The Mangere Growth Centre Plan
Health Impact Assessment.

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Prepared for Manukau City Council and Auckland Regional Public Health Service.
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- Elizabeth Fairlie (Manukau CC)
- Pam Williams (Mangere Health Resources Trust)
- Kirti Reddy (Manukau CC)
- Adrian Field (Counties Manukau DHB)
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- Megan Tunks (Hapai te Hauora)
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- Sally Gaw (ARPHS)
- Pita Paul (ARPHS)
- Deepak Rama (ARPHS)
- Rob Quigley (Quigley and Watts Ltd)

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- Bob Clark (Puukaki Marae)
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- Cameron Ormsby (Auckland Regional Public Health Service)
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- Pam Williams (Mangere Health Resources Trust)
- Sue Zimmerman (Manukau City Council)
- Roz Johnstone (Auckland City Council)
- Mavis Roberts

Other people who have assisted with the HIA:

- David Sinclair (independent public health contractor)
Introduction
The Mangere Growth Centre Plan is Manukau City Council’s response to the Auckland Regional Growth Strategy, which aims to better manage growth in the region. This is a long-term plan with a 20-year vision to guide future development that will be progressively implemented through partnership between the public and private sectors, community groups, business owners and landowners.

The Mangere Growth Centre Concept Plan is available on-line at: http://www.manukau.govt.nz/documents/Mangere_Growth_Centre_Concept_Plan.pdf and is best described as a tool for urban renewal that manages the expected and planned population increase within Mangere, with particular focuses on the town centre, and neighbouring residential precincts within an 800m radius of the town centre.

The Mangere Growth Centre Concept Plan has been released in its final form and this HIA attempts to inform how the plan may be implemented. This level of urban intensification is likely to affect the future health of the local community, and the implementation of the Concept Plan was timely to allow an HIA to be carried out – to maximise the Plan’s potential positive impacts on health and minimise negative ones. Manukau City Council and the Auckland Regional Public Health Service also had a strong desire to work together to protect and promote health and wellbeing.

The HIA is also being conducted under the banner of the Counties Manukau Let’s Beat Diabetes 20 year vision and strategy - aimed at district-wide, long-term, sustainable change to prevent or delay the onset of Type 2 Diabetes, slow disease progression and increase the quality of life for people with diabetes in Counties Manukau. One strand of the Let’s Beat Diabetes strategy is to work with non-health agencies to influence policy and decision making outside the health sector to better support population health. The commissioning of this Health Impact Assessment is an action being taken under the Lets Beat Diabetes Strategy. The initial brief for the HIA was to “assess a strategy, policy or project that focuses on urban development, with particular interest in how urban design might contribute to a reduction in obesity levels within the district”.

The Let’s Beat Diabetes strategy has been developed with and for the people of the district and goes far beyond the traditional boundaries of the health sector. A detailed five year Strategic Plan and two year Operation Plan have been developed to action the vision. The Mangere Growth Concept Plan is an important district wide initiative and the Let’s Beat Diabetes programme provides a useful context against which to assess the Mangere Growth Centre Concept Plan.

The Lets Beat Diabetes strategy exists within a dynamic and complex district environment, where social, economic, cultural and many other factors influence the wellbeing of the predominantly Maori & Pacific population. In policy terms, the strategy sits under the Counties Manukau DHB’s Statement of Intent 2005-8 and District Strategic Plan 2005, and is designed to align with national level health policies (e.g. the New Zealand Health Strategy, He Korowai Oranga – Maori Health Strategy, the Pacific Health and Disability Action Plan and Healthy Eating – Healthy Action) and international best practice.

As with all HIA, this HIA has been undertaken with the support and goodwill of all stakeholders, and that the recommendations in the HIA are not binding on any of the stakeholders and final decisions rest with each stakeholder.
What is Health Impact Assessment and what is its relationship to Local Government?

Health impact assessment represents a new approach to addressing the social, economic, health and environmental consequences of policies, programmes and projects. Its importance has been endorsed by the current government, and it can form a major plank of the Governments drive to reduce inequalities in health. At a local government level it can assist in the delivery of social, economic and environmental wellbeing as set out in the Local Government Act 2002. As a result, HIA is now at the forefront of the public policy agenda and Quigley and Watts Ltd were commissioned to undertake a Health Impact Assessment (HIA) of the Manukau City Council’s Mangere Growth Centre Concept Plan and its implementation.

Background

One of the reasons the Mangere Town Centre has been identified for urban renewal was the current levels of transport networks (bus and road). The plan acknowledges that “Mangere’s greatest issues include a poorly connected street network, lack of pedestrian crossings and dysfunctional town centre”.

To address these and other issues, the plan has a vision, principles, strategies and recommendations to manage the growth and urban renewal. The strategies are:

- Work with HNZC to develop new housing and stock
- Reconfigure existing parkland to increase public frontages
- Allow residential and non-residential uses in town centre
- Support home based business opportunities
- Utilise Council land as catalyst development sites
- Encourage higher density development along bus routes
- Introduce bike lanes to encourage other forms of travel
- Introduce bus timetables and improved bus shelters
- Introduce planting in the town centre and along streets
- Promote the arts and events.

The recommendations are:

- Improve pedestrian access to the town centre
  - Pedestrian crossings on main roads
  - Footpath improvements such as plantings and active frontages
  - Dedicated footpaths through parking areas
- Widen entrances to reserves
- Increase legibility of existing walkways
  - Signage
  - Entrances with special paving, plantings or furniture
  - Create paths in reserves without legible pathways
  - Good maintenance
- Improve connectivity by creating new streets
- Review pedestrian and cycle phases of existing traffic signals
- Street tree planting programme

Mangere town centre was one of eight distinct precincts identified in the Plan for urban renewal, providing many possible geographical areas for the HIA to focus on.

The geographical area that the Mangere Growth Centre Plan covers is shown in Figure 1. It is bounded by an 800 metre radius from the town centre – an approximate 10 minute walk. The boundaries of the HIA were however set narrower than this and are described in the methods section.
Figure 1. Study area for change
The HIA process used

Choosing the HIA

Auckland Regional Public Health Service (ARPHS) commissioned Quigley and Watts Ltd (Q&W Ltd) to lead a rapid appraisal of the Manukau City Council’s (Manukau CC) Mangere Growth Centre Plan. Initial discussions between ARPHS and Manukau CC identified the Plan as potentially appropriate for an HIA. This was because the scope of the Plan and the strategies defined in it meant that many determinants of community health would be potentially affected. Also, implementation of the Growth Plan has the potential to impact significantly on many peoples lives and the magnitude of potential health impacts are equally large given the high proportion of Maori and Pacific people living in Mangere.

In addition, the Counties Manukau District Health Board has identified Urban Design as a contributing determinant to obesogenic environments in its ‘Let’s Diabetes Plan’ and the Mangere HIA presented an opportunity to introduce this prospective assessment tool as a partnership development activity involving Council, Counties Manukau District Health Board, Auckland Regional Public Health Service and other agencies already involved in the Growth Strategy Plan development.

It is important to note that the Plan has already been completed. This assessment therefore will inform how the plan might be implemented. More detailed planning decisions about how the broad concepts in the Plan would be implemented are yet to be taken, and it was these decisions that this HIA report can inform.

Setting the scope/boundaries of the HIA

A steering group (listed in the acknowledgements) was set up to determine the boundaries for the HIA. The group were sent information prior to the ½ day meeting (7th February, 2006 at the Cosmopolitan Club, Mangere) outlining issues for them to consider. At the meeting the group made the following recommendations about the HIA and its scope:

Aim:
To contribute to Manukau City’s Let’s Beat Diabetes Strategy by assessing the potential positive and negative health and wellbeing impacts of the Mangere Growth Centre Plan.

Objectives:
- Demonstrate that HIA can inform the progress and support the implementation of the Mangere Growth Centre Plan.
- Enhance partnership working between the Manukau City Council, Housing New Zealand, Auckland Regional Public Health Services and other agencies through shared planning and resources.
- Inform decision makers about the impact of their decisions on the development and maintenance of a safe and healthy environment that promotes the lifelong wellbeing of this diverse community.
- Contribute to an increased awareness about equity and inequalities, and assess how implementation decisions and processes may widen, maintain or narrow inequalities. For example for long term residents or people with disabilities.
- Assist the strategic and staged development of an increasingly active, dynamic and exciting Mangere community.
Elements of the framework to be assessed and geographical area.

When considering the Mangere Growth Centre Plan, several parts of the Plan are able to be assessed within a health impact assessment:

- The vision statement
- The 10 strategies
- The six recommendations
- The eight precincts
- The 8-15 principles per precinct.

At the scoping meeting it was agreed that rather than focus on the whole plan the HIA would consider one or two specific features of the plan, i.e. a precinct and possibly a project within a precinct that were known to be planned for implementation in the relatively short term.

On this basis two areas were identified:

1) The Pershore precinct because it is likely to be the first to be implemented, Housing NZ is the dominant landowner and the link to the town centre (and other key locations) from the precinct (via transport) was considered an important social-geographical component of the precinct to assess.

2) The proposed Arts Centre because some funding was already set aside and this was seen to be a priority piece of work due to the lack of non-sport activities available to youth.

Population groups of most interest

The entire population of Mangere was likely to be affected, specific groups of interest might have been:

- Pacific (70% of the population).
- Asian (5.1% of the population).
- Maori (19.9% of the population).
- Young people (33.9% aged 0-14 years)
- Disabled People (20% in any population – typically higher incidence with Maori, especially mental health issues)
- Housing New Zealand tenants
- Households without access to a motor vehicle (13.6%)
- Students
- Faith groups
- Large households (4.8 people per household)
- Single parents, working families.
- Low income ($13,600 median personal income)
- Employers

Housing NZ was able to provide characteristics of the types of people who they were most likely to tenant in the Pershore precinct. This formed the basis for the population groups affected, apart from the two non-Housing NZ groupings indicated below. The Arts Centre HIA had a very specific focus, youth – since the arts centre will be targeting youth and providing alternative entertainment from the basketball and swimming that is currently offered. It was noted that other population groups would be important if the HIA was to focus on other precincts.

Therefore the following populations were identified as being most likely to be affected by the implementation of the Plan:

- Current and Likely Housing New Zealand Tenants
Pacific and Maori sole parents with one or two children
- Pacific and Maori elderly couples, possibly caring for one or two children as well
  - Current residents of the Pershore Precinct that may be relocated
  - General residents:
    - Private household owners in the Pershore Precinct
    - Households without access to a car
- Arts Centre
  - Youth

Determinants of health and wellbeing affected
The participants and the scoping meeting and the HIA workshop identified the following health determinants as priorities for consideration in this HIA:
- physical activity levels including use and accessibility of open spaces
- social connectedness or isolation
- personal and community safety (physical, social and environmental)
- access to services and employment, especially modes of transport to those services
- housing availability, accessibility and suitability
- spaces

Carrying out the appraisal
A day-long rapid appraisal workshop was hosted by Manukau City Council (4th May 2006), at Mangere Health Services Trust with the purpose of gathering stakeholder views on how the Growth Plan might affect the health and wellbeing of the people of Mangere.

Workshop participants represented a wide range of organisations and stakeholders, including mana whenua and community organisations as well as government agencies.

In preparation for the workshop a considerable amount of data was collected and summarised for presentation to, and used by workshop participants. This included a description of the Plan; evidence about the link between relevant interventions and health impacts; and a profile of the community and population. Data were provided from a variety of agencies and included the results of existing consultation surveys, policy development workshops and demographic data.

The workshop split participants into two pre-selected groups and each group were assigned a component of the Plan to work on. This layout allowed for each part of the Plan (that was a focus of the HIA) to be considered at least once by at least one of the groups.

During the workshop two groups followed a set structure of work group questions adapted from a United Kingdom rapid appraisal tool and the Public Health Advisory Committee’s HIA Guide to discuss the Pershore Precinct and the Mangere Arts Centre proposal.

The groups followed a set structure of work group questions adapted from a United Kingdom rapid appraisal tool and the Public Health Advisory Committee’s HIA Guide. An example of the questions posed for the Arts Centre, focussing on the population group 'youth' is below:
**Aspect of Project:** Arts Centre  
**Population of Interest:** Youth  
**Determinants of Health to focus on:**  
- Social connectedness or isolation  
- Physical Activity  
- Reputation of the area and safety  
- Access to services and employment (also considering modes of transport to these)

**Questions to consider for each determinant:**
How might the proposed ‘Arts Centre’ affect this determinant of health?  
- Might this impact on health directly, or might it affect health (indirectly) after affecting other factors in a pathway leading to poor health?  
- What is the existing evidence for the answers you have given above?—e.g. past experience, facts, research & existing data sources  
- Might the impact affect some youth more than others? Consider inequalities and who might benefit/suffer most?  
- What key factors might encourage or prevent the health impact?  
- What recommendations do you suggest? Who are the recommendations directed at?

Following the workshop, the results were organised into a matrix by the authors to elaborate on points that were not fully described and further integrate and explore concepts and impacts. Interactions with the Let's Beat Diabetes Goals were drawn out.

Two drafts of the document were sent to stakeholders for comment and revisions made.

**Study limitations**
Due to practical limitations of funding, human resources and timing this was a rapid HIA. Data collected and used in the HIA came from existing evidence bases, a literature review, a stakeholder/community workshop and suggested documents from stakeholders. Much of the community profile data is based on Manukau City data, rather than Mangere Ward level data. It was not possible to get data on the Pershore precinct. These data gaps highlight the importance of using local knowledge, as some of the Manukau City data did not relate well at the Ward level – such data has not been reported or considered in this HIA.
Community profile
As part of the HIA process, a profile of the community that is likely to be affected by the Growth Plan is synthesised from existing reports. This allows workshop participants and the authors to be able to make a more informed assessment of how the Growth Plan might potentially impact on the target populations. It is important to note the different geographic areas presented by the data below. Much of it is from Manukau City rather than the much smaller ward of Mangere. In the time available for this HIA, no data was detected for the even smaller geographic area of the Pershore precinct.

History
Mangere was a favoured dwelling place for Maori in pre-European times, due to fertile land and abundant sea food. In the 1800’s the European settlement began and Mangere was a major food supplier to City markets. After World War II the farms and gardens turned into thriving suburbs due to a housing project for 25,000 people and siting of a sewage treatment plant. In 1961 the government decided to build the Auckland Airport on the site of an airstrip originally opened as ‘Auckland Aero Club’ in 1928. In the 1960s and early 70s, waves of immigration from the Pacific Islands transformed Mangere into the predominantly Pacific area it is today (MCC, ‘Mangere Ward Census 2001 Results).

Priorities of the community
Tomorrow’s Manukau Consultation - overall
- Residents stated that Mangere was a vibrant community especially with its high level of ethnic diversity.
- People felt improvements to public transport and traffic safety – especially near schools – were important potential areas of focus.
- Overall the safety concerns of residents were variable. Some residents thought Mangere was a safe ward but others did not. The MCC survey results show that safety was of key importance for residents but was performing poorly. There was concern for safety around the Mangere town centre.
- Overall it was felt that the health of people within Mangere was reasonably positive. There was concern about accessing health services, both in terms of cost and physical access. Housing affordability and access to unhealthy food were key issues raised by residents.

Tomorrow’s Manukau Consultation - Mangere Town Centre.
There was a strong consensus about the importance of improving the town centre. People want Mangere Town Centre to be: Green, attractive, colourful, easy to get around, accessible (for disability), clean, open, spacious, safe, attractive to youth (places to do things) and older people to gather.

