ASSESSING THE IMPACTS ON HEALTH OF AN URBAN DEVELOPMENT STRATEGY: A CASE STUDY OF THE GREATER CHRISTCHURCH URBAN DEVELOPMENT STRATEGY

Dr Anna Stevenson[1]
Public Health Registrar
Canterbury District Health Board

Karen Banwell
Senior Planning Policy Analyst
Christchurch City Council

Dr Ramon Pink
Public Health Registrar
Canterbury District Health Board

Abstract

This paper discusses a strategic policy-level health impact assessment (HIA) on the Greater Christchurch Urban Development Strategy (UDS). The need for a strategy is based on a number of premises, including an expected 120,000 increase in the population in the greater Christchurch region by 2041, bringing the total population to around 500,000. This is one of the first HIAs in New Zealand that assesses the link between urban design, health determinants and health outcomes at a high level of strategic planning. The HIA considered six key health determinants: air and water quality, housing, transport and social connectedness. A second work stream focused on developing an engagement process with local Māori around the UDS. Social connectedness, air quality and the Māori work stream are covered in this paper. This trial of the HIA process was constrained by time and resource limitations, but nevertheless was considered to be an extremely valuable process by participants. The development of a common language between unengaged stakeholders was seen as key to future collaboration. The final report was accepted by the UDS steering group, with population health outcomes having become a key focus. The authors recommend the incorporation of health impact assessment principles and processes into local government policy cycles.

1 **Acknowledgements**
The authors gratefully acknowledge Dr Louise Signal (Wellington School of Medicine) for her help with reviewing the paper and her many useful suggestions.
Correspondence
Dr Anna Stevenson, Public Health Registrar, Community and Public Health, 76 Chester St East, PO Box 1475, Christchurch City.

INTRODUCTION

The major influences on the health of people in the community lie outside of the health sector. While clinical practitioners manage illness, other sectors influence where people live their lives – their social, cultural and economic environments. It is in these arenas that the determinants of health and wellbeing are found. Addressing these wider societal influences requires that many sectors, such as transport and Treasury, work collaboratively with the health sector. Policy-level health impact assessment is a relatively new tool that provides a method for engaging intersectoral activity towards a common focus – health and wellbeing.

This paper discusses a strategic policy-level health impact assessment (HIA) of the Greater Christchurch Urban Development Strategy (UDS) (Stevenson et al. 2006). This is one of the first HIAs in New Zealand that assesses the link between urban design, health determinants and health outcomes at a high level of strategic planning. The paper describes the HIA process and summarises its results, the potential impact of the UDS on two of the health determinants (social connectedness and air quality) and the engagement process with local Māori. Discussion focuses on the recommendations made, the critical success factors and some possible barriers to performing policy-level HIAs in New Zealand.

UDS BACKGROUND

The UDS is a collaborative community-based project that is preparing a strategic plan to manage the impact of urban development and population growth within greater Christchurch. The need for a strategy is based on a number of premises, including the following.

- By 2041 approximately **120,000 more people** will have moved to the greater Christchurch area, bringing the total population to around 500,000.
- This population will be **ageing**. By 2021, 20% of the population will be aged 65 and over.
- By 2021 **traffic growth** is expected to increase by 40–50%.
- The population increase will generate **demand for more infrastructure**, with its associated costs.

The purpose of the UDS is to ensure that the projected population increase is planned for and managed so that changes to the community improve the overall quality of life rather than detract from it.

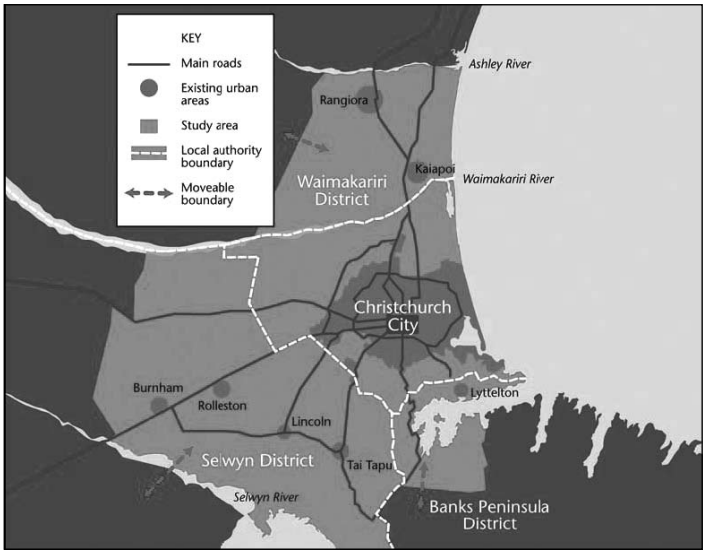
Representatives from Selwyn and Waimakariri District Councils and Christchurch City Council, Environment Canterbury and Transit New Zealand meet regularly with a cross section of local leaders from business, the community and government as the Greater Christchurch Urban Development Strategy Forum. The Forum is guiding the process of developing the Strategy. The Forum recognises that:

