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Valuing sustainable neighbourhoods

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About This Report

Title

Valuing sustainable neighbourhoods

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Abstract

This report uses Beacon's Neighbourhood Sustainability Framework and data from Beacon's National Survey of Neighbourhoods to value the opportunities presented by the data collected by the National Survey of people's neighbourhood experiences and neighbourhood characteristics.

Reference

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1 Executive Summary

Beacon's Neighbourhood Sustainability Framework (NSF) and its associated tools is an evidence-based approach to improving the built environment of New Zealand's neighbourhoods. The NSF identifies critical aspects of neighbourhood life influenced by the built environment and provides a way of assessing the sustainability of both newly planned neighbourhoods and existing neighbourhoods taking into account the social, economic and environmental dynamics of where those neighbourhoods are situated as well as their built form and design.

The social, economic and environmental importance of built environments has long been recognised, and the practice of building sustainable neighbourhoods is increasingly being supported by tools directed at the design and management of settlements. Those tools work at various scales from dwelling to street to precinct to neighbourhood to city. They embrace guidelines based on professional best practice to accreditation tools to decision-making and design assistance tools.

Beacon's Neighbourhood Sustainability Framework demonstrates that some neighbourhoods provide better environments than others. However, the monetised value of neighbourhoods of different types has not been transparent. This research attempts to make the monetised value of neighbourhoods transparent by placing associated dollar values with the measures of neighbourhood sustainability used in the Resident Assessment Self-Report Tool of the NSF. The process of associating a dollar value to the various measures found in the NSF's Resident Assessment Self-Report Tool involves using two sets of data: firstly, the data generated by Beacon's 2008 National Neighbourhood Survey of neighbourhood behaviours and experience, and secondly, it gathers together a range of existing costs and monetised benefits data found in a wide range of existing research, commentary and information. There is no attempt to distribute the costs and benefits identified in that wide range of material. The uneven and fragmentary nature of that data makes such a step impossible at this stage.

The task of monetising the value of neighbourhoods is inhibited by fragmentary data. However, the report demonstrates that the NSF Resident Assessment Self-Report Tool provides a model of the neighbourhood as a set of measures that can be represented in monetary value. Despite significant data limitations around monetary values for some measures, Beacon's 2008 National Neighbourhood Survey has allowed fundamental issues of the relative value neighbourhoods of different density and uses to be explored.

The process of applying current knowledge on the dollar values for each of the NSF indicators reinforced Beacon's underpinning assumptions that neighbourhoods are dynamic and reinforces also the approach Beacon has taken to developing neighbourhood tools – that is, the development of tools to support decision-making rather than a neighbourhood accreditation system. The tools are designed to support developers and local authorities working together to optimise neighbourhood sustainability.

Overall, this research suggests that high density, mixed neighbourhoods show higher dollar sustainability values than low density, non-mixed use neighbourhoods. There is consequently, a

broad alignment between value and prevailing planning views around 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 those cities' neighbourhood built environment tends to generate net costs rather than net benefits.

The cost of changing a neighbourhood's built environment associated with low dollar sustainability to one that generates high value sustainability may be considerable and complex. Under those conditions 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. From a broader settlement perspective neighbourhood redevelopment initiatives need to be directed towards moving the balance from low density to higher density across the city system. To do this successfully, however, New Zealand must pay considerable attention to establishing designs for both neighbourhoods and residential buildings in medium density, mixed use settings that are adaptable, liveable and environmentally efficient.

2 Introduction

Neighbourhoods are crucial in the operation and vitality of cities and settlements. This has been long recognised in both urban planning and social policy. Beacon's Neighbourhood Sustainability Framework (NSF) has been developed because of the importance of neighbourhood built environments to both the sustainability of residential dwellings and human settlements.[1] Neighbourhoods connect individuals and the dwellings in which they live to the wider urban context. Cities can not be sustainable if the neighbourhoods of those cities are not. So-called sustainable dwellings can never be truly sustainable if they are located in neighbourhoods that impose significant environmental, social and economic costs on the people that live in them. Nor are neighbourhoods sustainable if they generate costs that have to be met by future generations, people living in other parts of the settlement, region or the nation.

For these reasons, Beacon's research directed to improving the sustainability of New Zealand's residential built environment has involved a twin focus. There has been significant work on improving the resource performance of New Zealand's new and existing housing stock. There has also been significant effort directed to developing tools to assist developers, territorial authorities, social housing providers and urban design professionals to assess the sustainability of existing and planned neighbourhoods.

Beacon's Neighbourhood Sustainability Framework and its associated tools set out the criteria and approach to measuring sustainable neighbourhoods. Underpinning that framework as well as the various other tools being developed internationally that measure neighbourhood performance and amenities, is an assumption that some neighbourhoods provide better value to those that live in them and the settlement as a whole than other neighbourhoods. Neither here nor overseas, however, has this been systematically tested or the monetised value of neighbourhoods made transparent.

This report attempts to do just that. It attempts to place a dollar value on the measures of neighbourhood sustainability used in the Resident Assessment Self-Report Tool of the NSF. Then, using data generated by the national survey of neighbourhood behaviours and experience undertaken by Beacon in 2008, it attempts to estimate the value of different types of neighbourhoods.

The report is structured as follows:

- Section 3 provides an overview of Beacon's neighbourhood research and tools. It describes the NSF and related tools and the national survey of neighbourhood behaviours and experiences.
- Section 4 considers the various approaches that might be taken to the problem of making transparent the value of neighbourhood sustainability.

[1] ***Saville-Smith, et al., 2005; Lietz, et al., 2006; Lietz, Bijoux and Saville-Smith, 2007; Saville-Smith, 2008.***

- Section 5 sets out the approach taken in this report to valuing neighbourhood sustainability and the dollar values attached to various neighbourhood characteristics set out in the NSF and its associated tools.
- Section 6 provides an analysis of the value of neighbourhood sustainability in New Zealand based on the data generated from the national survey of neighbourhood behaviours and experiences and the dollar values set out in Section 5.
- Section 7 comments on the implications of valuing sustainability for the planning and management of New Zealand's residential built environment.

3 Beacon and Neighbourhoods

Beacon's vision is that New Zealanders will all live in "homes and neighbourhoods that work well into the future and don't cost the earth".

In relation to neighbourhoods, Beacon's goal is for:

> Every new subdivision and any redeveloped subdivision or neighbourhood from 2008 onwards to be developed with references to a nationally recognised sustainability framework.

This section summarises much of the Beacon approach to neighbourhood built environments and describes Beacon's NSF.

3.1 Defining Neighbourhoods

To develop a means by which the sustainability of neighbourhood built environments could be measured some definition of neighbourhood was required. In an attempt to define a neighbourhood Beacon identified three broad approaches to neighbourhoods over the last century. One type of definition relates to defining neighbourhoods in relation to their spatial features, particularly population and building densities, travel times to services and other proximity measures. The second type of definition defines neighbourhoods using detailed descriptions of activities that are presumed to be uniquely sited in neighbourhoods. Thirdly, there are definitions that relate to a sense of belonging to a place and relating to neighbours.

