and equity in the standard planning process is of particular concern in this case because of potential negative impacts on one of the most deprived communities in the region.

5.2.7.2 Role of HIA in this case, lessons learned, and barriers to HIA

While international case studies show how HIA can address some of the concerns and deficiencies outlined above, the desktop HIA completed by the public health service in this case had little impact, primarily because the findings did not reach decision-makers. Public controversy focused on roading options and the attitudes of key transport and local body officials were seen as the key barriers to conducting a full HIA. The low impact of the desk top-HIA and the dramatic success of the transport forum in this case study show how important round-table discussion is to achieving sustainable transport outcomes. While desktop-HIA can be a helpful tool to allow single agencies to think through policy and planning issues, the tool is much more powerful in the hands of a group who bring different knowledge-sets and viewpoints to the table.

5.2.7.3 Best point of application and integration of HIA

This case study suggests that strengthening the assessment of health impacts and their distribution would best be done at an early stage when various options are still being considered, since impact on the wellbeing of the community should be a key consideration when weighing up options. However informants pointed out that thoroughly assessing multiple options and sub-options against multiple determinants of health was extremely difficult and complex. Therefore, integration of different HIA elements at various stages in the corridor planning process may best meet the needs of planners and public health advocates.

5.3 Wairau–Taharoto Corridor upgrade HIA

The case study examines a project level HIA. As outlined in chapter 4, the process for planning transport projects such as this corridor upgrade is subject to the RMA process.

This HIA closely followed the HIA process as defined in the background to this report (section 2.2); although a formal evaluation of the HIA was not undertaken. HIA guidance (Public Health

Advisory Committee 2005) was used and the four steps of screening, scoping, appraisal of impacts and reporting/ recommendations were carried out, with input from a multi-disciplinary team of experts at each stage. Community input was limited due to time and budget constraints, but was incorporated to the extent possible. This HIA included the four elements outlined in the Gothenburg Consensus (see box 2.1), and was underpinned by the HIA values.

5.3.1 Context

5.3.1.1 Problem the proposal was trying to address

Wairau/Taharoto Rd is an important transport corridor which carries 26,000–30,000 vehicles per day in and out of Takapuna. The corridor is also a key route for pedestrians, cyclists and buses. The Wairau–Taharoto Corridor upgrade was prompted by congestion problems, a proposed new bus station and bus services, and safety concerns for cyclists and pedestrians. The proposal involved:

- road widening on Wairau Rd between Forrest Hill and Northcote Rd
- widening of the Wairau Rd and Forrest Hill intersection including upgrading the existing Wairau Creek bridge
- installation of new cycle lanes and bus priority lanes
- wider footpaths
- undergrounding of overhead power and phone utilities
- widening the Taharoto/Wairau/Shakespeare Rd intersection to align it with the new access road into the new Smales Farm Busway Station.

Initial consultation on the Wairau–Taharoto Corridor upgrade proposal was completed in 2004 and North Shore City Council (NSCC) approved the project in February 2005. This was a project under the RLTP.

5.3.1.2 Challenges in development of the proposed upgrade

According to the transport engineer who led the upgrade project, it was a very complex project since there were a wide range of users and stakeholders (eg Smales Farm Business Park, North Shore Hospital and Westlake Girls High School), who were all very much affected by the deficiencies in the roading network in this area, and whose needs had to be considered. Providing for pedestrians, cyclists and buses was an important part of the upgrade, which also added to the complexity of the job.

From a roading infrastructure point of view it was important to provide good access to the bus station, which was an essential part of the Northern Busway. There was also a lot of development happening on either side of the arterial corridor, generating large volumes of traffic and programmed for further traffic generation, so keeping the traffic flowing was a major challenge for transport planners. Added to that, there were pedestrian safety considerations, particularly for students at Westlake Girls.

5.3.1.3 How the HIA was initiated

The HIA was undertaken in 2006 as a component of the Transport and Urban Form working group of the Sustainable Cities Programme. Several people on the Transport and Urban Form

working group knew about and were interested in using HIA, and Auckland Regional Public Health Service (ARPHS) was successful in applying for funding from the Ministry for the Environment on behalf of the working group to conduct an HIA. The 'transport and urban form' work strand of Sustainable Cities selected the Wairau/Taharoto Corridor project from a number of potential roading projects underway in the Auckland Region.

The Wairau–Taharoto Corridor upgrade was chosen primarily because of its potential long-term impact on the wellbeing of residents and users of the corridor and surrounding area. One of the working group members (a planner from NSCC) explained that there were a number of health concerns with the proposed upgrade, including the long-term effect on current and future school students, people working at and visiting the hospital, residents of a new retirement home proposed for the area, and the significant number of other pedestrians using the area. Congestion was seen as a public health as well as a travel time issue since the exhaust fumes generated by congested traffic at peak times was detrimental to air quality. The working group were also concerned about severance issues, since the upgrade would widen the road to six lanes at some points.

This project was also seen as a good candidate for an HIA because although the design had been drafted, it was believed that there was still an opportunity for the HIA to inform and influence the final design. It was also hoped that the HIA would inform other teams within the council working on land use and development proposals adjacent to the transport corridor and that the HIA process might be taken up and become standard practice for transport/land use projects of this scale within NSCC.

Another practical reason for choosing this project was because one of the Transport and Urban Form working group members was a planner at NSCC at the time and therefore able to champion the HIA within NSCC, the organisation planning and implementing the upgrade.

5.3.1.4 Decisions the HIA was informing/how developed was the strategy

The upgrade project was fairly advanced at the time the HIA was commissioned. The designation was complete and it was envisaged that the HIA would inform the outline plan and future outline plans of similar developments.

5.3.1.5 Timing and budget of the HIA

The HIA was commissioned in January 2006 and completed between February and June 2006. The budget for the HIA was \$8,000. It was described as a 'mini' HIA since the budget and time available were very limited.

5.3.2 Use of HIA

5.3.2.1 Brief description of methods and tool

An independent consultant was engaged to undertake the HIA. ARPHS held the funding and project-managed the HIA contract in partnership with NSCC and ARTA. The key people from these three agencies were all part of the Transport and Urban Form working group, and played an important role in setting up the HIA.

The HIA consultant used the Public Health Advisory Committee guide (2004) to inform the process, which was cross-sectoral and intended to address political as well as technical concerns.

A scoping meeting was held between the HIA consultant, ARPHS and NSCC to set the parameters of the HIA. (Representatives from the Ministry of Transport and ARTA were also invited but were unable to attend).

The appraisal stage involved several components including the desk-top development of a community profile, analysis of existing consultation reports and a brief evidence review. Field work involved interviews with selected key stakeholders (representatives of Smales Farm Business Park and Atlas Concrete). Note that considerable consultation had already been completed by NSCC, and it was considered appropriate and efficient to incorporate feedback already provided by schools, hospital staff and other members of the affected community into the HIA process, rather than re-consult or directly involve these groups. A half-day appraisal workshop was held, involving 12 people from the transport, local government and health sectors including representatives from NSCC, ARTA, Ministry of Transport, Transit NZ and ARPHS. The intention was to take a holistic and collaborative approach, and consider the transport proposal within the wider context of development and land-use planning for the area.

5.3.2.2 Process of developing recommendations

Most of the recommendations were developed during the appraisal workshop, and were subsequently refined and added to by the consultant in collaboration with the clients (ie the key people from NSCC and ARPHS, who were members of the Transport and Urban Form working group and had initiated the HIA).

Because the HIA considered the relationship between the roading upgrade and the surrounding communities and land uses, many of the recommendations were directed at the city council more broadly, rather than to the traffic engineers specifically. For example, one of the HIA recommendations was that a Westlake Area Plan was necessary. According to the HIA contractor:

They were building a corridor, and severing the community into two, and one of those communities didn't even have a name, it was just 'that side of the street'. They wanted to make it a destination, but they had no [land use or development] plan. The corridor upgrade was like an action point within a strategy, but the strategy for the area didn't exist.

By looking at the interconnection between transportation and land-use issues, the HIA recommendations were intended to inform integrated planning, not only in this particular case but more broadly. The HIA contractor commented:

The HIA was informing the North Shore City Council and ARTA as well as the engineers, about what they need to think about and do to ensure that corridor projects are successful. When there are no engineering solutions [eg to severance issues] you need to look at other solutions. For example one of the solutions the HIA suggested was to create [separate] communities on each side of the road, because local people told us they were not going to be able to cross the road.

5.3.2.3 What worked well in the HIA process?

Stakeholders commented that there was good engagement in the HIA process from all the key transport agencies, and according to the consultant, the appraisal workshop and conversations with key stakeholders were very informative.

Most key informants felt that the HIA met the objectives set out at the scoping phase. That is, the HIA succeeded in identifying the likely benefits and disbenefits of the proposal to the wellbeing of the community, and developing recommendations to enhance the benefits and mitigate negative impacts.

5.3.2.4 What didn't work well in the HIA process?

Key informants all agreed that the HIA did not have as much impact as was initially hoped by the Sustainable Cities Transport and Urban Form working group. Timing, staff turnover and lack of buy-in from the project manager of the upgrade project were all thought to have played a role in this disappointing outcome.

From the point of view of the project manager, the HIA recommendations were seen as 'a bit of a nothing, really', and were not perceived to add any value. Specifically, he commented that several of the recommendations were already being undertaken²³ and that the public health benefits of many of the recommendations were not apparent²⁴.

5.3.3 Drivers and barriers for this HIA

5.3.3.1 What were the main drivers for this HIA?

In response to changing public health sector policies, the mandate of ARPHS had widened to include a stronger focus on influencing the factors that influence health, eg housing, transport, air quality. There were several champions for HIA within ARPHS, and resources available to promote and undertake HIA.

In the regional public health service there was a push towards HIA as part of taking a 'prevention rather than cure' approach. The health service was trying to have an influence at the policy level to address causes of heart disease, respiratory illness and other health issues (ARPHS Representative).

ARPHS was actively seeking opportunities to apply HIA, and this was a major driver for the Wairau-Taharoto Corridor upgrade HIA being undertaken. At the same time some city council planners and transport agency staff were moving towards a more 'people-centred' approach to transport planning, and better integration of land use and transport planning. They could see that HIA might be a useful tool for achieving better planning outcomes.

The Sustainable Cities Programme, specifically the Transport and Urban Form working group, brought like-minded people from different agencies together to work towards a common vision. Funding was available, key people in the relevant agencies were keen to try HIA, and an experienced consultant was available to complete the work.

²³ For example, the recommendation that 'ARTA and North Shore City Council jointly develop travel plans for the community to tie into the new public transport initiatives being developed as part of the corridor project' was seen as redundant, since the Travel Demand Management team at North Shore City Council was already working with all the major stakeholders on the corridor in relation to travel planning.

²⁴ As discussed in the background section, the links between the wider determinants of health and health outcomes may not be obvious from a biomedical perspective, however HIA is underpinned by a social model of health and looks at indirect as well as direct impacts - the 'causes of the causes'.

5.3.3.2 What were the main barriers to the success of this HIA?

Some key informants felt that the HIA was undertaken too late in the planning process to inform important decisions. One said that, in retrospect, it may have been the wrong project to choose for an HIA, since construction was almost due to begin by the time the HIA was complete.

However, lack of 'champions' to push the recommendations of the completed HIA was also a significant factor, especially since the HIA was intended to inform decisions and processes beyond this isolated upgrade project. The key proponents of the HIA from NSCC and ARPHS both left their roles either before or immediately after the findings of the HIA were reported. The Transport and Urban Form working group also disbanded at this time, since the Sustainable Cities Programme had come to an end. The HIA contractor commented:

[When the HIA report was complete] the two main people who wanted it done weren't there anymore to grab it. [...] I think the loss of those key people was probably the main barrier to the recommendations of the HIA being taken up – they were the ones who wanted it done and who would have been the champions for it within their organisations. We were left with the transport engineer as the sole recipient, and he had shown little interest in the whole concept of HIA.

Another key informant also commented that the outcome might have been different if a Sustainable Cities delegation had gone to the councillors and advocated for the recommendations to be taken up, but since the working group had disbanded, this was not possible.

Although representatives from key agencies (Ministry of Transport, ARTA and NSCC) were reportedly positive about the HIA process and felt it would add value, it was evident that one important person did not perceive a need to conduct an HIA – the NSCC traffic engineer leading the corridor upgrade project. From his perspective the HIA was not able to add anything, as he felt that public health concerns and stakeholder feedback had already been well addressed in the planning process. This reflects a narrow view of health that is focused primarily on safety, air quality and noise. It could be argued that the upgrade project was largely driven by public health concerns – specifically the need to improve safety for cyclists and pedestrians, improve air quality by reducing congestion, and incorporate new public transport infrastructure into the existing transport network – and these considerations were reportedly central to the design process. The project manager pointed out that the upgrade was planned over several years and included an extensive consultation process, in which safety was a paramount concern.