> To get the future we desire for our families and ourselves, we must manage the impact development has on our quality of life. Decisions made today will affect our lives, our children, grandchildren and all future generations. (Urban Forum 2005a).

UDS Consultation Document on Options for Growth

In April 2005, a consultation document on four possible options for growth and development in the greater Christchurch region was released to the public for their consideration (Urban Forum 2005b). The area covered by the UDS is shown on the map in Figure 1.

Figure 1 Area Covered by Urban Development Strategy



The options document provided a brief summary of key issues and presented three options for managing growth: concentration, consolidation and dispersal, as well as the business as usual option. Comparisons between each of the options were made. People were asked to comment on a feedback form and select their preferred option.

Option A or "concentration" pictured 60% new housing in urban renewal with 40% occurring in new subdivisions. Development would focus on central Christchurch and inner suburbs, as well as Rangiora, Kaiapoi and Rolleston. Option B or "consolidation" pictured 40% of new housing as urban renewal with 60% in new subdivisions, while Option C or "dispersal" looked at development nearly all in greenfield locations outside Christchurch and in the rural towns. Business as usual meant no change from current development practice.

UDS Consultation Findings

Of the more than 3,250 feedback forms received on the UDS (a record response for councils), 62% chose option A, to concentrate development within Christchurch city and other larger towns in Waimakariri and Selwyn districts (see Table 1). Another 22% wanted Option B, which balances future urban growth between existing built areas with some expansion into adjacent areas. Few wanted Option C (2%), or Business as usual (3%), which allow for more dispersed development. About 12% did not answer or liked none of the above options, although their written comments made it clear that the vast majority of these preferred Option A, a mixture of A and B, or something more sustainable than A. This means near to 95% wanted something other than business as usual; in other words, a more concentrated urban form.

Table 1 Responses to UDS Consultation

Option	%
Business as Usual	3
Option A Concentration	62
Option B Consolidation	22
Option C Dispersal	2
No Response	12

What was very noticeable from the UDS consultation process was that respondents shared the same concerns no matter where they lived. Most recognised the need to protect the water supply, valuable soils, community character and open spaces, and to provide well-planned communities linked by good transport systems. Around 50 of the more lengthy submissions of individuals and groups were presented directly to the Forum.

In addition to the UDS work, two other consultation processes were reviewed: the local government community outcomes for 2006–2009[2] and Environment Canterbury's 50-year visioning report.[3] Environment Canterbury's report demonstrated that (as with the UDS consultation) respondents felt the greatest improvement on current levels should be the availability of good health care for all, people to feel safe at all times, having healthy ground water systems, for the air to be in a healthy condition, and for everyone to have access to an acceptable standard of housing.

WHY DO A HEALTH IMPACT ASSESSMENT ON AN URBAN DEVELOPMENT STRATEGY?

HIA is a policy tool that provides guidance through a formal process to assess how a particular policy may affect specific health determinants (Public Health Advisory Committee 2004). The direct impact of the policy on health status is assessed, as well as the indirect effect of the policy on health outcomes through its impact on health determinants such as access to health services, transport options and housing quality. The UDS was an appropriate strategic planning process for an HIA because it will influence multiple critical health determinants.

HIA processes explicitly test whether social inequalities are likely to occur. Patterns of inequality are well recognised within Canterbury and across New Zealand (Crampton et al. 2004), with patterns in health status affected by socioeconomic status, ethnicity, gender and geographical residence (Ministry of Health 2002). Indeed, "The challenge for urban development … is to achieve improvement for the whole society, while enhancing the position of the poorest" (McCarthy 2002).

When this project began, the influence of the health sector on the UDS decision making and their engagement with the Urban Forum were minimal. Policy-level HIA was seen as a potential tool for developing intersectoral collaboration around a common concern (health and wellbeing) and providing meaningful input to the UDS team. The public consultation had already established a clear option preference, so the HIA process focused on comparing this option with "business as usual" and making recommendations to ensure that health concerns would be explicitly addressed in the final Strategy.