Positives about the town centre: friendly people, close to family, good neighbours, cultural diversity, close to everything, sporting talent (e.g. Monty, Jonah), facilities, village feel of Mangere Bridge, Mountain View primary school.

“The main things I like about living in Mangere area is that it’s close to shops, airport, church, public transport and other facilities which are very convenient to me and my family. I also like living in this area because there are many friendly faces that make me feel right at home."

“My tupuna were here before 1800s”
“What I like about Mangere is that I can go to my neighbours wedding (he is Fiji Indian and I am Maori)”

“Small town feeling, sense of well established families concerned about the community, well cared for parks, reserves and library

Negatives about the town centre: graffiti, littering and rubbish; lack of access to parks, housing affordability, safety & crime, lack of youth facilities and employment opportunities, traffic safety (including children playing in driveways)

“Its a good area with nice people but the overall look of the area isn’t very nice.”

“An increase of talented people spreading talent is what South Auckland kids need.”

Population & Ethnicity
Manukau City has had very high population growth compared with other parts of Auckland and NZ and this is predicted to continue. Mangere Ward has a very high Pacific population – 59% compared with 6.5% in New Zealand overall. The proportion of Pacific Peoples is particularly high in Mangere Central where over 70% of the population are of Pacific origin.

The Maori population in Mangere is also significant – around 20% in both Mangere Ward and Mangere Central, compared with 14.7% for NZ overall. The proportion of Asian peoples in Mangere is similar to the national average and lower than in many other parts of Auckland and the Mangere electoral district has the lowest proportion of NZ European residents of any electorate in NZ (based on Census 2001 data).

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Mangere Central</th>
<th>Mangere Ward</th>
<th>Manukau City</th>
<th>New Zealand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>3,057</td>
<td>45,429</td>
<td>283,197</td>
<td>3,586,731</td>
</tr>
<tr>
<td>Ethnic Groups</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Pacific Peoples</td>
<td>70.5%</td>
<td>59%</td>
<td>26.9%</td>
<td>6.5%</td>
</tr>
<tr>
<td>• NZ European</td>
<td>15.1%</td>
<td>25%</td>
<td>51.6%</td>
<td>14.7%</td>
</tr>
<tr>
<td>• Maori</td>
<td>19.9%</td>
<td>20%</td>
<td>16.5%</td>
<td>6.6%</td>
</tr>
<tr>
<td>• Asian</td>
<td>5.1%</td>
<td>9%</td>
<td>15.1%</td>
<td>1.2%</td>
</tr>
<tr>
<td>• Other</td>
<td>0.3%</td>
<td>1%</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

Source: ‘Planning for tomorrow: Mangere Growth Centre’ Presentation (Rogers, 2005). Based on Census 2001

Culture
Thirty percent of Manukau City residents speak te reo Maori (MSD Big Cities, 2003)

Age distribution
Manukau City is the youngest of NZs big cities with 42% of the population aged under 25 (MSD - Big Cities). Mangere is a particularly young area, with 34% of people in Mangere Central and 32% in Mangere Ward aged under 15 years, compared with 24% of NZ’s population as a whole. Mangere also has fewer older people with only 5-6% aged over 65 years, compared with 13% for the whole of NZ. The age distribution is largely due to the ethnic makeup of the area: On average,
Maori and Pacific families have more children and die younger than other New Zealanders.

<table>
<thead>
<tr>
<th>Age distribution</th>
<th>Mangere Central</th>
<th>Mangere Ward</th>
<th>Manukau City</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-14</td>
<td>33.9%</td>
<td>32.0%</td>
<td>27%</td>
</tr>
<tr>
<td>15-64</td>
<td>60.8%</td>
<td>62%</td>
<td>64.7%</td>
</tr>
<tr>
<td>65+</td>
<td>5.2%</td>
<td>8.0%</td>
<td>8.3%</td>
</tr>
</tbody>
</table>

*Source: ‘Planning for tomorrow: Mangere Growth Centre’ Presentation (Rogers, 2005). Based on Census 2001*

**Family Type**

At 31%, the proportion of solo-parent families is the same in the Mangere Ward as in NZ as a whole, but Mangere Central has a slightly higher proportion of single parents than Mangere Ward, and a low proportion of childless couples. Mangere Ward has a much higher proportion of childless couples compared with Mangere Central and Manukau City. In New Zealand as a whole, single person households are increasing but we have not been able to find Mangere-specific data on single person households (based on Census 2001 data).

In 2001 almost a third of all mothers aged under 17 were in Manukau City (*MSD Big Cities*)

**Education**

The proportion of people with post-school qualifications in Mangere (13-18%) is less than half that of the general population of NZ (approx 33%). Participation in Early Childhood Education in Manukau and Waitakere is lower than in NZs other big cities (*MSD – Big Cities, 2003*). Manukau and Waitakere also have the largest proportion of students in low decile schools.
Income

Census figures show that median income in Mangere is significantly lower than the median personal income for urban areas in NZ which is $19,200. Twenty percent of Manukau City residents say that not being able to afford it is a barrier to physical activity (MSD-Big Cities, 2003)

<table>
<thead>
<tr>
<th>Median Personal Income</th>
<th>Mangere Central</th>
<th>Mangere Ward</th>
<th>Manukau City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$13,600</td>
<td>$15,049</td>
<td>$19,000</td>
</tr>
</tbody>
</table>

Source: ‘Planning for tomorrow: Mangere Growth Centre’ Presentation (Rogers, 2005). Based on Census 2001

Occupation

Factory work is predominant in Mangere and in 2001, the Mangere electoral district had the lowest proportion of self-employed people in the country (7%).

<table>
<thead>
<tr>
<th>Occupation (highest %)</th>
<th>Mangere Central</th>
<th>Mangere Ward</th>
<th>Manukau City</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant &amp; machine operators/assemblers</td>
<td>(19.9%)</td>
<td>(16%)</td>
<td>Clerks</td>
</tr>
</tbody>
</table>

Source: ‘Planning for tomorrow: Mangere Growth Centre’ Presentation (Rogers, 2005). Based on Census 2001

Unemployment

In 2001 the Mangere electorate had the highest unemployment rate in the country at 14% (Statistics NZ). To help address this, the Pacific Wave Strategy was launched in July 2003 to reduce Pacific unemployment in Auckland, particularly Manukau, and subsequently the number of Pacific people on the unemployment benefit in Auckland dropped by over 50% between July 2003 and July 2005.

While unemployment has fallen dramatically in recent years, Manukau still has the highest unemployment rate in the region (5.8% in June 2005). Recent unemployment data has not been able to be sourced from Work and Income NZ in Mangere.

Housing & households

Households in Mangere Central have an average of 4.8 persons per household. Whether measured by population or household, Manukau City has by far the highest level of household crowding (24 percent of people, 13 percent of households required one or more bedrooms in 2001) in the country. (MSD Social Report 2005)

Home ownership rates are low in Mangere compared with the whole of Manukau and households in Mangere have significantly lower phone access (86-88%) compared to 96% NZ-wide. Internet access in Mangere is about half the rate for the country as a whole.

<table>
<thead>
<tr>
<th>Households</th>
<th>Mangere Central</th>
<th>Mangere Ward</th>
<th>Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average size</td>
<td>4.8 pph</td>
<td>3.8 pph</td>
<td>3.3 pph</td>
</tr>
<tr>
<td>Access to telephone</td>
<td>87.3%</td>
<td>88%</td>
<td>94.7%</td>
</tr>
<tr>
<td>Access to internet</td>
<td>17.5%</td>
<td>21%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Owned home (+/- mortgage)</td>
<td>50.8%</td>
<td>57.8%</td>
<td>65.3%</td>
</tr>
</tbody>
</table>

Source: ‘Planning for tomorrow: Mangere Growth Centre’ Presentation (Rogers, 2005). Based on Census 2001
Current number on Housing NZ Corp waiting list for houses in Mangere:

<table>
<thead>
<tr>
<th>Count of NHU</th>
<th>Bedrooms*Required</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Segment</td>
<td>1 2 3 4 5 6 8</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1 3</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>14 98 73 46 33 4 1</td>
<td>269</td>
</tr>
<tr>
<td>C</td>
<td>21 66 59 38 2</td>
<td>186</td>
</tr>
<tr>
<td>D</td>
<td>10 26 17 2 1</td>
<td>56</td>
</tr>
<tr>
<td>Grand Total</td>
<td>46 193 149 86 4 1</td>
<td>515</td>
</tr>
</tbody>
</table>

NHU = Neighbourhood Unit (Mangere)
Segment = HNZC rating of the applicants need. A is those with the most urgent need and D the least urgent need.

Number of existing houses owned by HNZC in Mangere – 3190

Number of existing HNZC sites within the 800 meter radius - 258
*(Information provided 2/2/05 by HNZC)*

Social Cohesion
Six out of ten Manukau residents agree or strongly agree that the community works together and supports each other. This is similar to results from other big cities. However residents of Manukau City are less likely than residents of NZs other big cities to report that they have someone to turn to for support in times of stress. People from the Pacific Islands and the elderly placed particularly high importance on having strong networks of people who live in the same area. (Others felt stronger attachment to groups of shared interests, not necessarily living in the same neighbourhood). Twenty two percent of Manukau residents say that there is no particular group or network they belong to and 20% feel lonely “a good bit of the time, most of the time or all of the time”. These figures are slightly higher than in the other big cities.

Only 51% of Manukau residents have pride in the look and feel of their city – the lowest rate in the biggest cities and graffiti and safety concerns were given as the main reasons for dissatisfaction *(MSD Quality of Life in the Big Cities Report, 2003)*.

Transport

**Household Access to Car:**

- Mangere Central 86.4%
- Mangere Ward 87.9%
- National Average 90.4%


**Public Transport**

In 2001, passenger transport accounted for 9.3% of journeys to work for Mangere Central residents.

**Bus Services to and from Mangere Town Centre**

The main destinations for bus services from Mangere Town Centre are:

- City via Onehunga and Newmarket
- Otahuhu Transport Centre
- Manukau City Centre (via Papatoetoe)
It is also possible to catch a bus service to the following destinations:

iv. Middlemore Hospital
v. Airport
vi. Otara, Botany Town Centre, Pakuranga

<table>
<thead>
<tr>
<th>Northbound via Onehunga</th>
<th>Frequency (peak)</th>
<th>Frequency (inter- peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>305 (City via western side of Mangere Mountain)</td>
<td>Approximately every 30 minutes</td>
<td>Hourly</td>
</tr>
<tr>
<td>305 X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>344 (Papatoetoe to Onehunga Transport Centre via Coronation Road)</td>
<td>Two services in peak</td>
<td>n/a</td>
</tr>
<tr>
<td>328 (Manukau City Centre, Papatoetoe to Britomart via Coronation Road)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To and from Otahuhu</th>
<th>Frequency (peak)</th>
<th>Frequency (inter- peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>359 (Panmure via Otahuhu)</td>
<td>30 minutes (peak only)</td>
<td>n/a</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To and from other (Airport, Middlemore, Otara, Botany, Pakuranga, Papatoetoe, Manukau City Centre, etc)</th>
<th>Frequency (peak)</th>
<th>Frequency (inter- peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td>348 (Onehunga to Manukau City Centre)</td>
<td>30 minutes</td>
<td>Hourly</td>
</tr>
</tbody>
</table>

Walkability

The ‘Mangere Walkways and Linkages Analysis’ (May 2005) concluded that “From a pedestrian perspective, Mangere’s most significant issues include a poorly connected street network, lack of pedestrian crossings, and dysfunctional town centre”. Walkways are important and many are well used, due to the lack of connectivity of the street network. However only 3 out of 27 walkways are lit, and some are narrow, isolated and/or have poor natural surveillance.

Environment

Manukau City has 8.9 hectares of green space per 1000 population (compared with North Shore 7.3, Wellington 19.8) and 34% of residents of Manukau City felt noise pollution was a problem or a big problem in their neighbourhood. However air quality in Manukau City is good compared with other big cities (MSD Big Cities 2003).

Crime & Safety

Residents of Manukau and Auckland City feel less safe than resident of the other big cities and dangerous driving and “hoons” are perceived to be a major safety issue, and risk to cyclists and pedestrians are a concern. A Manukau CC survey showed that safety was a concern for some residents and safety of the town centre was of particular concern. Community safety issues identified as priorities were environmental safety, road safety, health safety, youth safety, family safety, and dishonesty crimes (MCC: Community Safety and Crime Consultation 2003; MSD Big Cities, 2003).

When comparing the Manukau results to the National Victimisation Survey (1996) Manukau residents had an elevated perception that crime was a local problem (64% vs. 33%). Priority crime issues identified were dishonesty crimes, health safety, anti-
social behaviour, the justice system and youth justice. Child, Youth and Family’s notifications in Manukau City were second only to Waitakere in 2001 (MCC: Community Safety and Crime Consultation 2003; MSD Big Cities, 2003).

Health
The infant mortality rate in 1997-1999 in Manukau City was 7 per 1000 compared with 6.1/1000 across NZ and Manukau City has the highest rate of Meningococcal disease in the country (MSD Big Cities). Prevalence of diabetes in 2002/3 was significantly higher in Counties Manukau (5%) than in other Auckland DHBs (3.2% WDHB, 4.2% ADHB) and NZ wide (4.1%) (Counties Manukau Public Health Information 2005).

Health indicators in Counties Manukau DHB
Please note that these statistics are based on small numbers in each suburb and therefore should be treated with caution.

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Life expectancy 1996</th>
<th>Acute PAH 2000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Howick Pakuranga</td>
<td>76.4</td>
<td>81.8</td>
</tr>
<tr>
<td>Beachlands Maraeitai</td>
<td>77.7</td>
<td>83.0</td>
</tr>
<tr>
<td>Otara</td>
<td>68.3</td>
<td>74.3</td>
</tr>
<tr>
<td>Mangere Papatoetoe</td>
<td>71.6</td>
<td>77.4</td>
</tr>
<tr>
<td>Manukau Manurewa</td>
<td>72.3</td>
<td>78.0</td>
</tr>
<tr>
<td>Takanini Papakura</td>
<td>73.0</td>
<td>78.6</td>
</tr>
<tr>
<td>South Rural</td>
<td>73.5</td>
<td>79.2</td>
</tr>
<tr>
<td>Total CM</td>
<td>73.0</td>
<td>78.7</td>
</tr>
</tbody>
</table>

Life expectancy calculated from birth, using 1996 age-specific mortality rates. PAH = Potentially Avoidable Hospitalisations, most of which are potentially preventable through improved primary care, all ages included, elective admissions excluded. GP numbers from 1999. (Source: Jackson, 2001)

One of the most important measures of health is life expectancy. Otara residents have a very low life expectancy – one of the lowest in New Zealand. Mangere has the next lowest, followed by Manukau. More recent figures obtained from Counties Manukau DHB based on 2000-2002 data indicate that life expectancy in Mangere has gone up to 77.4 years - a positive result but one to be treated with caution due to small sample sizes.

Otara, Mangere and Manukau also have the highest rates of potentially avoidable hospitalisations. In any one year around 5% of their populations will be admitted to a public hospital for a condition that might have expected to be prevented or treated by alternative means, mainly in primary care (Jackson, 2001). These conditions include illnesses that could have been immunised against (e.g. whooping cough, meningococcal disease, measles); diabetes-related conditions, heart problems, skin infections, ulcers etc that could have been prevented or treated earlier by a GP.