From this standpoint HIA was seen as a hindrance rather than a tool to enhance the planning process.

I had a slight concern that doing an HIA would be just yet another one of the hurdles that you have in project managing and bringing forward a construction project. We have all sorts of hurdles in terms of storm water and air quality and... a lot of them sort of come a bit out of left field.

Other key informants disagreed and said that holistic, person-centred transport planning was currently the exception rather than standard practice. Some argued that engineering design solutions were unable to solve all of the planning problems presented in this case, and that project planning therefore needed to incorporate broader considerations and should be

integrated with land-use planning for the area. Although planning practices are starting to change due to the LGAAA and ARTA's (2007) *Integrated transport assessment guidelines*, one informant commented that the car is still totally at the centre with only marginal provisions for other modes.

Although the upgrade project manager acknowledged that in a complex project it is easy to overlook particular issues or needs, and therefore HIA could be a useful checking mechanism, he felt the HIA had not picked up any flaws in this case: 'I think it was a useful exercise to see whether there was anything that we **had** left behind, but I don't think there was anything that came even close'.

It appears that his view of the purpose of HIA was perhaps narrower than the purpose of the HIA agreed by those involved in scoping the HIA and outlined in the scoping report. One informant commented that in retrospect, the project manager of the upgrade should have been involved at the scoping phase or even earlier. This may have allowed all parties jointly develop a clear purpose for the HIA.

This lack of buy-in from the project manager was a particularly significant loss to the HIA process in this case, since due to staff turnover, it fell to the project manager for the upgrade to take the findings of the HIA forward. Since he saw no value in the HIA, there was no follow up to ensure that the recommendations were implemented, either by his own team or by other departments within the NSCC.

5.3.4 Conclusion

5.3.4.1 Need for HIA

There were marked differences in views about the need for an HIA in this case, and in informants' expectations about what the HIA ought to achieve. This highlights a tension between broad and narrow views of health. The majority of key informants took a broad view and saw that such a complex project with significant potential health impacts on a wide range of users and residents required a) integration with land-use planning for the surrounding area and b) careful consideration of potential impacts on wellbeing, including indirect and unintended impacts. From this perspective, the HIA was seen as a tool to assist integrated planning and highlight potential impacts that had not been considered as part of the standard planning process. However, from a narrow engineering perspective there was little or no perceived need for an HIA since assessment of direct health impacts had already been undertaken.

5.3.4.2 Role of HIA in this case and lessons learned

The Wairau-Taharoto Corridor upgrade HIA case study demonstrates how important commitment and timing are to the usefulness and success of HIA. It also highlights the need for close working relationships between transport planners and other HIA contributors to ensure that recommendations are relevant and practical, and based on a sound understanding of the proposal and its rationale.

The findings suggest that the purpose of the HIA needs to be clear to all of the people and organisations that the HIA is intended to inform, particularly if the results are intended to be used beyond the immediate transport project at hand. Because of the holistic nature of HIA, recommendations often go wider than just the technical issues for a project.

A high level of awareness and buy-in to the HIA is required if the recommendations are to be taken forward by all relevant agencies and departments. Staff turnover is inevitable, but the risk of an HIA report sitting on the shelf is reduced when a number of stakeholders from inside and outside the relevant agency value the HIA process and results.

Lack of knowledge about the purpose and process of HIA, scepticism about non-engineering methods, and limited understanding of the wider determinants of health may be significant barriers to the uptake of HIA amongst transport professionals.

5.3.4.3 Best point of application of HIA

When the HIA is undertaken late in the planning process rather than at the formative stages, it may be more difficult to influence decisions since aspects of the project have already received approval from the council or other stakeholders. HIA is more likely to be seen as a potential hindrance at this stage in a project, though it can provide a useful final check to ensure that all important health and wellbeing issues have been considered.

5.4 Buckle Street realignment HIA

This case study examines an HIA on a localised roading project (a component of the development of a National Memorial Park), which was initiated outside the normal planning and funding processes outlined in chapter 3.

This HIA differed in a number of ways from the HIA process as defined in the background to this report (section 2.2). Many would not consider it an HIA since it employed health risk assessment methodology, was carried out by one expert without input from a multi-disciplinary team, and did not consider the opinions of the affected community. It considered the likely impact of the project on only one determinant of health, rather than a range of potential direct and indirect impacts. Nevertheless, the assessment was called a HIA by its author and commissioning agencies, and therefore it has been included in the present study.

5.4.1 Context

5.4.1.1 Problem the project was trying to address

In 2005, the Ministry of Culture and Heritage acquired land on Buckle Street, across the road from the National War Memorial in Wellington, to create a New Zealand Memorial Park. On 24 April 2007 the Government announced new funding of \$10.9 million for the park's construction. The proposed park is intended to improve the setting of the National War Memorial and to strengthen the heritage value of the area and will adjoin the National War Memorial and the Tomb of the Unknown Warrior.

The preferred development option entails moving a section of Buckle Street (between Tory Street and Taranaki Street) 40 metres to the north, closer to Mount Cook Primary School. Buckle Street is a major arterial road, and Transit NZ were brought in to project manage the road realignment aspect of the development project. Unlike other roading projects, the Buckle Street realignment was instigated and funded outside the normal transport planning and funding processes. It was originally envisaged that the project would be completed in 2008.

5.4.1.2 How the HIA was initiated

Mount Cook School was informed of the plans to bring the road closer to the school on the day before the funding for the National Memorial Park was publically announced in April 2007. The school community was disappointed about the lack of consultation and concerned about the impact of the proposal in terms of safety, air quality and noise in particular.

We were completely and utterly unhappy with the fact that they had just come and announced that 'this is what's happening' they were going to move the road. [...] And we were frankly amazed that [the Ministry of Culture and Heritage] had been working on it for two years and the school hadn't been part of the discussion (Mt Cook School representative).

The school representative reported that when the school was informed about the plans by the city council, Transit NZ and Ministry of Culture and Heritage, they were also told that resource consent would not be required for such a project. This was disputed by representatives from the school who collected information about the potential health effects and advocated strongly against the proposal in a series of meetings and communications with the project team over several weeks. There was also some publicity in local newspapers about the proposal and the school's opposition to it at this time (mid-2007).

The opposition from the school led to a series of events, including the commissioning of a HIA. The HIA included air quality testing over a six-month period (October 2007–April 2008) and modelling by NIWA. A public health consultant was also contracted to advise on the process and interpret the results of the NIWA study.

My role was to advise what would be needed to do an appropriate HIA, and then to advise how I'd go about it, what data would be needed to do it and so on. I came on board in the early stages of the NIWA study, so it did help influence what was measured, and for how long (Public health consultant).

5.4.1.3 Decisions the HIA was informing

The aim of the HIA was to provide factual information about how moving Buckle Street was likely to impact on air quality and whether these changes would pose a health risk for students at the school.

A design competition was planned to generate the final design for the park, and the Ministry of Culture and Heritage delayed making a final decision about the design brief until the results of the HIA were available in June 2008. The HIA would therefore inform the design brief, setting out the parameters for the development.

All key informants interviewed were clear that the park proposal was at quite a late stage of development and the road realignment was definitely going to go ahead at the time the HIA was commissioned.

When the problem came to me, there was already a commitment to the civil engineering. There were still a couple of small options but the project was definitely going to happen. And they wanted to know for certain that there wouldn't be any adverse effects and if there were, how could they be mitigated (Public health consultant).

The public health consultant commented that this was unusual, since generally such assessment work was undertaken much earlier and might inform whether a project went ahead or which site to use for example. 'In this case there was NO input into planning, because the project – the road works – were going to happen'.

However, both the public health consultant and the Transit NZ representative emphasised that there was scope to alter the design brief if a clear health risk had been identified through the HIA. While the road re-alignment would still go ahead, its exact location could be moved:

There was an agreement amongst the chief executives that if the monitoring showed that moving the road was going to increase the health risk, then we would change the brief for the design competition, for example, 'you can't shift the road closer than x meters from the school'.

5.4.1.4 Timing and budget of the HIA

It is understood that the HIA (including NIWA monitoring) had a budget of about \$40,000 and took approximately 11 months. The public health consultant's role accounted for approximately \$8,000 of the total budget (though it was noted that the actual work undertaken over-ran this budget).

5.4.2 Use of HIA

5.4.2.1 Brief description of methods and tools

A number of HIA tools and guides are referred to in the HIA report, but the method followed for the actual appraisal process was the WHO's health risk assessment model. This is a process with four components: 1) issue identification; 2) hazard assessment; 3) exposure assessment for the relevant population; and 4) risk characterisation. It is an expert-led and technical process that draws together relevant medical, toxicological, legislative and environmental data. For example, 'issue identification' involves environmental sampling and analysis, rather than consultation with the affected community.

This method was chosen because it was seen to be appropriate given the nature of the project and the size of the population affected.

When I looked at the PHAC [Public Health Advisory Committee] guide it was not really relevant to this project, because [the Buckle Street Realignment] was such a localised initiative affecting only one set of traffic lights and a small section of road and a playground of one school, whereas the PHAC guide presupposed large scale policies at the proposal stage.

The HIA only looked at air quality, and this focus was specified by the commissioning agencies. The reason for this narrow focus (despite broader concerns expressed by the school) was the perception that the other health determinants were already covered off under standard engineering design processes]. One of the key informants commented:

If we talk about the other broader generic transport health and safety things – noise, accessibility, getting run over crossing the road – they are all part of our bog-standard analysis. But there are only a few cases in NZ where air quality has come into analysis.

The public health consultant and NIWA team members who carried out the monitoring, modelling and appraisal were all Auckland based. They had no direct contact with representatives from the school. However the school were provided with copies of all the information including the research briefs and findings, and the Ministry of Culture and Heritage met the costs of the school having these independently reviewed.

Although there is no single agreed definition of HIA, it should be noted that many would not consider the above to be an HIA. It does not meet the Gothenburg Consensus definition of the elements of HIA in that it does not include the opinions of those affected by the proposal. The approach used was that of a desktop qualitative health risk assessment.

5.4.2.2 Process of developing recommendations

The recommendation – that no changes were necessary to the proposal – was based on the finding that current air quality is well within acceptable standards, and that the realignment of the road will make negligible difference.

5.4.3 Impact of the HIA

The findings and recommendations of the HIA were communicated to the project team in the form of a written report in June 2008. The NIWA findings were presented in a separate report. As a result of the HIA findings, the design brief for the project was finalised and the design competition went ahead in September 2008. This was almost a year later than originally envisaged. At the time of writing a recommendation had been put forward and was awaiting consideration by the new government before an announcement of the final design was made. The design competition did not include a specific requirement for Buckle Street to be relocated.

The Transit NZ representative commented that as a result of the NIWA study and HIA, they now had robust data supporting the proposal that would stand up in the Environment Court should the chosen option require Buckle Street to be relocated and if there was a challenge to that as part of the consenting and designation processes.

The report was also provided to the school community and a meeting was set up with representatives from the Ministry of Culture and Heritage. The Ministry of Culture and Heritage asked the Ministry of Health to send a public health practitioner to attend the meeting. A local medical officer of health attended the meeting with the school community to help explain the findings in lay terms. The presentation in lay terms of the reports was challenged by a member of the school community with an advanced scientific background in physics. To help this member of the school community better understand the technical aspects of the reports, the medical officer of health organised a teleconference with the NIWA scientists. The teleconference did not fully address concerns about the extrapolations and assumptions used by the NIWA scientists in their model predicting exposure levels.

So from the commissioning agencies' point of view, the HIA met their needs and has enabled the project to proceed without amendments. From the school community's perspective, however, the HIA has provided insufficient reassurance about their health concerns and has not made them feel more included in the decision-making process.

5.4.3.1 What worked well in the HIA process?

A number of factors were seen as helpful to the HIA process. From the perspective of the public health consultant, the fact that the HIA was integrated with the air quality monitoring from the beginning and wasn't a subsequent add-on was seen as vital. The close working relationship between the public health consultant and NIWA scientists was also seen as valuable and it was noted that 'teamwork ensures a better result'. The availability of good guidance documents for doing HIA was also seen as a positive.

The HIA was described as successful in that it enabled the project team to understand the effects of the proposal on air quality, and informed their decision.

5.4.3.2 What didn't work so well?

One thing that didn't work so well, particularly from the perspective of the school, was the lack of direct contact between the HIA practitioners and the school community. This was also seen as unusual by the public health consultant.