None of these definitions have proved entirely satisfactory. The third definition for instance suggests that neighbourhoods only exist if there are positive interactions between and identification with the individuals living within a particular locality. This is clearly not a robust definition of a neighbourhood. Even in localities in which there are deep tensions and conflicts, residents frequently refer to a 'neighbourhood'. Indeed recent research into residential movement and attachment in New Zealand revealed that while neighbourhood boundaries are somewhat fluid, there are frequently only marginal differences in the neighbourhood boundaries identified by residents irrespective of their sense of attachment or satisfaction with the neighbourhood.

Similarly, attempts to define neighbourhoods in terms simply of the activities that are carried out within them, or according to pre-determined spatial size or number of dwellings also tends to be futile. Neighbourhoods are highly dynamic. The functions of and activities carried out in neighbourhoods vary from one neighbourhood to another, from city to city, from time to time, and according to the different social and economic roles of the diversity of people living in them.

In addition, defining neighbourhoods as simply city precincts with no reference to the interrelationships and interactions between people and households fails to capture the way in which neighbourhoods generate an identity of place. Beacon's NSF recognises that

neighbourhoods have spatial boundaries although these tend to be fluid. It recognises that neighbourhoods are the site of a range of activities, although these may vary over time and between neighbourhoods. The NSF also recognises that neighbourhoods are sites of interaction although the quality of 'neighbouring' may vary. So too may the attachment and sense of identity that people and households have in relation to the neighbourhoods in which they live.

For Beacon, neighbourhoods have some generic characteristics, but the sustainability of particular neighbourhoods has to be assessed on a case-by-case basis. The generic characteristics of neighbourhoods are that they:

- are spatial nodes in which households and dwellings are clustered
- provide for residential functions
- facilitate residential functions through a built environment that allows for the interconnection and mutual use of infrastructure and services among neighbours and neighbouring dwellings
- are connecting spaces between individual dwellings and the city system
- consist of the neighbours of a cluster of dwellings
- consist of boundaries that are loosely defined although those boundaries will typically go beyond a household's directly adjacent neighbours
- are a domain of casual social interaction, and
- are a key site of the routines of everyday life.[2]

3.2 The Neighbourhood Sustainability Framework

Beacon recognises that the built environments of neighbourhoods are important aspects of a city system which both reflects and impacts on the way in which:

- people lead their everyday lives, and
- cities and settlements function socially, economically and environmentally.

Beacon also recognises that well-designed and built houses can not be sustainable if they are situated in unsustainable neighbourhoods.[3]

The NSF and a set of supporting tools has been developed by Beacon because the quality of neighbourhood life has a profound impact on the satisfaction and life chances of individuals, their families and households as well as on the liveability of settlements.

Beacon's NSF and its related tools have been described in various reports and papers, but in summary, the NSF provides an innovative integration of the environmental, social and economic elements of neighbourhoods around critical domains for neighbourhood sustainability. Those domains are set out in Figure 1. There are six in all as follows:

- functional flexibility
- neighbourhood satisfaction
- maximised biophysical health
-

[2] ***The research base for this section is reviewed in Saville-Smith, et al., 2005.***

[3] ***Bijoux, Lietz, & Saville-Smith, 2007; Bijoux, Saville-Smith, & Lietz, 2008.***

- effective governance and civil life
- appropriate resource use and climate protection
- minimised cost.

The NSF relates achievement in those performance domains as the pathway to sustainable neighbourhoods. Those are neighbourhoods in which the built environment is designed, built and managed to generate adaptive and resilient places providing satisfying lives within the limitations of the natural environment. The specification of the focus of the NSF and the domains can be found in Table 1.

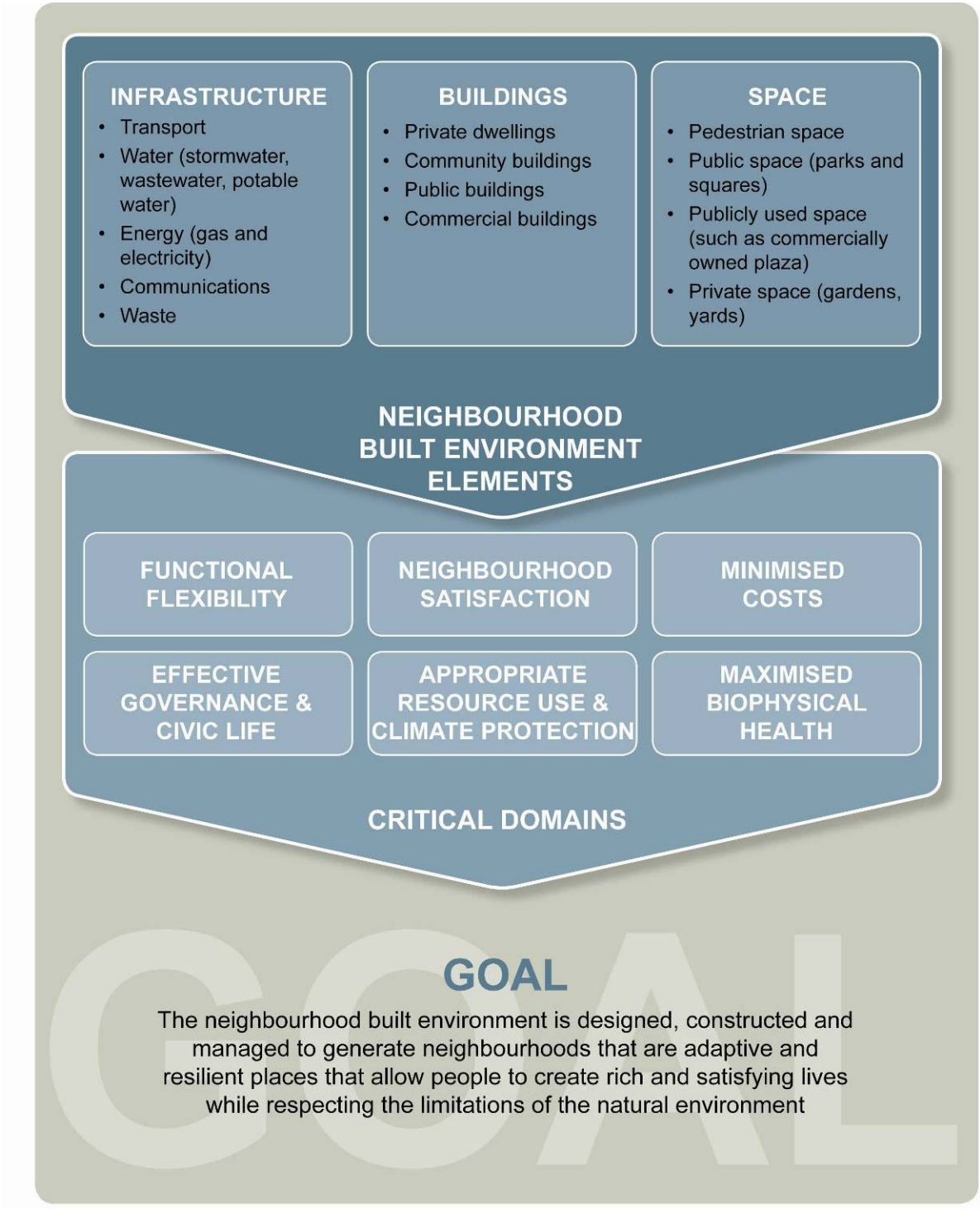

Figure 1 Goals, critical domains and elements for sustainable neighbourhoods[4]