2 To identify their community outcomes, the Local Government Act 2002 requires local authorities to consult with their communities every six years to identify residents' aspirations for their district or city. Consultation occurred with a range of groups and organisations, such as community organisations, the business sector, Pacific Islands communities, people with disabilities, environmental groups and the public at community meetings.

3 The Community 50-Year Canterbury Visioning Report was commissioned by Environment Canterbury to generate a picture of what people in Canterbury think their region should look like in 50 years' time. A total of 1,900 residents were asked to participate in the research, including four hundred participants from Christchurch City, 150 from the erstwhile Banks Peninsula, 150 from Waimakariri and 150 from Selwyn.

HIA METHODOLOGY

The project was initiated through a conversation by two attendees at HIA training[4] in April 2005, one a public health medicine registrar (Anna Stevenson, lead author of this paper) from Community and Public Health (CPH), the public health division of Canterbury District Health Board, the other a senior professional in environmental health from Christchurch City Council (CCC). Buy-in was achieved by these two players engaging key stakeholders from CCC, such as the UDS project leader and the general manager of CPH. After initial screening by a small group from each agency to establish connections between the UDS and population health, both organisations agreed that the UDS was an ideal policy for an HIA.

A steering group from CPH and CCC was set up to oversee the HIA. The HIA was based on the steps outlined in the Public Health Advisory Committee HIA guidelines (Public Health Advisory Committee 2004). A rapid HIA process was undertaken, given there was only a two-month window before consultation on the UDS would be completed. The HIA was carried out by key local staff drawn from CCC and CPH and included workshops with key stakeholders, review of previous relevant consultation outcomes and a literature review.

A screening/scoping workshop was held in June 2005 with over 30 council and public health staff. The following six key determinants of health were chosen for the HIA because of their perceived importance to the local area:

- water quality
- air quality
- waste management
- social connectedness
- housing
- transport.

An information technologist carried out a highly selective literature search on all of the six health determinants using literature from the last 20 years.

Māori have the poorest health status of any group in New Zealand, so engagement with Māori was seen as an essential component of this work.[5] The HIA guide used in this project describes the Treaty of Waitangi as "an important part of the New Zealand

4 A two-day training course run by the Public Health Advisory Committee, the University of Otago and Quigley and Watts Ltd.

5 Forty-four per cent of all Māori in the South Island live in Canterbury. About 30% of Māori in Canterbury have levels of deprivation measured by the NZDep of 8, 9 or 10 (high deprivation) compared to 15% for Pākehā. Māori and Pacific children are more likely to live in highly deprived areas in comparison to children of other ethnicities (Canterbury District Health Board 2004).

context for health impact assessment" (Public Health Advisory Committee 2004:17). Indeed, the definition of health in the HIA guide used is based on the "Whare Tapa Wha" model. This model takes a broad view of health that includes physical, mental, emotional, social and spiritual wellbeing (Public Health Advisory Committee 2004). The steering group agreed that an attempt to establish a robust and replicable Māori consultation process should be part of this HIA.

Consultation with the community is a vital part of a policy-level HIA. Time and budgetary constraints meant that new consultation with the community was not done, except for consultation with Māori, but other consultation processes were referred to.

Workshops on the first four health determinants listed above were held with key stakeholders. A separate workshop was held for local Māori to introduce Māori concepts of urban design. Workshop participants were mostly from local councils and CPH, and also Environmental and Scientific Research, Ngai Tahu, Landcare Research, Healthy Christchurch and other local organisations both public and private. Most participants were not usually involved in planning issues, especially those from the health sector or from the community side of councils. Time did not allow for workshops on housing and transport, so the reports on these determinants are based on literature reviews and relevant submissions to previous consultations.

An attempt was made to compare two of the four policy options given in the UDS options document. "Business as usual" was compared with the community-favoured concentration/consolidation option (a mix of Options A and B). Two of the six health determinants (social connectedness and air quality) assessed in this HIA are covered here, as well as the work stream with local Māori. The final report should be consulted for fuller details on all of the determinants reviewed (Stevenson et al. 2006).

SOCIAL CONNECTEDNESS

The literature that describes social connectedness, shared values and a sense of community belonging often discusses the concepts of social cohesion and social capital. For the purposes of this HIA, an over-arching term "social connectedness" has been used to describe *that state whereby people feel part of society; family and personal relationships are strong; differences among people are respected; and people feel safe and supported by others*.

The workshop discussions focused on developing an understanding of:

- the ways in which a sense of community and connectedness (and thereby low levels of isolation/exclusion) affect health outcomes

- how urban design can be used to promote the development of community and connectedness (and thereby low levels of isolation/exclusion) for people within Greater Christchurch.