In virtually every other case where I've been involved in HIA we've done community liaison and know who the people are, so even if we don't go the intrusive step of doing a questionnaire, almost without exception we would visit the school or community and have subsequent discussion about a report with the community effected by it, so this project was unusual in that respect.

However the Transit NZ representative commented that the context for the HIA (ie the school's strong opposition and advocacy against the project, via the media and other avenues) meant that the process had to be handled carefully. To this end, the Transit NZ representative said that the school were fully informed and consulted at each stage of the monitoring and HIA. It was believed by the Transit NZ representative that the school had 'signed up' to the methods for the monitoring, and the validity of the HIA findings. However the key informant representing Mt Cook School reported a differing perspective.

5.4.3.3 Barriers from school's perspective

There were two key barriers to the utility of the HIA from the school's perspective. Firstly, the highly technical nature of the subject matter and the modelling process made it very difficult for the validity of the results to be verified independently. Specific concerns related to the fact that the air monitoring was done only during the summer months when air quality tends to be better, and assumptions made about the distance between the road and the school boundary. The local medical officer of health who became involved in the case commented that in any modelling exercise, the assumptions and extrapolations made are critical. He commented that while the assumptions and extrapolations NIWA made may well have been valid, the NIWA scientists were unable to adequately address specific queries raised by a parent with a physics background. This brings into question the technical basis of the modelling, and highlights the challenges associated with explaining modelling to other audiences.

Secondly, the planning process to date, (including the HIA) did not satisfy the school's desire to be part of a collaborative process of decision making. To date, the school community remains unhappy with the process and feel they have not been adequately listened to or taken seriously.

We all knew that there had to be discussion and that we wouldn't necessarily get exactly what we wanted, but we wanted to feel as though we were being listened to and that we were receiving all the information. And right through we have felt that we haven't. (Mt Cook School Representative)

The medical officer of health commented that part of the purpose of HIA should be to empower communities and to address their concerns:

With cases like this you really need to take a 'risk communication' approach, and address the parents' perceptions. Because no matter how scientifically wrong those perceptions might be, they're still right in the sense that their concerns are real.

The school clearly valued the approach of the medical officer of health:

He was just a bit more real about it all and he didn't come with the party line – there was more room for discussion and acknowledgement that our concerns were valid.

5.4.4 Drivers for this HIA

Although the main driver for this HIA was the school's opposition to the project, and the perceived need to overcome that opposition, the public health consultant commented that it was a genuine scientific enquiry with valuable findings:

The project was worth doing because we couldn't take it for granted that a small change in traffic flow would NOT have an effect. In fact we found that it wasn't going to have an effect because it is such a windy, open environment. But it was important to do this project [...] otherwise we wouldn't have known for sure.

Although the HIA was ostensibly commissioned to inform the Ministry's design decisions, the project manager for the roading aspect also commented that a key driver for the HIA was to produce data to support the realignment project in Environment Court, if needed:

The project team went back to our respective CEs and we decided that the only way we could defend this rigorously in Environment Court was to get some monitoring done. So we went back to NIWA and got them to prepare a proposal.

5.4.5 Conclusion

5.4.5.1 Need for HIA

This assessment was triggered primarily by advocacy against the project by the affected community. A knowledge gap existed about how the proposal would affect air quality and health, and the HIA was intended to fill that gap. The HIA was seen as necessary by both the school community and by the agencies overseeing the Buckle Street realignment project.

5.4.5.2 Role of HIA in this case and lessons learned

This example shows how a health risk assessment differs from a Gothenburg Consensus-type HIA. The later approach considers democratic process and the direct involvement of affected communities as an essential component of HIA.

While the HIA met the needs of the contractors and commissioning agencies in this case, the affected community were less positive. The Buckle Street HIA case study provides an example of an HIA that was technically successful, but less successful in terms of democratic process. That is, the HIA produced (arguably) robust data that informed decision makers and met their needs, but it did not incorporate the opinions of the school community or adequately address their concerns.

5.4.5.3 Best point of application of HIA

The HIA was undertaken as an 'add-on' late in the planning process, and necessitated lengthy delays to the project, since the design competition could not go ahead until the HIA results were known. Earlier application of HIA as part of the planning process, along with early engagement with the affected community, may have resulted in a smoother and faster process overall.

6 Discussion

In this section, the findings of the research components above are discussed in relation to the research objectives. Important findings in relation to administrative support for public health are highlighted. This section has been organised into five parts:

- 1 Assessment of the need for HIA
- 2 Evaluation of the role of HIA in land transport planning in New Zealand and key learning to date
- 3 Facilitators and barriers to HIA
- 4 Best points to apply and integrate HIA in the New Zealand transport context
- 5 Administrative changes to support public health outcomes.

As outlined in the background to this report, HIA is an approach that can improve transport decision-making processes and outcomes, particularly in relation to sustainability and public health objectives. Achieving these objectives is vital for the wellbeing of current and future generations, and is of concern to transport planners, environmentalists, public health advocates and concerned citizens alike.

6.1 Assessment of the need for HIA

This research found there is international recognition of the need for more inclusive rationality in transport decision making and a more 'people centred' approach to transport planning that goes beyond engineering solutions. While high-level transport policies in many countries now recognise the responsibilities of the transport sector in relation to public health and environmental concerns, administrative and planning tools often lag behind this new agenda, creating barriers to the achievement of broader transport objectives. Both in New Zealand and overseas, there have been legislative and high-level policy changes aimed at achieving more holistic and sustainable transport solutions so that the positive impacts of transport on other sectors can be maximised, and unintended negative impacts can be eliminated or mitigated.

Moreover, research from New Zealand and overseas shows that existing assessment processes (including environmental impact assessment and strategic environmental assessment) applied routinely within transport planning and funding processes do not adequately consider broad wellbeing, equity or health concerns. In practice, the assessment of health impacts, where it occurs at all, tends to be narrowly focused, does not involve a wide range of stakeholders and seldom considers inequalities. For example, the Nelson case study shows how the findings of an HIA can differ markedly from the findings of a routine transport planning assessment conducted to test various corridor plan options against transport goals and objectives. The HIA gave a more thorough picture of how each proposed option was likely to impact on the wellbeing of the community, while the routine assessment only judged whether or not the proposal was likely to be granted resource consent.

The New Zealand case studies also illustrate some of the strengths and weaknesses of current consultation processes. There is room for improvement in the extent and manner in

which consultation is undertaken, and application of HIA methods and tool may help to address some of the limitations outlined below.

The Nelson case study shows how consultation on transport planning proposals can generate a lot of heat without necessarily shedding much light; the voices of key experts may be drowned out, and focus on the 'big picture' (ie the five objectives of the transport strategy) can be lost if public opinion becomes focused on one controversial aspect of a proposal. The voices of the most disadvantaged sectors of the community also tend to be under-represented in typical consultation processes. This means that impacts on affluent sectors of the community are likely to be picked up, but impacts on poor communities may not. Conversely, the 'transport forum' that was held in Nelson shows how creative, win-win solutions can be achieved when stakeholders talk face-to-face with the aim of finding a shared way forward. Proactive efforts are needed to ensure that Māori and disadvantaged sectors of the community are represented, and that the focus is on finding solutions that meet local needs **and** the five objectives of the NZTS. The HIA appraisal workshop process provides an exemplar for how structured solutions-focused community input can be achieved.

In summary, due to current deficiencies, there is a need for an improved assessment process that a) takes account of the broader disbenefits and benefits of a proposal, including indirect and long-term impacts on health and wellbeing; b) assesses the distribution of positive and negative impacts and consider equity issues; and c) involves a range of stakeholders, including affected communities.

HIA is a flexible tool which has had demonstrated success in addressing some of the limitations of traditional transport planning, and contributing to better and more transparent decision making. It can assist in garnering support for proposals where there is a public health and wellbeing benefit. In addition, HIA can improve intersectoral working relationships and provide support for transport solutions that contribute to economic, sustainability and public health transport objectives.

As is the case internationally, HIA in New Zealand has primarily been driven by the public health sector, as part of a 'prevention rather than cure' approach to population wellbeing. Arresting the obesity epidemic and addressing health inequalities have been key public health priorities in recent years, and government policies and programmes call for partnership approaches with relevant sectors in order to meet these aims.

Since 2001, the Public Health Advisory Committee and the Ministry of Health have invested in HIA capacity-building initiatives such as pilot studies, training workshops and the establishment of the Ministry's HIA Support Unit. The Public Health Advisory Committee was instrumental in producing a New Zealand guide for conducting policy-level HIA in 2004, and it is largely the Ministry of Health, Public Health Advisory Committee and regional public health units that have advocated for and funded the HIAs undertaken in this country to date. These efforts have been driven by an increasing recognition that the things that keep people well (or make them unwell) lie mostly outside the health sector, and therefore intersectoral action is required in order to achieve healthy communities. A broadening of focus has occurred in both transport and health sectors in recent years, pointing to a need to work together in areas of common interest and shared goals.

HIA meets the needs of public health professionals, since it provides a platform and structure for working across sectors and informing and influencing the policies and environments that affect health and wellbeing. But what are the drivers for HIA from a transport perspective in

New Zealand? Key informants from local government and transport sectors who were interviewed as part of the current research highlighted the following needs, for which HIA is one appropriate response. It should be noted that key informants in the present study were a small sample only and their views may or may not be widely shared in the transport sector.

a) Desire to improve transport planning and outcomes, particularly in relation to community wellbeing, public health and sustainability objectives. Some informants were acutely aware that significant changes are needed if the transport sector is to meet all five objectives of the NZTS. As is the case internationally, HIA is seen by some New Zealand transport sector representatives as a way of improving transport decision making and assisting the move from traditional 'car-centred planning towards more holistic, people-centred transport planning' to meet a broader range of transport objectives.

b) Formal mandate to consider public health and community wellbeing, in particular the LTMA as amended in 2008 and the LGA require the transport and local government sectors to explicitly consider public health and community wellbeing. The NZTS requires that transport solutions meet the government's social and environmental objectives, and that they protect and promote public health. In the case studies several informants from the transport sector spoke about the new emphasis on public health as well as related objectives such as sustainability, access and mobility. Currently, these objectives are not well defined and tools to assess and compare projects and strategies against these objectives are limited. HIA was seen as a way of operationalising the objectives and targets of the NZTS and translating long-term council community plan community outcomes and RLTS objectives and outcomes into practice.

c) Integrated planning is another driver for the introduction of interdisciplinary assessment tools such as HIA within the transport sector. Transport sector informants, particularly those from the Auckland region where integrated planning is required under the LGAAA, talked about the objective of greater integration between land-use planning and transport planning, and saw HIA as a tool to help achieve this.

d) Public and community concerns, particularly about sustainability and equity issues, have been a significant driver for HIA internationally. One New Zealand example (the Buckle Street realignment HIA) was driven by community concerns. In another case one informant commented that wellbeing can be a useful issue for bringing stakeholders together, as everyone can relate to health concerns and has some personal experience of health issues.

Other transport sector needs identified by the researchers include:

e) Obligations under the Treaty of Waitangi. Treaty obligations were not mentioned by transport or local government sector informants to this research. However, public health advocates point out that Māori participation in transport decision making is limited and use of HIA could assist the transport sector to meet Treaty obligations as outlined in the 2008 amendment to the LTMA.

f) Economic objectives. Recent research shows that decoupling transport demand from economic growth is necessary for continued economic development in post-industrial Western European countries, and that mode shift from private car use to walking, cycling and public transport has significant economic benefits. While awareness in the transport sector of the congruence between health and economic objectives is currently low (in fact health objectives and economic objectives tend to be framed as being in opposition to each other),

HIA may help to identify and support transport options that have both economic and health benefits.

Underpinning many of these perceived transport sector needs is a holistic worldview in which transport planning is undertaken to improve overall quality of life for people. Improved human wellbeing is seen as the ultimate aim of the transport sector (and indeed, of most sectors). According to this holistic perspective, the economic, social and environmental objectives of the NZTS are seen as interconnected facets of progress towards improved quality of life and wellbeing for current and future generations. Health is defined broadly, and the interconnections between transport and health are seen as complex and multidimensional. As one informant commented:

Transport is a means of social participation and daily life, so it affects health in that way, and the transport solutions we come up with also have an impact on people as a whole or on equity if they affect people differentially. Some of the transport solutions we're using at the moment have a direct toxic effect on people's health. [...] And then there are exercise options, and carbon emissions and the use of non-renewable resources, and these all have their own implications on health.

Because the effects of transport decisions on human wellbeing are significant and complex, HIA is viewed by many as a useful tool to ensure that transport solutions improve overall quality of life for all groups (including minority and disadvantaged groups), and not do not reduce quality of life.