[4] *Saville-Smith, et al., 2005.*

Application scale	**Neighbour-hood**	Spatial nodes in which households and dwellings are clustered. Provide for residential functions and may facilitate non-residential functions through a built environment that allows for the interconnection and mutual use of infrastructure and services among neighbours and neighbouring dwellings. Connecting spaces between individual dwellings and the city system. Consist of the neighbours of a cluster of dwellings. Consist of boundaries that are loosely defined although those boundaries will typically go beyond a household's directly adjacent neighbours. Arenas of casual interaction. Key site of the routines of everyday life.
Critical Outcome domains for neighbourhood built environment	**Functional flexibility**	The built environment can be continuously adapted to the needs of diverse and changing populations, social, economic and environment conditions: adaptability to changes in household structure; adaptability to changes in transport costs and choices; adaptability to changing ethnic and socio-economic mix of the population; and adaptability to the effects of climate change
	Neighbour-hood satisfaction	The built environment maximises the key determinants of neighbourhood satisfaction: housing quality; durability and low levels of dilapidation; street safety; low noise disturbance; opportunities for casual social interaction; opportunities for enclave living.
	Minimised costs	The built environment minimises the direct and indirect costs and cost uncertainty for households and cities associated with: travel; dwelling and section provision; maintenance and repair; infrastructure provision; facility provision, household consumption and discretionary income.
	Effective governance and civic life	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 for children and adults with diverse levels of mobility within the neighbourhoods; formal interaction and spaces for formal interactions for neighbourhood governance, civic participation and government.
	Appropriate resource use and climate protection	The neighbourhood built environment encourages resource efficiency, resource conservation and the use of more sustainable resources in relation to: maximisation of dwelling performance; land consumption; transport energy consumption; energy and other resource sources; sustainable and renewable sources of energy, water and materials. Lifecycle impacts.
	Maximised biophysical health	The neighbourhood built environment is designed to protect and enhance the biosphere, with particular focus on: reducing negative impacts on air quality; ensuring aquatic health; protecting/enhancing biodiversity and soil quality; and maximising human health.
Neighbourhood built environment elements	**Infra-structure**	The fixed physical elements associated with shared services, including water infrastructure (wastewater, stormwater and potable water), transport infrastructure (roads, footpaths, cycleways, public transport), energy infrastructure (gas and electricity), communications infrastructure (phone, cable TV, etc.) and waste infrastructure (e.g. recycling depot).
	Buildings	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. Some private buildings have a public use, such as cafes, bars or the foyer of an office building or apartment complex.
	Space	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).

Table 1 Specification of the critical domains in the NSF[5]

[5] ***Saville-Smith et al., 2005.***

Two tools have been developed to assess neighbourhoods in relation to those domains and to identify key adaptations of existing neighbourhoods and amendments to the design of new neighbourhoods to improve their sustainability. Those tools are: the Neighbourhood Built Environment Observational Assessment Tool and the Resident Assessment Self-Report Tool.

The Neighbourhood Built Environment Observational Assessment Tool consists of two types of credits against which the neighbourhood is assessed. The first set is comprised of credits which can be measured, such as the density of the development or the percentage of dwellings within a certain distance of a bus stop. The second set consists of credits which require professional judgement, such as whether there is good surveillance of a public space. The following are measured:

- Access to basic every day facilities within walking distance:
  - schools
  - reserves
  - local shops
- Access to and adequacy of public transport within walking distance.
- Quality of space
  - streetscape, including but not limited to walkability
  - public open space
- Efficient use of space and viability of local centres
  - residential density
  - previous use of the site
- Diversity
  - mixed use
  - public space
  - housing diversity (cost, size, typology)
- Protection and enhancement of the natural environment
  - stormwater management
  - protection and creation of habitat
  - riparian, coastal and wetland management
- Dwelling level sustainability.[6]

The Resident Assessment Self-Report Tool involves collecting self-report data from neighbourhood residents. It can only be applied to existing neighbourhoods. Table 2 sets out the alignment of the NSF domains set out in Figure 1 and Table 1 with the data collected through the self-complete questionnaire that is used to collect data from those living in the existing neighbourhoods (See Appendix A). The assessment score of an existing neighbourhood is calibrated by a national baseline of urban neighbourhood experiences and behaviours. The data for the baseline has been generated by a national survey which is described in Section 3.3.

[6] ***The dwelling level sustainability measures are based on Beacon's HSS High Standard of Sustainability®.***

Domain	Measure
Functional flexibility	- % intention to move because of housing
	+ % foot/bicycle/public transport for work/study
Neighbourhood satisfaction	- % intention to move because of neighbourhood
	+ % describing house/garden condition as ‘very good’
	+ % describing walking in street at night as ‘very safe’
	- % describing walking in street at night as ‘very unsafe’/‘do not go out at night’
	+ % noise disturbance described as ‘not a problem’
	- % noise disturbance described as a ‘serious problem’
	- % no chat or greeting of neighbours
	- % no neighbours known by name
	+ % knowing many in the neighbourhood
	+ % strongly agreeing that the neighbourhood is friendly
	+ % strongly agree that neighbourhood reflects own identity
	+ strongly agree that has a sense of belonging
Maximised biophysical health	- exceeding average aggregate kms last 4 weeks car use
	+ % use bicycle/walk for work/study
	+ % undertakes composting
	+ % leaves undisturbed area for wildlife
	+ % maintains shrubs and garden
	+ % provides pond
	+ % provides food and water for wildlife
	+ % undertakes organic gardening
Effective governance and civic life	+ % membership and participation in local or neighbourhood groups
	+ % participation in local or neighbourhood group at least once a month
	+ % use of local public spaces at least once a month
Resource use & climate protection	-exceeding average aggregate kms last 4 weeks car use
Minimised cost	+ % who expend more than half of their food expenditure in the neighbourhood

Table 2 Measurement of NSF critical domains through self-report data

3.3 The National Neighbourhood Survey 2008

The assessment of existing neighbourhoods using the Resident Assessment Self-Report Tool in the NSF uses information from the experiences of people living in the neighbourhood being assessed. The experience of people living in an assessed neighbourhood is then calibrated against a set of baseline data of the experiences of multiple neighbourhoods across the country. On the basis of that calibration an assessed neighbourhood is identified as of greater or lesser sustainability.

The data currently used to calibrate and generate a sustainability assessment for a neighbourhood is derived from Beacon's 2008 National Neighbourhood Survey. It is the data from that survey that has been used to generate the estimates of neighbourhood value presented later in this report. This section provides a brief summary of the sample frame and built environment taxonomy used in the National Neighbourhood Survey. Appendix B provides the questionnaire used in Beacon's 2008 National Neighbourhood Survey.

3.3.1 The Sample Frame and Sampling

The sample frame and sampling approach used for Beacon's 2008 National Neighbourhood Survey has made the data particularly useful in the neighbourhood value research. This is because the sample was built to allow neighbourhood experiences in six different types of neighbourhoods to be isolated. Those neighbourhood types are, neighbourhoods of:

- high density and mixed use
- medium density and mixed use
- low density and mixed use
- high density with non-mixed use
- medium density with non-mixed use, and
- low density with non-mixed use.

Table 3 sets out the definitions of density and use profile used to develop those neighbourhood types.

