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# Beacon's neighbourhood research and tools: A summary

**A report prepared for Beacon Pathway Incorporated**
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# About This Report

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**Abstract**
Sustainable neighbourhoods have always been part of Beacon's vision and a considerable stream of research has been dedicated to defining a sustainable neighbourhood and developing the tools to measure them. This report summarises the research journey that underlies the development of the Neighbourhood Sustainability Framework and its assessment tools.

**Reference**
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# Contents

# 1 Purpose

Sustainable neighbourhoods have always been part of Beacon's vision and a considerable stream of research has been dedicated to defining a sustainable neighbourhood and developing the tools to measure them.

This report summarises the research journey that underlies the development of the Neighbourhood Sustainability Framework and its assessment tools. It links each stage to the relevant original report, available on Beacon's website.

This report introduces the tools and what they offer practitioners.

# 2 Introduction

The social, economic and environmental importance of built environments to sustainability has long been recognised.

Given the high costs of changing a neighbourhood's built environment, it is important that new neighbourhoods are sustainably designed and located. It is also important that neighbourhood and residential redevelopment takes place in locations with the greatest potential sustainability performance. To do this successfully, however, New Zealand must pay considerable attention to encouraging new neighbourhoods and renewing existing neighbourhoods to be adaptable, liveable and environmentally efficient.

The practice of building sustainable neighbourhoods has been increasingly supported by tools directed at the design and management of settlements. Such tools work at various scales from the dwelling and street to precinct, neighbourhood and city. They embrace guidelines based on professional best practice and focus variably on accreditation, decision-making and design assistance.

Although tools currently exist, they are largely overseas based, relying on data and assumptions that are not applicable to the New Zealand context. Beacon Pathway Ltd's (Beacon) Neighbourhoods team has focused on filling that gap, by developing tools and data to assess the sustainability of New Zealand neighbourhoods. This summary briefly tracks the research that underpins Beacon's tools, what is available for practitioners to use, and how Beacon can help in the improvement of New Zealand's neighbourhoods.

## 2.1 Why neighbourhoods are important

Neighbourhoods are important because they are the scale at which most people live their daily lives. They are a scale, therefore, at which positive change can be achieved for local residents and users of that environment. Scale is important because some things can only happen at certain scales. Neighbourhoods are the point that connects individuals and the wider city system, and so they have the potential to contribute to more sustainable environments at a wider scale.

Neighbourhoods encompass buildings, infrastructure and spaces (such as green and open spaces as well as connecting and dividing spaces). Neighbourhood sustainability is about how buildings and the spaces around them work together and the impact they have on the activities that take place within them. This would include, for example, the state of the infrastructure systems and services available, such as public transport. As well as the functional aspects of buildings and spaces, their design, quality and aesthetics all work together to shape the urban built environment and influence local social and cultural identity.

A neighbourhood's sustainability reflects both individual behaviour (such as walking and cycling) and the built environment that links people together locally and with the wider region. Improving sustainability at a neighbourhood level contributes to more sustainable environments at a wider scale. While an effective public transport system, for example, can only be planned on a city wide scale, neighbourhood conditions and variables, such as accessibility to stations and interchanges need to taken into account to achieve success.

When considering improving the sustainability and performance of New Zealand's housing stock, it is tempting to focus on houses alone. Efforts focus on new techniques, technologies and product which reduce environmental impacts and increase house performance. However, the reality is that houses are built within neighbourhoods, and neighbourhood sustainability can impact on sustainability at an individual level and city level. The way a neighbourhood is laid out, for example, can impact a home's solar gain. Safety-conscious design of streets and walkways can influence residents' willingness to walk. Location of a neighbourhood can make a direct impact on household travel costs.

Neighbourhoods represent significant economic, cultural and emotional investment and attachment, often accrued over a great length of time. At the same time, neighbourhoods are anything but static. They are diverse and dynamic, constantly changing with the people living, working, and passing through them.

The Christchurch earthquakes of 2010 and 2011 have shown the importance of neighbourhood level resilience and adaptive capacity in the recovery phases. Some communities demonstrated an impressive display of resilience to the extensive adverse factors with substantial numbers of residents taking action to help their friends, family and community as part of the recovery.