Evidence from both overseas and New Zealand suggests that there is a strong link between avoidable hospitalisations and the underutilisation of primary care, and that underutilisation is associated with lower socioeconomic status (Dharmalingam, 2004). Manukau City has the fewest GPs per head of population in the country (MSD Big Cities), and people may put off going to the GP due to cost.

Physical Activity
Prevalence of regular physical activity was 52.3% in Counties Manukau, similar to national prevalence and slightly higher than other Auckland DHBs according to data from the NZ Health Survey. Nationwide, men tend to be more active than women, and this gender difference is pronounced in Counties Manukau with 58.4% men and
46.8% of women over 15 years engaging in regular physical activity. Within Counties Manukau, Maori had the highest prevalence of regular physical activity (57.1%) followed by Other (54.4%), Pacific (47.6%), and Asian (43.6%) (NZ Health Survey 2002/03).

Data from SPARC surveys shows similar levels of activity for adults in Counties Manukau as with other NZ adults, but fewer (58%) young Counties Manukau people are active in comparison to 68% of all young New Zealanders. Boys in particular spend less time being active than their national counterparts. They spend, on average, 5.5 hours per week participating in sport and active leisure compared with 7.3 hours for all New Zealand boys (SPARC, 1997-2001).

Other Risk Factors
In Counties Manukau the average adult is more likely to smoke tobacco than the national average and to eat less fruit and vegetables. Across NZ, 34% of adults were overweight in 2002/2003 yet the proportion of overweight adults is slightly higher in Counties Manukau DHB at 35.2%. In Counties Manukau males (43%) have a higher prevalence of overweight than females (27.8%) and the prevalence of overweight in Counties Manukau is highest amongst Pacific (40.4%) followed by Others (37.5), Maori (35.3) and Asian (17.3%).

| Overweight: age-standardised prevalence (% of adult population) NZHS 2002/03 |
|-----------------|-----------------|---------------|-----------------|---------------|-----------------|-----------------|-----------------|
|                  | Maori Men    | Maori Women  | Maori Total   | Pacific Men  | Pacific Women | Pacific Total   | All Ethnicities |
| Counties         | 41.1%        | 30.2%        | 35.3%         | 47.9%        | 33.6%         | 40.4%          | 35.2%           |
| Manukau          |               |              |               |              |              |                |                 |
| New Zealand      | 38.0%        | 33.7%        | 35.8%         | 43.9%        | 34.8%         | 39.2%          | 34%             |

In the 1996 census, 51% of Maori in Mangere Central were tobacco smokers. Marijuana use in Counties Manukau was lower than in other Auckland DHBs and in NZ overall. Hazardous drinking is also lower in Counties Manukau than nationally, although it is similar to other Auckland DHBs. Counties Manukau has the lowest number of licensed premises per population in the Auckland region. However in Mangere, the number of ‘off-licences’ and large hotels is considered high within the local area, and hazardous drinking is a significant local issue.

Youth Health
In 2004 children and young people aged 0-24 made up 40.9% of the Counties Manukau DHB population and are of greater ethnic diversity than the NZ average.

Counties Manukau has had a higher child and youth mortality rate than the NZ average and the rest of the Auckland region since 1999. In 2001 in Counties Manukau Maori & Pacific aged 0-24 were 3.7 times and 2.6 times respectively more likely to die than NZ European and Other. Child and youth mortality is also associated with socio-economic status, with youth aged 15-24 in the most deprived NZDep Quintiles approximately twice as likely to die as those in the least deprived quintiles. In 1999-2001 the top two causes of death in youth aged 15-24 in Counties Manukau were injury resulting from suicide (31.3% of deaths) and road accidents (26.6% of deaths). While across the country youth suicide was trending down between 1997-2001, the suicide rate went up in Counties Manukau during this period (Paediatric Society, 2005; ‘Counties Manukau Population Health Indicators 2005, 3rd Ed.’).
Youth and family life:
Many students (males 40.3%, females 48.4%) report their parents worry about not having enough money to buy food for the family. About 90% of students report their mum and/or dad (or someone who acts as their mum and/or dad) care a lot about them but only 57% say that they get enough time to spend with their mum or dad most weeks. About 60% say that they have someone in their family that they can talk to about problems (‘Auckland South Youth: A profile of the health and wellbeing. Regional Report from Youth 2000’).

Youth and school, recreation & spirituality:
South Auckland had the highest proportion in the country of students who liked school a bit, a lot or thought it was OK – 91.5%. Most young people report a park (74.8%) or a sports field (62.8%) within walking distance from their home, however 7.9% of students say they have nothing to do in their neighbourhood. South Auckland had the highest proportion of students in the country who report that their spiritual beliefs are very important to them (males 48.5%, females 59.5%) (‘Auckland South Youth: A profile of the health and wellbeing. Regional Report from Youth 2000’).

Youth and health, diet, exercise etc:
About 90% considered their health as good, very good or excellent (males 93.9%, females 86.9%) and this is slightly lower than in most other regions of NZ. About half of the students had ever smoked a cigarette and some reported daily smoking (males 7.9%, females 17.3%). More than one third of students (males 41.8%, females 39.5%) have tried using marijuana. A few students (males 7.1%, females 5.7%) use marijuana at least once a week. About three quarters of students report that they have tried drinking alcohol. Many students (males 33.6%, females 29.6%) report at least one episode of binge drinking (5 or more alcoholic drinks within 4 hours) in the last 4 weeks. South Auckland has a relatively low proportion of weekly alcohol drinkers compared with most other regions, but local opinion believes this is unlikely to hold true in Mangere itself.

More male (87.1%) than female (62.7%) students are OK, happy or very happy with their weight. Females (68.8%) are more likely than males (31.8%) to have tried to lose weight in the last 12 months. Some students (males 26.2%, female 24.4%) reported having takeaways 3 or more times during the past school week (Monday to Friday). Fewer female (33%) than male (54.9%) students reported they had exercised vigorously on at least 3 occasions during the last week.

About 30% of students report that they had ever had sex, and about 20% report being sexually active (sex in the last 3 months) and only about half of students report always using contraception to prevent pregnancy, and a similar proportion report they used condoms as protection against sexually transmitted infections (‘Auckland South Youth: A profile of the health and wellbeing. Regional Report from Youth 2000’).

Youth and violence and abuse
Similar proportions of male and female (39.9% and 40.6%) students report being hit or physically harmed by another person in the last 12 months. Thirty one percent of females and 23% of males report ever being touched in a sexual way or were made to do sexual things they did not want to do (‘Auckland South Youth: A profile of the health and wellbeing. Regional Report from Youth 2000’).

Youth and emotional and mental health
Four out of ten males and two out of ten females report they are happy or satisfied with their life. This is slightly lower than most other regions in NZ. Some students report they are under a lot of stress – 7.6% of males and 12.1% of females. About
one quarter of females and about 13% of males have significant symptoms of depression. These figures are at the high end compared with other regions. 7.5% of males and 16.7% of females report they had attempted suicide in the last 12 months (‘Auckland South Youth: A profile of the health and wellbeing. Regional Report from Youth 2000’).
The potential effects of the Pershore Precinct plan

Full details of the workshop findings are presented in Appendix A, and of the evidence review in Appendix B.

Physical activity

One of the main purposes of the Plan is to improve connectivity through pedestrian and cycle access between the Pershore precinct and the Mangere town centre. The Plan also includes re-designing parks in the Pershore precinct to incorporate crime prevention through urban design principles and improve access and signage of the parks.

Physical activity is typically defined as any form of exercise or movement. While physical activity includes planned activity such as sports, it also includes daily life activities such as active transport (walking, cycling) and so on. Building exercise into a person’s day is important to increase overall activity levels. Building safe active environments particularly benefits vulnerable groups because there are no individual costs to be borne when using urban infrastructure as the major form of activity (unlike facilities that often charge a service fee).

Quality, safety, width of roads, footpaths and cycleways affects ease and frequency of use, particularly by the elderly, people with children, people with disabilities and households without access to a motor vehicle. Research shows that the existence and perceived accessibility of recreational facilities (including walkways and cycleways) are important determinants of physical activity. Walkability of neighbourhoods, and having a variety of shops and businesses within easy walking distance is associated with higher levels of physical activity (SPARC, 2005). European investment in expanding walkways and bikeways, making intersections safer for pedestrians and planning pedestrian friendly communities do work (SPARC, 2004).

The Pershore Precinct development has the potential to increase physical activity for all people, including people from vulnerable groups. This has a number of highly significant health, social, environmental and economic benefits for individuals and communities, and has the potential to reduce inequalities in health. These include protection against heart disease, certain cancers reducing risk of obesity and subsequent diseases such as the onset of diabetes. It also promotes a sense of well-being and protects older people from depression (Wilkinson & Marmot, WHO 2003).

The Plan describes how it will use crime prevention through urban design principles in the parks and streetscape of the Pershore Precinct, but it is equally important to consider injury prevention through urban design principles. The cycleways that are suggested must provide maximal protection for cyclists if they are likely to be used by school children, for example. Regular cycle commuters may feel comfortable with painted lines on roadways to designate cycle lanes, but it is unlikely that parents will believe this offers their children adequate protection. Investigation of cycle lanes either on widened footpaths or segregated from the roadway\(^1\) is required if the health benefits of these being installed is likely to occur.

The Plan does not provide significant detail on housing designs for the Pershore Precinct, but again the design has the potential to promote activity – through the use of safe play areas visible to parents and built safely away from driveways, and safe

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\(^1\) For example, segregated cycle lanes that use a small kerb in the existing roadway, creating a carriageway on the street separate from vehicles and footpaths
parks. Safe play areas also promote social connectedness for solo parents and enhance the likelihood of free will movement of children. Currently the parks are perceived as poorly designed and unsafe by parents and children, and drive-way runovers have been reported as a significant issue at Starship Children’s hospital.

**Social connectedness and access to community and services**

The Mangere Growth Centre Plan has guiding principles to ‘celebrate different cultures’ and to ‘establish a Mangere identity’. These explicit attempts to generate social connectedness, along with environmental change have the potential to significantly reduce the risk of isolation in Mangere.

Social connectedness means that ‘people enjoy constructive relationships with others in their families, whanau, communities, iwi and workplaces. Families support and nurture those in need of care. New Zealand is an inclusive society where people are able to access information and support’ (MSD, Social Report 2005). Social connectedness is valued very highly by this community. Stakeholders need to recognise the risks to social cohesion that are inherent in intensification and ensure that what the community values is preserved.

Access to services is one of the possible pathways between social connectedness and health (Kawachi et al, 2000). Services are often of lesser quality and more difficult to access in more deprived areas (Galea et al, 2005). Barriers to access are sometimes institutional and race/age based, and other times they are geographic and design based. For example, those without a car (highly represented in vulnerable communities) have reduced access to those facilities designed that assume car use. People with disabilities are particularly affected by design-based access issues. Ensuring safe, accessible and reliable public transport, walking and cycling options goes some way to mitigating a lack of private vehicle transport (Public Health Advisory Committee, 2003; Transport and Health Study Group, undated).

Practices that cast some as socially inferior or less valuable, language differences and tensions between ethnic groups all undermine social cohesion between people (MSD, 2005; WHO, 2004). Social connectedness is fostered when people have the skills and opportunities to make friends and to interact constructively with others, and when people feel safe and secure. (MSD, 2005).

Displacement of housing is a significant predictor of wellbeing, where security and length of tenancy are related to multiple health outcomes, including minor psychiatric illness, stress and an ability to socially invest/engage with a community. All household members are affected by this lack of control over housing decisions, including children and the elderly. Flow on effects include disrupted friendships, employment and education. For tenants in social housing, considerable stress has been reported from a lack of opportunity to negotiate with the housing authority regarding the move. Housing relocation has also been associated with loss of community (particularly of a community’s leaders and role models), uprooting of social networks and unsatisfied social aspiration which may counter satisfaction with improved housing (Thomson et al, 2002).

Social connectedness can be improved using community building and regeneration programmes, structured opportunities for participation, provision of social support programmes, community arts programmes and physical activity.

The planned development of the Pershore Precinct has the potential to maintain and improve social relations and further develop already strong supportive networks that
can improve health at home, at work and in the community. This has the potential to have a powerful protective effect on health. If these are disrupted, negative health impacts are likely to occur (WHO, 2004). Social isolation and exclusion are associated with higher death rates, poorer chances of survival after heart attack, lower immune function, stress and reduced physical activity (WHO, 2004, Seeman, 1996, Hawe and Shiell, 2000).

The Plan to develop the Pershore precinct demonstrates a significant investment in the community that itself has the potential to further develop a positive sense of place, particularly since the Growth Plan has general community support. This positive sense of place can be supported by clear, complete and timely communication with local residents, particularly since vulnerable residents (for example, long term residents, disabled, elderly) may feel vulnerable about potential disruption to their lives and community, and the lack of control they perceive they have over decisions.

The most likely potential disruptor to social connectedness from the planned development of the Pershore Precinct is when families are relocated during the development stage. Every effort is made to keep the family close to networks by Housing NZ, but there is still a high likelihood that some families will end up in different neighbourhoods (particularly large families where there is a waiting list for housing already). Also, some families who are relocated, after being settled in a new location, will not want to be relocated back to the Pershore precinct (due to hassle of moving again, or liking the new area, etc). This is likely to cause disruption to social networks such as family, friends, churches, interest groups and sports teams and disruption to access to services, including GPs, education services (including special education requirements), and social services. Dislocated families and individuals may spend more time and money to maintain existing networks since local knowledge suggests families will travel long distances to attempt to maintain church and family networks. There is also a high likelihood that some individuals and families currently receiving services may ‘fall through the cracks’ when they are relocated. For example, local people already have low access to GP services, GP books in Mangere are closed, and relocated residents are highly unlikely to be able to access anything but their previous GP, regardless of their geographical location within Mangere. Local people most likely to be affected by this include the physically and mentally unwell, special needs children/ youth, people in difficult social circumstances, people with disabilities and the elderly. Finally, workers may also face additional difficulty or cost due to longer distances to travel, or using unfamiliar routes, to maintain current work. There is already an acknowledged lack of public transport to key work places and this will be exacerbated by the planned increase in population. In extreme cases employees may give up current employment and work closer to their new home. These potential outcomes are likely to impact on family income, stress, physical activity and mental wellbeing, and particularly to affect those with current mobility issues. Timing the development of the Precinct so that it matches in with increased demand for services (health, transport, social, workforce, education, etc) needs to be planned. This is not currently happening or planned to happen.

The outcome of relocation and where people are relocated to and support mechanisms to maintain past networks and make new connections will be critical, relying on the process of relocation and ability of HNZ tenants to be intimately involved in that process.

While access to services and the community is likely to be negatively affected for some residents due to relocation, for those who return and live in the new Pershore
Precinct the long-term prospect for access to services and the community has the potential to be strengthened (providing access to current networks is maintained throughout the demolition and construction process). Improved walkways and cycleways that are planned to connect the town centre to the Pershore Precinct could be further enhanced by designing common indoor areas and spaces for community services within the Pershore Precinct complex itself. This will be particularly important for older people, people with young children and people with disabilities who might otherwise have more difficulty accessing services.

New housing options that may be used in the Pershore Precinct do not include garages of the size that are currently available to tenants. Temporary housing of friends and family in garages is widespread in Mangere according to Housing NZ and local knowledge. Garages also act as a separate space (living) for young people and are used for social gatherings. The current garages were never designed for living and therefore pose a number of health risks due to heating (warmth and accidental injury), dampness issues and overcrowding on the property. However, they do provide a positive social role for families and the loss of this aspect to living in Mangere is acknowledged. Judging the overall impact on health from the replacement of garages is difficult as there is no direct data to assist personal judgements.