Mix Category	Mix Measure	Density Category	Density Measure
Non-mixed	<36% residential or >78% residential	Low residential density	0–14 units of use per hectare
Mixed	36–77.9% residential	Medium residential density	15–30 units of use per hectare
		High residential density	31 units of use or more per hectare

Table 3 The Measurement of Built Environment Mix and Density Characteristics

To draw the sample an extract of property value data was commissioned for the following areas on a meshblock level:

- Auckland City Council
- Waitakere City
- North Shore City Council
- Manukau City Council
- Hamilton City Council
- Wellington City Council
- Upper Hutt City Council
- Hutt City Council
- Porirua City Council
- Christchurch City Council
- Waimakariri District Council
- Dunedin City Council

Each meshblock was aligned to a New Zealand Fire Service suburb to allow the meshblocks to be grouped. All meshblocks with no residential property categories and all island and sea-based meshblocks were removed along with areas non-contiguous to urban conurbations. Each suburb was then assigned to one of the six neighbourhood categories.

Table 4 sets out the proportions of dwellings in the characterised suburbs of New Zealand's major cities.

City	High Density Mixed	Medium Density Mixed	Medium Density Non-mixed	Low Density Mixed	Low Density Non-mixed	Total
Auckland City	14.67%	13.24%	31.29%	0.00%	40.80%	100%
Manukau	0.00%	15.56%	15.23%	4.34%	64.88%	100%
Waitakere	0.00%	0.00%	10.89%	19.20%	69.91%	100%
Hamilton	2.03%	15.62%	13.24%	10.19%	58.93%	100%
Hutt City	0.00%	2.71%	14.04%	12.32%	70.93%	100%
Wellington	11.42%	17.61%	17.65%	10.05%	43.28%	100%
Christchurch	1.50%	14.80%	21.90%	10.39%	51.41%	100%
Dunedin	0.00%	5.12%	18.80%	17.48%	58.60%	100%
Total	*5.53%*	*12.27%*	*20.58%*	*8.25%*	*53.36%*	*100%*

Table 4 Proportions of Dwellings in Selected Cities by Built Environment Category

It will be noted that no New Zealand suburbs were found to be high density and non-mixed use. The predominance of low density and non-mixed built environments is very evident. Over half of the dwellings in these urban areas are situated in low density, non-mixed neighbourhoods.

Figure 2 shows Auckland and Wellington as the cities with a greater pattern of intensification than other cities. However, Auckland has almost a third of its stock in non-mixed medium density.

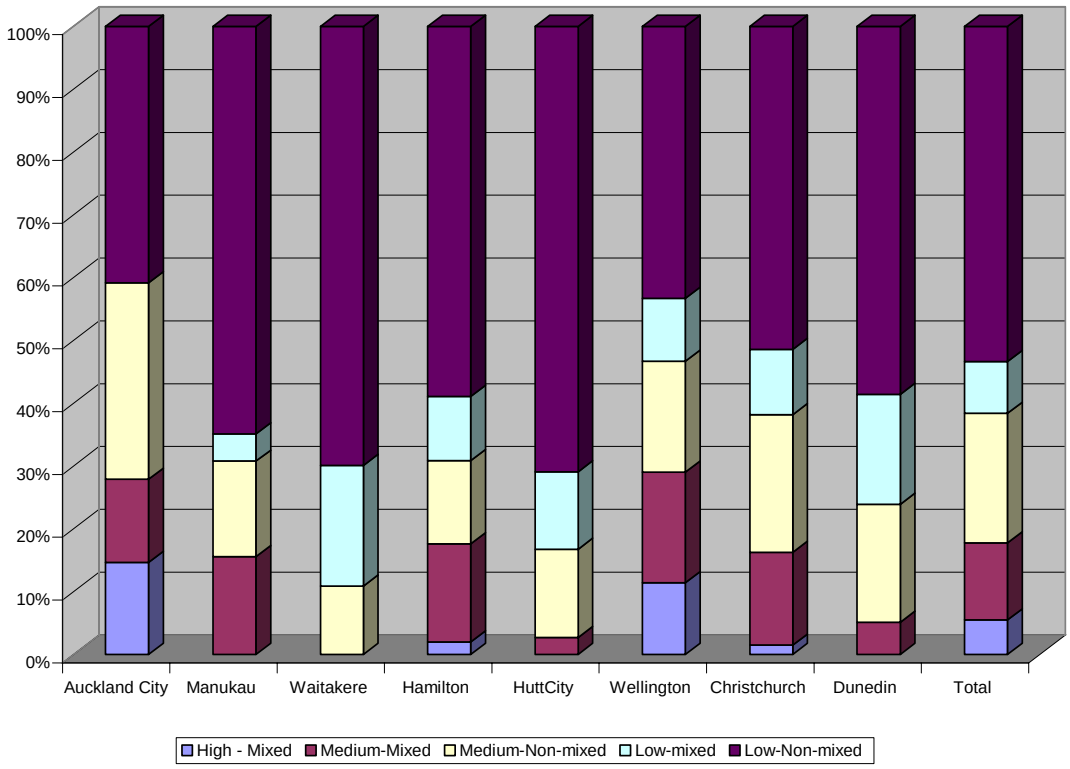

Figure 2 Proportions of Dwellings in Selected Cities by Density/Mix Category

A sample of 1,600 dwellings was drawn with dwellings 'equal split' between each category in the neighbourhood taxonomy. Table 5 sets out the numbers of dwellings and the margin of error.

Built Environment Category	Dwellings	Percent	Equal Split	
			Sample Size	Margin of Error
High – Mixed	33,302	5.5%	320	0.056
Medium – Mixed	73,854	12.3%	320	0.056
Medium – Non-mixed	123,832	20.6%	320	0.056
Low – Mixed	49,645	8.3%	320	0.056
Low – Non-mixed	321,092	53.4%	320	0.056
Overall	*601,725*	*100.0%*	*1,600*	*0.033*

Table 5 Proportions of Dwellings in Selected Cities by Built Environment Category

Survey Implementation and Analysis

A company specialising in telephone survey was commissioned to undertake telephone surveying using a slightly amended questionnaire to align to the requirements of the Computer Assisted Telephone Interviewing (CATI) system used by that company for interviewing. Interviewing was undertaken between 26 May and 6 July 2008. A response rate of 19% was achieved for this survey. A total of 1,613 interviews were completed. Raw data was collated and quality checked by the surveying company before being provided for analysis. The closed-ended questions were pre-coded and analysed in SPSS. The data was then subject to both univariate analysis of frequencies and cross-tabulations.

4 Putting a Value on Neighbourhoods

One of the challenges in dealing with neighbourhoods is quantifying their value. The NSF provides a quantification of the performance of neighbourhood built environments in relation to a specific goal and within specific domains. This part of the neighbourhood research programme, however, is an attempt to go beyond that form of quantification by:

- establishing whether the value of neighbourhoods can be monetised,
- whether any monetary values that might be assigned to neighbourhoods align with the different sustainability scores generated by using the NSF, and
- whether the research on the monetary value of various neighbourhood related measures could be assigned to various stakeholders at the household, local or regional level.

This is by no means a trivial task. It demands not only a framework of neighbourhood sustainability, but an array of associated research into the value of those various measures.

This section considers why such a demanding task might be worthwhile, comments on the barriers to establishing the value of neighbourhoods, and sets out two broad approaches to establishing neighbourhood value.