### 2.1.1 Urban New Zealand neighbourhoods

Although small in both land area and in population, New Zealand is a very urbanised country. Over 80% of our 4.3 million residents live in urban areas, with over half of the total population concentrated in the twelve largest cities[1] and 30% of the total population living in the Auckland region[2]. Further, the majority of New Zealand's total population growth is projected to take place in these twelve cities, creating infrastructural, environmental and societal pressures.

Not only do our larger cities have a rapidly increasing urban population, especially within the Auckland Region, they also have a set of characteristics that distinguish them from smaller cities and rural areas. Larger city populations within New Zealand are, for example, very mobile, with 40% having shifted at some time during the five years to 2006[3]. They are also more ethnically diverse than the rest of New Zealand, especially with respect to Pacific and Asian populations, and the median age tends to be younger.

Along with these factors, New Zealand's housing needs are changing. Many of our existing houses were built to cater for the traditional two-parent-and-several-children family. Statistics New Zealand predicts this 'conventional' family unit, while still dominant, is on the decline[4]:

- Couples with no children is the largest growth sector in family types
- One person households are also predicted to increase.

## 2.2 Beacon's vision

Beacon's vision is:

**Creating homes and neighbourhoods that work well into the future and don't cost the Earth**

Neighbourhood sustainability has always been a focus of Beacon's core research and activities. Although Beacon's primary focus is on the performance and sustainability of homes, it is also concerned with neighbourhoods, recognising that the sustainability depends also on the buildings, infrastructure and spaces (green, open, connecting and dividing) surrounding them.

Neighbourhoods formed a major strand of a six year research programme undertaken for the Foundation of Research Science and Technology (FRST).

With the end of the FRST research programme, Beacon has become an Incorporated Society, yet its focus remains on transforming New Zealand's homes and neighbourhoods to be high performing, adaptable, resilient and affordable.

[1] ***Quality of Life Project (2007)***
[2] ***Statistics New Zealand (2006)***
[3] ***Statistics New Zealand (2006)***
[4] ***Statistics New Zealand (2003)***

## 2.3 The neighbourhoods brief

Under the original research consortium, Beacon Pathway Ltd, the Neighbourhoods team was asked to establish an evidence base, guided by international theory and experience but also relevant and applicable to the New Zealand context, from which practical tools to guide the design, building, retrofitting and management of neighbourhoods could be developed.

The tools were intended to contribute to New Zealand's capacity to:

- Identify, monitor, design and develop/adapt neighbourhoods which function sustainably.
- Assess the behavioural impacts of different neighbourhood development forms, including whether claims and assumptions actually result in lifestyles that are more sustainable.
- Improve the capability and capacity of the construction industry, developers and regulatory agencies to develop medium density and mixed use neighbourhoods in a sustainable manner.
- Quantify the costs, benefits and trade-offs when developing and implementing sustainable designs in retrofit, greenfield, medium density and mixed use neighbourhoods situations.

# 3 The research journey

## 3.1 Setting parameters

### *3.1.1 Defining neighbourhoods*

The first step for the Neighbourhoods team was to develop a shared understanding of neighbourhoods to base their work on.

The team defined neighbourhoods as clusters of households and dwellings, with both residential and non-residential functions, often with buildings and amenities offering choices for recreation, work, shopping, and education. Their built environment interconnects and allows neighbours and neighbouring dwellings to share infrastructure and services.

Neighbourhoods connect homes and the city system. They are where residents and visitors interact, and are a key site of the routines of everyday life. The boundaries of neighbourhoods are often loosely defined but they usually go beyond immediate neighbours and include a number of connecting streets and facilities. People can identify their neighbourhoods, although consensus around boundaries may vary.

### *3.1.2 What does a neighbourhood include*

A neighbourhood includes the non-residential built environment as well as residential dwellings. The neighbourhood built environment consists of individual buildings constructed for various purposes. It also includes public and open space such as streets, walkways and parks. A neighbourhood's sustainability is affected by how both buildings and the spaces around them work collectively and the impact the space or place may have on the activities that take place within them, including the state of the infrastructure systems and services available, such as public transport.

As well as the functional aspects of buildings and spaces, their design, quality and aesthetics all work together to shape the urban built environment and exert a collective influence over the activities and behaviours that take place there. They influence local social and cultural identity.

## 3.2 Establishing an evidence base

The next step for the Neighbourhoods team was to establish an evidence base through review of international and national literature.

### *3.2.1 The role of neighbourhoods in sustainability*

Overseas and New Zealand researchers have long recognised that the spatial arrangement of settlements has significant impacts on the environmental performance of dwellings and incurs direct, as well as indirect, costs to households as well as compromising sustainability on a range of levels.