**Personal and community safety**

The Mangere Growth Centre Plan has a guiding principle to ‘improve public safety through design’. If achieved such a principle has the potential to improve personal and community safety in Mangere.

Using urban design for promoting safety and crime prevention is a relatively well established aspect to planning theory, although inconsistently put into practice. People feel safe when they feel able to do what they normally would do, without concern about their own physical safety and the safety of others, and without concern or fear about injury or crime. The *National Guidelines for Crime Prevention Through Environmental Design in New Zealand* in 2005 describe seven qualities which enhance community safety and, hopefully, reputation (Ministry for the Environment, 2005a):

- **Access**: safe movement and connections
- **Surveillance and sight lines**: see and be seen
- **Layout**: Clear and logical orientation
- **Activity mix**: eyes on the street
- **Sense of ownership**: showing a space is cared for
- **Quality environments**: Well designed, managed and maintained environments
- **Physical protection**: using active security measures

When areas are visible from nearby or are well lit, or do not have spaces were someone could be invisible, people feel safer. Passage ways and pathways can be built or modified so that people can have a good view through them, and know there are no unsafe spots (Carter et al, 2003). The function of a neighbourhood space is also influential. If there are people around doing familiar things people may feel safer.

The development of the Pershore Precinct is planned to reconfigure the parkland onto street frontage (rather be hidden behind houses at the moment) and site houses to have clear sight lines to streets and parks. This has the potential to have a positive effect on health and wellbeing, particularly physical and psychological injuries received from criminal activities (while only a small proportion of all injuries or of...
recorded crime) (Cohen and Miller, 1998; Norris and Kaniasty, 1994). Experience of, and fear of crime effect health through stress, sleeping difficulties, loss of appetite, depression, loss of confidence and increased use of coping methods that harm health (for example, smoking) (McCabe and Raine, 1997). The mental distress, stress and social exclusion caused by fear of crime can significantly affect the quality of a person’s life, and those previously unaffected by crime may suffer from this as well. Finally, people with lower vulnerability to crime may still be affected by fear of crime (Evans and Fletcher, 2000).

Improved connectivity through signage, well-lit and designed pathways that proved safe and pleasant access to the town centre are also likely to be positive for health and wellbeing. The town centre plan discusses the need for safe crossing of the car-parks, and this is particularly important for Pershore Precinct residents as the large car-park (with no pedestrian crossing points) is a significant injury risk area when walking between town and the Precinct.

The increased density of social housing has the potential to increase the fear of crime as a stigma already exists around Housing NZ tenants, but with good design of housing and streetscape the likelihood of this occurring diminishes. Perceived fear of crime and how the design will help to prevent crime should be communicated to residents as part of the usual communication process, particularly since within Manukau City, safety concerns are more prevalent than other big cities, and local surveys show there are safety concerns around the Mangere town centre. The housing design has the potential to protect people while they are in their home (for example, through better home security such as window stays and locks (also protect against child injuries)) and through passive surveillance of street-scenes and parks.

The Growth Plan is attempting to increase the population in the local area and this in turn has the potential for sustained increase in traffic throughout the area (including a short-term increase in heavy vehicles movements during the construction period). Pacific and low income children are already over-represented in road traffic accidents statistics and local residents believe the roads are busy and dangerous. The Plan has the potential to maintain or increase this effect and so safe walkways and cycleways are imperative, where the safety of cyclist and pedestrian is the number one priority when designing new transport routes (cars are the bottom of the hierarchy). Investigation of cycle lanes either on widened footpaths or segregated from the roadway is required if the health benefits of these being installed are likely to occur.

**Housing availability, accessibility and suitability**

The redevelopment of the housing stock in the Pershore Precinct is a key component of the Growth Plan. As the major landholder in the area, Housing NZ has significant flexibility to redevelop not only individual houses, but also a substantial area of the precinct.

Access to good quality and affordable housing is recognised as an important determinant of health (ARPHS, 2005). The many links between housing and health include problems of crowding, insecure tenure, building quality, and house conditions (such as dampness and ventilation, including in Auckland) (ARPHS, 2005; Howden-Chapman, 2004). Health issues related to poor housing include infectious diseases (including respiratory and skin infections and meningococcal disease); asthma, mental illness and injury (accidental and from family violence). These translate into effects on children’s days off school, adults’ days off work, self rated health and respiratory symptoms, objective measures of GP visits and hospitalisations.
(Thomson et al, 2002; Howden Chapman, 2004). With intervention, NZ research shows a 37% reduction in housing-related preventable hospital admissions can be achieved (Jackson, 2006). However original residents in private and Housing NZ rental units may also move away from the area and not benefit from the housing improvements (Thomson et al, 2002).

One of the strategies of the Growth Plan is for the Manukau City Council ‘to work with Housing NZ to develop new housing typologies’ and ‘encourage higher intensity developments along bus routes’, and the Pershore Precinct may largely consist of medium to high density housing (the typology of the housing is yet to be determined in detail). With appropriate design features these have significant potential to improve health and wellbeing. Also, the plan encourages mixed use zoning, which is positive for health wellbeing. This increases the likelihood of encouraging local mobility and activity, and use of neighbourhood space, rather than having housing physically separated from the sites of other locations.

The new housing has the potential to contribute significantly to safety if injury prevention through design principles are used. For example, designs which reduce the risk of children and adults falling down stairs, children out of windows, driveway run-overs of children and fire-related injuries. Accidents in the home are known to be a leading cause of unintentional injury in Auckland and local knowledge suggests children falling down stairs in multi-level homes are a major issue. Pacific and Maori are over-represented in current rates of injury. Injury prevention is inadequately discussed in the housing design material that has been reviewed to date, and injury prevention initiatives are less likely to address the realities of extended families and overcrowding in Mangere. Driveway run-overs are a particular hazard in Auckland, and any design must address this current hazard.

The Plan does not provide significant detail on housing designs for the Pershore Precinct, but improved warmth, dryness and ventilation are likely outcomes. It is important that ventilation is separately considered as some new homes are ‘tight’ and have moisture problems due to a lack of airflow, but this can be addressed with good design. Improved warmth, dryness and ventilation are likely to have a highly positive impact on not just wellbeing and hospital admissions, but also social impacts such as work productivity and school attendance. Mental wellbeing and family dynamics may also be improved from the higher quality living standards, and more money may be available for core activities such as food and clothing if less is spent on energy.

An issue of concern for the community is the bad press from some recent private apartment developments (largely inner-city Auckland). Several apartment blocks have been built resulting in apartments with poor ventilation, a lack of space (room size, storage and food preparation areas), and intrusive outside noise. Safety and security of car-parking, mail and access to apartment buildings, inadequate recycling facilities, poorly designed rubbish areas, inadequate balconies and the importance of building managers are further issues (Auckland Uniservices, 2004). It is important that lessons are learned from these poor private developments, and those successful features from recent Housing NZ developments are employed in the Pershore Precinct design.

With the limited information available on housing design it is difficult to judge the overall health impact, and so potential concerns have instead been noted for consideration by Housing NZ. It is highly likely that these will be addressed under standard design briefs and it is important for health gains that they are covered: privacy from greater intensity; noise and rubbish causing conflict; insulation and energy saving features; play areas and risk of driveways. Noise is of particular
concern as Auckland City has tighter noise standards than Manukau City and it is highly likely that the buildings will be built to the lower specifications. This is not acceptable to the local community, particularly since noise is significant issue in apartment living. Regarding the safe play areas, the reconfiguration of the local parks will help to offset any loss in backyard play areas, but it is unrealistic to expect children to play only in parks and so the apartments of the Pershore precinct must be designed in a precautionary way to protect children who play.

Those who do own their own home in the area may see significant gains in capital wealth through rising house prices, resulting in increased access to funds and a potential source of income. Wealth is a significant determinant of health, but this benefit will only be realised by the better-off already – those owning their own home. This gain is partly off-set by rising rating values which may lead to a small proportion of low-income people being forced to sell their property. Also, the higher cost of housing makes it more difficult for new owners to afford or current HNZC tenants to become home owners in the same locality.

The new housing being built presents a potential short-term threat to health through inappropriate access to building sites by local children and youth. Standard security measures should deal with this issue but it is worth monitoring to ensure safety is maintained. Construction work for local unemployed or underemployed people is also a possibility as local knowledge suggests unemployment is still high relative to other areas in Auckland. If this local employment was realised then significant health benefits would be gained for the individual and their family due to increased income and social status.

Finally, Housing NZ has a one-off opportunity to develop eco-friendly apartments on this site. It is acknowledged that these are far more expensive than standard units. It is difficult to quantify the health gains in dollar terms for these low income families from having eco-friendly homes versus traditional housing types, but such a move would not only likely improve health, but would also tie into energy conservation and sustainable development targets for Government.

Summary table of impacts for Pershore Precinct

<table>
<thead>
<tr>
<th>Intermediate factor</th>
<th>Potential health impacts that may effect relevant Let’s Beat Diabetes Framework Goals²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved connectivity, pedestrian and safe cycle access. Potential gains partly off-set by sustained increase in vehicle traffic from population growth. Safe design is key.</td>
<td>Increased physical activity, reduced risk of obesity, reduced risk of diabetes, improved opportunities for social connectedness, improved access to services and community.</td>
</tr>
<tr>
<td>Improved access and design of parks.</td>
<td>Increased physical activity, reduced risk of obesity, reduced risk of diabetes, reduced risk of accidents, improved opportunities for social connectedness</td>
</tr>
<tr>
<td>Significant community investment, including new water, sewage and wastewater infrastructure.</td>
<td>Develop already strong supportive networks improving quality of life in the community. Gains in capital wealth for those owning own home, partly off-set by rate rises.</td>
</tr>
</tbody>
</table>

² Changing Urban Design to Support Healthy, Active Lifestyles: Increased physical activity levels and social cohesion are supported by the redevelopment of existing urban hubs and town centres. Supporting Community Leadership and Action: Make physical activity a fun, natural part of a person’s day.
<table>
<thead>
<tr>
<th>Temporary relocation of families while new housing is being built</th>
<th>Disruption to social networks, church, employment and access to services (including health services such as diabetes treatment).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of garage space for housing family and relatives</td>
<td>Difficult to judge potential overall impact on health from diverse positive and negative social and physical impacts.</td>
</tr>
<tr>
<td>Increase in vehicle movements from increase in population</td>
<td>Increased risk of accidents for cyclists and pedestrians affecting uptake of physical activity.</td>
</tr>
<tr>
<td>Reconfigured parkland, passive surveillance by houses.</td>
<td>Reduced fear of crime and actual crime, increased safety, increased physical activity.</td>
</tr>
<tr>
<td>Safe and secure housing, safe play areas</td>
<td>Reduced fear of crime and actual crime, increased safety. Increased physical activity and reduced risk of injuries.</td>
</tr>
<tr>
<td>Design for warm, dry and ventilated housing.</td>
<td>Reduced risk of hospital admissions, reduced children’s days off school and adults’ days off work. Improved mental health. Option of eco-housing to meet sustainable development goals.</td>
</tr>
<tr>
<td>Apartment style living</td>
<td>Concerns noted for privacy, noise, rubbish.</td>
</tr>
</tbody>
</table>

* These impacts are not directly related to the Let’s Beat Diabetes Goals
The potential effects of the Arts Centre plan

Intuitively, ready access to cultural and arts facilities, such as the proposed Arts centre in Mangere, should improve social well-being and community health. There has been little research on this area, and an extensive review from Australia confirmed that there was much anecdotal and informal information, but little thorough research on the social impact of participation in arts and culture (Australian Cultural Ministers Council, 2004). Reports on community art projects (Semenza, 2003) and community mental health arts projects commonly report favourable results for participating communities.

However, this research tends to concentrate on European perspectives (with culture and arts often being external to ordinary people and specialised), whereas for Mangere (and much of Manukau City), there is a wide and diverse range of cultures and cultural expression which relate to the way people live, particularly for migrant communities and where there are many cross-cultural interactions. These relationships between culture and place and health are complex (Gesler et al, 2002), and their application to urban planning projects seems to be in an early stage. In support of Arts programmes, a Deakin University Review (Keleher and Armstrong, 2005) described nine categories of interventions that have been shown to increase social connectedness, one of which was Community Arts Programmes. It described that the programmes often involved community participation, social inclusion, capacity building and regeneration. Programmes had to be connected with local needs; democratic relationships were essential, and striving for excellence to create pride in achievement were each essential factors in implementation.

Social connectedness research also supports the Arts Centre, and as discussed earlier, friendship, good social relations and strong supportive networks improve health at home, at work and in the community (WHO, 2004). Social connectedness is fostered with family relationships are positive, and when people have the skills and opportunities to make friends and to interact constructively with others (MSD, 2005).

The Arts Centre therefore has the potential to promote health and wellbeing on multiple levels. With the proposed focus on young people, the centre will provide a space for youth to learn, create, rehearse and perform together. This is important given that local knowledge suggests that loneliness and isolation for youth is high, and suicide is the most common cause of death for youth in Manukau City. Designing events with and for hard-to-reach populations will be key, eg youth with disabilities, disenfranchised youth. It has the potential to

Local knowledge suggests youth gang violence is an issue in Mangere, so multicultural events and activities that can build inter-cultural understanding, community spirit and social cohesion will be important to build trust, shared values and a sense of belonging. At present residents feel the town centre is ‘shabby’ and so an ‘iconic’ centre may be a focal point for community pride.

The potential for the centre to promote activity through performance is highly likely, especially given the presence of successful youth performers such as Scribe. The centre could also promote healthy kai in a community run café, ensuring affordable tasty food is on offer, however given typical food offered in cafes this aspect of the design is likely to promote obesity. As a stepping stone for promising artists, and youth who want to gain work experience in the arts, the centre has the potential to provide a strong base, from which health and wellbeing will be enhanced.
As the proposed location is an area known for crime & drunkenness the centre will require quality design, ongoing security and youth involvement in management to prevent the centre becoming a place that attracts undesirable behaviour, and helping people who might otherwise be afraid to come to the centre from missing out.
Conclusions and recommendations

The potential positive and negative health impacts of the framework have been categorised, although many are positive. This is likely to be due to the significant amount of consultation undertaken to develop the plan. Many of the potential negative impacts identified have been experienced in past development planning (often overseas), and more positive experiences of planning show that these can be eliminated or reduced through adoption of these recommendations.

Many of the impacts on health and the determinants of health that were identified were replicated in other parts of the Plan due to the inter-connected nature of the action points proposed. This is beneficial because proposing solutions to enhance or mitigate health impacts for one issue often enhances or mitigates other components of the framework also. Such a situation is common, reflecting how the determinants of health and wellbeing are similarly inter-related.

A number of recommendations were put forward by the invited stakeholders in the rapid HIA workshop and through subsequent work. However only those that:

- had matching evidence, and
- were practically able to be mitigated or enhanced, and
- matched residents’ concerns, and/or
- affected a large number of people, and/or
- caused a significant impact, and/or
- disproportionately affected a vulnerable group

have been brought through into these recommendations. This ensures that any recommendations taken up by Manukau City Council and other stakeholders are robust, practical, evidence-based and desirable for the community and stakeholders. The HIA recommendations have been split into sections that reflect the organisation that has the most ability to implement each recommendation. General and specific recommendations to Manukau City Council and Housing New Zealand for both the Pershore Precinct and the Mangere Arts Centre Development Project are summarised below, as are recommendations for Auckland Regional Public Health Service. Recommendations for consideration when planning the implementation of the Mangere Town Centre Growth Plan are:

Pershore Precinct - Recommendations to the Manukau City Council

1. **Addressing increased demand for health, education and transport services.**
   The projected increase in population will have significant impacts on demand for services such as General Practitioners, education and transport. At present it is expected that such services will expand as the population does, however no coordinated planning is in place to ensure this will occur. Given the vulnerable groups who live in the area and the current difficulty in accessing services it is important that service levels are maintained and improved in this time of transition. A coordinated planning process that addresses access to services is required.