6.2 Evaluation of HIA in transport planning

New Zealand and international experience has demonstrated that HIA can make a significant contribution to strategy and project development in a range of sectors. International experience of HIA applied to transport strategies and projects is congruent with general findings about the utility of HIA. Evidence demonstrates that HIA can inform and influence transport sector policies and plans both directly (through the adoption of HIA recommendations), and indirectly by increasing decision makers' and community understanding about the impacts of transport on wellbeing, and by building relationships between health and transport organisations and professionals.

In New Zealand, the application of HIA to transport planning is at an embryonic stage, with the case studies detailed in the current research representing some initial efforts. In three out of four case studies, the HIAs were undertaken with the express aim of trialling HIA and gaining experience with the toolkit and process.

New Zealand experience is not yet extensive enough to draw firm conclusions about the role of HIA in transport planning in this country. However, experience to date has demonstrated some of the benefits and pitfalls of applying HIA to transport planning. Learning by doing has been important for progressing HIA as a discipline in this country, and the purpose of the present study is to contribute to that learning process. The following discussion therefore highlights key learning to be taken forward.

6.2.1 Benefits of HIA

Many key informants (transport planners and decision makers as well as public health professionals) were positive about HIA as a tool to improve transport planning. They could see the potential for HIA to assist integrated and people-centred planning, and to enhance a proposal in terms of the funding criteria it was assessed against, for example. Informants who had been directly involved in conducting an HIA in New Zealand reported that they gained a) increased understanding of the links between human wellbeing and transport; b) stronger relationships with individuals and organisations in other key sectors; and c) experience with the HIA 'toolkit' and process. Some key informants felt the HIA process had raised transport sector awareness about the broad range of factors that influenced wellbeing, and others reported increased understanding of how particular transport-related determinants affected health risks. The systematic analysis of a wide range of considerations was seen as a particular strength of the approach, along with identification of the 'winners' and 'losers' of a proposal, and how different population groups (eg children, Māori, low income communities) were likely to be differentially affected by a project or policy.

Only one of the four HIAs led to changes in the project or strategy being assessed (the Greater Wellington RLTS HIA); however, as noted in the international literature, this is only one of several dimensions of effectiveness. Previous reviews of policy-level HIA in New Zealand concluded that it had been influential even where changes in the policy were not brought about, since HIA had been shown to improve cross-agency relationships, understanding of determinants of health, and more effective engagement of community groups in the decision making process (Morgan 2006; Ward 2006; Wylie et al. 2006). Findings from the current research are consistent with these previous findings, for instance one key informant said that although the majority of the HIA recommendations were not implemented, the HIA was used by community groups and other stakeholders in public submissions on the draft strategy.

An HIA may also recommend that no changes are required to the proposal, and this was the case with the Buckle Street realignment HIA. This HIA clarified that the proposal did not present risks to wellbeing, and could therefore go ahead unamended. The project manager saw this HIA as successful since it had generated robust evidence that could be used to support controversial aspects of the project through the consent process. The project manager for another case study, the Wairau-Taharoto Corridor upgrade, also commented that although the HIA did not lead to any changes, 'it was a useful exercise to see whether there was anything that we HAD left behind'.

According to international literature, key benefits of HIA include contributing to a better democratic process, more transparent and evidence-informed decisions and win-win outcomes. However there are no stand-out success stories amongst the case studies in New Zealand that strongly illustrate these benefits. In some New Zealand cases, certain key informants perceived the HIA as being of limited use to transport project managers, decision makers, or the community affected. In the Wairau-Taharoto Corridor case, for example, the project manager felt the HIA did not add anything to the project in terms of public health objectives, partly because it was not clear to him how the recommendations would protect and promote public health. In the Buckle Street case, a public health professional felt the HIA was of limited use to the community since it did not empower them or adequately address their concerns about health risks.

The following section explores what can be learned from the New Zealand case studies examined, with a view to producing recommendations for conducting more effective transport sector HIAs in future. It is important to note that this discussion is based on a very limited number of case studies and is therefore exploratory rather than conclusive.

6.2.2 Learning from New Zealand transport sector HIAs to date

6.2.2.1 *Recognising the need for HIA*

The question of *why* HIA is undertaken is perhaps the key determinant of success, and what 'success' looks like. Is HIA undertaken because the health sector or community demands it? Or is it a genuine partnership between transport professionals, health professionals and the community, working together towards common goals and developing innovative transport solutions through shared learning?

In the case studies examined, there were a range of perceived needs that led to the commissioning of an HIA. It is difficult to draw conclusions from such a small number of examples, but international and New Zealand experience suggests that an HIA will be most effective when it is seen as useful and necessary by both the agency whose strategy or project is being assessed, and by public health professionals.

6.2.2.2 *Multidisciplinary approach*

The importance of a collaborative, multi-disciplinary process is highlighted in the literature and illustrated in the New Zealand case studies. Better results were achieved when transport and public health professionals worked closely together, for example in the HIA on the Wellington RLTS.

Public health practitioners working in isolation are unlikely to produce an HIA report that has an impact on decision makers or planners, for two key reasons. First, the perceived and actual relevance of the recommendations developed are likely to be compromised if HIA practitioners have limited understanding of transport planning processes, the technical details of the proposal itself, or the 'language' of transport planning. Secondly, if relevant planners and decision makers are not 'on board' with the HIA process (or even aware of it being undertaken) the results of the HIA may be overlooked or undervalued. The Nelson example illustrates that HIA recommendations submitted through a routine consultation process may not even reach decision makers.

Similarly, HIAs conducted by transport professionals without public health input are likely to be less satisfactory than collaborative HIAs, since indepth understanding of the HIA process, the determinants of health, and relevant population health research is vital. And importantly, without a multi-disciplinary approach there is no opportunity for shared learning and genuine dialogue to occur between experts in various fields. Previous New Zealand research (Ward 2006) has shown key benefits of HIA are intersectoral shared learning and relationship building opportunities. Therefore HIAs that do not incorporate multi-disciplinary expertise or local knowledge of people likely to be affected by the transport proposal are likely to be weaker and less beneficial than genuinely collaborative processes.

6.2.2.3 *Involving the affected community in HIA*

There is wide agreement in the international literature that participation of the affected community in the HIA process is important. The lack of involvement of the affected

community in the Buckle Street case study is therefore seen as a major limitation from an HIA perspective.

Even where there is philosophical commitment to an inclusive process, however, community involvement is sometimes difficult to achieve in practice, particularly when the affected population is large and heterogeneous and/or the timeframe and budget for the HIA is limited. Nonetheless, New Zealand HIAs have generally engaged a wide range of stakeholders, including Māori and Pacific community leaders. For example the Wellington RLTS HIA, despite being criticised for having limited input from Māori in particular, involved a wide range of stakeholders. This was achieved through proactive person-to-person engagement of key individuals and organisations via existing networks and personal linkages. The majority of those who have taken part in participatory HIA appraisal workshops in New Zealand have indicated they would be interested in being involved in future HIAs, suggesting community representatives found the process worthwhile and felt their input was valued.

It is important to note, though, that over-consultation may be as damaging to communities as under-consultation, and utilising existing consultation summaries and reports may be one way of incorporating the views of the affected community without requiring additional consultation. This approach was successfully used in the Wairau-Taharoto Corridor HIA, where consultation with local schools, residents and businesses had already been conducted as part of the project planning and development. Alternatively, duplication could be avoided by utilising the HIA process itself to meet community consultation requirements, and Treaty of Waitangi obligations under the LTMA.

6.2.2.4 Focus on distribution of impacts

Another key aspect of HIA is a strong inequalities focus. This was seen as a strength of the Wellington RLTS HIA, and has been demonstrated to be one of the key 'value adds' of HIA internationally. Reducing health inequalities is a key aspect of public health. Therefore any transport activity that increases inequalities (social, economic, or health – since these are all related) runs counter to the public health objective of the NZTS.

6.2.2.5 When to apply HIA

The Gothenburg Consensus Paper states that HIA should be undertaken 'early enough for any recommendations to be considered before critical choices are already made' (European Centre for Health Policy 1999). This view is also endorsed by New Zealand's Public Health Advisory Committee (2007), which says HIA should be undertaken where policy alternatives are being considered but before a commitment is made. In practice, this advice is not straightforward to apply since transport strategies and plans are often developed over a multi-year time frame, with multiple decision points along the way.

Application of HIA late in the planning process (such as in the Wairau-Taharoto corridor upgrade example) has several disadvantages, particularly when an HIA is a late add-on rather than an expected stage of the process. In such cases, the HIA is more likely to be seen by project managers or policy makers as a hindrance or 'hurdle' which puts added pressure on budgets and deadlines. Unsurprisingly, it may be difficult to achieve buy-in from key people when HIA is applied at or near the end of the planning process. In contrast, when HIA activities are applied early and/or integrated with existing planning processes there is an opportunity for a wider range and more community-focused assessment activities to be built into RLTSs,

corridor studies and project planning. Such 'built-in' HIA is more likely to achieve support from transport planners and policy makers since it provides a 'no surprises' approach and may support a project through statutory requirements such as the integrated transport assessment (in Auckland), consent processes under the RMA and funding approval processes.

A second disadvantage of applying HIA at a late stage is that key decisions have already been made, so an HIA can only influence decisions on final details, at best. As noted above, transport strategies and projects are often developed over a long time frame, and may be constrained by previous decisions. By the time a draft RLTS is published, for example, funding may have already been committed to most of the projects in the associated regional land transport plan. Therefore an HIA of a draft RLTS is unlikely to lead to significant changes to the strategy, as was the case in the HIA of the Greater Wellington RLTS.

Thirdly, an HIA practitioner coming in at a late stage is unlikely to know the history of the project and has not been privy to prior discussion about the rationale for decisions made. There is a risk that HIA report recommendations may be based on a somewhat superficial understanding of the project (as may have been the case in the Wairau-Taharoto corridor HIA) or alternatively the time and cost involved with getting HIA practitioners 'up to speed' may be prohibitive. In reality, late stage application of HIA may be the only option left for practitioners in many cases, as in the Wairau-Taharoto example, and it may be better to have some input albeit late, rather than no public health input at all.

However, while late application of HIA has disadvantages, key informants in the Nelson case study pointed out that there were also challenges with applying HIA early in the planning cycle, before a concrete proposal was in place, since multiple variables made for an extremely complex appraisal process. As one informant commented, 'the devil is in the detail, but at the concept stage the details are not set, so you really need an iterative approach'. On balance, however, the advantages of early application of HIA are likely to outweigh the challenges, although further experience with using HIA at an early stage is necessary before this conclusion can be tested in the New Zealand context.

6.3 Barriers to HIA in the New Zealand transport sector

An overarching barrier to HIA is a world view in which the ultimate aim of transport is seen solely or principally as moving goods and people from A to B, without causing undue direct harm to people or the environment in the process. Within this world view, health tends to be defined narrowly as 'injury, air quality and noise' and impacts of transport on health and wellbeing are seen as 'side effects' rather than core business. Positive health impacts, indirect or long-term impacts, and impacts that cannot easily be quantified tend to be discounted or overlooked. A silo mentality and narrow view of health are not only barriers to HIA, but to public health input in general and to sustainable development.

When public health is defined narrowly as 'safety, air quality and noise', HIA may be seen as unnecessary since direct environmental health risks are addressed via assessment of environmental effects under the RMA. One key informant in a case study expressed this view in the comment: 'I don't see HIA as useful because I think we're doing all those things anyway, under existing programmes. I don't think you're introducing anything new'. Thus, low awareness of current deficiencies amongst many transport professionals and the lack of recognition of the need for new approaches is a key barrier to HIA. In this respect,

New Zealand seems to lag behind other developed nations where there appears to be greater acknowledgement that far-reaching changes are required in order to meet current challenges such as climate change and the obesity epidemic.

As discussed in the background section, although the NZTS (both 2002 and 2008 versions) signal a shift towards a more holistic approach within the transport sector, this is somewhat undermined by the narrow view of public health that is presented in the current strategy and the TMIF. The targets associated with the public health objective are under-developed and narrowly focused on a small number of health risks. A narrow view of public health that excludes positive, indirect and long-term impacts is a fundamental barrier to HIA.

From a silo perspective that views the five transport objectives as independent, HIA may be seen as a tool for highlighting issues relating to **one** of the five objectives (public health), but recommendations are unlikely to be accepted if they are seen as conflicting with other aims, particularly economic objectives. However, as discussed, the five transport objectives may be more aligned than has been previously assumed. A greater focus on health is likely to support economic and environmental objectives in particular.