Critical to considering neighbourhood sustainability is the important role of cars in environmental, social and economic sustainability. A large proportion of greenhouse gas emissions, stormwater pollution and air pollution are caused by vehicle emissions; the time spent travelling in motor vehicles has a significant social and economic cost; transport presents the second highest cost to households after housing; and those parts of society unable or unwilling to drive are at risk of being severely disadvantaged in current neighbourhood design. The effect of transport can be seen in these statistics:

- Traffic congestion costs business an estimated $1 billion annually in the Auckland region alone due to lost productivity and delays in transporting goods.[5] Transport costs are the third largest costs to most households, after housing and food[6].
- It is now estimated that more people in the Auckland region die from vehicle emissions than in vehicle accidents.[7]
- Pollution from transport is a significant contributor to air quality – in Auckland the single largest individual source of ambient air pollutants is motor vehicles (at 70%)[8]. Private transport is a cause most easily influenced by neighbourhood form.

High levels of private car use are associated with low density housing tracts. These require significant roading infrastructure which is costly to maintain. Additionally, density has been shown to have a significant influence on travel behaviour; a combination of mixed use, density and adequate service provision has been shown to be a good predictor of increased public transport use[9].

Low density neighbourhoods also require costly solutions to the management of water and drainage, and absorb considerable tracts of both economically productive soil and productive ecosystems.

### *3.2.2 Defining a sustainable neighbourhood*

The team found a huge diversity in the understanding and application of the concept of 'sustainability' at neighbourhood level. At the same time, there was also plenty of common ground.

The research suggested that neighbourhoods work when there is:

- housing satisfaction – of which neighbourhood satisfaction is part
- an acceptable physical appearance of the neighbourhood including low levels of dilapidation
- safety in the street both from traffic and other people
- low noise disturbance
- 

*5 Auckland Regional Chamber of Commerce (undated)*
*6 Statistics New Zealand (2010)*
*7 Fisher et al. (2002)*
*8 Auckland Regional Council (2006)*
*9 Cervero et al. (2004)*

- access to facilities and services
- access to other sites in the settlement system
- manageable cost of both residence in the neighbourhood and in connecting to other parts of the city system
- the ability to have pleasant, friendly and non-threatening casual social relations
- the ability to provide opportunities for neighbourhood action on local issues
- low tenure mix.

Walking is associated with greater interaction between neighbours and increased informal surveillance and therefore safety. Motor vehicle use and neighbourhood walking can be influenced by improving neighbourhood walkability, local facilities, availability of public transport and dwelling density.

The quality and nature of public space plays a key role in neighbourhood sustainability. Good public space encourages interaction, provides local habitat, doubles as stormwater treatment mechanism, increases walking and is the stage for creative activities. Design quality of public space is vital to achieving these and other desirable outcomes.

Flexibility and adaptability are necessary to create robust neighbourhoods that will stand the test of time, therefore avoiding neighbourhood decline and the associated social and economic costs. Key action pathways to ensure flexibility and adaptability include a mixture in building typology and dwelling size, mixed use, local facilities and the availability of public transport

Increasing density in urban areas can protect valuable ecological areas by reducing sprawl, reducing the amount of land that is developed, improving the viability of town centres and public transport and directly affecting travel behaviour.