2. **Application of CPTED in planning and development of new park, housing and streetscape environments.**
   The use of crime prevention through environmental design principles within the Plan is critical for preventing a number of potential negative public health impacts. Application of these principles to the new parks, housing and streetscape is welcomed.
3. **Best Practice Building Standards and Noise Controls**

Manukau City Council regulations around building standards should be tightened to reflect best practice in the region. At present Auckland City Council has a tougher noise requirement for new housing than Manukau City Council. Given the proposed increased density of housing it is recommended that Manukau City Council investigate introducing similarly stringent noise controls. Relying on individual developers, such as Housing NZ or others to change their policies to build to higher specifications is unlikely to be effective.

4. **Injury prevention through environmental design**

Injury prevention through environmental design is not listed as an overarching principle in the Plan, although individual components that support such principles do exist in isolation throughout. It is recommended that injury prevention principles (as developed by ACC) are applied to the new parks, housing and streetscape. Safe and segregated cycleways are required if children are going to cycle.

5. **Mitigating financial impacts of rates increases on low-income households**

Development of criteria that would provide rates relief for vulnerable Mangere private home-owners if rate rises significantly exceed city averages due to increasing house prices.

6. **Good communication with residents about improved storm water, sewage and drinking water services**

Plans for maintaining basic services such as storm water, sewage and drinking water are communicated to residents and stakeholders. Options to improve the quality of storm water outflows should be identified that reflect and consider both local and regional needs/impacts.

**Project-level recommendations**

- Footpath widths should be a minimum of three metres and as large as possible (within the designation limits) to encourage walking throughout the entire development block.

- Physically segregate cyclists and cars wherever possible - segregated cycle lanes would place a physical barrier between cyclists and traffic lanes, encouraging children and adults (and parents to allow children) to cycle. These would form a network of safe cycle-ways to and from key areas such as schools, airport and town centre.

- Promote cycle-friendly destinations that include safe cycle storage facilities, showers at work-places, etc.

- Crossing points should be easy to use for people with mobility issues and people with prams, for example use of kerb-less crossing points.

- Consider the use of covered areas at major road crossing points.

- Provide robust street/park furniture

- Provide water fountains to encourage free and healthy drinking option

- Designated areas within the residential complex for the use of specialist services such as Plunket or doctors. Spaces provided within the complex to accommodate a mobile library service.
- Well designed bus shelters and easy access to taxi services.
- Include a recycling centre and comprehensive waste management plan
- Specialist services provided in the designated area within the apartments such as Plunket, doctors, community constable, wardens.
- Designating specific wardens to monitor each residential area.

**Pershore Precinct - Recommendations relevant to Housing New Zealand’s standard practice**

1. During the usual processes of notifying tenants about this development (if and when it gains approval from the Board) that local suggestions for engaging with the community have been made to include focus groups for Pacific people and hui for Māori, including the five Marae that draw Mangere residents.

2. Case managers are required as standard practice to ensure that the relocated residents not only get adequate housing, but that the social, educational, health and workforce issues for the relocated tenants are also catered for in their new environment. The concept of a joint service centre (where Work and Income NZ and Housing NZ provide an integrated service at a shared site) was piloted in Mangere and such work has significant potential for protecting public health. Ensuring that this linkage is maintained is critical to maintaining the wellbeing of this population and this linkage should be a feature of any project monitoring.

3. Standard Housing NZ contracts stipulate the use of local labour and the training of local people. This is further helped by close relationships with the local WINZ office to provide employment and training opportunities for local people. Again such standard practice is highly supportive of public health, and monitoring of this linkage during the project would provide excellent evidence of protecting public health and wellbeing.

4. It is standard practice of Housing NZ to negotiate a suitable new location with tenants who are to be relocated either temporarily or permanently. The relocation process must endeavour to provide certainty about tenant outcomes *as early as possible* – where they are moving to, and whether they are moving back. It is acknowledged that HNZ has a process for assessing need, but this must consider a person’s rights to secure tenure. In most cases, tenant’s ‘needs’ can be predicted and therefore a suitable tenancy placement should be able to be guaranteed, rather than a decision about whether and where the family are to return to, being left for a later assessment. Where there are major changes in need over the course of the relocation, tenants should work with HNZ to renegotiate a new suitable location.

5. It is standard Housing NZ practice that ‘best practice design’ for medium density housing is implemented. This will help to promote and protect public health of the tenants and community.

6. It is standard Housing NZ practice to match housing types and sizes to accommodate the needs of current tenants and the priorities of HNZC waiting lists. This will help to promote and protect public health of the tenants and community.
7. Housing NZ is a signatory to the Urban Design Protocol and thus it is standard practice to use crime prevention through environmental design principles in developments. The use of crime prevention through environmental design principles for apartments is critical for preventing a number of potential negative public health impacts. Application of these principles to the new housing and streetscape is welcomed.

8. Housing NZ builds stock to meet minimum noise standards, and these differ between different local authorities. Given the house types built may be medium to high density it is recommended that the highest specifications for noise insulation are used (such as those for Auckland City Council), rather than the lower specifications that are allowable for Manukau City Council. National specifications for noise should be set by Housing NZ so that regional variations do not lead to differing protection of public health for tenants and that public health gain is maximised.

Pershore Precinct - Recommendations relevant to Housing New Zealand’s developing practice

9. The use of injury prevention through environmental design principles is not explicitly used as standard practice. Injury prevention through environmental design is not listed as an overarching principle in the Plan, although individual components that support such principles do exist in isolation throughout, and Housing NZ’s modernisation programme for existing stock includes some of these features. It is recommended that injury prevention principles are applied to the new housing and streetscape. Such design will also support tenants with disabilities.

10. There is a need to re-consider the current process for involving residents in decision making and Housing NZ’s communication with tenants at the Master Plan stage of such projects. While it is important to not engender fear and concern amongst residents, many of the stakeholders involved in the HIA also believed it was important to include the tenants in the Master plan stage of the process. Housing NZ should consult with residents (or a residents’ committee) about the appropriate time to involve residents in such decisions and develop a regional or national policy as appropriate.

11. Community renewal projects within Housing NZ allow tenants to potentially access vastly superior services to assist residents cope with changing circumstances. This Plan change falls outside this definition, and while tenants require such integrated services, these are not explicitly provided. The assessment undertaken by Housing NZ to exclude Mangere from community renewal status should be reconsidered given the significant deprivation within the area and the scale of the proposed work. A review of the community renewal criteria may be useful to determine if inequalities feature prominently in the decision criteria.

12. That the Housing NZ Board is provided with a summary of the health impacts of the Pershore precinct development prior to any decisions about whether to proceed or not with the proposal.

13. A concept similar to ‘body corporate’ should be set up in the new tenant blocks to give local residents a sense of empowerment and ownership in the development. Such a process would allow tenants to identify and solve their
own issues via a tenant participation body or similar, especially since how to live in high density housing is not part of our culture yet.

14. It is standard practice that Housing NZ provides increased insulation and requires passive solar gain to be designed into all new developments. However, fully sustainable housing should be used in up to half of the development as this area has the highest proportion of low-income people in New Zealand. Apply design principles such as those described in Appendix D, particularly ‘indoor healthy environments’ and ‘energy-related’ options.

15. Apply recommendations from other local research that are highly appropriate for this development. Such recommendations have not been repeated here, so please consider Appendix C an extension of the HIAs recommendations.

**Project-level recommendations**

- Demolition and building site control that prevents illegal access to the sites 24 hours a day.
- Strict enforcement of building site noise and dust consent conditions, including a consent condition regarding speed of trucks and contractor vehicles in the suburban zone.
- Design of public spaces and housing typology that support active living and recreation e.g. visible, safe & attractive stairs, attractive play-grounds nearby, appropriate lighting
- Design public spaces and housing that supports community interaction e.g. covered areas for people to gather to enjoy family get togethers.
- Ensure safe access to parks e.g. safety through design principles, lighting etc
- Ensure that HNZC stock are monitored and maintained to a high standard
- Designated area within the apartments for the use of specialist services such as Plunket, doctors, community constable, wardens.
- Include a recycling centre and comprehensive waste management plan
- Smoke free units within the complex.

**Arts Centre recommendations for the Manukau City Council**

The Arts Centre is a well supported project within the community and has the potential to promote health and wellbeing of local residents, including youth.

- It is strongly recommended that the centre is developed, not only because of its value to artists but also the wider Mangere community and young people in particular.
- Support young people to be actively involved with governance of the centre and leadership of programmes so that they have opportunities to develop a range of skills and experience, such as youth representatives on the
governance board and staff (note the Ministry of Youth Development can provide support and training for youth reps).

- That building social cohesion is made a stated purpose of the project i.e. the project identifies the importance of providing programmes & events that recognise and celebrate a diverse range of cultures and lifestyles.
- That the design and programmes accommodate young people who are typically excluded e.g. youth with children, with disabilities, and “hard to reach” youth.
- That MCC consult with a range of young people. Need youth input into design, use and name of the centre to ensure that it is appealing to them.
- That the purpose, branding, publicity and launch of the centre all encourage a sense of ownership by all sectors of the community. Widespread ownership can be built through use of an opening ceremony and marketing that uses a range of ‘champions’ respected by various communities e.g. kaumatua, church leaders and youth icons.
- Use Injury Prevention through Environmental Design principles and ensure safe linkages between the arts centre and the surrounding community, building on recommendations from May 2005 ‘walkways and linkages analysis’ (signage, lighting etc).
- Link with Maori Wardens & Police, to get their advice and cooperation to assist with any safety issues.
- Allocate a portion of resources to promoting local artists beyond Mangere.
- Maintain relationships with ‘alumni’ e.g. invite back as tutors, or at events etc.
- That the Arts Centre Café include a community-run café and adopts a ‘healthy food’ policy (which could also link in with celebration of a variety of cultures). This should include affordable, healthy food that is appealing to Maori and Pacific peoples.
- That the Centre offers ‘after school’ programmes that include promotion of active leisure and physical activity.
- That opportunities to create an environment that supports wellbeing are exploited e.g. through policies (e.g. food/drink & Smokefree) and programmes.
- Build on and/or link with existing school programmes e.g. ‘transition’ but also offer different avenues of development.
- Local and youth input is suggested for input into the design of the arts centre facility.
- Young people using centre could be commissioned to make art, murals, posters, ads that communicate health or social messages.
- Activity-based programmes such as kapa haka and dance are supported by the centre.
The centre must have facilities to enable local residents to walk and cycle to the facility, and safely store their bicycles.

**Recommendations for Auckland Regional Public Health Services**

Work with Manukau City Council and Housing New Zealand to develop an implementation plan for the recommendations from this HIA. This would involve deciding which recommendations are to be actioned, who has responsibility for them and what resources need to be gathered to make it happen.

Continue to advocate for local health issues by informing planners about health impacts of their decisions and of local development.

Provide a conduit for Manukau City Council and Housing NZ into the Health Sector and assist them in providing and siting preventative health programmes and services within the Pershore Precinct and town centre.
References


Jackson, G. Counties Manukau DHB. Personal communication, 2006.

Jacobsen PL. Injury Prevention 2003; 9:205-209


Ministry of Health (2005) SMR and other indicators of interest for Avondale. Personal communication. Li-Chia Yeh. 29 April 2005.


### Pershore Precinct - Private household owners

<table>
<thead>
<tr>
<th>For each element or aspect of the project:</th>
<th>For the health impact:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>what determinant of health may be affected by the projects implementation?</strong></td>
<td><strong>is that a direct or indirect health impact? What’s the causal chain?</strong></td>
</tr>
<tr>
<td>Increase in property values</td>
<td>Indirect – increase in capital and asset base of households relative to tenants. Increased access to funds and a potential source of income.</td>
</tr>
<tr>
<td></td>
<td>Indirect – higher cost of housing makes it more difficult for new owners to afford or current HNZC tenants to become home owners in the same locality</td>
</tr>
<tr>
<td></td>
<td>Direct – decrease in income from increased rates payments. People possibly forced to sell due</td>
</tr>
<tr>
<td>Demolition of old housing and construction of new housing</td>
<td>Direct – increased construction and traffic noise and risk of accidents (increased heavy vehicle movements, construction sites in local area) (temporary).</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Indirect – potential work opportunities for local people in the demolition and construction industries.</td>
</tr>
<tr>
<td>Positive development occurring in Mangere</td>
<td>Indirect – increased sense of place/worth about Mangere. Knowledge that urban improvement is being demonstrated in Mangere and has community support.</td>
</tr>
<tr>
<td></td>
<td>Indirect – potential</td>
</tr>
<tr>
<td>Category</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Stress</td>
<td>Direct - increased stress and anxiety from the proposal with no assurance the work will actually occur until HNZ Board sign-off is given (late in the process). Sense of lack of control about the proposal.</td>
</tr>
<tr>
<td>Neighbours moving away when relocated, potentially not returning</td>
<td>Indirect – loss of social networks</td>
</tr>
<tr>
<td>Upgrade of storm water and drinking-water infrastructure to supply new houses.</td>
<td>Indirect – reduced risk of flooding, maintenance of quality water supplies</td>
</tr>
<tr>
<td>Increased access to safe and desirable</td>
<td>Indirect - increased physical activity and social</td>
</tr>
<tr>
<td>Parks and Play Areas</td>
<td>Connectedness</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Cyclists and Vehicles Sharing the Same Zone</td>
<td>Direct – Increased Risk of Accidents</td>
</tr>
<tr>
<td>Increased Volume of Traffic on Local Roads.</td>
<td>Indirect – Reduced Access to Services and the Community; Reduced Social Connectedness; Reduced Physical Activity From Not</td>
</tr>
</tbody>
</table>
walking or cycling for trips that involve crossing the road. Direct – risk of accidents; increased pollution. community profile shows residents believe the roads are busy and dangerous.

Enhanced connectivity to town centre

Direct – increased physical activity as people are more likely to walk or cycle to the town.

Use of CPTED principles around the precinct, the walkways and along the route..

Positive

All private household owners, business operators. People in private households without access to vehicles.