Review of Available Information

The link between social capital and health is often discussed in academic research, even though how social capital actually affects health is not well understood. Social capital may affect health through different pathways depending on the geographic scale at which it is measured. At the neighbourhood level, for example, three pathways are identified by their ability to:

- influence health-related behaviours
- influence access to services and amenities
- affect psychosocial processes by providing social support, esteem and mutual respect (Kawachi and Berkman 2000).

At the state level, it is argued that more cohesive states produce more equal patterns of political participation, which result in policies that ensure the security of all members, rather than just the wealthy minority (Kawachi and Berkman 2000).

Overall, levels of social connectedness in Christchurch city are relatively high.[6] The Christchurch Community Mapping Project (Child, Youth and Family et al. 2002) reported that a high proportion of Christchurch residents:

- have some connection within their communities and positive contact with their neighbours
- have someone to turn to in times of stress or in times of need
- are happy with Christchurch as a place to live, work and spend their spare time
- participate in community-based activities and one or more unpaid/voluntary activities.

For some people there were a number of significant barriers preventing them from fully participating in their communities. Specifically, increasing ethnic diversity, social inequalities and social exclusion and isolation were seen as particular challenges. Local government planning can influence many factors that have a negative effect on a sense of community belonging, such as the development and maintenance of community facilities and the placing and form of public spaces.

6 These findings are from the Christchurch City Council Annual Survey of Residents (2002) and relate to a sample population of Christchurch city. A total of 780 people participated in the survey with a response rate of 65%. The population for the survey is defined as people aged older than 18 years who had lived in Christchurch for at least the 12 months prior to the survey and who lived in private households in permanent dwellings. Participants were randomly selected from within the total sample population.

Social Connectedness Issues Raised in the Workshop

Among workshop participants there was strong consensus that a sense of community, belonging and participation was critically important to wellbeing. In particular, social connectedness was considered important to mental health and wellbeing, levels of physical activity, and individual knowledge of and ability to access health and support services.

Many highlighted the significance of *local* centres to levels of social connectedness. The provision of services and facilities in a single location provides the possibility of building community within a region through the continuous use of, interaction around, and identification with those amenities. One participant supported this by saying, "It doesn't matter where the community is, so long as it has a heart". Ensuring that neighbourhoods are well connected to, or close to, amenities is a key way the built environment can be used to generate a "community-conducive" setting.

Workshop participants focused on the important role of schools as community connectors. Schools often form focal points for community development because parents and children make contact and interact around common issues and interests. Centrally located schools that enable children and parents to walk to and from and regularly meet at school-based activities were considered beneficial to community development. Schools also become the physical centre of the community by providing spaces for community functions (Witten et al. 2001 and 2003).

Some elements of a city, in contrast, can segregate communities. Particular examples cited by workshop participants included large, busy roads and cemeteries. Similarly, many participants were adamant that malls should not be considered a point for community interaction and development. One of the key concerns was for people to have access to places where they could go and feel they belonged. In the experience of participants, malls are private spaces and are intended for a specific sector of the community (in particular, excluding many young people and people on lower incomes). They are not primarily intended to promote interaction and the development of relationships.

Many argued that the process of urbanisation has contributed to the fragmentation of ties within Māori whānau and iwi, and has broken the links of many Māori with their home marae, which are mostly rural. Apart from isolated examples such as urban marae, there is little in our current urban design in the greater Christchurch region that clearly identifies Māori as tangata whenua. In Canterbury 30% of Māori (versus 15% of Pākehā) have levels of deprivation of 8, 9 or 10 (Canterbury District Health Board 2004) and thus are disproportionately represented in areas where social connectedness is particularly problematic.

The importance of ensuring that low-income individuals and families within greater Christchurch are not marginalised or further marginalised as development occurs was often raised in the workshops. Many comments relating to the importance of promoting a sense of community, and the design tactics for doing so, emerged from experiences gained working with low-income groups and areas within Christchurch City.

In the two workshops held on social connectedness participants did not strongly favour one particular option over another, but they strongly affirmed the link between urban design and social connectedness and downstream health benefits. There was clear support for the concept of urban centres, which was also a strong theme in the UDS consultation feedback. Implicit in this is a rejection of the "business as usual" option with its lack of integrated urban planning.