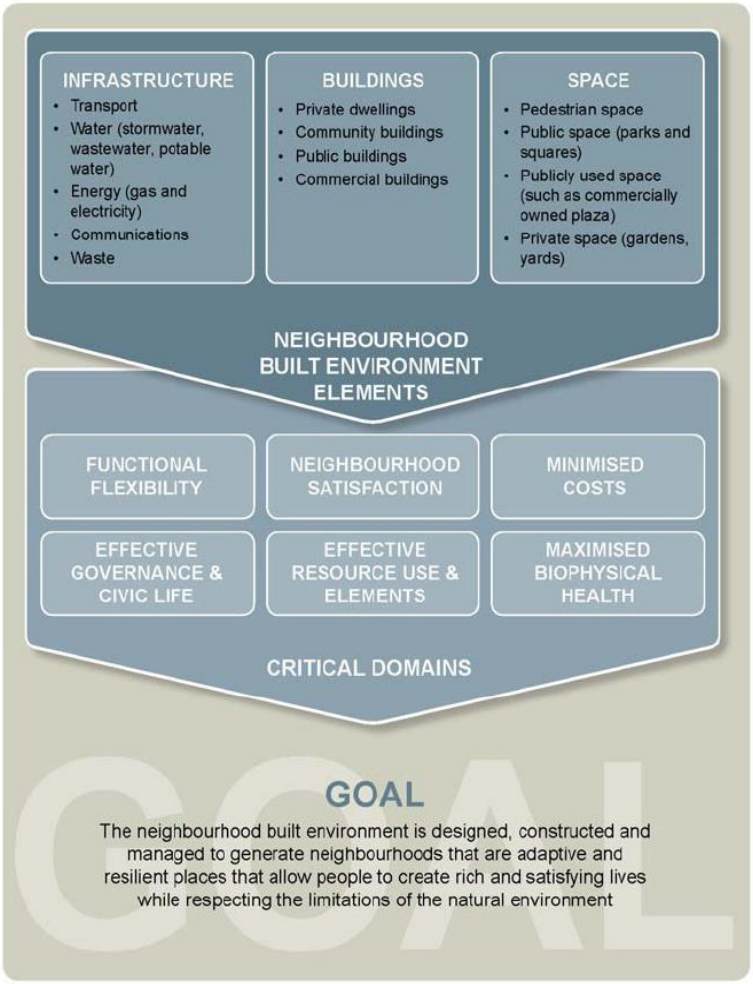
## 3.3 Developing a prototype tool

From the research reviews, a prototype Neighbourhood Sustainability Framework[10] was designed. It set out the outcomes expected from sustainable neighbourhoods, and developed a set of assessment tools – the Observational Assessment and Resident Self-Report Assessment. These formed a process by which planners and practitioners could address the sustainability of neighbourhood built environments by:

1) Outlining the characteristics of a sustainable neighbourhood.
2) Allowing practitioners and planners to assess and monitor the extent to which neighbourhoods exhibit the characteristics of sustainable neighbourhoods.
3) Identifying and prioritising sustainability actions.

[10] ***Lietz et al. (2005) Neighbourhood Sustainability Framework: Prototype***

The Framework identified six areas (domains) of critical outcomes for an environmentally, socially and economically sustainable neighbourhood. These six critical domains[11], together with three built environment elements of infrastructure, buildings and space, were identified as underpinning neighbourhood sustainability and form the basis of the prototype Framework.




The Neighbourhood Sustainability Framework, even at this prototype stage, was innovative because it:

- Clearly specified the goal to which sustainable neighbourhood development and management will be directed. In doing so, this framework moves away from treating 'sustainability' as an end-point and treats it as an ongoing and dynamic process.
- Moved the focus to social, economic and environmental outcomes.
- Allowed for the better integration of social, environmental and economic aspects of sustainability and makes explicit links between them.
- Provided the basis for developing specific measures and standards which can be applied through the assessment tools.

[11] ***A definition for each domain and built environment element can be found in the Glossary, page x***

## 3.4 Testing the prototype

The next step was to test and refine the Neighbourhood Sustainability Framework and its tools with the aim of testing the assumptions of the Framework, and testing the Observational Assessment and Resident Self-Report Assessment tools for robustness and practical applicability to New Zealand neighbourhoods.

The team undertook the testing through a series of neighbourhood case studies[12]. These were selected to provide a contrast between different densities, uses, and housing, geographical location, settlement age and infill.

### *3.4.1 Testing against international tools*

Initially, two international neighbourhood sustainability tools were used to provide a comparison to the prototype Observational Assessment and Resident Self-Report Assessment tools. These were LEED-ND and the 'The Place Where You Live' survey.

A. **LEED-ND**[13] is designed to assess the built environment sustainability of new developments at the planning stage. It is grouped into four sections:
   1) The Location Efficiency section - previous land use, sprawl, infrastructure availability and proximity to services and employment.
   2) The Environmental Preservation section - impact on the immediate natural environment, soil quality, stormwater issues, habitat protection and riparian management.
   3) The Compact, Complete & Connected Neighbourhood section - density, housing diversity, social housing, public transport, walkability and the reuse of historic buildings.
   4) The Resource Efficiency section - communal alternative water and energy infrastructure and waste management.

   LEED-ND contains a number of prerequisites and credits. Each credit results in the awarding of points. Overall, the tool is weighted to place particular importance on reducing car travel, increasing walkability and reducing sprawl. Its indicators and measures appeared to align well with the Neighbourhood Sustainability framework, although it required some adaptation to make it relevant to existing neighbourhoods and the New Zealand context.