<table>
<thead>
<tr>
<th>Pershore precinct – current residents who may be relocated</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>For each element or aspect of the project:</strong></td>
</tr>
<tr>
<td>what determinant of health may be affected by the projects implementation?</td>
</tr>
<tr>
<td>Disruption to social networks such as family, friends, churches, interest groups and sports teams</td>
</tr>
<tr>
<td>Disruption to access to services, including GPs, education services (including special education requirements), and social services</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Disruption to access to workplace</td>
</tr>
<tr>
<td>Increased types of homes available to return to, that better suit tenants needs, are warmer and drier.</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Reduced amount of garage-space and back-yard space in new homes.</td>
</tr>
<tr>
<td>Large families that have a number of people in the house living there (who</td>
</tr>
<tr>
<td>Large families requiring 6-7 rooms may be split.</td>
</tr>
</tbody>
</table>

### Pershore Precinct - Sole Parents & Youth

<table>
<thead>
<tr>
<th>For each element or aspect of the project:</th>
<th>For the health impact:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>what determinant of health may be affected by the projects implementation?</strong></td>
<td><strong>is that a direct or indirect health impact? What’s the causal chain?</strong></td>
</tr>
<tr>
<td>Reduced physical Activity/Social connectedness. No garden for upstairs</td>
<td>Indirect – Safety concerns may result in reduced physical activity for children, associated with increased risk</td>
</tr>
<tr>
<td><strong>Knowledge/evidence</strong></td>
<td><strong>what key factors may encourage or prevent the health impact</strong></td>
</tr>
<tr>
<td>Local evidence suggests parents want to keep a watch on children when they are Design of housing that incorporates safe play areas, in view of parents or neighbours. Other adults to</td>
<td>is it likely to be +ve or –ve</td>
</tr>
<tr>
<td><strong>who may be affected</strong></td>
<td><strong>which groups may be differentially affected</strong></td>
</tr>
<tr>
<td>Negative</td>
<td>Parents and children</td>
</tr>
<tr>
<td>Residents, therefore kids cannot run around outside while parent is doing chores.</td>
<td>Residents, therefore kids cannot run around outside while parent is doing chores.</td>
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<tr>
<td>of obesity, depression, diabetes etc. May lead to greater isolation for parents (who would otherwise meet others via kids playing together), which is associated with poorer mental and physical health.</td>
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</tr>
<tr>
<td>supervise. Physical environment provides opportunities for socialising while supervising children at play. Processes to encourage new tenants to meet others.</td>
<td>supervise. Physical environment provides opportunities for socialising while supervising children at play. Processes to encourage new tenants to meet others.</td>
</tr>
<tr>
<td>Improved access and safety of parks may increase use by solo parents and their children.</td>
<td>Improved access and safety of parks may increase use by solo parents and their children.</td>
</tr>
<tr>
<td>Indirect - increased physical activity and social connectedness.</td>
<td>Indirect - increased physical activity and social connectedness.</td>
</tr>
<tr>
<td>Current perceptions of parks as poorly designed, vandalised and unsafe.</td>
<td>Current perceptions of parks as poorly designed, vandalised and unsafe.</td>
</tr>
<tr>
<td>Set up processes that encourage increased use of parks for active leisure. Redesign parks that incorporate safety and crime prevention principles. Other adults to supervise.</td>
<td>Set up processes that encourage increased use of parks for active leisure. Redesign parks that incorporate safety and crime prevention principles. Other adults to supervise.</td>
</tr>
<tr>
<td>Concerns about crime and safety issues may be exacerbated in high-density housing.</td>
<td>Concerns about crime and safety issues may be exacerbated in high-density housing.</td>
</tr>
<tr>
<td>Stigma of HNZ tenants exists, and this proposal increases the number of tenants in the area. Evidence review – see crime prevention.</td>
<td>Stigma of HNZ tenants exists, and this proposal increases the number of tenants in the area. Evidence review – see crime prevention.</td>
</tr>
<tr>
<td>Poorly maintained areas exacerbate fear of crime.</td>
<td>Poorly maintained areas exacerbate fear of crime.</td>
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<tr>
<td>Positive</td>
<td>Children and adults</td>
</tr>
<tr>
<td>Negative</td>
<td>All solo parents and their children</td>
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</tbody>
</table>
renewal is going ahead or not.

consultation.

Pershore precinct – whole population

<table>
<thead>
<tr>
<th>For each element or aspect of the project:</th>
<th>For the health impact:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>what determinant of health may be affected by the projects implementation?</strong></td>
<td><strong>is that a direct or indirect health impact? What’s the causal chain?</strong></td>
</tr>
<tr>
<td>People may have better access to town centre due to safe walkways; Services provided in the HNZ stock.</td>
<td>Indirect – improved access to services and social connectedness. Isolation and lack of access to essential services (including health services) is associated with poorer mental and physical health. Direct – reduced risk of accidents.</td>
</tr>
<tr>
<td>Rapid expansion of population will place significant pressure on transport and other infrastructure.</td>
<td>Indirect – access to services, employment and the community.</td>
</tr>
<tr>
<td>Improved safety of housing</td>
<td>Direct – reduced risk of children and adults falling down stairs, children out of windows, driveway run-overs of children and fire-related injuries.</td>
</tr>
<tr>
<td>Small play areas in new high density housing</td>
<td>Indirect – reduced play areas for children and adults affecting physical activity and mental health. Direct – increased risk of accidents from playing in streets, car parks or driveways.</td>
</tr>
<tr>
<td>Increased density of neighbours and social housing</td>
<td>Indirect – potential increase in fear of crime and actual crime. Fear of crime and victimisation undermines social connectedness and increases risk of stress. Reduced activity for all and reduced freewill movement of children.</td>
</tr>
<tr>
<td>Increased density of neighbours from intensive housing</td>
<td>Direct – increased noise, rubbish affecting social cohesion, stress &amp; conflict (family violence).</td>
</tr>
<tr>
<td>Indirect – reduced privacy</td>
<td>Privacy is good at the moment for residents with large sections and garages.</td>
</tr>
<tr>
<td>Use of sustainable</td>
<td>Indirect – energy savings for the nation, community and HNZ currently</td>
</tr>
</tbody>
</table>
energy design principles in housing

household. Affecting ecosystems, conflict from new generation initiatives. Direct – more money for households to use on other categories, such as food, transport, community life. investigating eco-friendly houses, but these are significantly more expensive than traditional housing. Mangere residents have the lowest incomes of all NZ. government policies and agencies. Bulk purchasing of eco-materials.

investigating eco-friendly houses, but these are significantly more expensive than traditional housing. Mangere residents have the lowest incomes of all NZ. government policies and agencies. Bulk purchasing of eco-materials. households who had eco-friendly houses. groups.

<table>
<thead>
<tr>
<th>Arts Centre – Youth</th>
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<tbody>
<tr>
<td>For each element or aspect of the project:</td>
</tr>
<tr>
<td>what determinant of health may be affected by the projects implementation?</td>
</tr>
<tr>
<td>Young people can learn, create, rehearse and perform together in the new centre.</td>
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<td></td>
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<tr>
<td>Potential for multicultural events and activities to build inter-cultural understanding, community spirit and social cohesion.</td>
</tr>
<tr>
<td>‘Iconic’ centre may be a focal point for community pride</td>
</tr>
<tr>
<td>A place that brings people together may also attract an</td>
</tr>
</tbody>
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3 Pataka in Porirua is being used as a model for the design of the Arts Centre. How it is run is critical, as despite Pataka being in the middle of Maori and Pacific communities it is an almost exclusively Pakeha zone.
| undesirable element or deviant behaviour | Community reputation and safety | drunkenness. Contact with the justice system is a risk factor for youth suicide. Young Polynesian men are most likely to be the victims of crime. | lighting, access, visibility), quality of management and youth development work. Design and implementation reflects input by youth. | vulnerable or afraid of crime will suffer in that they may avoid the centre at night and miss out. |
| Centre may lead to a growing number of Mangere artists becoming famous. | Indirect – increase in community reputation. Local successes are good for local pride, and become role models for the next generation. Therefore there is an indirect health effect if self-esteem, motivation, and pro-social behaviour are positively impacted. | Experience and anecdotal evidence shows that a local heroes (e.g. Scribe in Aranui, Jonah Lomu in South Auckland) can be very inspiring for others from the same area and/or social background. | Dependent on whether the Centre is effective in raising the profile of local artists. Demonstrated links with Maori/Pacific Arts training courses/centres, tourism and events. | Positive | All youth |
| Young people may be involved with kapa haka, pacific music & dance, and other active art forms. | Direct – increase in physical activity options and protection against many physical health problems including obesity. Decrease in stress and depression. Also impacts on body image, identity and self esteem. Provides a profile for Pacific Island youth are less likely to be active than Maori or Pakeha. Evidence review – see physical activity. | Resources allocated to music and dance expression and education for Maori and PI young people. Enhancement of licensed premises to include local entertainment. | Type of activities that are available at the arts centre and whether these are attractive to the young. Young people who choose not to play sport will particularly benefit. (i.e. Pacific). Those with physical disabilities |
| People are likely to eat and drank at Arts centre café potentially affecting nutrition and knowledge of healthy eating. | Direct and indirect support of healthy lifestyles. The arts centre is an opportunity to reinforce positive lifestyle choices that are directly and indirectly linked to health: e.g. making physical activity, healthy eating etc a fun, ‘cool’ and viable alternative to more risky | Local knowledge suggests that many youth undertake high-risk behaviours. | Smokefree grounds, availability of junk food in café. Also depends on opinion leaders & role models making art a ‘cool’ alternative. Youth setting ground rules for participation, exhibitions and events. | Positive | All youth |
| Links between environments, nutrition, obesity and health outcomes are well established. Also evidence linking poor nutrition with deviant behaviour and poor school outcomes. | This could be positive or negative impact, depending on what food is available (attractiveness and culturally appropriate) and promoted. Opportunity to promote healthy Pacific food and responsible alcohol consumption in licensed premises. Also a chance to demonstrate the multi-cultural strength of the area with a range of foods. Price will be an important factor. | Most likely to be negative given food choices offered in most venues. | | | | Pacific and Maori given higher rates of obesity in these groups. |
|---|---|---|---|---|---|
| Arts centre could be a ‘stepping stone’ for emerging artists. Involvement in art projects also gives young people a range of transferable skills. | | | | | |
| Arts centre could attract tourists and people from other parts of Auckland, who will also spend money in other shops and services in Mangere. | Indirect – stimulate the local economy, meaning more jobs and more income. | Current shopping centre is unlikely to attract significant additional spend from outsiders. | Development of the rest of the town centre. | Positive | Local businesses |
Appendix B - Evidence of health impacts

Sense of place
A “sense of place” is a familiar concept to planners, geographers and people involved in community development and culture, but it hasn’t had much attention from health research on questions such as why some places feel (and often are) better and healthier than others (Frumkin, 2003). Community reputation is part of this, and concerns how people feel overall about a community or neighbourhood, both from inside and from outside - is it a good, attractive and safe place to be, to live in or work in, or visit, for everybody? What are the people who live there like? What happens there which is constructive or detrimental? Many aspects of a neighbourhood and its inhabitants affect reputation and the feeling of safety. Sense of place is affected by a multitude of factors, many of which are described in greater detail in the rest of this review, but they include:

- Sense of ownership: showing a space is cared for and its heritage respected.
- Quality environments: Well designed, managed and maintained environments
- Access to social services (such as education, social support, housing and health services); commercial services (such as shops, banks, and professional services); infrastructure services (such as transport); and local authority services (such as libraries). These affect neighbourhood and community functioning and resilience, and are part of “social capital” (Dannenberg, 2003).
- Safe environments – walkable communities, crime prevention design, safe roads, quality housing
- mixed land uses – accommodation, open spaces, shops, services, schools, workplaces all within neighbourhoods
- Ready access to, and reflection of, arts and cultural activities that represent the diverse populations living in the area.

Crime prevention
Urban planning and redevelopment can affect community reputation and safety in a number of ways. More walkable communities can have greater levels of social connectedness which enhances community reputation and self-perception (Leyden, 2003). Using urban design for promoting safety and crime prevention is a relatively well established aspect to planning theory, although inconsistently put into practice. People feel safe when feel able to do what they normally would do, without concern about their own physical safety and the safety of others, and without concern or fear about injury or crime. Indeed, for communities with a high reputation, safety is hardly an issue.

The Ministry of Justice’s Crime Prevention Unit released its National Guidelines for Crime Prevention Through Environmental Design in New Zealand in 2005 (Crime Prevention Unit, 2005) which describe seven qualities which enhance community safety and, hopefully, reputation:

- Access: safe movement and connections
- Surveillance and sight lines: see and be seen
- Layout: Clear and logical orientation
- Activity mix: eyes on the street
- Sense of ownership: showing a space is cared for
- Quality environments: Well designed, managed and maintained environments
• Physical protection: using active security measures

When areas are visible from nearby or are well lit, or do not have spaces where someone could be invisible, people feel safer. Passage ways and pathways can be built or modified so that people can have a good view through them, and know there are no unsafe spots (Carter et al, 2003). A systematic review of community lighting showed an overall reduction in crime of 20% in well-lit areas versus control areas, and that the financial savings from reduced crime greatly exceeded the costs of the improved lighting. These studies did not find that night-time crime decreased more than day-time crime, a theory of street lighting focussing on its role in increasing community pride and informal social control may be more plausible than a theory focussing on increased surveillance and increased deterrence. (Farrington and Walsh, 2002)

The function of a neighbourhood space is also influential. If there are people around doing familiar things people may feel safer.

The type and condition of buildings, including houses, affect people’s perceptions of safety and health (Cummins et al, 2005), for instance, poor quality residential environments often feel unsafe, and improving this has been an aim of urban regeneration programmes in the UK, although the overall effect of renewal programmes on community health and wellbeing is unclear Thomson et al, 2006).

Injuries received from criminal activities, while only a small proportion of all recorded crime, include physical injuries such as fractures, bruises and infection with sexually transmitted diseases; and psychological injury such as post traumatic stress disorder which can be serious and long lasting (Cohen and Miller, 1998; Norris and Kaniasty, 1994).

Experience of, and fear of crime impact on health through stress, sleeping difficulties, loss of appetite, depression, loss of confidence and increased use of coping methods that harm health (for example, smoking) (McCabe and Raine, 1997). The mental distress and social exclusion caused by fear of crime can significantly affect the quality of a person’s life, and those previously unaffected by crime may suffer from this as well. Finally, people with lower vulnerability to crime may still be affected by fear of crime (Evans and Fletcher, 2000). As the number of people increase in an area the perception of safety can improve if the environment is conductive to this, using crime prevention through environmental design principles. Crime prevention through interventions that reduce fear, prevent situational crime and target criminal and anti-social behaviour have been shown to generate largely positive health impacts of the types listed above (Hirschfield, 2003)

Access to services and the community

Access to services – whether “social” services (such as education, social support, housing and health services), “commercial” services (such as shops, banks, and professional services), or “infrastructure” services (such as transport), and local authority services (such as libraries) - impacts on neighbourhood and community functioning and resilience, and are part of “social capital”. Like the connection between social connectedness and health, research looking at the connection between health, urban planning and access to services as an influence on health is a developing field (Dannenberg et al, 2003).

Access to services is one of the possible pathways between social capital and health (Kawachi et al, 2000), although access to services and other “contextual” factors
probably have less impact on health than an individual’s socio-economic situation such as employment or educational level (“compositional” factors) (Pickett et al, 2001). Services are often of lesser quality and more difficult to access in more deprived areas (Galea et al, 2005). Schools in particular act as important community focal points and facilities, so school closure can have far-reaching effects on local communities (Witten et al, 2001).

Aspects of access to food which have become more popular recently include community gardens (sometimes in schools or early childhood centres) (Twiss et al, 2003) and local produce markets, of which there are a number around the Auckland region. These should also assist improving nutrition.

**Urban Design and Access to Services**

Barriers to access are sometimes institutional and race/age based, and other times they are geographic and design based. Those without a car (highly represented in vulnerable communities) have reduced access to those facilities designed that assume car use. Within car-owning households – the elderly, children and women are less likely to have access to the car. According to the New Zealand Transport Survey, car usage is lower in women, in Maori and Pacific peoples and in people with low incomes (Land Transport Safety Authority, 1999). People with disabilities are particularly affected by design-based access issues. Ensuring safe, accessible and reliable public transport, walking and cycling options goes some way to mitigating a lack of private vehicle transport (Public Health Advisory Committee, 2003; Transport and Health Study Group, undated).