AIR QUALITY

Data on Health and Air Pollution in Christchurch

A vast literature is available on the association between air quality and health outcomes. Of particular relevance to this HIA was the recent pilot study of Health and Air Pollution in NZ (HAPiNZ) (Fisher et al. 2005), based in Christchurch and funded through a joint initiative between the Health Research Council, Ministry for the Environment, Ministry of Transport and Environment Canterbury.

The HAPiNZ study found that air pollution in Christchurch is primarily derived from three main sources: industrial, solid-fuel home heating and vehicular emissions. These emissions comprise fine particulates from combustion sources and gaseous emissions such as carbon monoxide, nitrogen dioxide, sulphur dioxide and benzene. Domestic sources account for 76% of the emissions, industrial sources 13% and vehicle sources 11%.

The combination of greater Christchurch's particular geography and climate means that an inversion layer traps air pollutants. Particularly in winter (Ministry for the Environment 2005), Christchurch experiences on average 30 days each year when the 24-hour average fine particulate concentrations exceed the air quality standard of 50 micrograms (µgm). Peak 24-hour levels on those days are above 200 µgm. Between May and August 90% of air pollution is derived from wood-burning home heating, while during the rest of the year motor vehicles and industry are the source of almost all the air pollution (Fisher et al. 2005).

The economic cost attributed to the community is $118.5 million (which includes the costs associated with the 158 excess deaths per year associated with air pollution), $93 million of which is incurred by domestic air polluters (primarily solid-fuel

burners). Restricted activity days were estimated to cost the community a further $43 million.

The costs associated with these health effects are likely to be underestimates because they do not include possible additional costs due to unidentified effects of pollutants other than fine particulates, and do not include costs associated with extra doctors' visits due to air pollution. Neither do they include costs associated with indoor air pollution, or costs of effects due to workplace or in-vehicle exposures, which were beyond the scope of the study (Fisher et al. 2005).

Air Quality Issues

Workshop participants discussed the direct and indirect health effects from air pollution. Their particular concerns included:

- the effects of air pollution on children's health
- the poor indoor air quality associated with domestic gas heating that is not vented to the outside, particularly for people on low incomes and people in rented accommodation (who were more likely to be using unvented gas heating)
- the impact of high air pollution days on people who would normally exercise outdoors
- more people being exposed to poor air quality due to higher population density in the inner city.

Conversely, participants felt that a greater population density in central Christchurch would support a more viable public transport system, which could lead to lower vehicle emissions. Participants agreed that as population density increases it becomes even more important to ensure air quality is closely monitored and exposure to polluted air is minimised.

A review of available evidence published by the World Health Organization in 2005 clearly established that reducing exposures to air pollution will improve children's health. Immediate reductions in air pollution will have immediate and long-term positive effects on population health outcomes.

Māori tend to have higher rates of respiratory health problems than non-Māori (National Health Committee 1998). They have a younger population and are disproportionately represented in lower socioeconomic deciles (Canterbury District Health Board 2004). These three factors mean that Māori as a population group are more likely to be adversely affected by poor air quality than non-Māori.

People in low socioeconomic groups are more affected by poorer air quality because they are more likely to live near roads and transport corridors exposing them to

higher concentrations of vehicle emissions. People living in more deprived areas of Christchurch are subject to higher mean annual levels of air pollution and to a higher average of days exceeding the recommended 24-hour thresholds (Pearce and Kingham 2005).

Workshop participants agreed that air quality had more potential to improve if there was well-planned concentration of urban development, in conjunction with active implementation of air quality standards and close monitoring of air quality indicators. Participants stated that air quality could be improved whatever option was chosen if Environment Canterbury's Natural Resources Regional Plan, Chapter 3: Air Quality is fully implemented.

ENGAGEMENT WITH MĀORI

The Local Government Act 2002 recognises the responsibility of local authorities to maintain and improve opportunities for Māori to contribute to local government decision-making processes. An understanding of the Māori community in the greater Christchurch region allows a better appreciation of the challenge of engaging Māori in the HIA process.

Ngai Tahu are manawhenua, or the tribe with historical and ancestral dominion over Canterbury. In the regions covered by the UDS there are six rūnanga (Ngai Tahu comprises 18 rūnanga altogether). Rūnanga have an appointed chairperson and are separate entities representing the people who historically were from a particular geographic area and are related to the community. Tuahuriri Rūnanga is the paramount rūnanga, and represents manawhenua over the majority of Christchurch City, along with Te Taumutu rūnanga and Te Hapu o Ngati Wheke.

Te Rūnanga o Ngai Tahu (the umbrella organisation for Ngai Tahu rūnanga) has a variety of roles and responsibilities. Under its development arm sits the environmental division, Kaupapa Taiao. Ngai Tahu is a participating stakeholder in the Urban Forum. As with other key stakeholders, Ngai Tahu property will be affected by the final UDS decisions on how land will be used for urban development .