4.1 The Conundrum of Neighbourhood Value

Internationally, neighbourhoods present a planning and policy conundrum. There is widespread recognition of the value of neighbourhoods, but there has been little attention given to quantifying that value. There is a broad belief that poorly designed and managed neighbourhoods generate costs for both their residents and the settlement system as a whole, but there are not well established and agreed methods for estimating those costs.

The issue of neighbourhood value and the costs of poorly designed neighbourhood built environments has once again resurfaced. There is a considerable body of research, planning and policy that cites neighbourhood built environments as being connected to improved social, economic and environmental outcomes. Ellen and Turner's (1997) review of research into the connections between neighbourhood environments and socio-economic outcomes identified six important mechanisms through which neighbourhoods have an impact on social and economic outcomes:

- access to and the quality of local services and amenities
- socialisation
- peer influence
- provision of social networks
- exposure to crime and violence, and
- connectivity.[7]

[7] ***Ellen and Turner, 1997.***

Those impacts can be profound. There is now a strong body of research on 'neighbourhood effects' that shows that the 'quality' of neighbourhoods can positively or negatively influence: people's exposure to violence and crime; opportunities for employment; and mental and physical health. There are externalised costs associated with poor outcomes.[8] In addition, where neighbourhoods perform poorly and/or are burdened with high levels of deprivation, neighbourhoods become vulnerable to a downward spiral of disinvestment associated with declining house conditions and business exit. Services and amenities become less and less responsive and attractive. Under those conditions, the socio-economic and built fabric of neighbourhoods becomes less and less resilient and previous investment in the social and built infrastructure is at risk of being lost.

It is in that context than many countries have committed themselves to reinvesting in communities and neighbourhoods. In the United Kingdom, for example, there are three main programmes: the Single Regeneration; the New Deal for Communities which provided 39 highly deprived neighbourhoods with funds to deliver multi-faceted regeneration via community-led partnerships; and the Neighbourhood Renewal Fund which offers a further 88 deprived neighbourhoods a ring fenced funding stream through Local Strategic Partnerships.[9]

Investing in place-based programmes and services raises three issues. Firstly, to make investments that are most likely to generate sustainable well performing neighbourhoods requires that the characteristics of successful neighbourhoods are understood. Second, they require tools to assess neighbourhoods (planned and existing) that can focus investment, design and management choices. Third, it requires some sense of the return likely to be achieved on investment or the foregone value if investment in the planning, design, building and management of neighbourhoods are not made.

To date, Beacon had addressed the first two of those issues. The NSF has been developed to take account of a wide range of research that shows that 'successful' neighbourhoods have a variety of characteristics, in particular:[10]

- housing satisfaction
- 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
- 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
- ability to have pleasant, friendly and non-threatening casual social relations
- ability to provide opportunities for neighbourhood action on local issues.

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[8] ***Carter, and Polevychok, 2003.***

[9] ***Department of Land Economy, 2002.***

[10] ***See Saville-Smith et al., 2005 for a discussion of this research literature.***

The NSF has also generated tools to assist with assessing the sustainability of both planned and existing neighbourhoods. Field testing in existing neighbourhoods shows that those tools identify a range of investment and management opportunities to optimise the performance of neighbourhoods. They also provide very real insights into whether neighbourhood optimisation activities should have a focus on the built environment, the natural environment or on social and economic aspects of a neighbourhood.[11]

Implicit in the NSF is the notion that neighbourhoods have a value and that that value both to the residents and externally can vary. In theory it could be expected that neighbourhoods showing higher sustainability in the NSF would also show a greater monetisable net value. This research is directed at testing:

- whether monetisable values can be given to measures in the NSF on which neighbourhood sustainability is assessed, and
- whether the net outcome of a neighbourhood of assigning those values is consistent with its assessed sustainability.

4.2 Barriers to Establishing the Value of Neighbourhoods

There are four major barriers to establishing the value of neighbourhoods, however:

- First, there has been the problem of how to conceptualise a neighbourhood in a way that allows monetary values to be associated with different neighbourhood characteristics or dynamics.
- Second, there are evidence deficits in relation to costs or benefits of aspects of neighbourhood life. Nevertheless, there is a range of research and analysis in which specific monetised costs or benefits of certain neighbourhood characteristics have been identified. These tend to be associated with particular aspects of neighbourhood environments. For instance:
  - impacts of public transport availability and amenities on property prices
  - property value impacts of neighbourhood dilapidation
  - impacts of street and public space design on property values
  - the value of walking and the neighbourhood built environment design features that prompt walking
  - the impact of environmental degradation on investment, disinvestment and attachment
  - the impact of neighbourhood mix, density and street design on crime
  - the impacts of connectivity on civic participation
  - neighbourhood transport patterns of road death and injury
  - impacts of crime on health outcomes
- Third, there are the inevitable difficulties associated with measuring value where:
  - costs and benefits may be direct and/or indirect
-

[11] ***Saville-Smith, et al., 2005; Lietz, et al., 2006; Lietz, Bijoux, & Saville-Smith, 2007; Saville-Smith, 2008.***

- costs and benefits may or may not be subject to market exchange
- costs and benefits do not necessarily manifest themselves in the same 'place' or scale, and costs and benefits accrue unevenly across society.

- Finally, neighbourhoods as well as social, economic and environmental outcomes are highly complex. There are potentially multiple pathways to achieving certain outcomes. The attribution of costs or benefits to particular determinants is difficult. It is clear that the relationship between determinants and outcomes is not always linear. There may be some impacts that only emerge at a 'tipping point'. Neighbourhoods are dynamic and are unlikely to research stable states. Those complexities both contribute to and reflect the problems around the empirical evidential base.

4.3 Approaches to Establishing Value of Neighbourhoods

Broadly there are two approaches establishing the value of neighbourhood sustainability by:

- estimating the costs of improving the sustainability performance of a neighbourhood compared to the associated benefits of such an improvement.
- estimating the value of particular characteristics of a neighbourhood.

The first of those two approaches requires three knowledge sets. Firstly, it requires an understanding of the base value of a particular neighbourhood. Secondly, it requires an ability to cost neighbourhood interventions. Thirdly, it requires the ability to value the relative benefits of those interventions.

By comparison, the second approach demands a more limited knowledge base. It requires an ability to place a dollar value on parameters of neighbourhood performance as if those were, in effect, in a stable state. This is a somewhat less demanding task. It does, however, require a transparent conceptualisation or 'model' of the neighbourhood at the parameters that are deemed important.

Irrespective of the approach taken, limitations of data mean that all estimates of value need to be treated with caution. Estimates reflect and are limited by the nature and robustness around the net benefits of many of our neighbourhood-based activities.

As the discussion in Section 5 shows, the data available on some parameters is virtually non-existent or very limited. Many of the values that have been associated with the indicators can not be considered, at this time, robust. Further research is required to increase the robustness of that data.

5 NSF and the Value of Neighbourhoods

This section sets out the method by which estimates have been developed to value neighbourhood built environments. That method consists of: assigning particular dollar values to each of the parameters used in the Resident Assessment Self-Report Tool; and using the Resident Assessment Self-Report Tool Calculator and the data from the National Neighbourhood Survey to estimate values for seven neighbourhood types.

5.1 Dollar Values for Indicators in NSF Domains

The domains and indicator measures for the assessment of neighbourhood sustainability in the Resident Assessment Self-Report Tool are used as the basis for estimating neighbourhood value. These are described in Section 3. In summary, there are six domains. Indicators in those domains have negative or positive scores. A calculator sums those scores in a single score using national baseline data. Scores are banded into sustainability bands – low, medium or high. The challenge of tying dollar values to each of those indicators is by no means a trivial task.