B. **'The Place Where You Live' self-complete questionnaire** was adapted from two surveys developed by Oxford Brookes University[14]. The survey was complemented the LEED-ND assessment data by generating a profile of resident participant perceptions,

[12] ***Lietz et al. (2006). Testing the Prototype Neighbourhood Sustainability Framework.***
[13] ***US Green Building Council (2005)***
[14] ***Jenks & Williams, (2005)***

behaviours and experiences of their neighbourhoods and testing the extent to which 6 critical domains were amenable to direct measurement through residents' self-disclosure.

The compiled survey was scored against average New Zealand neighbourhoods on the assumption that neighbourhoods typically exhibit certain types of behaviours and attributes around sustainability performance. The average neighbourhood was represented by the sustainability score for the survey respondents across all neighbourhood case studies.

Information from applying LEED-ND and 'The Place Where You Live' survey was used to amend the prototype Observational Assessment and Resident Self-Report Assessment. The Resident Self-Report Assessment, in particular, was significantly refined from 'The Place Where You Live survey to align with the six domains in the Neighbourhood Sustainability Framework.

### *3.4.2 Applying the amended tools to case studies*

The amended prototype tools were then re-applied to the original case studies and to six further case studies.

Therefore the case study neighbourhoods were given a rating of high, medium or low sustainability.

| Sustainability Rating | Observational Assessment | Resident Self-Report Assessment |
|---|---|---|
| High | 46-60 | 15 + |
| | ■ Blake St, Ponsonby, Auckland<br>■ Petone, Lower Hutt | ■ Petone, Lower Hutt<br>■ Blake St, Ponsonby, Auckland |
| Medium | 30-45 | 10-14.9 |
| | ■ Addison, Takanini, Auckland<br>■ Aranui, Christchurch<br>■ Harbourview, Te Atatu, Auckland<br>■ Christchurch East Inner City | ■ Harbourview, Te Atatu, Auckland<br>■ Christchurch East Inner City |
| Low | <30 | <10 |
| | ■ Waimanu Bay, Te Atatu, Auckland<br>■ Dannemora, East Tamaki, Auckland | ■ Addison, Takanini, Auckland<br>■ Aranui, Christchurch |

The similarity between the ratings generated by each assessment tool for each neighbourhood provided confidence in the overall robustness of these approaches and its applicability to a wide range of neighbourhoods. The neighbourhoods with different sustainability ratings highlight the importance of combining observation and judgment along with assessments of perception and

behaviour. Investigation of the results for these neighbourhoods, namely Addison, Aranui and West Harbour, gives clear indications of where the weaknesses are. Measurements that are divorced from resident perception are unlikely to provide a robust understanding of neighbourhood sustainability or the critical neighbourhood dynamics that need to be managed or redesigned to ensure sustainability.

In Aranui, for example, safety related criteria and a desire to move from the area were key areas of weakness. Aranui residents in the public rental stock, although rating their neighbourhood as satisfactory and having high levels of neighbourhood engagement, aspire to moving into another neighbourhood. By comparison, Addison's sustainability was significantly compromised by its distance from places of work and education as well as a lack of public transport access and opportunities for walking and cycling to work and education.

Overall, the application of the Neighbourhood Sustainability Framework and its tools to the case study neighbourhoods demonstrated that its overall structure and content works well. The domains of critical outcomes showed themselves to be measurable and different measurement tools and data generated similar results. The elements – infrastructure, building and space – together provide the appropriate focus for measurement in various urban situations in the larger cities of New Zealand.

## 3.5 Refining the Framework and tools in real life conditions

The Neighbourhood Sustainability Framework was designed to be used on both planned new neighbourhoods and in renewing existing neighbourhoods. It was important for the team to test the Framework and tools in real life conditions for both circumstances.

### *3.5.1 Testing on a planned neighbourhood*

To test the Neighbourhood Sustainability Framework and tools on a new neighbourhood, the team applied them to McConnell Property's greenfields Addison development in Takanini, Papakura[15]. Addison was selected as it is a master planned community on a substantial greenfields development with many of the features often associated with sustainability (e.g. higher than usual density and mixed use). McConnell Property itself actively pursues and articulates sustainability at both the dwelling and the neighbourhood levels.