Te Runaka ki Otautahi o Kai Tahu is an entity established to represent the needs of Māori in Christchurch City. This is not a rūnanga officially designated under the Ngai Tahu Rūnanga Act 1998. Nga Mataa Waka is recognised as a Māori urban authority, representing Māori who are from other tribal affiliations. Although Nga Mataa Waka has been set up to represent urban Māori not affiliated with Ngai Tahu, this "umbrella" is not universally accepted by all those from other tribal affiliations.

Although Māori make up 7.3% (Ministry of Health 2006) of the population in the UDS area, they comprised only 1.5% of the 3,250 respondents to the UDS options consultation document. The low response rate was felt to reflect the lack of engagement of the Māori community in local government planning processes. Dr Ramon Pink (Te Aupouri, Te Rarawa) led the Māori engagement work stream and began efforts towards developing an effective and appropriate consultation process with local Māori. Identifying key people and establishing relationships with these people was essential. A key outcome of this HIA is to embed the recommendations of the HIA within the framework of the UDS, still in the early planning stages. Therefore any consultation would not be a "one off" but an iterative and ongoing process. A preliminary workshop was convened to begin "seeding" the HIA process among Māori. Although this work is in its infancy, the results in terms of increased engagement of local Māori with the UDS process are seen as a significant advance on baseline.

An overview of the UDS HIA process was given to workshop participants, who included representatives from He Oranga Pounamu, Pegasus Health, Christchurch City Council, Landcare Research and Canterbury District Health Board. Current research on Māori perspectives on urban design was presented to the workshop.

EVALUATION

This project was a pilot, and a process evaluation was carried out by an independent observer (Dr Kaaren Mathias) to assess whether the HIA achieved its objectives and to identify the key strengths and weaknesses of the process (Mathias 2005). Dr Mathias attended most workshops, collected and analysed feedback sheets from the majority of participants, and interviewed all members of the steering groups and working party. Feedback from participants was overwhelmingly positive. Participants were supportive of the opportunity to work across the different sectors and appreciated the diversity of people at the workshops. Good facilitation allowed participants to gain greater understanding of other disciplines, perspectives on the issues and enhanced communication between the different groups. Most valued being kept informed of subsequent developments. Recommendations from the evaluation included allocating appropriate financial resources and people to the project, spending more time on workshops, and putting even more effort into engaging with participants before and after the workshops. The total cost of the HIA was estimated to be around NZ$75,000, the vast majority of this being participants' salaries.

DISCUSSION

Six determinants of health were considered in this HIA. Waste management was not completed for the final analysis because of time and resource constraints. In this paper we have focused on two determinants of health – social connectedness and air quality – and on the issue of engagement with local Māori.

Both the workshop discussions and the literature affirm the importance of social connectedness to the health and wellbeing of groups and individuals. A range of ways the built environment can be used to promote social connectedness was identified by workshop participants, and these recommendations fell into three distinct themes: designing for accessibility, designing for interaction and identity, and designing for diversity.

The HIA found that issues to do with air quality cannot be addressed in isolation; they will involve coordination between various planning bodies and the community. Air quality will improve if people are able to travel shorter distances to their work-places and schools, if they are able to access public transport, if building codes are improved such that homes are well insulated and heated appropriately, and if there are appropriate incentives to business to reduce or eliminate industrial air pollution.

Effective engagement with local Māori in Canterbury is a complex process, with Māori – both nationally and locally – having much to contribute to the UDS. The work begun in this HIA has led to significantly greater involvement by Ngai Tahu in the UDS. The challenge of establishing a robust and meaningful consultation process between local Māori and local government remains, but work has at least begun.

Table 2 provides examples of key findings from all five health determinants the HIA covered. Of interest was that many of the recommendations from each health determinant were very similar.

Table 2 Recommendations under Each Determinant

Air Quality	Water Quality	Housing	Transport	Social Connectedness
Sponsor public and active transport.			Actively promote active transport. Promote use of public transport.	Ensure an efficient public transport system.
Sponsor energy-efficient housing.		Strengthen building codes locally to build high-quality housing stock that is highly energy efficient.		Prioritise highly energy-efficient and sustainable low-cost housing.
Develop cross-sectoral collaborative project-based working groups.	Integrate water management with urban planning. Water resource planning and management should be supported by a steering group including Ngai Tahu, public and private sectors.	New housing design and retrofitting of older housing should be undertaken in collaborative partnerships with all stakeholders, including residents.		Involve residents in the design of new communities.