There are substantial differences in service access between neighbourhoods in urban areas within New Zealand, as elsewhere. For example, a study in three Auckland suburbs looked at accessibility of local services in terms of average distance needed to travel to such services as shops, health and social services, school, recreational areas and community facilities. One suburb had more accessible local services, and was perceived as a better place to live than one of the comparison suburbs which had few local services and longer journeys to shops, schools and services. This research is being extended to other parts of New Zealand using geographic information systems to get a measurement of accessibility of services which are linked to health and community wellbeing (Pearce et al, 2006). Further research would be needed to look for relationships with health.

The US-based *Smart Growth Network* advocates using planning to make existing and new communities more liveable, primarily in response to urban sprawl, and the associated problems for transport (such as motorway congestion and air pollution), health (such as traffic injuries, obesity and pollution-related illness) (Frumkin et al, 2004), and social effects such as social isolation. Urban sprawl tends to fragment services and functions such as accommodation, work, education, shopping and other services, making car use necessary and undermining local neighbourhood services and facilities. *Smart Growth* advocates 10 principles, which should, among other effects, contribute to improved local access to services (Smart Growth Network, 2001):

- mixed land use – accommodation, shops, services, schools, workplaces etc;
- compact building design;
- creating a range of housing opportunities;
- walkable neighbourhoods, where services and public spaces can be easily accessed;
- creating neighbourhoods with a strong sense of place;
• preserving open space, farmland and critical environmental areas
• direct development towards existing areas, rather than green fields areas
• provide transport choices
• make development decisions predictable, fair and cost-effective at all levels
• encourage community and stakeholder collaboration in development decisions.

Community severance also affects access, and occurs when people are separated from social networks/support, community facilities and services by a physical barrier, such as a busy road. Community severance reduced access to local education, work, shops and healthcare services for those without cars (Frumkin, 2001).

**Urban Design and Access to Health Services**

Inequalities in access to health services have been researched extensively, although research has generally looked at socio-economic factors rather than urban design as such. Examples include less access for people with mental health problems, Maori and Pacific people, immigrants and people with disabilities. These inequalities generally relate with people's socio-economic situations, although neighbourhood factors also have an effect, including poor housing quality and tenure, high unemployment in the neighbourhood, low community and political engagement and fewer transport options (private and public) (Cummins et al, 2005).

**Housing**

**Housing - access**
Access to good quality and affordable housing is recognised as an important determinant of health (ARPHS, 2005). The many links between housing and health include problems of crowding, insecure tenure, building quality, and house conditions (such as dampness and ventilation, including in Auckland) (ARPHS, 2005; Howden-Chapman et al, 2004). Health issues related to poor housing include infectious diseases (including respiratory and skin infections and meningococcal disease); asthma, mental illness and injury (including from family violence). Newly released research from the Wellington School of Medicine's Housing and Health Research Programme found that families on state housing waiting lists had more health problems and were more likely to need hospital care than those already in state houses (Neville, 2006).

**Housing – value**
As areas become more desirable the possibility of increased house prices and rents increases. Those who do not own their own home (most vulnerable) may need to leave the area to find affordable accommodation, increasing social isolation and exclusion from community. Given that the majority of tenants in this situation are Housing NZ clients, this only applies to a small number of people renting privately. Those who do own their own home may see significant gains in wealth through rising house prices. Housing (due to situation next to high density social housing areas for example) may become less desirable, affecting minor psychiatric illness and wellbeing. The direct causal pathways from housing to health impacts are speculative in this case.

**Housing – displacement**
Displacement of housing is a significant predictor of wellbeing, where security and length of tenancy are related to multiple health outcomes, including minor psychiatric illness, stress and an ability to socially invest/engage with a community. All
household members are affected by this lack of control over housing decisions, including children and the elderly. Flow on effects include disrupted friendships, employment and education. For tenants in social housing, considerable stress has been reported from a lack of opportunity to negotiate with the housing authority regarding the move. Housing relocation has also been associated with loss of community (particularly of a community’s leaders and role models), uprooting of social networks and unsatisfied social aspiration which may counter satisfaction with improved housing (Thomson et al, 2002).

Housing – design and improvements

Housing design has significant impacts on the risk of housing-related diseases, conditions, and injuries such as respiratory diseases, rheumatic fever, meningitis, falls, burns and driveway run-overs. These translate into effects on children’s days off school, adults’ days off work, self rated health and respiratory symptoms, objective measures of GP visits and hospitalisations (Thomson et al, 2002; Howden Chapman, 2004). Housing tenure, indoor air quality, dampness and mould growth and housing design all have strong associations with health outcomes. Intervention research has shown improved mental health and wellbeing with housing improvements, but that there is a risk of housing improvements increasing rent – actually making peoples health worse (but unlikely to occur here since Housing NZ is the major rental agency and currently has an income related rental policy). Original residents in private and Housing NZ rental units may also move away from the area and not benefit from the housing improvements (Thomson et al, 2002).

Specific issues in relation to high density housing in Auckland include poor ventilation, a lack of space (room size, storage and food preparation areas), and intrusive outside noise. Safety and security of car-parking, mail and access to apartment buildings, inadequate recycling facilities, poorly designed rubbish areas, inadequate balconies and the importance of building managers are further issues (Auckland Uniservices, 2004).

The Healthy Housing Programme evaluation has shown a 37% reduction in housing-related preventable hospital admissions as a result of improved housing conditions and interventions to reduce crowding (Jackson, 2006). Evaluation by Uniservices has found wider social and health impacts including increase in overall wellbeing, increased perception of safety and a sense of comfort, pride and happiness in their home.

Poor housing increases the risk of injury from lack of fencing, unflued gas heaters and exposed heating sources, unprotected high windows, balconies and stairs, faulty wiring or appliances, poor storage, breakable window glass, flammable materials and lack of functioning smoke alarms. Also, the longer people live in poor housing, the more it affects their mental and physical health; children are particularly vulnerable (ARPHS, 2005).

Housing NZ presents best practice in medium density housing design at [http://www.hnzc.co.nz/housingresearch/Bestpracticeinmediumdensity.pdf](http://www.hnzc.co.nz/housingresearch/Bestpracticeinmediumdensity.pdf) and states that ‘the most successful developments take detailed account of all design issues, including the intended resident mix, neighbourhood character, interface with the public domain, site specifics (e.g. topography), car parking, appearance (style), privacy, security, landscaping, low maintenance, and refuse collection; and that no single design factor determines best practice.’ In the case study examples presented, public health is not a specific variable that is assessed for each of the case studies.
Housing - location and urban design

The Ministry for the Environment released its Urban Design Protocol in 2005 (Ministry for the Environment (2005a) which identified key urban design qualities of Context, Character, Choice, Connections, Creativity and Custodianship. The Ministry for the Environment subsequently published The Value of Urban Design (Ministry for the Environment, 2005b) which described the qualities of good urban design. One important point made was that the elements of good urban design need to be brought together consciously, and won’t happen from a piecemeal approach. The way in which urban development has occurred in New Zealand, as in many developed countries, has dislocated functions such as housing, work, shopping and schools, which necessitates car use and disadvantages people without cars or, for example, with disabilities. This dislocation contributes to obesity, for instance, through decreased daily physical activity levels.

The location of housing in relation to services influences health and well-being in a number of ways, one of which is the effect on obesity. Social housing is commonly located in degraded urban environments, such as near polluting industries or major motorways, or is allowed to deteriorate.

Participation in and Access to Cultural and Arts Centres

Intuitively, ready access to cultural and arts facilities, such as the proposed centre in Mangere, should improve social well-being and community health. This has been little researched on this area, and an extensive review from Australia confirmed that there was much anecdotal and informal information, but little thorough research on the social impact of participation in arts and culture (Australian Cultural Ministers Council, 2004). Reports on community art projects and community mental health arts projects commonly report favourable results for participating communities (Semenza, 2003).

However, this research tends to concentrate on European perspectives (with culture and arts often being external to ordinary people and specialised), whereas for Mangere (and much of Manukau City), there is a much wider and diverse range of cultures and cultural expression which relate to the way people live and their health and interaction with the services available to them, particularly for migrant communities and where there are many cross-cultural interactions: these relationships between culture and place and health are complex (Gesler et al, 2002), and their application to urban planning projects seems to be in an early stage.

Physical Activity

Physical Activity means any form of exercise or movement. Physical activity includes planned (also called discretionary) activity such as recreational walking, dancing, netball, rugby, or other sports. It also includes daily life activities such as household chores, physical work, gardening, walking the dog, active transport (walking, cycling) and so on.

“Because mechanisation has reduced the exercise involved in jobs and housework and added to the growing epidemic of obesity, people need to find new ways of building exercise into their lives” (Wilkinson & Marmot, 2003).

Benefits of physical activity & activity friendly environments

Creating an environment that supports physical activity has health, social, environmental and economic benefits for individuals and communities.
“Regular exercise protects against heart disease and, by limiting obesity, reduces the onset of diabetes. It promotes a sense of well-being and protects older people from depression” (Wilkinson & Marmot, WHO 2003).

“Cycling, walking and the use of public transport promote health in four ways. They provide exercise, reduce fatal accidents, increase social contact and reduce air pollution…” (Wilkinson & Marmot, WHO 2003).

“Physical activity is now considered a major modifiable factor for preventing and reducing the mortality from cardiovascular disease, diabetes and some cancers, as well as improving musculoskeletal and mental health. Increasing epidemiological evidence confirms the health benefits of moderate regular physical activity” (Bauman & Owen, 1999).

“[T]here is convincing evidence that not doing enough physical activity (being sedentary) increases the risk of developing some cancers. Being sedentary increases the risk of developing cancer of the colon and rectum. It is also possible that being sedentary increases the risk of lung and breast cancer” (Cancer Society, 2005).

“Regular physical activity benefits communities and economies in terms of reduced health costs, increased productivity, better performing schools, lower worker absenteeism and turnover, and increased participation in sports and recreation activities” (WHO, 2005).

Getting more people more active more often enhances health, improves individual and communal sense of wellbeing, increases social connectedness and protects the environment (SPARC, 2004).

Determinants of physical activity
Here are some key findings from international and New Zealand research on the factors that influence people’s levels of physical activity. Unless otherwise stated, evidence is from p10-12 of the SPARC ‘Activity Friendly Environments’ (2004) resource:

Built environment

- Density and layout of the built environment affects activity levels. “In areas of urban sprawl people drive rather than walk or cycle and the incidence of obesity is higher” (SPARC, 2004).
- 35% of participants in the NZ Obstacles to Action survey said safety worries were a barrier to physical activity (Sullivan, 2003).
- Perceived attractiveness of surroundings also affects people’s likelihood of engaging in physical activity in those surroundings (Ball, 2001; SPARC, 2004).

Transport policy and infrastructure

- “Transport policy can play a key role in combating sedentary lifestyles by reducing reliance on cars, increasing walking and cycling” (Wilkinson & Marmot, WHO, 2003).
- Quality, safety and width of roads, footpaths and cycleways affects ease and frequency of use, particularly by the elderly, people with children, and people with disabilities.
- “Public transport can play a role in encouraging physical activity. On average a journey by public transport requires a 10 minute walk” (PHAC, 2003).
- People in New Zealand identified heavy traffic as a barrier to physical activity (Sullivan, 2003).
Community severance caused by major roads was identified as a barrier to accessing community facilities (including recreational facilities) in a recent New Zealand report (PHAC, 2003).

Those without private transport have no other options other than to use local physical activity opportunities (eg, parks and green-spaces), and these should always be maintained where possible.

Good public transport increases opportunities for physical activity by users (getting to and from public transport hubs), and reduces the number of private vehicles on local roads (increases desirability and perceived safety for all walkers and cyclists) (Public Health Advisory Committee, 2003). This is particularly true for short local trips.

Reduced free-will movement of children due to increased traffic flows and lower perceived safety of the environment impacts on children’s mental health and physical health (Frumkin, 2001).

While road traffic accidents are a significant issue for pedestrians and cyclists, the numbers of deaths pales in comparison to the numbers of deaths attributable to coronary heart disease, stroke and cancer.

**Accessibility of places/programmes for activity**

- Research shows that the existence and perceived accessibility of recreational facilities and open space are important determinants of physical activity.
- NZ “Obstacles to Action” (Sullivan, 2003) research found that perceived financial cost, and ‘facilities too hard to get to’ were significant barriers.
- Discrimination and discomfort about other people’s attitudes are barriers to using public recreational facilities for minorities, particularly people with disabilities (Cockburn, 2003; Peterson, 2004).

**Natural environment**

- A recent US study showed that weather conditions and season affect rates of physical activity (Merrill, 2005).
- The presence of natural ‘playgrounds’ (e.g. green space, rivers, lakes, beaches and terrain suitable for walking, climbing, tramping etc) affect the perceived accessibility of places for activity.
- Air and water quality are also determinants of physical activity.

**Behavioural and motivational factors**

- Awareness of the benefits of physical activity and attitudes towards physical activity are important determinants. However, research shows that changes in knowledge and attitudes do not necessarily lead to behaviour change, since other barriers and motivators may be more significant.
- Perceived lack of time is the most frequently cited barrier to physical activity amongst New Zealanders (Sullivan, 2003).
- Having someone to do physical activity with has been identified as a key determinant in NZ and overseas research (Sullivan, 2003; Ball, 2001).
- The ‘Obstacles to Action’ Study (Sullivan, 2003) provides detailed insight into the barriers and motivators for physical activity in specific sectors of the population in New Zealand.
What works to increase physical activity?

Evidence on ‘what works’ to get more people, more active, more often is summarised on pages 12-13 of SPARC’s ‘Changing Physical Activity Behaviour’ report (2005). Interventions can be broadly divided into environmental, behavioural and informational categories. The most effective interventions address all three.

Here are some of the key findings:

- Evaluation research shows that addressing multiple determinants via community-wide multi-component campaigns is effective in increasing physical activity.
- Community-based social support interventions e.g. walking groups are effective in encouraging the initiation and maintenance of physical activity.
- Walkability of neighbourhoods, and a having mix of shops and businesses within easy walking distance is associated with higher levels of physical activity.
- “Serious European government investments in expanding walkways and bikeways, making intersections safer for pedestrians, establishing physical barriers to fast traffic, and planning pedestrian friendly communities do work. Germans and Dutch 75 and older, for example, make half their trips on foot or bike, compared to 6% of Americans 65 or older” (SPARC, 2004).
- Creating or improving access to places for physical activity is effective in getting people to exercise more. “Such changes include creating walking trails, building exercise facilities, and providing access to nearby existing facilities” (SPARC, 2004). Improved access needs to be coupled with promotion of these new and improved opportunities for physical activity.
- Signs or posters at the base of the stairs to encourage people to use the stairs can improve stair use by 54%.
- Multi-strategy communications campaigns using a variety of media can be effective in increasing awareness and motivation.

Social Connectedness or Isolation

Social connectedness means that people enjoy constructive relationships with others in their families, whanau, communities, iwi and workplaces. Families support and nurture those in need of care. New Zealand is an inclusive society where people are able to access information and support” (MSD, Social Report 2005).

Other terms that overlap with this definition of social connectedness are:

Social Support – Social support has three aspects: emotional support involves comforting by physical affection or expressing concern for well-being; guidance support involves giving knowledge of how to do something or suggesting some action; tangible support involves providing housing, money, transportation etc (www.therubins.com)

Social cohesion – the quality of social relationships and the existence of trust, mutual obligations and respect in communities (WHO, 2004).

Social connectedness is valued very highly by this community. Stakeholders need to recognise the risks to social cohesion that are inherent in intensification and ensure that what the community values is preserved.