The New Zealand case studies also highlight the following barriers. It should be noted that many of these are barriers to public health input in general, as well as to HIA specifically.

6.3.1 Professional barriers

Case study key informants indicated that there were knowledge gaps amongst planners and project managers in relation to health and health determinants. Only a limited number of transport planners had been trained in HIA and informants commented that most transport sector professionals did not know what HIA was, or what it was intended to achieve.

Case study informants commented that most professionals in transport planning roles in New Zealand had engineering rather than planning backgrounds. Some felt this professional orientation limited the ability of transport planners and project managers to consider issues and solutions outside the engineering realm, or to value the contribution of HIA. One informant commented that transport planning was 'done by the wrong people' in this country and noted that in the United Kingdom there was a specific transport planning qualification. Ideally transport planners would have training and experience in relevant aspects of both engineering and planning.

Specifically, an engineering orientation is often associated with a narrow view of health, scepticism about social science methods, the use of soft as well as hard evidence, and incorporating values as well as facts in decision making. HIA is a mixed-methods approach, based on inclusive rationality and informs multi-criteria analysis decision making. Such decision-making processes may not be well understood by engineering professionals, whose expertise lies in the physical sciences.

Another key informant expressed a view that outside the main cities the changes introduced in the LTMA five years ago were 'not even on the radar' amongst transport professionals and suggested that professional practices and values were not in line with current legislation, policy or evidence. For example despite the RMA and the LGA requirements, one council traffic engineer commented: 'We do have something about wellbeings which I've sort of forgotten a little bit about. I can't quite remember what they are...'

Case study interviews provided evidence of beliefs held by transport professionals that were not supported by the latest evidence, eg that public health and economic objectives conflicted, or that transport was not a significant determinant of health. One engineer commented: 'I've never really believed in the air [pollution] thing. I've always had a lot of difficulty believing that air pollution is a serious consideration and concern of the community'.

Informants also commented that transport professionals and local body politicians might perceive that health advocates were overstepping professional boundaries by becoming involved in transport planning issues. Several informants commented that the transport and local government sectors felt the health sector should be responsible for, and funding, issues related to health. For instance, one informant said '[the] health [sector] is seen [by local body politicians] as wanting things to be done but not being willing to pay for it'. This failure to recognise the difference between health services and the wider determinants of health is of concern.

Other professional-related barriers were differences in language, values and beliefs across sectors, and differing priorities. While transport and health professionals may have similar overall goals they often use different terminology. This means there may be problems in developing shared understandings and collaboration. The need to develop a shared language and common understandings was also highlighted in the international HIA literature. Intersectoral work 'requires not only collaboration but a shared language that focuses on wellbeing and what people want out of their lives, rather than the language of health' (Macmillan and Woodward 2008).

A recent survey of urban planners and traffic engineers found health and wellbeing considerations were perceived to have only a minor impact on final planning decisions in New Zealand (Public Health Advisory Committee, pers comms. 2009). The survey also highlighted that although the majority of respondents (90%) believed there was a link between planning and health outcomes, just over half said they never or only occasionally considered health and wellbeing in their planning work (Public Health Advisory Committee, pers comms. 2009).

Overall, the planners' survey indicated there had been some convergence between the professional perspectives of urban/transport planning and public health in New Zealand; however, this was mainly related to planners' increased understanding of physical activity and other personal health issues rather than societal determinants of health or inequalities (Public Health Advisory Committee, pers comms. 2009). This is consistent with comments and views from informants in the case studies, who often tended to emphasise issues such as physical activity and injuries as key public health issues in the transport context and seldom viewed equity as a transport issue.

6.3.2 Lack of legal and administrative requirement

Although legislation requires consideration of social, cultural, economic and environmental wellbeing (LGA 2002) and protection and promotion of public health (LTMA as amended 2008), there has been no guidance on how to do this, let alone a formal requirement to undertake HIA. In light of considerable work pressures and time demands on planners and policymakers, the lack of mandatory requirement can be an impediment to HIA being considered. Furthermore, time and budget constraints on transport planners mean that a 'tick-box' approach is encouraged, where planners aim to complete the minimum

requirements as efficiently as possible. HIA is currently not viewed as part of usual practice or seen as an integral part of the transport sector's 'culture'. As noted previously, one transport sector informant said that HIA 'is not an accepted or standard practice' within the sector. In this environment it is unlikely that planners would seek to do any work perceived as additional or not required, such as an HIA. However, as noted in the international literature and the Buckle Street case study, delays can result when health risks are not carefully assessed in the initial planning stages, and therefore early investment in robust health assessment may save time and money in the long term.

6.3.3 Political barriers

Key informants in the case studies emphasised a range of political barriers to HIA in the New Zealand context. In particular, informants commented that frequently the recommendations of HIA were politically challenging or unpalatable to policymakers or politicians. This may be especially true when HIA is applied late in the process, and questions the wisdom of decisions that have already been made earlier in the process.

Some informants in the case studies were of the view that HIA recommendations sometimes 'overstepped' the mark in trying to change a draft strategy too fundamentally. These informants felt that politicians had at times discredited an HIA due to the broad scope and intent of recommendations. One key informant commented, 'I think the committee thought, *shouldn't the health sector be funding that stuff?*' The importance of political will to the success of HIA is also underlined in the international literature.

6.3.4 Limited capacity

Limited capacity for HIA was identified as a barrier in both the literature and the New Zealand case studies. However, capacity problems are likely to become less of a constraint over time. In New Zealand there is growing momentum in training opportunities and guidance for HIA, and there are a number of experienced HIA consultants and experienced practitioners in this country. There appears to be adequate resource to meet the current need for HIA and it is likely that future needs can be met with continued resourcing for capacity building.

Organisational capacity for HIA within transport, health and local government agencies often depends on a very small number of individuals (where it exists at all), and HIA capacity and momentum may be lost when key staff leave the organisation. This barrier was noted by health sector informants in the Nelson, where one informant felt the public health service had 'dropped the ball' on HIA, and this was largely attributed to the loss of two advocates for HIA from the service. In the Wairau-Taharoto corridor case study, progress in implementing the HIA recommendations was halted in part because of the loss of several key people from the organisations driving the HIA. These capacity issues are not exclusive to HIA of course, and often occur when key staff members leave institutions, regardless of the field they work in.

The majority of planners in New Zealand have no direct experience of HIA. In a recent survey of urban and transport planners, 86% of respondents said they had not been involved in an HIA and 14% had been involved (Public Health Advisory Committee, pers comms. 2009).

A lack of time in planners' workloads is a central issue that poses a barrier to HIA. One informant commented that time constraints were a particular issue in smaller councils outside the major cities, and it was considered unlikely that smaller organisations would have any capacity to undertake HIA. One informant expressed a view that the cost and time

required for a full HIA seemed high compared with the perceived value it could add. With such smaller organisations, the benefits of partnering with the significant resources of the district health board might overcome this.

6.4 Best points for application and integration of HIA

The literature review, planning and funding review and case studies identify a number of opportunities for HIA application in the New Zealand transport planning context, and potential points for integration of HIA activities or tools into existing transport planning and assessment routines. The latter approach is not considered an HIA as such, but involves the use of established HIA methods to strengthen current transport planning processes and address identified deficiencies in relation to public health.

Although internationally HIA is sometimes integrated with other environmental assessment routines, HIA is generally undertaken as a discrete 'stand alone' project with clear aims, objectives, methods and outputs (usually an HIA report containing a set of recommendations). HIA and indeed other impact assessment practitioners recognise the 'dilution' effect of a combined or comprehensive impact assessment and the loss of focus on the issues of their professional concern. The international and New Zealand case studies outlined in this report all examine such stand-alone HIA projects.

Nonetheless where benefits can be offered to processes and projects by integrating HIA into existing transport planning processes, this should be done. In these situations it may be useful to think of HIA as a suite of activities and tools underpinned by a social model of health and the HIA values outlined in the Gothenburg Consensus: democracy, equity, sustainable development and ethical use of evidence. In the New Zealand context the principles of the Treaty of Waitangi also underpin HIA activities. These activities, tools and values may be incorporated into existing processes so that the benefits of HIA are achieved without the need for an additional stage to be added to the planning process. This suite of activities includes:

- understanding how the proposed transport activities might impact (directly and indirectly) on the wider determinants of health, using a multi-disciplinary evidence-informed approach
- identification of populations likely to be most affected, positively and/or negatively
- consideration of equity issues (including trans-generational equity) and Treaty of Waitangi principles
- focused and proactive stakeholder engagement, including Māori and other groups likely to be affected by the proposed transport activities
- adjustments to enhance the positive and mitigate the negative impacts of the proposal on public health.

The major focus of this research is the statutory transport planning activities (RLTSs), and associated planning activities and funding assessment. Accordingly our analysis here focuses on HIA applications for transport development in:

- 1 regional land transport strategies
- 2 corridor studies

- 3 mode or activity strategies/studies
- 4 individual projects.

There are three other assessment areas in transport planning and funding that offer clear HIA opportunities, which are also discussed. These are:

- 5 ARTA's integrated transport assessment
- 6 regional land transport programmes
- 7 the NZTA's assessment requirements for RLTP and NLTP preparation and application for funds.

6.4.1 Strategic or project level HIA?

One of the strengths of the HIA toolkit is its applicability at a range of levels, from high level strategy to detailed project implementation plans. International and New Zealand case studies demonstrate that HIA can be usefully applied at all these levels.

At the project level, HIA recommendations are likely to be concrete and have a direct effect on the transport environment if they are adopted, however the scope of these recommendations is likely to be limited. That is, any changes to the transport environment will be minor rather than far sighted, and will affect a limited number of people. From a public health perspective, such small changes may contribute less to *protecting and promoting public health* at the population level.

If applied at a high level, HIA has the potential to inform and influence strategic policies that in turn influence lower level policies and projects, thereby expanding the influence of the HIA throughout the transport planning 'flow'. On the other hand, there may be potential for disconnect between high level policies or strategies and operational practices, so tinkering with the wording of regional land transport strategies to better reflect public health concerns may or may not make a difference where 'the rubber hits the road'.

6.4.2 Applying HIA to regional land transport strategies

As outlined in chapter 4, the LTMA as amended in 2008 introduced a three-year planning cycle for transport planning to align with the existing three year long-term council community plan cycle. This enables better alignment of transport planning at local and central government levels. The application of HIA may be useful for aligning the explicit wellbeing focus of the community outcomes of the long-term council community plan with the RLTS development process. In this context, HIA may help to give support to less commonly acknowledged and less explicit community wellbeing requirements of the 'five objectives' in transport legislation, in particular the public health objective.

It has been noted that over time RLTSs will be expected to reflect the targets of the GPS, to be integrated with land-use planning, and to consider and address all modes of transport. RLTSs also need to contribute to all five transport objectives. The significantly new approach required in order to achieve these expectations can be assisted by the application of HIA early in the RLTS development processes. As noted previously in this report, a greater focus on health is likely to contribute to other transport objectives, particularly sustainability and economic objectives (Litman 2003).

Stand-alone HIA is likely to provide significant benefits for RLTS and RLTP development if applied early as an integral part of the planning process. International and New Zealand case studies suggest that application of HIA early in the RLTS development process is preferable to HIA as a 'peer review' at the final stages of strategy development. For example, with reference to figure 4.3, stand-alone HIA could usefully be applied at an early stage in the RLTS process to compare the three strategic options, for example, in order to identify and help develop win-win options.

HIA could also contribute to the development of the RLTP by providing technical information and analysis of benefits and costs from a broad health and wellbeing perspective to demonstrate value for money. HIA could be used to assess and compare individual projects proposed for the RLTP, or to assess the contribution of the overall RLTP to the community wellbeing objectives of the RLTS and/or the public health objective of the NZTS. A multi-disciplinary HIA approach involving public health, transport, planning and community expertise would enhance understanding of how the proposed transport activities might impact (directly and indirectly) on the wider determinants of health, align with community outcomes, and meet transport targets and objectives.

RLTS development is generally a multistage process that occurs over an extended period, and consideration of public health concerns is appropriate at several stages. Since conducting a full HIA at each stage is not practical, it may be advisable to incorporate relevant HIA elements and activities at various stages of RLTS development, in addition (or as an alternative) to a full HIA. For example, with reference to figure 4.3, an HIA screening-type activity is likely to enhance the development and evaluation of strategic options at an early stage in the process, by highlighting potential positive and negative impacts on community wellbeing and identifying likely 'winners' and 'losers' of various options well before a preferred option emerges. This could be achieved with a relatively minor addition to the process, relying on the input of key public health and planning experts, rather than involving a full evidence review and appraisal process.