The overarching recommendation that emerged from each workshop was the need for local inter-sectoral collaboration. The value of working with others from different disciplines was seen as a great strength of the HIA process. Progress in achieving good outcomes will depend on the ongoing collaboration and communication between the many stakeholders involved in the UDS.

The HIA report was unanimously accepted by the UDS Forum and it has been incorporated as a working document into the strategy planning process. The report will provide a valuable information base from which to develop criteria against which the UDS can be assessed.

A significant contribution of this HIA was the support it provided to thinking about what are the main drivers for carrying out an urban development strategy. For many, the UDS was about identifying where urban growth could be placed within the study area after examining possible constraints, such as flooding, the aquifer, airport noise contours, etc. The HIA, by focusing on health and reducing inequalities in health and

social outcomes, directed the focus of the UDS more to quality-of-life outcomes as well as where development could occur.

The findings of the HIA mirrored the findings from the community consultation process and have been described in the UDS Community Charter. The Charter outlines the main goals and principles for the Strategy and explicitly identifies health as an outcome. This is a direct consequence of the HIA. It has also helped to highlight the significance of the statutory acknowledgement and collective responsibilities relating to health and social outcomes within the principal planning legislation. Finally, the HIA has identified that the Strategy has a role to deliver on these outcomes; to inform government (both local and central) about housing, urban form and transport; and, of course, to close gaps in health inequalities.

Barriers that our project group encountered included:

- lack of resourcing (in the current environment few agencies are willing to spend money on untried and unproven technologies)
- lack of a clear mandate for any particular group to lead HIAs (the evaluation showed the importance of strong leadership by people with a clear health focus (Mathias 2005))
- lack of experienced HIA practitioners in New Zealand (training is important but not a substitute for practical experience)
- health still not being seen as a responsibility of those working in planning.

This work was undertaken largely by staff from the local public health unit. The tension between projects with long-term significance and projects needing immediate attention (although perhaps of less ultimate importance) is particularly strong in a public health unit, where acute service work (such as communicable disease outbreaks) tends to take precedence over strategic policy work. Timelines for the project were very tight and resources (staff time, funding and training) were stretched.

This HIA was undertaken as a pilot to assess the utility of the tool at a practical level. The evaluation of this HIA showed that participants clearly recognised its limitations in terms of resources (budget, staff and time) but were still overwhelmingly positive about their involvement in the process (Mathias 2005). In retrospect, there were two key outcomes from the process.

- Participants were able to interact with other agencies face to face (working inter-sectorally became a reality).
- The process allowed the development of a "new language" that focused participants on the health consequences of their own roles and decisions.

The significance of these developments should not be underestimated. The recognition by different sectors that frequently their overarching goals were the same or similar

despite different methods of working and different languages (for example, local government speaks of "wellbeing" whereas public health practitioners speak of "health") was a revelation for many participants (Mathias 2005).

Although this project has had extremely positive outcomes, the barriers to performing further HIAs remain. This particular project resulted from a serendipitous set of circumstances rather than a strategic vision. The initiators of the project met at a training workshop and decided together to "give it a go". Critical success factors included the attention to relationship building at all levels and throughout the project, and high-level champions and members of the working party who were particularly persistent drivers of the project. However, HIA has not yet been embedded in the policy cycles of the organisations involved. If central government wants to embed HIA in the policy process, then perhaps for an initial period there should be a clear funding stream made available to potential practitioners. The secondment of a public health registrar to Christchurch City Council is a very positive step towards embedding HIA philosophy into local government planning.

Urban planning has potentially significant impacts for Māori. The poor health status of Māori (Minister of Health 2000) requires that planning of the magnitude of the Urban Development Strategy include the participation of Māori. This project highlighted that working with Māori requires the building of relationships. This is a generic principle that frequently has little attention paid to it. Ngai Tahu's "place" on the Urban Forum was not utilised until a process of meetings, including the preliminary workshop, encouraged the iwi's participation at the Forum on a regular basis. Development of relationships takes away the potentially negative connotations of "consultation" and becomes a process of mutual exchange rather than simply one party wanting something from the other. Māori are researching urban development issues (e.g. Pauling 2005), and their research is aimed at informing how they want to approach future urban planning and development in their own communities. Their research will be pertinent to all New Zealanders. Development of relationships, as demonstrated in a small way with this HIA, can facilitate this in a positive and sustainable way.