The discussion in this section of measures in the NSF Resident Assessment Self-Report Tool is ordered as follows:

- Section 5.1.1 identifies values related to home-based and neighbourhood-based intention to move.
- Section 5.1.2 identifies values related to using active transport modes and public transport indicators.
- Section 5.1.3 identifies values related to house and garden conditions.
- Section 5.1.4 identifies values related to walking in the street as very safe and very unsafe.
- Section 5.1.5 identifies values related to noise disturbance as a serious problem and not a problem.
- Section 5.1.6 identifies values related to neighbourliness and attachment indicators.
- Section 5.1.7 identifies values related to use of car and mileage indicators.
- Section 5.1.8 identifies values related to undertaking composting.
- Section 5.1.9 identifies values related to organic gardening and wildlife areas.
- Section 5.1.10 identifies values related to effective governance and civic life.
- Section 5.1.11 identifies values related to resource minimisation.

The following discussion identifies each of the domain indicators and comments on the range and nature of evidence on possible monetised values. Many of these dollar values have been generated using a slender evidential base much of which reflects experiences overseas. Those values must, consequently, be treated with caution.[12] It should also be noted that the nature of the data is such that it is not possible to distribute value or value foregone over different stakeholders. The approach taken in relation to each measure tends to be conservative.

5.1.1 Housing Based and Neighbourhood Based Intention to Move

Domain	Measure/Indicator	$ Value
Functional flexibility	- % Intention to move because of housing	Costs associated with household movement for owner occupiers, tenants and landlords. Dollar costs for: owner occupiers, $20,000; tenants, $2,000; landlords, $3,240.
Neighbourhood satisfaction	- % Intention to move because of neighbourhood	Costs associated with household movement for owner occupiers, tenants and landlords. Dollar costs for: owner occupiers, $20,000; tenants, $2,000; landlords, $3,240.

Two indicators related to intention to move are included in the NSF Resident Assessment Self-Report Tool. One indicator relates to movement intentions because of house-related reasons and is found in the 'functional flexibility' domain. The other indicator is around an intention to move prompted by concerns about the neighbourhood. That indicator is in the neighbourhood satisfaction domain.

Placing a dollar value on moving is complicated by two problems. Firstly, there is little research into the monetised and externalised costs and benefits for the neighbourhood of a household's movement. Secondly, the research into the benefits of moving for households has been primarily focused on movement from highly deprived neighbourhoods into less deprived neighbourhoods for households with very limited life chances. That research has been concerned with the net benefit to households of the entire movement chain. That approach is not appropriate to this exercise.

[12] ***This project has been restricted to accessing available evidence and data to value neighbourhoods. What this exercise demonstrates is that the NSF does provide a conceptual framework that allows neighbourhoods to be valued in monetary terms. The barriers to robust estimates of neighbourhood value, then, reside in empirical deficiencies. That is, while the NSF indicators are amenable to empirical measurement, the evidential base is usually fragmentary and sparse.***

This project is concerned with assessing the neighbourhood of origin and its ability to provide a housing stock that meets the needs of households and providing a neighbourhood environment that is acceptable to residents. The NSF Resident Assessment Self-Report Tool's calculator assesses the intention to move indicators in terms of the balance of those that are intending to stay and those that are intending to leave, not the net benefit for a household of moving from one neighbourhood to another. The critical value is, consequently, the costs associated with the movement itself among those intending to move.

There is little systematic evidence around the costs for households of moving house. Costs can be generated from a wide range of movement associated activities including time expended changing address, accessing new service providers, travel and so forth. The largest single cost for owner occupiers, however, is likely to be the direct costs associated with the sale and purchase of dwellings. For movement associated with rental dwellings, the costs for tenants are likely to be costs associated with the movement of household goods, search time and rent overlaps. There are also costs for landlords associated with tenant recruitment and loss of rent.

After consultation with real estate agents the cost of movement for owner occupiers has been set at $20,000. This is based on 3–4% commission on an average house price of $340,000 plus legal fees and moving household goods. For rental dwellings, tenant costs are set at $2,000 for moving household goods and rent overlaps. In addition, four weeks' rent set at the median weekly rent of $310 has been incorporated into the value. That is a total of $3,240 for rental dwellings with intended movers.

The estimates of value for the movement indicators assume that 80% of intended movers are in owner occupied dwellings and 20% of intended movers are renters. This reflects the prevailing tenure structure in New Zealand stock. This is an adequate approach for a national scale generating virtual neighbourhoods. However, for specific neighbourhoods, data related to actual stock tenure and residential movement in that neighbourhood should be used.

These values are conservative. No account is taken of capital gain or loss or other costs/benefits due to change in neighbourhood. All the estimated costs are private costs and there is also no calculation of costs to neighbourhoods of having high rates of shifting (these costs are likely to be picked up in areas such as friendliness and civic life).

It should be noted that in estimating value, the proportions of households that report that they intend to move are treated as if they actually move. In reality, however, not all households reporting an intention to move actually do move. On the other hand, some households that do not report an intention of moving actually move. Value estimates in the future could be improved to provide a more refined account of those dynamics. This would be particularly worthwhile if this was accompanied by a more robust research estimate of the unit costs of residential movement. At this point, the proportion of households reporting an intention to move is treated as representing households that intend to move and actually move as well as households that move without reporting an intention to move.

5.1.2 Using Active Transport Modes and Public Transport Indicators

Domain	Measure/Indicator	$ Value
Functional flexibility	+ % foot/bicycle/public transport for work/study	7.5% premium on median house price for dwellings with the householder in study or employment using public transport
Biophysical health	+ % foot/bicycle for work/study	$3,553 (health benefits)/household using active transport for work or study

There is a considerable literature on the relative costs and benefits of active transport (walking and cycling) and the use of public transport. There is still, however, much debate about the appropriate way in which to calculate the net benefit of these. In general, it is argued that active transport is undervalued in current costing models used to determine investments in transport infrastructure. Those models attempt to aggregate the total value of different transport modes against the costs of delivering them. They are concerned with the full range of costs and benefits including health and safety benefits.

In the NSF use of modes of transport other than private cars is found in two domains: the 'functional flexibility' domain, and the domain on 'biophysical health'.

In relation to the first of these domains, the indicator is concerned with the flexibility that a neighbourhood provides to its residents around transport mode. Land and property valuation research suggests that the amenity value of that flexibility to householders should be reflected in property values associated with proximity to alternative transport infrastructure. The empirical evidence overseas suggests that the additional value for dwellings in neighbourhoods with good access to public transport nodes and/or active transport is fragmentary. Premiums for dwellings in those neighbourhoods range between 6% and 14% on prevailing dwelling values.[13]

This value estimate takes a middle line and using 7.5% premium on median house price for 2008 and applied it to the proportion of dwellings with people in employment that use active or public transport. We do not apply that premium to all the dwellings in the neighbourhood, although it could be argued that other householders are also benefited by premium property prices in their neighbourhood. Research shows that there can be variations in the access to public and active transport amenities even within neighbourhoods and that this is reflected in house price premiums. For that reason, restricting the premium valuation only to the proportions actually using those transport modes is treated as providing the most robust valuation of this flexibility indicator.