From a public health perspective, an important aspect of RLTS development is the early identification of populations other than private motor vehicle users likely to be most affected (positively and/or negatively) and the consideration of equity issues (including trans-generational equity) and Treaty of Waitangi principles. Approaches from the HIA toolkit could be used to assist the assessment and consideration of these issues. For example the health inequalities matrix (Public Health Advisory Committee 2005, p 53) provides a useful framework for the systematic consideration of health equity issues. It is ideally used in a workshop setting with input from a range of relevant experts and community representatives, but at a minimum could be used by a transport planner and public health specialist working in partnership.

The literature review and case studies indicate that effective consultation on a strategy that will affect the whole population of a region is challenging. The HIA toolkit could be used to enhance stakeholder engagement and consultation processes, with the aim of ensuring these are focused on identifying win-win solutions that contribute to transport objectives and community outcomes. Proactive and meaningful engagement with Māori, disadvantaged communities and other groups likely to be affected by the proposed transport activities is crucial and can be supported by public health sector networks in these communities. As discussed elsewhere, face-to-face community input aimed at consensus building and shared

learning is preferable to submission-based consultation, and the HIA participatory appraisal workshop provides a model for this preferred approach.

6.4.3 Applying HIA to corridor studies

Similarly, the planning, assessment and consultation processes involved with corridor studies are likely to be enhanced by the application of HIA. As is the case with RLTS preparation, corridor studies commonly involve numbers of technical reports with considerable investment in modelling and assessment, and HIA could usefully be applied as part of the testing and assessment of alternative packages. The North Nelson to Brightwater corridor case study illustrates how, despite the changes introduced by the LTMA in 2003, the long-term wellbeing of the community can 'fall off the agenda' during planning due to the car-centred approach and continued emphasis on congestion reduction to the exclusion of other strategic objectives. In the more recent Ngauranga to airport corridor study in Wellington (discussed in chapter 4), no formal assessment was undertaken and public health was excluded from the strategic framework for this study.

New Zealand experience indicates the need for formal and transparent corridor study assessment procedures using relevant performance indicators that reflect health and wellbeing objectives. Currently, assessment is not mandatory, and where assessment does occur, performance indicators vary widely and do not necessarily reflect health and equity concerns. As pointed out in chapter 4, the selection of performance indicators and the weighting they are given in the assessment process determines the soundness of the planning process and its ability to meet a wide range of community outcomes and transport objectives. The range of performance indicators used to assess the options in corridor studies, and the methods used for weighting them, could be enhanced to better reflect the broader benefits and disbenefits in terms of community health, wellbeing and equity.

HIA would provide a multi-disciplinary and participatory approach to assessing alternative packages against these indicators, ensuring an evidence-based assessment of health and wellbeing that incorporates expertise from a range of professionals, and the opinions of the affected community. Conducting HIA as part of corridor study assessment would have the added benefit of engaging community participation early in the planning process – something that case study informants noted is challenging to achieve currently, but desirable.

As discussed earlier, there are several weaknesses associated with current consultation processes, which tend to rely heavily on written submissions. The Nelson case study demonstrated that the consultation and stakeholder engagement process can be considerably enhanced with the addition (or substitution) of face-to-face forums that are focused on finding solutions that meet both transport objectives and community expectations. Ideally such forums would occur earlier in the planning process, for example, in HIA appraisal workshops as part of assessment of alternative corridor packages. As noted in the literature and Nelson case study, there are challenges associated with assessing a wide range of options that are on the table at an early stage in the planning. However the authors believe these challenges can be overcome, and that the benefits of early application of HIA outweigh the disadvantages.

A stronger focus on health and community outcomes in corridor studies is likely to promote modal shift towards walking, cycling and public transport and a focus on access for disadvantaged groups. As noted in the literature, health promoting options are likely to have

economic, social and environmental benefits, and will assist progress towards a range of transport targets and objectives.

6.4.4 Applying HIA to mode or activity strategies, programmes or plans

There is considerable potential for HIA to add value to public transport strategies and planning, particularly in relation to equity and improved 'grassroots' consultation and engagement. Addressing equity issues in relation to public transport is an important aspect of planning, necessary to achieve the strategic objective of 'accessibility'. HIA has some potential value to add to walking or cycling strategies, particularly in terms of producing evidence to support them. By informing the public and decision makers about the links between active transport and wellbeing, HIA could enhance the status and funding for such strategies.

6.4.5 Applying HIA to individual projects

Previous New Zealand research concludes that the narrow public health paradigm in the RMA process has led to inadequate consideration of health impacts (particularly positive and indirect impacts) at the project level. The consent process is effects based and mitigation oriented rather than seeking win-win solutions, and occurs late in the planning process at a point when all the major decisions have already been made. Therefore RMA provisions do not ensure that transport projects will protect and promote public health, and using 'consentability' under the RMA as a basis for assessing projects against the public health objective is inappropriate.

For projects with the potential to significantly affect the health and wellbeing at the population level, application of full HIA may be advisable. HIA is best applied when various options have been developed and are being assessed against the project objectives, funding criteria and the wider objectives of the transport sector.

6.4.6 Incorporating HIA into ARTA's integrated transport assessment

ARTA's (2007) *Integrated transport assessment guidelines* identify a framework for gathering and assessing all the appropriate transport information required to assist in better aligning land use and transport in Auckland at both the regional and local level, as required in the LGAAA. Guidelines have been prepared by ARTA and the ARC to assist developers, local authorities, ARTA, ARC, the NZTA and any other parties involved in development proposals to robustly assess all transport opportunities or constraints that may occur from land use changes.

The fundamental purpose of the integrated transport assessment is to provide information on how a proposed development will function in terms of its accessibility. The guidelines note that in practice 'an ITA will require a measure of what is accessible from the site in terms of job opportunities, shops and other local facilities such as education and leisure activities. This may involve four processes:

- walking and cycling travel times
- passenger transport travel times
- car travel times
- modal splits' (ARTA 2007 p 16).

It is apparent, therefore, that the application of the guidelines would be enhanced if more formal approaches using HIA methods were used to identify wider determinants of health associated with a proposal, particular population groups that may be differentially affected, and to more comprehensively and constructively engage the stakeholders involved.

Accessibility planning (section 4.3.6) and its potential application to integrated transport assessment could also be included in such work.

6.4.7 Applying HIA to regional land transport programmes

A narrow interpretation of the LTMA assessment requirements for RLTPs (s16(2)) might lead a RTC to consider an HIA as a final 'compliance' check on its RLTP. This is not recommended by the authors as it is unlikely to deliver any significant benefit for the health and wellbeing of the community. However HIA could add value at an earlier stage of its development.

RTCs must be satisfied that proposals in the RLTP contribute to the five transport objectives, including protecting and promoting public health. Currently RTCs have very little guidance on how to make this assessment. Yet if rigorous criteria were used by the NZTA to test proposed projects against each objective, the RTCs would be both encouraged and enabled to address public health in project planning – to identify determinants and populations of concern, and highlight stages or aspects of the project likely to require more comprehensive public health input and/or HIA.

6.4.8 Incorporating HIA into the NZTA funding application process

As stated earlier the funding allocation process has great potential to drive policy signals into the planning and funding application process. Analysis presented in this report demonstrates that it falls short of its potential in this respect. A more focused and robust allocation process providing for multi-scale assessment is needed using unambiguous criteria incorporating HIA. When applied in a firm and uniform way with good support to the users, it would go a long way to accelerating the transition from demand-driven transport planning to the more holistic and integrated approach that has been signalled for some time in high-level policy guidance and legislation.

6.5 Administrative changes to support the public health objective

Current and previous research demonstrates that HIA has the potential to address many of the shortcomings identified in current transport planning and to assist the transport sector to meet its strategic objectives. However, HIA is unlikely to gain traction in the transport sector without enabling legislative and administrative frameworks (Banken 2003).

Although the legislative framework and the five strategic objectives of the transport sector in New Zealand support public health, the administrative framework is less supportive. Administrative arrangements are currently undergoing change aimed at better alignment with the new legislation and strategy, but may require further amendments to better support the transport sector to 'protect and promote public health'. The current research has highlighted a number of ways in which the transport planning, funding and monitoring framework could better support public health objectives and the institutionalisation of HIA. These are discussed briefly below.

The current research found widely varying interpretations of the five objectives operating in the New Zealand transport sector. There is a lack of guidance as to what 'protecting and promoting public health' means (and indeed what the other four objectives mean although the GPS targets give specific focus), and no agreed criteria by which contributions to this objective can be assessed.

In the absence of explicit guidance, the transport sector is likely to ignore the public health objective, or look to transport targets and indicators for direction. However the public health targets in the GPS and indicators in the TMIF are narrow and do not reflect broad, indirect, and long-term impacts of transport decisions on population health and wellbeing. They reinforce a narrow view of public health and do not support the holistic approach that is put forward in the NZTS.

Administrative requirements and guidelines issued by the NZTA need to reflect a broader understanding of public health that incorporates indirect and long-term impacts, and equity issues. This finding is consistent with the TRL stocktake (Dalkmann et al. 2008) of current NZTA funding assessment processes, which clearly identifies the need for recognition and inclusion of wider determinants of health than is the case presently. It also calls for a review of the way that community impacts and equality impacts are recognised and mitigated in the assessment process, since current guidance on rating 'seriousness and urgency' poorly captures public health concerns and ignores equity.

Improvements to the administrative framework could be achieved in a number of ways. For instance NZTA planning, programming and funding manuals could be reviewed to provide clear guidance on the meaning and operationalisation of 'protecting and promoting public health', including a more relevant and complete list of the determinants of health and wellbeing. Criteria and indicators could be set, and assistance provided, for approved organisations to identify and correctly assess the impact of their proposal on those health determinants, and its contribution to public health.

The findings of the current research also suggest that amendments to the RMA process may be called for to encourage 'good' planning and design, rather than projects that are 'less bad'. That is, projects that positively contribute towards the economic, social and environmental wellbeing of current and future generations should be prioritised.

Finally, there is the question of interagency collaboration in policy making. Recent work commissioned by the Ministry of Transport on accessibility planning provides a useful example relevant to public health and wellbeing and the assessments related to that. Access and accessibility are important determinants of human health and wellbeing with strong evidence that individuals with full and socially connected lifestyles live longer than those who are socially isolated. Accessibility planning therefore addresses issues of social isolation. It can be approached from two poles – bringing activities and services to people or bringing people to activities and services. Undertaken well it should of course examine both options in search for an optimal solution.

7 Conclusions and recommendations

Transport decisions have major impacts on the wellbeing of current and future generations. The effects of transport on public health and wellbeing may be direct or indirect, positive or negative, intended or unintended and immediate or long term. Predicting these effects and taking account of them in transport planning is vital if the transport sector is to achieve its five strategic objectives, particularly the public health objective. Overseas findings indicate a greater emphasis on health and wellbeing in transport planning will help to facilitate 'people-centred', integrated planning and will contribute to economic, social and sustainability, as well as health, objectives.

The current research has explored HIA as an approach to addressing identified shortcomings in transport planning. The findings highlight several important gaps and areas for improvement in New Zealand's current transport planning and funding processes. Many of these deficiencies have been identified in previous New Zealand research and similar problems are discussed in the international literature. Key issues include:

- lack of guidance on what *protecting and promoting public health* means and how contributions to this objective should be measured
- use of narrow health-related targets and performance measures that do not reflect broader wellbeing and equity issues
- failure to identify positive, indirect, unintended and long-term impacts on wellbeing
- failure to address equity issues such as the effects of the distribution of impacts, and transport for people on low incomes
- a narrow range of professionals making scaling and weighting decisions in assessment processes, with little guidance
- funding arrangements that favour roading solutions.

At times no formal assessment is undertaken to consider how a transport proposal may affect community health and wellbeing. Current transport planning and administrative processes are unlikely to deliver the wider range of objectives now required in the transport sector, and are particularly inadequate in relation to the public health objective. HIA is one approach with potential to strengthen transport planning in New Zealand, and assist the transport sector to achieve integrated planning and meet its strategic objectives.

HIA is a well established, evidence-based methodology for appraising the likely effects of a proposal on the wellbeing of the community, and the distribution of those impacts. It has been widely used overseas in transport planning and is increasingly being used in New Zealand with initial application mostly in urban planning. The aim of HIA is to inform decision makers about the likely positive and negative effects of a proposal on public health and inequalities in order to avoid unintended consequences and make informed decisions. HIA is underpinned by a social model of health. This understanding of health is similar to everyday concepts of *wellbeing* or *quality of life*, and incorporates a wide range of determinants.