The assessment used the Observational Tool and the Resident Self-Report Tool (as the development was partly occupied at the time), and the results were reported to McConnell Property in order to explore:

- Whether the results made sense to them and were seen as fair and explicable
- Whether the results were helpful for future design and management of developments
- What issues arose in establishing sustainable developments.

[15] ***The report on the Addison development remains confidential.***

The results showed the development to be a good walking environment with slow narrow roads and good access to primary schools and open space. Residents were very happy with housing quality and safety, and were well involved in formal community activities. The report raised issues with the area of impervious surfaces in a flood hazard zone, the need to orient houses for solar gain, and the need to improve public transport service to the area.

The application of the Framework and tools in Addison helped to further refine them. In particular, the solar orientation and density aspect of the Observational Tool were refined, and it became clear that new developments should only be assessed using the Observational Tool rather than the Resident Self-Report Tool.

### *3.5.2 Testing on an existing neighbourhood*

To test the Neighbourhood Sustainability Framework and tools against an existing neighbourhood, it was used as part of the rejuvenation and retrofitting of West Harbour by Waitakere City Council (now part of Auckland Council) and Housing New Zealand Corporation[16]. Existing neighbourhoods are where most people live - Beacon could not simply focus on new dwellings and greenfield developments.

Both the Observational Tool and the Resident Self-Report Tool were used to provide a robust assessment of the sustainability of a neighbourhood area in West Harbour. The Observational Tool generated a medium sustainability rating, which can be seen as a positive result for a suburban neighbourhood such as West Harbour. The Resident Self-Report Tool, however, generated a low sustainability ranking, indicating that the rejuvenation should give priority to interventions that will improve resident experiences. In particular, the tools identified:

- concerns about safety, especially at night
- noise issues
- dissatisfaction with and a desire to move because of housing
- poor connectivity and some areas in which amenity values could be better optimised
- very wet ground conditions, with surface flows over footpath and properties in places
- the opportunity to capitalise on a strong foundation of attachment to the community.

The tools proved useful in informing retrofit options for this neighbourhood, facilitating a process of informed decision making and providing information that underpinned further work by Waitakere City Council and Housing New Zealand Corporation in this community.

[16] ***The report on West Harbour remains confidential.***

### 3.5.3 The final Framework and tools

Finally, the Neighbourhood Sustainability Framework and its assessment tools were refined. It now comprises:

1) The **Framework** itself which set out the critical domains (outcomes) for neighbourhood sustainability.
2) The **Observational Tool** which uses a mixture of measurement and professional judgment structured through a set of well-defined requirements and guidelines. Its criteria are prioritised to reflect the relative impact on sustainability each has and is weighted accordingly within the calculations of results from each neighbourhood.
3) The **Resident Self-Report Tool,** which collects self-report data from neighbourhood residents and, consequently, can only be applied to existing, rather than planned, neighbourhoods.

## 3.6 National Neighbourhood Survey

In order for the Resident Self-Report Tool to compares results to an 'average' New Zealand neighbourhood, it required a set of baseline data on neighbourhoods across New Zealand.

In 2009 Beacon surveyed 1,613 people about their behaviours, perceptions and experiences in relation to their neighbourhoods[17]. The survey aimed to get a mix of information across two parameters: (a) built environment mix (the proportion of residential units to all built units in an area), and (b) built environment density (residential units per hectare). This enabled researchers to categorise neighbourhoods into the following:

- High density, mixed use
- High density, non-mixed use
- Medium density, mixed use
- Medium density, non-mixed use
- Low density, mixed use
- Low density, non-mixed use

The survey provides, for the first time, direct evidence of the impact of built environment densities and use profiles on aspects of New Zealand neighbourhood sustainability. It was designed to highlight the relationship between the density and use of neighbourhoods and resident satisfaction behaviour and experiences.

No New Zealand suburbs were found to be high density and non-mixed use. The predominant neighbourhood form is low density and non-mixed. Over half of the dwellings in New Zealand's urban settings are situated in low density, non-mixed neighbourhoods. Auckland and Wellington show greater intensification than other cities with a third of Auckland City dwellings in non-mixed medium density.

[17] ***Saville-Smith, K. (2009)***

## 3.7 The value of sustainable neighbourhoods

It was clear that the Neighbourhood Sustainability Framework could demonstrate that some neighbourhoods provide better environments than others. Could it be used to prove in monetary terms the value case for planning and developing sustainable neighbourhoods?