The indicator in the 'biophysical health' domain is concerned with active transport modes only. The dollar value is based on a New Zealand health benefits study of active transport modes and is calculated at $3,553 per household using an active transport mode.[14]

[13] ***Litman, 2009.***

[14] ***Genter, et al., 2008.***

5.1.3 House and Garden Conditions

Domain	Measure/Indicator	$ Value
Neighbourhood satisfaction	+ % describing house/garden condition as 'very good'	4% of median house price placed on the householders identified as intending to move according to the proportion of all householders reporting neighbourhood houses/gardens in 'very good' condition.

There are two dynamics relevant to applying a dollar value to the indicator related to house and gardens being in very good condition. Firstly, there is some evidence to suggest there is a neighbourhood effect in relation to house and garden maintenance and house repair and renovation. That is, if the norm within a neighbourhood is to repair dwellings and maintain homes and gardens, then residents will tend to do so. Under those circumstances, it could be argued that there is some value in relation to the sustainability of stock performance of having a higher, rather than lower, proportion of well maintained dwellings and gardens.

Secondly, there is some overseas research data that suggests that well maintained houses and gardens are associated with a house price premium. Certainly the way in which the real estate industry advertises houses and the neighbourhoods in which they are located, would suggest that neighbourhood appearance and the standard of garden maintenance is considered an important selling point for existing homes. This is supported by a recent analysis of the impacts of trees in and around residential properties and neighbourhoods.[15]

A recent British insurance study indicates that around 4% of prevailing house prices can be added to those dwellings in neighbourhoods with well maintained houses and gardens. The value assigned to neighbourhoods in relation to householders' perceptions of home and garden maintenance is based on that study and is set at 4%. The NSF-based estimate presented in this report uses the 4% setting and value is calculated on the proportion of households reporting that their neighbourhood has houses and gardens in very good or excellent condition. It is also calculated only on the proportion of dwellings identified as intending to move.

Effectively this approach means that the value associated with this indicator is limited to the premium value conveyed by the neighbourhood on the house price that house owners can capitalise through house sales. This is a conservative approach. It could be argued that all house owners benefit from the premium a neighbourhood conveys to house prices through wealth accumulation.

[15] *Wolf, 2007.*

5.1.4 Walking in the Street as Very Safe and Very Unsafe

Domain	Measure/Indicator	$ Value
Functional flexibility	+ % describing walking in the street at night as 'very safe'	+$900 for proportion of households reporting 'very safe'
Functional flexibility	- % describing walking in the street at night as 'very unsafe'/'do not go out at night'	-$900 for proportion of households reporting 'unsafe'/'stay in'

Two indictors have been developed in the neighbourhood satisfaction domain around walking safely at night. One indicator merits a neighbourhood for the proportions of householders that feel safe and the other indicator demerits a neighbourhood in which people feel unsafe or do not walk at night.

Kaliner shows that the sense of safety provided by a neighbourhood does impact on the property values in that neighbourhood. His modelling suggests a small but "significant association between a neighborhood's reputation for crime and the price that homebuyers are willing to pay."[16] The negative impacts of a reputation for crime and lack of safety appears to devalue property values in those neighbourhoods between 0.3% and 0.4%. It is unclear, however, how a neighbourhood reputation actually impacts on the use of the neighbourhood by its existing residents.

Another approach to this would be to impute a value to the people feeling comfortable with using public space. As it was noted previously, the data is fragmentary. A recent Canadian court decision to fine a couple for harassing a neighbouring couple in public space and being a nuisance through a variety of actions including playing annoyingly loud music set that fine at $C15,000.[17] That was around 1.5% of the value of the harassed couple's home. If that percentage was applied to New Zealand median value properties the benefit of 'feeling safe' or the cost of 'feeling unsafe' would be in the region of $5,000.

A further way of conceptualising the value of neighbourhood/street safety at a local level is in relation to the investment that central and local government make into street safety. Unfortunately, local expenditure on the safety aspects of streets at the local level is not transparently recorded in New Zealand. However, an analysis of expenditure on policing and on neighbourhood safety promotion suggests that across local authorities around $900 per dwelling is expended on 'city safety'. In the case of those that do not feel safe in their neighbourhoods, that expenditure is treated as 'wastage' of a sunk cost. In relation to those that do feel very safe to walk in the street at night, $900 per household is treated as the value of the benefit associated with that sense of safety.

[16] ***Kaliner, n.d.***

[17] ***Mulgrew, 2009.***

5.1.5 Noise Disturbance as a Serious Problem and Not a Problem

Domain	Measure/Indicator	$ Value
Neighbourhood satisfaction	+ % describing noise disturbance as 'not a problem'	+$190 value on each 4dB noise not heard by proportion of households reporting no problem
Neighbourhood satisfaction	- % noise disturbance described as a 'serious problem'	-10% median house price for proportion households reporting serious noise problems

There is a considerable body of evidence indicating that noise disturbance is an important determinant of neighbourhood, property values and house satisfaction.[18] However, it has also been found that response to similar noise levels can vary considerably from person to person and according to context. Furthermore, in the context of neighbourhoods, it is clear that the exposure to noise can vary considerably. For these reasons two noise indicators are used in the NSF. One indicator is the proportion of householders for whom noise is not a problem. The other indicator is the proportion of households for whom noise is reported as a serious problem. In short, the NSF assesses those neighbourhoods that minimise the proportion of households exposed to excessive noise as more sustainable than neighbourhoods that do expose higher proportions of their households to levels of noise that householders find seriously problematic. Each of the NSF indicators has their own specific value attached to them.

In developing a dollar value for the value of noise *not* being a problem for a proportion of householders in a neighbourhood, we have assumed that those householders are exposed to lower noise levels. According to Land Transport New Zealand's economic evaluation manual 4dB(A) less noise is discernable and places a $190 value on each dB(A).[19] This is the setting used for the neighbourhood value tied to the households for whom noise is not a problem.

To associate a value with the proportion of households that consider noise a serious problem, the impacts of noise on property prices has been used. There is considerable international research that indicates that noise can negatively impact on property prices between 7 and 10%. A recent British insurance study indicates that around 10% of prevailing house prices can be removed from the value of dwellings in neighbourhoods with problematic noise.[20] This percentage of median houses has been used in the value estimate but restricted only to the proportion of respondents to the 2008 National Neighbourhood Survey who report their neighbourhood exposes them to serious noise problems.

[18] ***Xinyu Cao and Hough, 2007.***

[19] ***Land Transport New Zealand, 2006.***

[20] ***Holyer, 2009.***

5.1.6 Neighbourliness and Attachment Indicators

Domain	Measure/Indicator	$ Value
Neighbourhood satisfaction	- % no chatting with or greeting of neighbours	0.12% impact on median house price of householders in indicator category
	- % no neighbours known by name	0.06% impact on median house price of householders in indicator category
	+ % knowing many in the neighbourhood	0.06% impact on median house price of householders in indicator category
	+ % strongly agreeing that the neighbourhood is friendly	0.06% impact on median house price of householders in indicator category
	+ % strongly agreeing that neighbourhood reflects own identity	0.06% impact on median house price of householders in indicator category
	+ strongly agreeing that has a sense of belonging	0.06% impact on median house price of householders in indicator category

The research in this area is very limited. However, analysis in 2003 suggests that people are willing to pay a substantial premium to be in neighbourhoods to which they feel attached or in which other people to whom they feel an affinity live.[21] Gibbons' findings suggest that a 1.0% increase in people with a higher educational profile in a community raises housing prices by 0.24%. This probably reflects the premium that people are prepared to pay for neighbourliness. Given the lack of any other data of this nature this amount has been spread across the neighbourliness and identity indicators in the neighbourhood satisfaction domain.