Benefits of Social Connectedness

- Friendship, good social relations and strong supportive networks improve health at home, at work and in the community. Belonging to a social network
of communication and mutual obligation makes people feel cared for and
valued. This has a powerful protective effect on health. When these are
interrupted, negative health impacts occur (WHO, 2004)
• Intervention studies have shown that providing social support can improve
patient recovery rates from several different conditions, and improve
pregnancy outcome in vulnerable groups of women (WHO, 2004)
• Experiments suggest that good social relations can reduce the physiological
response to stress (WHO, 2004)
• Studies have consistently found that having a partner contributes to a
person's reported level of wellbeing (MSD, Social Report 2005)
• Several studies have demonstrated links between social connectedness and
the performance of the economy as well as positive outcomes for individual
health and wellbeing (MSD, Social Report 2005)

Costs of Isolation
• Social isolation and exclusion are associated with increased rates of
premature death and poorer chances of survival after heart
attack. (WHO, 2004)
• Both social isolation and non-supportive social interactions can result in
lower immune function and higher neuroendocrine and cardiovascular
activity while socially supportive interactions have the opposite effects
(Seeman, 1996).
• Many studies have shown that people without social support have
higher death rates (Hawe and Shiell, 2000)
• Social exclusion can also result in reduced physical activity and since
those without private transport are more predominantly vulnerable
groups, further inequalities arise.

Determinants of Social Connectedness
• Inequality is corrosive of good social relations (WHO, 2004)
• Practices that cast some as socially inferior or less valuable undermine social
cohesion (WHO, 2004)
• Poverty can contribute to social exclusion and isolation (WHO, 2004)
• Factors such as language differences, high levels of inequality and tensions
between ethnic groups can create barriers between people (MSD, 2005)
• Social connectedness is fostered with family relationships are positive, and
when people have the skills and opportunities to make friends and to interact
constructively with others. (MSD, 2005)
• Good health, employment and feeling safe and secure all increase people’s
chances of developing positive relationships (MSD, 2005)
• Community severance occurs when people are separated from social
networks/support, community facilities and services by a physical barrier,
such as a busy road. For example there is a reduction in the number of
friends in the same street when there are high volumes of traffic on that street

What works to increase Social Connectedness and/or prevent isolation?
A Deakin University Review (Keleher, H. & Armstrong, R., 2005) found nine
categories of interventions that have been shown to increase social connectedness,
including:
• Community building and regeneration programmes. Programmes should
explicitly address social connectedness, diversity and equal citizenship in
their implementation. Multi-agency partnerships, local governance, skill enhancement and sustainability are each best practice approaches that improve effectiveness.

- **Structured opportunities for participation.** Civic structures that encourage engagement via local governance, community participation and other forms of social contribution.
- **Social support.** e.g. home visiting programmes or parent training programmes. Such programmes targeting mothers of young children, early parenthood generally and vulnerable families in particular are found to be most effective.
- **Community Arts Programmes.** – may involve community participation, social inclusion, capacity building and regeneration. Programmes must be connected with local needs; democratic relationships are essential, and striving for excellence to create pride in achievement are each essential factors in implementation.
- **Physical Activity.** – improvements to mental health as a result of physical activity are likely to be social as well as physiological.

### Road safety

Nationwide, road traffic accidents account for over 400 deaths per year, with even more people injured causing both short and long-term incapacity/injury. Pedestrian and cyclist deaths and injuries are significant in New Zealand, with such accidents being more likely for these groups than for drivers. Vulnerable communities experience far greater cyclist and pedestrian injury and death rates than less vulnerable communities, particularly for children, and children are most likely to be killed or injured in built up areas close to their homes. This is further compounded by the most deprived areas also having more children living in them (Land Transport Safety Authority, 2005; The Institute for Public Policy Research, 2002; National Health Committee, 2003).

Perceived danger from traffic restricts children’s independent mobility, with subsequent increases in traffic to transport children, and decreases in fitness and psychological well-being of children who no longer cycle or walk at will (speculative) (Transport and health study group, undated). Children and adults in deprived areas are less likely to travel by car (due in part to lower car ownership) and are more likely to make journeys on foot. Above 50 km/h the risk of killing a pedestrian child during an accident rises dramatically (Proctor, 1991). Where modal share for pedestrian and cycling is lower, the relative risk of having an accident increases sharply – therefore there is safety in numbers for cyclists and pedestrians (Jacobsen, 2003).

Areas with major through roads and limited pedestrian crossings have higher rates of injuries, especially for children and the elderly (National Road Safety Committee, 2000). Pedestrian injury for children is recognised as a significant issue in the Manukau – The Healthy City and Injury Free Counties Manukau programmes (Manukau City Council, 2005) as well as Land Transport NZ’s road safety strategy (National Road Safety Committee, 2000) and is related to neighbourhood layout and conditions. Traffic calming in residential areas or shopping areas can improve people’s assessment of their health, can lower injuries and can increase pedestrian activity (Morrison et al, 2004). Measures which reduce the felt need for parents to drive children to school should also reduce road injuries (Collins et al, 2001).

### Noise

Noise related health impacts are unlikely to lead to hearing loss but contribute to high blood pressure (able to be estimated), minor psychiatric illness, loss of sleep,
increased communication difficulties (speculative), and a possible interference with concentration (speculative) (Transport and health study group, undated; National Health Committee, 2003). High noise levels can impair the performance and educational attainment of children (Dejoy, 1983; Sanz et al, 1993).

**Employment.**

Urban growth projects often present opportunities for training and employment while under construction, and from ongoing use of facilities and stimulation of business. Any increase in employment or job opportunities has the potential for major impacts on income, purpose, social support and participation in society for the individual and family, with subsequent improvements in death rates from cancer, coronary heart disease and stroke, depression, anxiety, self harm and suicide (National Health Committee, 1998). Such jobs can be targeted at local unemployed. However, it is typical that the wealth generated (particularly GDP) from such expansion is not shared equally. It is possible that the jobs created may be low-wage, insecure, not available to local unemployed people and also that the higher quality jobs will go to people from outside the local area (further increasing travel for these non-local workers, affecting their families and the communities they travel through).

**Stress**

With frequent and prolonged activation, the neuroendocrine "fight or flight" response produces physiological and metabolic alteration that culminate in physical and mental health problems. The precise nature of the activation varies according to the stressor and its duration, but its function is essentially to prepare for or maintain physical exertion. Evidence between stress and health is still being studied, but associations exist between stress and adverse work characteristics; loss of control; anxiety; coronary heart disease; increased susceptibility to and severity of respiratory infections; increased risk of sudden death (Brunner, 1997).

**Preservation of open spaces**

Green spaces are used by communities for recreation, relaxation, market places, social connections and/or no particular use. They provide places of employment, contact with the land, peace and quiet, natural beauty and contribute to natural biodiversity. Such factors contribute substantially to both mental and physical health, and preservation of open space can be important for communities who have little other open space nearby, or who are undergoing rapid development where open spaces are rapidly reducing.
Appendix C – Design recommendations

Adapted from ‘Recommendations from Auckland UniServices Ltd to the Building Industry Authority’ (Auckland UniServices, 2004)

1. Ensure there is adequate space to store cleaning equipment, and that there is no inappropriate use of carpeting in wet areas, and use of grouting which means cleaning of mould is sometimes difficult (mould can also be a sign of poor ventilation within the apartment units).

2. Ensure that laundering areas have adequate venting of clothes dryers and that extractor vents cannot be inadvertently blocked.

3. Provide adequate food preparation areas such as sufficient kitchen size, appropriate storage, preparation and cooking space. A minimum room size and storage specifications should be considered.

4. Ensure ventilation by making sure that windows can be opened sufficiently to get outside air into the apartment unit [and have child-proof stays to prevent falling injuries from windows and reduce the opportunities for crime].

5. Provide ventilation systems which are capable of effectively removing or replacing air in the apartment building.

6. Include delayed switches for the moisture-laden areas.

7. Review provisions for ventilation to address issues associated with lack of extracting range hoods in kitchens (mainly reticulating systems are used currently).

8. Ensure there is adequate space within apartments (this relates to room size and storage space).

9. Ensure there is adequate space within apartment buildings to move furniture.

10. Ensure there is adequate and dedicated storage space [both internally and externally to the apartment].

11. Ensure there is safe and adequate provision of power points.

12. Ensure that the apartments address concerns about external noise.

13. Ensure [the size of] balconies make them usable by the apartment occupants.

14. In relation to building management, look for opportunities to encourage the provision of on-site building managers.

15. In relation to building managers, work with building managers to determine appropriate and workable security systems to address security issues raised and discuss with building managers the need for provision of training and/or information sharing opportunities to share best practice.
Appendix D – Sustainable Buildings Checklist

These checklists are offered at the Planning and Permitting Departments of the cities, towns and counties in San Mateo County to encourage the use of sustainable building practices in new construction and remodeling or renovation. More information on individual checklist items is found in this guide.

For assistance in using the checklist, please consult with your jurisdiction’s Planning and Permitting Department or call the RecycleWorks hotline at 1-800-442-2666.

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Gu2004.
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<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Provide shading on east, west, and south facades with overhangs, awnings, or trellises/verandas</td>
<td>c m s</td>
</tr>
<tr>
<td>32</td>
<td>Plan windows and sidelights, light switches, and isolation treatments to provide daylight that improves indoor environments</td>
<td>c t m s</td>
</tr>
<tr>
<td>33</td>
<td>Choose window sizes, frame materials, and glass coatings to optimize energy performance</td>
<td>c t m s</td>
</tr>
<tr>
<td>34</td>
<td>Step on insulation of floors and ceilings</td>
<td>c m s</td>
</tr>
<tr>
<td>35</td>
<td>Use low-flow showerheads and fixtures</td>
<td>c t m s</td>
</tr>
<tr>
<td>36</td>
<td>Use water-saving appliances and equipment</td>
<td>c t m s</td>
</tr>
<tr>
<td>37</td>
<td>Install oil and gas water heaters</td>
<td>c t m s</td>
</tr>
<tr>
<td>38</td>
<td>Use heat recovery equipment, tankless water heaters, and/or on-demand hot water circulation pumps</td>
<td>c t m s</td>
</tr>
<tr>
<td>39</td>
<td>Pre-plumb for future greywater use for toilet flushing and landscape irrigation</td>
<td>c m s</td>
</tr>
</tbody>
</table>

Goal: Reduce environmental impacts from materials production

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>Use sustainable materials for floors</td>
<td>c m s</td>
</tr>
</tbody>
</table>

Goal: Save energy in lighting

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Design lighting levels for actual use, and use task lighting to reduce general lighting levels</td>
<td>c m s</td>
</tr>
<tr>
<td>42</td>
<td>Use energy-efficient lamps and lighting fixtures</td>
<td>c t m s</td>
</tr>
<tr>
<td>43</td>
<td>Use lighting controls that save energy such as occupancy sensors</td>
<td>c t m s</td>
</tr>
</tbody>
</table>

Goal: Save energy in equipment use

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>Use ENERGY STAR appliances</td>
<td>c t m s</td>
</tr>
<tr>
<td>45</td>
<td>Use a building energy management system</td>
<td>c t m</td>
</tr>
</tbody>
</table>

Goal: Save energy through passive design

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>46</td>
<td>Use passive solar design, thermal mass, and insulation to reduce space heating needs</td>
<td>c t m s</td>
</tr>
<tr>
<td>47</td>
<td>Replace air conditioning with natural ventilation and passive cooling</td>
<td>c m s</td>
</tr>
<tr>
<td>48</td>
<td>Use ceiling fans for comfort cooling, and use a whole-building fan for night-time cooling</td>
<td>c t m s</td>
</tr>
<tr>
<td>49</td>
<td>Use radiant, floor, and ceiling insulation to control1 passive climate control</td>
<td>c t m s</td>
</tr>
</tbody>
</table>

Goal: Save energy in equipment use

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Use high-efficiency equipment including furnaces, boilers, fans, and pumps</td>
<td>c t m s</td>
</tr>
<tr>
<td>51</td>
<td>Use heat recovery equipment</td>
<td>c m s</td>
</tr>
<tr>
<td>52</td>
<td>Use ventilation systems, operation, and/or heat recovery for heating and cooling</td>
<td>c m s</td>
</tr>
<tr>
<td>53</td>
<td>Place system units and heat recovery equipment within conditioned space, and/or place proper, and/ or heat recovery units</td>
<td>c m s</td>
</tr>
<tr>
<td>54</td>
<td>Use mechanical systems for more efficient heating and cooling</td>
<td>c t m s</td>
</tr>
<tr>
<td>55</td>
<td>Use radiant and hydronic systems for increased efficiency, health, and comfort</td>
<td>c t m s</td>
</tr>
<tr>
<td>56</td>
<td>Use equipment without source-depleting refrigerants</td>
<td>t m</td>
</tr>
</tbody>
</table>

Goal: Create healthy indoor environments

<table>
<thead>
<tr>
<th>#</th>
<th>Item</th>
<th>Applicable building types</th>
</tr>
</thead>
<tbody>
<tr>
<td>57</td>
<td>Use recycled-content, formaldehyde-free fiberboard insulation, cellulose insulation, or other green insulation products</td>
<td>c t m s</td>
</tr>
<tr>
<td>58</td>
<td>Separate ventilation for indoor pollutants sources and provide advanced filtration to improve indoor air quality</td>
<td>c t m s</td>
</tr>
<tr>
<td>59</td>
<td>Use the clean and efficient alternative to wood burning fireplaces</td>
<td>m s</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Applicable Building Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>Generate clean electricity onsite using solar photovoltaics</td>
<td>c  m  s</td>
</tr>
<tr>
<td>61</td>
<td>Generate clean electricity onsite using wind turbines</td>
<td>c  m  s</td>
</tr>
<tr>
<td>62</td>
<td>Use solar heating systems for domestic use and swimming pools</td>
<td>c  m  s</td>
</tr>
<tr>
<td>63</td>
<td>Use solar heating systems for space heating</td>
<td>c  m  s</td>
</tr>
<tr>
<td>64</td>
<td>Photovoltaic fuel cells for solar hybrid system</td>
<td>c  m  s</td>
</tr>
<tr>
<td>65</td>
<td>Use low- or no-VOC, low-emitting-content paints, stains, and adhesives</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>66</td>
<td>Use low- or no-VOC, low-emitting-content paints, stains, and adhesives</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>67</td>
<td>Use exterior concrete or a modified finish</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>68</td>
<td>Use natural materials such as wood and stone for cabinets and countertops</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>69</td>
<td>Use sustainable materials for flooring, tiles, and interior surfaces</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>70</td>
<td>Use renewable or recycled material for roofing, siding, and insulation</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>71</td>
<td>Use recycled or salvaged, sustainably harvested FX, ced-sider, or engineered wood for framing and trim, or use wood alternatives such as bamboo and felt</td>
<td>c  t  m  s</td>
</tr>
<tr>
<td>72</td>
<td>Use mixed concrete forms</td>
<td>c  m  s</td>
</tr>
<tr>
<td>73</td>
<td>Use recycled or salvaged woods to replace wood-framed walls</td>
<td>c  m  s</td>
</tr>
<tr>
<td>74</td>
<td>Use sustainable materials and techniques</td>
<td>c  m  s</td>
</tr>
<tr>
<td>75</td>
<td>Other sustainable methods or materials used. Please describe.</td>
<td>c  t  m  s</td>
</tr>
</tbody>
</table>

**KEY**
- c Commercial/Industrial
- t Town
- m Improvements
- s Multi-family
- h Single-family home