The Neighbourhoods team assigned dollar values to the measures of neighbourhood sustainability used in the Resident Self-Report Tool[18]. They used two sets of data:

1) The data generated by the National Neighbourhood Survey
2) Existing costs and monetised benefits data found in a wide range of existing research, commentary and information.

The results suggested that high density, mixed neighbourhoods show higher dollar sustainability values than low density, non-mixed use neighbourhoods. There is a broad alignment between value and prevailing planning views of the relationship between built environments, neighbourhoods and sustainability. Cities that are able to achieve a positive dollar sustainability value across the city are all cities that have inner city high and medium density areas. Where the city system is dominated by low density, non-mixed use neighbourhoods, the overall sustainability value of the city's neighbourhood built environment tends to generate net costs rather than net benefits.

While the task of monetising the value of neighbourhoods was inhibited by fragmentary data, the report demonstrates that the Resident Self-Report Tool provides a set of measures of the neighbourhood that can be represented in monetary value. In particular, the National Neighbourhood Survey allowed the relative value of different neighbourhood densities and uses to be explored.

[18] ***Saville-Smith, K., Dwyer, M. & Warren, J. (2009) Valuing sustainable neighbourhoods.***

# 4 How Beacon can help

In developing the Neighbourhood Sustainability Framework and assessment tools, Beacon has gathered a range of knowledge and expertise that can be helpful to developers, local authorities, designers, planners and neighbourhood managers. We have an ongoing commitment to improving New Zealand's neighbourhoods and we want to put our tools and knowledge base to good use.

Our team can apply the tools to your neighbourhood and provide you with a report which will give feedback on its sustainability as well as provide an oversight into what residents in that neighbourhood think about it. You can apply the tools once to get a snapshot of how the neighbourhood is doing, or repeat it over time to get a comparison of how the neighbourhood is changing.

If necessary, we can extend the tools to encompass the specific needs of a community or situation. As an example, we included questions on distance to amenities in the most recent survey of Hobsonville Point for HLC Homes Land Community.

Contact us at: office@beaconpathway.co.nz

# 5 Glossary: Definitions used in the Neighbourhood Sustainability Framework

**Functional Flexibility:** An outcome of a sustainable neighbourhood. The built environment can be continuously adapted to the needs of diverse and changing populations, social, economic and environment conditions (e.g. changes in household structure, transport costs and choices, ethnic and socio-economic mix), and the effects of climate change

**Neighbourhood Satisfaction:** An outcome of a sustainable neighbourhood. The built environment maximises neighbourhood satisfaction through housing quality, durability and low levels of dilapidation, street safety, low noise disturbance, opportunities for casual social interaction, and opportunities for enclave living.

**Minimised Costs:** An outcome of a sustainable neighbourhood. The built environment minimises the direct and indirect costs for households and cities associated with travel, land and dwellings, maintenance and repair, infrastructure, and facilities.

**Effective Governance and Civic Life**: An outcome of a sustainable neighbourhood. The built environment encourages casual social interaction at street level, access to neighbourhood and city wide facilities and amenities, equitable access to basic services and amenities, and formal interactions for governance and civic participation.

**Appropriate Resource Use and Climate Protection**: An outcome of a sustainable neighbourhood. The neighbourhood built environment encourages resource efficiency, conservation and sustainable resource use in dwelling performance, land consumption, transport, energy sources, water consumption and life cycle impacts

**Maximised Bio-physical Health**: An outcome of a sustainable neighbourhood. The neighbourhood built environment protects and enhances the environment by reducing negative impacts on air quality, aquatic health, biodiversity and soil quality.

**Infrastructure:** An element of a neighbourhood built environment. This includes infrastructure for water (wastewater, stormwater and potable water), transport (roads, footpaths, cycleways, public transport), energy (gas and electricity), communications (phone, cable TV, etc) and waste (e.g. recycling depot)

**Buildings**: An element of a neighbourhood built environment. Neighbourhood buildings include private dwellings, community buildings (such as schools or a community house), public buildings (such as libraries or a town hall) and commercial buildings.

**Space:** An element of a neighbourhood built environment. Space is the area not covered by buildings or infrastructure. It includes private space (such as gardens), public space (such as parks and squares) and publicly used private space (such as a privately owned square in a shopping complex).

# 6 Where to find Beacon reports

Search for these reports in the Document Library on Beacon's website: www.beaconpathway.org.nz

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