According to international reviews and evaluations, HIA can help to improve transport planning by encouraging a longer-term focus, bringing attention to unintended impacts and

inequalities, fostering interagency collaboration, and facilitating a more inclusive process that involves affected communities in the decision making. Evidence demonstrates that HIA can inform and influence transport sector policies and plans both directly (through the adoption of HIA recommendations), and indirectly by increasing decision makers' and community understanding about the impacts of transport on wellbeing, and by building relationships between health, transport and community sectors. Many of these benefits were demonstrated in the four New Zealand HIA case studies examined, although only one led to changes in the transport strategy or project being assessed. It is too early to draw firm conclusions about the role of HIA in transport planning in New Zealand; however, much has been learned from experience to date.

New Zealand and international experience of transport HIA suggests that early application of HIA, at a point where a number of options are being considered, is advisable despite associated challenges. A multi-disciplinary approach to HIA that involves partnership between public health specialists, transport professionals and the affected community is best practice. When seeking community input, it is vital that proactive efforts are made to identify and engage disadvantaged communities and Māori early in the HIA process, and public health sector networks are likely to assist with such engagement. Shared learning and relationship building between sectors is a key benefit of HIA, so opportunities to work together should be maximised. Research indicates that another key 'value add' of HIA is assessment of the distribution of impacts and consideration of equity issues. Therefore equity issues should routinely be included in the scope of transport HIAs, where relevant.

Experience of applying HIA also highlights a number of barriers and pitfalls, for example the 'language barrier' that exists between health and transport sectors, which can impede constructive communication. Transport sector awareness of HIA and understanding of health determinants appears to be low in New Zealand, and professional values, beliefs and priorities may act as barriers to HIA in some instances. Poor understanding of transport sector processes amongst public health specialists may also be a barrier, along with lack of resources and capacity to undertake HIA in both health and transport sectors. Lack of formal mandate or requirement is a key barrier to HIA both in New Zealand and overseas. The current research found that gaining 'buy in' and resources for HIA is difficult when the administrative framework for transport planning and funding does not require robust assessment of transport impacts on the wider determinants of health.

The current research identifies a range of opportunities for using HIA to enhance transport planning in the New Zealand context. These include application and integration of HIA into RLTS development; corridor studies; mode or activity strategies, programmes and plans; ARTA's integrated transport assessment; and individual projects. In addition, the current research identifies opportunities to improve administrative arrangements to better support the public health objective of the NZTS. Specifically, NZTA's guidance for RLTS and RLTP preparation, and its process for assessing and approving RLTPs need to clearly define the meaning of *protecting and promoting public health*, and provide transparent criteria and performance measures to assess the contribution of proposals to this objective.

7.1 Recommendations

The research has broad implications and leads to a number of specific recommendations for applying HIA activities effectively and overcoming barriers to the application of HIA. Along with recommendations for best application and integration of HIA in the transport sector,

further recommendations are directed at the NZTA, the local government sector and the public health sector aimed at overcoming barriers to HIA and the achievement of the public health objective in the NZTS more broadly.

7.1.1 Transport sector administrators and planners

Based on New Zealand experience and international best practice, it is recommended that the following HIA elements are incorporated into transport planning processes as current processes are inadequate to meet the five objectives required in transport planning. These are applicable whether 'stand alone' HIA is used, or whether HIA is integrated into existing processes.

- Define public health appropriately, to incorporate access to services, recreation, exercise, economic development, injuries, air and noise pollution, stress, loss of land and social use of outdoor spaces.
- Develop a collaborative, multi-disciplinary approach utilising public health, transport and planning expertise early in the process, while multiple options are being developed. Build on existing partnerships to gather such multi-disciplinary teams.
- Engage early with affected communities and stakeholders, including Māori.
- Focus on equity and the effects of the distribution of impacts.
- Assess the potential positive and negative impacts of the proposal on the broader determinants of health (see appendix B).
- Use evidence-based and transparent assessment processes.
- Make recommendations to enhance positive aspects and mitigate negative health implications of draft proposals.
- Attend HIA training courses offered by the Ministry of Health.

7.1.2 Regional transport committees and their officials

Although its effectiveness has been demonstrated in other jurisdictions, further application of HIA to New Zealand transport strategies and projects is required before firm conclusions can be drawn about the full scope of its value in the New Zealand setting. In particular, trial application of HIA early in transport planning processes is recommended. This should involve:

- an understanding that all five transport objectives are determinants of wellbeing
- further applications of HIA to the development of RLTSs, using HIA earlier in the process than has been the case to date
- further applications of HIA at project level, particularly in projects where HIA may assist the integration of land-use and transport planning
- opportunities to use HIA in corridor studies, mode or activity strategies/plans should also be explored
- application of HIA at an early stage when a range of options are being considered. Using HIA as a 'peer review' or final assessment on a draft strategy or preferred option is also possible, but not ideal

- application of HIA as a planned aspect of the strategy or project development process. Forward planning may be required if HIA is to be applied as an integral part of the planning processes, rather than an afterthought.

7.1.3 NZ Transport Agency

Application and integration of HIA will create better alignment between the requirements and expectations set out in legislation, the vision and objectives of the NZ Transport Strategy, the GPS and the practice of transport planning at the regional and local level. Therefore it is recommended that:

- administrative requirements and guidelines issued by NZTA clarify and reflect a broader understanding of public health that incorporates indirect and long-term impacts, and equity issues
- HIA elements and values are incorporated into current processes and guidance such as the NZTA guidance for RLTS and RLTP preparation and funding applications
- the NZTA identifies opportunities to integrate HIA elements and values into planning and funding administration, and to operationalise the findings of this research. In particular, the second phase of the review of the funding allocation process is a potential opportunity
- the NZTA provides guidance for assessing the contribution of proposals to the public health objective in the NZTS, as well as performance indicators, weighting and the recommended process to be used
- the NZTA undertakes further work on the links between HIA, integrated transport assessment and accessibility planning.

It is also recommended that the NZTA invests in training for transport sector planners and decision makers to ensure that current professional practices and values are in line with the sustainability and public health objectives of the NZTS. As a first step, clarification of the definitions of and criteria for the five NZTS objectives is necessary. Training and guidance may be necessary to support transport professionals to translate the strategic objectives into day-to-day practice.

7.1.4 Local government sector

There are currently institutional barriers to integrated planning both within councils, and between local government, the health sector and other sectors. Continued efforts are required to remove silos and support joined-up, multi-disciplinary approaches to transport planning, land-use planning, health promotion and sustainability. Secondment of public health professionals into transport planning teams is one way of supporting integration and enhancing internal capacity to recognise and address potential impacts on health and inequalities.

HIA may provide a platform for the fulfilment of Treaty of Waitangi obligations, which are outlined in the LTMA and the LGA. HIA may also support the alignment of transport plans with the community outcomes of the long-term council community plan. HIA has the potential to contribute evidence-based arguments for project approval and funding and to speed up the consent process as problematic elements of a project would have been addressed before consent is sought. For all of these reasons, it is recommended that local

government agencies invest in HIA and seek opportunities to gain public health input at an early stage in transport planning processes.

7.1.5 Public health sector and HIA professionals

This research has identified lessons not only for the transport sector, but also for the public health sector. It highlights the complexity of legislative requirements and associated transport planning processes, and also differences in language, values and priorities that can sometimes divide health professionals and transport professionals. In the final analysis, most people want to live in vibrant communities with a good quality of life, including access to the places and services they value. There is great potential for transport and public health sectors to work together toward this goal, and for HIA activities to assist the process.

Continued funding of the HIA capacity building initiatives by the Ministry of Health is essential, in particular the HIA support unit and the 'learning by doing' fund. It is also recommended that regional public health services allocate funding to support intersectoral work with the transport sector, and include HIA in job descriptions and performance indicators of key staff and/or departments.

It is recommended that the Gothenburg Consensus and the Public Health Advisory Committee HIA toolkit (2005) guide the definition and practice of HIA in New Zealand. Assessment processes such as health risk assessment and assessments of environmental effects should not be called HIA. Health risk assessments and other methodologies have a valid and important role in transport planning; however, they are different from HIA and consistent terminology will help to avoid confusion.

Public health advocates may gain more traction in the transport sector if they:

- learn and use the language of transport planning, and in particular be aware that 'health' is often narrowly defined in the transport sector. Using the terms 'wellbeing' or 'quality of life' may better convey the social model health
- better understand statutory and non-statutory processes so public health input can be contributed at an appropriate time and in an appropriate way
- understand when formal stand-alone HIA or application of individual HIA activities or tools is most appropriate. Sometimes informal discussions between health and transport representatives may achieve more than a formal HIA process
- get involved in forums in which positive working relationships with relevant transport sector personnel can be developed
- focus on the positive impacts that a proposal is likely to have on health determinants and praise the positive as well as critiquing the negative
- look for win-win solutions: how can health professionals assist transport planners to meet their objectives?

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9 Abbreviations and acronyms

AEE	Assessment of environmental effects
ARC	Auckland Regional Council
ARTA	Auckland Regional Transport Authority
BCR	Benefit cost ratio
CBD	Central business district
CFIT	Commission for Integrated Transport (UK)
CO ₂	Carbon dioxide
DP	District plan
EEM	Economic evaluation manual
GIS	Geographic information system
GWRC	Greater Wellington Regional Council
HIA	Health impact assessment
IAP	Integrated approach to planning
Land Transport NZ	Land Transport New Zealand
LGA	Local Government Act 2002
LGAAA	Local Government (Auckland) Amendment Act 2004
LTA	Land Transport Act 1998
LTCCP	Long-term council community plan
LTMA	Land Transport Management Act 2003
LTP	Land transport programme
NLTP	National Land Transport Programme
NES	National environmental standard
NPS	National policy statement
NRS	National Rail Strategy
NSCC	North Shore City Council
NZTA	New Zealand Transport Agency
NZTF	New Zealand Transport Fund
NZTS	New Zealand Transport Strategy
PPFM	Planning, programming and funding manual
RLTC	Regional land transport committee
RTC	Regional transport committee
RLTP	Regional land transport programme
RLTS	Regional land transport strategy
RMA	Resource Management Act 1991
West Midlands RPG	West Midlands Regional Planning Guidance
RPS	Regional policy statement
SEA	Strategic environmental assessment
TMIF	Transport monitoring indicator framework
Transit NZ	Transit New Zealand
TSSD IAP	Transport Sector Strategic Directions Integrated Approach to Planning project
UDS	Urban Development Strategy (Greater Christchurch)

Appendix A

Methods

The project components undertaken were as follows:

- 1 Project planning and refinement, with input from the steering group and peer reviewers.
- 2 A literature review of how and when health impact assessment (HIA) has been applied to transport planning in other countries and identification of best practice and learning to date.
- 3 Descriptive review of selected routine land transport planning and funding processes in the New Zealand context, eg regional land transport strategy (RLTS) preparation.
- 4 New Zealand case studies:
 - a) Four case studies of HIAs applied to land transport planning to date, exploring processes and outcomes
 - b) One case study of a situation where HIA was advocated but not carried out, exploring barriers to HIA.
- 5 Analysis of the information gathered and development of conclusions and recommendations on the best application and integration of HIA in transport planning.
- 6 Peer review of the draft report.

Each component is described in further detail below.

Project planning and refinement

The first stage of the project was to identify a steering group and work with them to refine the project plan. Steering group members were selected in consultation with the project funders on the basis of relevant experience, interest and availability. The steering group included representatives from the New Zealand Transport Agency (NZTA), Ministry of Transport, Ministry of Health and a regional council.

The first steering group meeting was held on 28 July 2008 and comments received at that meeting were incorporated into the project plan. The research objectives and methods were also refined at that stage. Particular attention was given to ensuring that the outputs of the research were relevant and useful to a range of end users.

The project plan was sent to the designated peer reviewers (Alexandra McMillan of the University of Auckland and Rosemary Barrington of the Ministry of Transport) for comment before finalisation, and their suggestions incorporated, where appropriate. The output from stage one was a final project plan.

Literature review

The aim of the literature review was to understand how, when and why HIA has been applied to land transport planning internationally, and to summarise key learning and best practice to date. The review included peer-reviewed academic papers and unpublished (grey) literature on the following topics:

A. New Zealand and international reviews and ‘think pieces’ on the application of HIA to transport planning

B. Individual HIA reports and case studies describing how, when and why HIA has been applied to land transport planning internationally

Only English language material published since 1999 was included. The literature review excluded HIAs in which land transport was one component of a broader strategy being assessed (for example, where the HIA assessed an urban design or urban renewal project and transport was one of many factors assessed).

All self-defined transport HIAs were eligible for inclusion. Reports were not included or excluded based on whether they met a particular definition or model of HIA, since the researchers were interested in any and all approaches currently being called HIA, and the learning that could be derived from various approaches. ‘Public health approaches’ to transport planning were excluded as HIA was the focus of this research, and such a broad description would include all potential methods of engagement between stakeholders.