CONCLUSION

Health impact assessment at a policy level is still relatively novel in New Zealand. This paper describes an HIA on a regional urban development strategy. This was a rapid HIA, performed to test the utility of HIA processes at a practical level. There were significant time and resource constraints, but despite these the overwhelming majority of participants found the process valuable, particularly in the area of developing a common language between participants and enabling intersectoral collaboration. The final report was presented to the Urban Forum and was warmly accepted by them. The HIA has led to population health outcomes becoming a key focus of the UDS.

Our experience strongly supports the use of health impact assessment in local government policy cycles. We would recommend that other local government bodies seriously consider applying health impact assessment processes within their decision-making processes.

REFERENCES

Canterbury District Health Board (2004) *Canterbury Health Needs Assessment Summary 2004*, Canterbury District Health Board, Christchurch.

Child, Youth and Family, Christchurch City Council, Department of Internal Affairs, He Oranga Pounamu, Strengthening Families Management Group, Safer Community Council, Healthy Christchurch (2002) *Christchurch Community Mapping Project*, Christchurch City Council, Christchurch.

Crampton, P., C. Salmond and R. Kirkpatrick (2004) *Degrees of Deprivation in New Zealand: An Atlas of Socioeconomic Difference*, David Bateman Ltd, Auckland.

Fisher, G., T. Kjellstrom, A.J. Woodward, S.Hales, I. Town, A. Sturman, S. Kingham, D. O'Dea, E. Wilton, C. O'Fallon, A. Scoggins, R. Shrestha, P. Zawar-Rewa, M. Epton, J. Pearce, R. Sturman, R. Spronken-Smith, J. Wilson, S. McLeod, R. Dawson, L. Tremblay, L. Brown, K. Trout, C. Eason and P. Donnelly (2005) *Health and Air Pollution in New Zealand: Christchurch Pilot Study*, Health Research Council, Ministry for the Environment, Ministry of Transport, Wellington.

Kawachi, Ichiro and L.F. Berkman (2000) *Social Epidemiology*, Oxford University Press, New York.

McCarthy, M. (2002) "Urban development and health inequalities" *Scandinavian Journal of Public Health*, Supplement, 59:59–62.

Mathias, K. (2005) *Evaluation of Health Impact Assessment on Greater Christchurch Urban development Strategy*, unpublished report for Community and Public Health, Christchurch City Council.

Minister of Health (2000) *The New Zealand Health Strategy*, Ministry of Health, Wellington.

Ministry for the Environment (2005) *What Makes Air Pollution Increase?* Ministry for the Environment, Wellington.

Ministry of Health (2002) *Reducing Inequalities in Health*, Ministry of Health, Wellington.

Ministry of Health (2006) *Tatau Kahukura: Māori Health Chart Book*, Public Health Intelligence Monitoring Report No.5, Ministry of Health, Wellington.

National Health Committee (1998) *The Social, Cultural and Economic Determinants of Health in New Zealand: Action to Improve Health*, National Advisory Committee on Health and Disability, Wellington.

Pauling, C. (2005) *Tu Whare Ora Research Project Summary*, unpublished report for Landcare Research, Lincoln.

Pearce, J. and S. Kingham (2005) "Do the poor breathe the poorest air? Air pollution and poverty in Christchurch, New Zealand" *17th International Clean Air and Environment Conference* – CASANZ, Hobart, Australia.

Public Health Advisory Committee (2004) *A Guide to Health Impact Assessment: A Policy Tool for New Zealand*, National Health Committee, Wellington.

Stevenson, A., K. Mathias, R. Pink and K. King (2006) *Health Impact Assessment, Greater Christchurch Urban Development Strategy Options 2006*, Canterbury District Health Board, Christchurch.

Urban Forum (2005a) *Greater Christchurch Urban Development Strategy: Introduction to Issues*, Christchurch City Council, Christchurch.

Urban Forum (2005b) *Greater Christchurch Urban Development Strategy: Public Consultation Options Paper*, Christchurch City Council, Christchurch.

Witten, K., T. McCreanor, R. Kearns and L. Ramasubramanian (2001) "The impacts of a school closure on neighbourhood social cohesion: Narratives from Invercargill, New Zealand" *Health and Place*, 7:307–17.

Witten, K., T. McCreanor and R. Kearns (2003) "The place of neighbourhood in social cohesion: Insights from Massey, West Auckland" *Urban Policy and Research*, 21:321–338.

World Health Organization (2005) *Effects of Air Pollution on Children's Health and Development: A Review of the Evidence*, World Health Organization, Special Programme on Health and Environment, European Centre for Environment and Health, Bonn.