Searching and sourcing data

Relevant material for the literature review was searched for and retrieved from the following sources:

- TRIS online (a public-domain, web-based version of the Transportation Research Information Services (TRIS) bibliographic database)
- NZTA’s database of funded research projects
- Academic databases including Medline, Embase, PsycInfo, Web of Knowledge, Wiley Interscience and ScienceDirect – available through the researchers’ subscription to the Wellington School of Medicine Library
- The New Zealand Ministry of Health HIA support unit
- The World Health Organisation website – HIA pages
- The HIA Gateway (UK), the HIA Database website (Netherlands) and other country specific databases.
- UCLA School of Public Health HIA website
- The researchers’ networks and contacts
- Google and Google-scholar searches
- Reference lists and bibliographies of relevant papers/reports already retrieved

Analysis of literature

A. New Zealand and international reviews and ‘think pieces’ on the application of HIA to transport planning

This material was summarised under the following headings and analysed thematically.

- i. What are the perceived shortcomings of traditional/contemporary land transport planning in relation to public health concerns?

- ii. Is HIA effective in addressing the problems identified above and ensuring that transport planning decisions adequately address public health concerns?
- iii. What are HIA's strengths and limitations?
- iv. What have been the drivers for (and facilitators of) the use of HIA in transport planning?
- v. What have been the barriers to the widespread use of HIA in transport planning?
- vi. What practical lessons have been learned about how to apply and integrate HIA into transport planning?
- vii. What are the factors associated with effectiveness?
- viii. At which stage in policy/plan development has HIA been applied most successfully?
- ix. At which level is HIA (policy, strategy, plan or project) most effectively applied?

B. Individual HIA reports and case studies from overseas

Individual HIAs were summarised onto a table with columns for:

- 1 Author and year of publication
- 2 Country in which HIA was undertaken
- 3 Policy or project being assessed
- 4 How? (Brief description of HIA tool/model used; determinants assessed comprehensiveness and inclusiveness – multi-disciplinary and participatory vs 'desktop' approach)
- 5 When? (Timing within the proposal development process)
- 6 Why? (Brief description of drivers for the HIA, eg legislation/other strategies; mandated agency; public concern; funding stream available; champion).

Where available, the outcomes of the HIA were also noted, ie the extent to which the HIA informed and influenced final decisions, or led to other outcomes.

Key points in relation to the questions (A. i-ix) above were also summarised from these papers.

The material was analysed for patterns and themes, and summarised in narrative form in section 2 of this research report.

Planning and funding process review

The aim of the review of land transport planning and funding arrangements in New Zealand was to understand and describe the context in which HIA is (or might be) applied. An understanding of land transport planning, funding and decision making is central to evaluating how and where HIA might enhance planning and decision processes. This review was particularly important given the recent changes to the Land Transport Management Act, and the new guidelines and targets set out in the 2008 Government Policy Statement and the 2008 New Zealand Transport Strategy.

The review was guided by the knowledge and experience of the authors, and drew on a range of central and local government publications and communications between the authors and a number of transport sector experts. The findings are summarised in section 3 of this report.

New Zealand case studies

The aim of the case studies was to evaluate the role of HIA in land transport planning to date in New Zealand and to explore drivers and barriers to the use of HIA. The focus was primarily on how, when and why each HIA was undertaken, its impact on the planning process, and its perceived utility to transport planners and other key stakeholders. The case studies did not attempt to formally evaluate the merits or validity of the HIAs from a technical perspective. The emphasis was on identifying overall lessons and the perceived impact of the HIAs from key people involved.

Four case studies were conducted, and are outlined in the table below.

Strategy/project	HIA
Greater Wellington Regional Council RLTS	Rapid HIA completed 2007 by contractor
Wairau-Taharoto Rd Corridor upgrade	Mini-HIA , completed 2006 by contractor
North Nelson to Brightwater Corridor Study	Submission on stage 2 prepared using HIA methods in 2005 by public health service – this was a desktop HIA* rather than a full HIA. This case study also explores advocacy for a full HIA and barriers to a full HIA being undertaken
Buckle Street realignment	HIA* using health risk assessment methods completed 2008 by contractor

*Note that these assessments were defined as HIAs by their authors, but do not meet widely agreed international definitions of HIA

Purposive sampling was used to provide geographical variation and a balance between strategic and project level HIAs. It should be noted that the pool of completed transport HIAs in New Zealand from which to choose case studies was very small. Potential case studies included any transport-focused assessment that was called a HIA by the authors. HIAs that assessed transport as one aspect within a wider urban development strategy were excluded. Potential case studies were not screened against a particular definition or model of HIA, since the researchers were interested in any approaches currently being called HIA in the New Zealand transport context.

A potential fifth case study was explored in relation to a previously suggested HIA on the 2005 Auckland RLTS. Potential participants were contacted including the individuals who advocated for HIA, regional land transport committee (RLTC) members and officials who were involved with the decision-making process. One half-hour telephone interview was held with a public health physician who was previously on the RLTC, as well as two brief email discussions with a member of the RLTC at the time and an Auckland Regional Council (ARC) transport planner. Email input was submitted from another ARC staff member via the previous RLTC member. Attempts were made to contact three other suggested informants but without response. The policy proposal in question was from 2005 so the time delay meant people had difficulty remembering the details of previous discussions, and there was

no record of any HIA discussions in the minutes of the RLTC meetings. It appeared that the HIA possibility was raised too late in the process in this case but a transport planner involved considered HIA to be potentially useful. As insufficient information was available to undertake a full case study of the proposed HIA on the 2005 Auckland RLTS, it was decided not to include this as a case study.

Information was gathered to inform these case studies through interviews with key informants and review of relevant documents (including HIA reports for the completed HIAs). The case studies on completed HIAs described the timing, integration, processes and outcomes of each HIA. The aim was to ascertain what worked well, and to gain views on how HIA might be more effectively integrated into transport planning in future. The HIA of the North Nelson to Brightwater corridor study also provided an example of an unrealised opportunity as a full HIA was advocated for, but not undertaken. This allowed examination of systemic and organisational barriers to HIA within the transport sector.

Case study informants were also asked to give their views on issues broader than the case study at hand, for example their understanding of the public health issues associated with transport, perception of the usefulness of HIA in general, and views on the role of the transport sector in relation to inequalities. These comments helped to provide context for the current research, and helped to address research questions about the perceived need for HIA in the New Zealand context and perceived drivers and barriers to HIA in this country.

Procedure for case studies

The authors of the present research are experienced HIA practitioners, and have been engaged as consultants on many of the HIA projects undertaken in New Zealand to date. To ensure independence, each case study was undertaken by a researcher who was NOT involved in that particular HIA project.

Potential participants were approached informally (usually by phone), and the initial contact was followed up with written information about the research. Between three and five key informants were interviewed for each case study, with efforts made to ensure that both public health and transport sectors were represented, along with representatives of the affected community, where relevant. A summary of the number and roles of key informants is provided in the following table. Note that several key informants had changed jobs since the HIA was undertaken, and it is their role *at the time of the HIA* that is described here.

HIA or proposed HIA	Number and role of key informants
Greater Wellington Regional Council RLTS	Two face-to-face interviews with two transport planners (interviewed together) and one HIA contractor; two telephone interviews with a public health representative on the RLTC and a public health practitioner
Wairau-Taharoto Rd Corridor upgrade	Four telephone interviews with a city council transport project manager, a city council planner, a public health service representative and a HIA consultant
North Nelson to Brightwater Corridor Study	Four telephone interviews with two public health practitioners, one community group representative

HIA or proposed HIA	Number and role of key informants
	and one city councillor and RLTC member. One brief additional telephone interview with a transport sector representative was held at a later stage.
Buckle Street realignment	Four telephone interviews were undertaken with a transport project manager, Mt Cook School representative, an HIA contractor and a public health practitioner.

Each potential key informant received information about the research and those who agreed to take part signed a consent form. The consent form adhered to the Health Research Council (HRC) guidelines for informed consent. It included provisions for confidentiality, voluntary participation, ability to withdraw from the research at any time and agreement to be recorded for the purposes of transcription only. Participants were assured that they would not be named in the report, but that they might be identifiable due to their role.

Eighteen out of the total of 20 individuals who were initially invited to take part agreed to be interviewed. Participants included the transport planners or project managers whose strategy or project proposal was assessed by the HIA; public health professionals who carried out the HIA, decision makers informed by the HIA, representatives of the agency that commissioned or sponsored the HIA, and representatives of communities or groups affected by the proposal.

The interviews were based on a semi-structured interview schedule, which was adapted according to the position of the person being interviewed, and the details of the particular case study. As well as specific questions about the HIA in question, participants were asked about their views on HIA in general, and the role of the transport sector in relation to public health concerns.

The interviews were digitally recorded, and detailed notes were written up after each interview, with reference to the recording when necessary.

In some cases, specific additional information was required to complete the case study and appropriate individuals were approached informally to provide the relevant input.

Analysis and outputs

For each case study, the documents and interview notes were analysed in order to produce a descriptive account of: a) how, when and why the HIA was undertaken; b) the impact of the HIA on the final plan, and other outcomes; c) stakeholders' opinions and perceptions about what worked well and what could be improved in the HIA process. A consistent set of headings was used to assist the process of coding and organising the material.

A draft of each case study report was prepared and sent to all key informants who were given the opportunity to check the factual details, and provide feedback and suggestions. Changes were made to incorporate feedback wherever possible. The case study findings are presented in section 4 of this report.

Key informants also provided broader comments that were not specific to the case study at hand, but highly relevant to the research objectives overall, for example their views about HIA

and the role of the transport sector in relation to public health. These comments were coded according to the questions (i-ix) which were used to organise the literature review (listed above). This interview material, along with the more specific case study data, was all included in the analysis phase described below.

Analysis and development of recommendations

All findings from the literature review, planning process review and case studies were brought together for a further analysis phase. The researchers discussed the findings internally in order to identify key issues and themes, and discussed the preliminary findings with the steering group at a meeting on 4 December 2008. The key findings of the analysis, as they relate to the research objectives, are summarised in the discussion section of the report.

Recommendations were developed by applying the learning from this research to the current situation in New Zealand. The aim was to produce evidence-informed and practical recommendations to enhance and support transport planning and funding processes through the application and integration of HIA. Recommendations are presented in the final section of the report and are directed at national and regional transport planners, RLTCs and the public health sector; and relate to the questions of how, when and why HIA should be applied.

Strengths and limitations of the research

Quigley and Watts Ltd is a public health consultancy, and the authors in this report all have practical experience in conducting impact assessments in the New Zealand context. The authors' expertise in the theory and practice of HIA is clearly a strength of this research, but could also be seen as a limitation with regard its independence. Quigley and Watts Ltd conducted two of the four New Zealand HIA case studies outlined in this report. As described above, steps were taken to minimise interviewer bias in these cases.

HIA is in its infancy in the transport sector in New Zealand and only a small number of case studies were available for inclusion in this research. It is difficult to draw conclusions from such a limited number of case studies, and New Zealand case study findings should be treated with caution, particularly when they conflict with international findings.

The international literature review was limited to English-language publications, which skewed the review towards a United Kingdom focus. However review-level papers were included that examined use of HIA across Europe and world wide.

Appendix B

Selected examples of determinants of health/wellbeing

Categories of determinants of health	Examples of specific health determinants
Social and cultural factors	Social support, social cohesion Equity Social isolation Participation in community and public affairs Family connections Cultural and spiritual participation Expression of cultural values and practices Links with marae or other cultural resources Racism Discrimination Attitudes to disability Fear of prejudice Relationship with the land and water Level and fear of crime Reputation of community/area Perceptions of safety
Economic factors	Creation and distribution of wealth Income level Affordability of adequate housing Availability and quality of employment/education/training Skills development opportunities
Environmental factors (including living and working conditions)	Housing conditions and location Working conditions Quality of air, water and soil Waste disposal Energy Land use Biodiversity Sites of cultural significance (eg sacred or historic sites) A change in the emissions of greenhouse gases Public transport and communication networks

Appendix B

	Noise Exposure to pathogens
Population-based services - access to and quality of:	Employment and education opportunities, workplaces, housing, public transport, health care, disability services, social services, childcare, leisure services, basic amenities, and policing
Individual/behavioural factors	Personal behaviours (eg diet, physical activity, smoking, alcohol intake) Life skills Personal safety People's belief in the future and sense of control over their own lives Employment status Educational attainment Level of income and disposable income Stress levels Self-esteem and confidence
Biological factors	Biological age, gender.