[21] *Gibbons, 2003; Gibbons, 2001.*

5.1.7 Use of Car and Mileage Indicators

Domain	Measure/Indicator	$ Value
Maximised bio-physical health	- exceeding average aggregate kms last 4 weeks car use	$1 per average neighbourhood km per year and $2.14 per km for each km of the average neighbourhood above the national average baseline
Resource use and climate protection	- exceeding average aggregate kms last 4 weeks car use	$63 per average neighbourhood km per year plus $1 per average neighbourhood km per year and $2.14 per km for each km of the average neighbourhood above the national average baseline

There are indicators in both the maximised biophysical health domain and the resource use and climate protection domain that relate to the distances travelled by private motor vehicles. Morton's calculation of the carbon footprint of a car and road construction and maintenance is $1 per 100km.[22] This is used for the indicators in both domains.

For the human health component in the biophysical domain, the following approach has been taken. The impact of human health has been calculated as the value of marginal foregone health benefits associated with having higher than the average pattern of private car use. Those benefits have been set at $2.14 per kilometre. That is, the medium calibration of health benefits associated with substituting passive transport with cycling. That per kilometre value is only applied to neighbourhood average kilometres in private vehicles if the neighbourhood exceeds the national neighbourhood average travel distance in private vehicles. It is calculated only on the kilometres that exceed the national neighbourhood average.

For the 'resource use and climate protection' domain in addition to the Morton derived value previously described, the 2008 AA calculation of the average costs of running a car of $63 per km is used to capture resource cost exposure of households to private vehicle use.[23]

5.1.8 Undertakes Composting

Domain	Measure/Indicator	$ Value
Maximised bio-physical health	+ % undertakes composting	$50 per composting household

The dollar value associated with composting is $50 per household. This is partially based on savings in kerbside rubbish collection from household composting. Household rubbish disposal costs in the Wellington City Council area is approximately $134 per household per annum.[24]

[22] ***Morton, 2008.***

[23] ***ibid***

[24] ***Wellington City Council, 2008.***

Recent Dunedin research[25] showed that a control group of composting households reduced their kerbside rubbish by 12%. Households receiving information about composting reduced theirs by 20%. A 12% reduction in kerbside rubbish would equal $16 per household.[26]

Other benefits, for which there are no monetary values, include soil enhancement and more productive gardening. However, it is known that gardening households do buy in compost and soil conditioners. Consequently, the total value of composting used in the model of $50, consequently, consists of $16 waste disposal and $34 domestic substitution of the cost of compost and soil conditioners brought into the garden by gardeners.

5.1.9 Organic Gardening and Wildlife Areas

Domain	Measure/Indicator	$ Value
Maximised bio-physical health	+ % leaves undisturbed area for wildlife	$55.51 per household based in health benefit equivalent to 1km walk
	+ % maintains shrubs and garden	$55.51 per household based in health benefit equivalent to 1km walk
	+ % provides pond	$55.51 per household based in health benefit equivalent to 1km walk
	+ % provides food and water for wildlife	$55.51 per household based in health benefit equivalent to 1km walk
	+ % undertakes organic gardening	$24.06 per household based on saved expenditure on pesticides

Within the 'biophysical health' domain there are a series of indicators related to provision of garden environments that allow vibrant ecosystems. Developing monetised values for these are difficult because they tend to not be associated with direct market exchanges. A 1997 study estimated that the value of biodiversity to the economy was 52% of GDP. On 2008 figures, that would put its value at just under $48,000 per household. However, that figure includes the biodiversity contribution of New Zealand's conservation estate. Data is not available about the contribution of areas left undisturbed in neighbourhoods. We can not assume that the value of the conservation estate is equivalent in value to organically gardened areas or areas used by native and/or exotic species. There are biodiversity risks associated with ponds, wildlife areas, shrubs and trees related to invasive exotic species that may be valued as a cost rather than a benefit. These issues have not been resolved. For that reason, we have linked the valuing of

[25] ***Gillan et al., 2003-2004.***

[26] ***Presumably these results reflect a tendency for households who are already composting to have already substantially minimised their waste compared to non-composting households. Consequently, the proportional impact on composting households is likely to be smaller than on previously non-composting households.***

biodiversity related aspects of the biophysical health domain to reducing the pesticides and herbicides through organic gardening.

In 2002, cost-benefit analysis related to gypsy moth suggests that New Zealand households expended $20 per year on insecticides. This is the equivalent to $24.06 at the end of 2008. This value has been attached to the organic gardening value.

The other biophysical value of gardens, shrubs and ponds is that even in low labour and maintenance gardens, spaces such as these involve some exercise and with that there are potential health benefits. Light gardening involves a similar calorific expenditure as walking. Walking one kilometre at 4 km/hr is the equivalent of around 15 minutes of gardening. To value this indicator, it is assumed that together wildlife/garden management tasks involve one household member in the equivalent of walking one kilometre per week. On the basis of the health benefits associated with walking this equates to $222 annually or $55.51 dollars per indicator activity.[27]

5.1.10 Effective Governance and Civic Life

Domain	Measure/Indicator	$ Value
Effective governance and civic life	+ % membership and participation in local or neighbourhood groups	$24.91 per household based on cost of four hours/year at average wage in March quarter of 2009
	+ % participation in local or neighbourhood groups at least once a month	$24.91 per household based on cost of four hours/year at average wage in March quarter of 2009
	+ % use of local public spaces at least once a month	$220 per household using space based on average local authority investment in public space per household

This domain in the Resident Assessment Self-Report Tool has three indicators. Two indicators relate to membership and participation in local neighbourhood groups. For the first participatory indicator it is assumed that neighbourhood group membership requires a minimum of four hours participation annually. That participation is costed as the average hour wage in the March quarter 2009 of $24.91.

The second participatory indicator relates to active participation in neighbourhood activities at least once a month. The dollar value for this indicator assumes one hour monthly per householder with an hourly value of time set also at the average hour wage in the March quarter 2009 of $24.91.

[27] ***Using Genter et al.'s calculations for the value of health benefits associated with active transport.***

Both these measures constitute a conservative approach to the value of neighbourhood group participation. It takes no account of the value of productive but non-paid work undertaken by neighbourhood groups.

The third indicator relates to the use of public open spaces. The value of public space for those households in a neighbourhood is calculated to be the per household value of investment in public space by local authorities. Wellington City Council expends $377 per household annually on public space excluding the cycle, pedestrian and road space. Auckland City spends approximately $206 per household on annual public space. Lower Hutt City Council expends slightly more per household at around $229 annually. Dunedin City has a similar expenditure. The value of a neighbourhood that has a high use pattern in its public space is set at $220 per user household annually. Again this is a conservative approach.

Earlier research in the United States shows a pronounced positive impact of park and other public space on neighbourhood property values.[28] More recent work in Britain suggests that dwellings located near public space have property valuation advantages. This approach has not been used here, however, because of the very wide range valuation impacts found in the British research. That research found that compared to a property 450m away from a park, a property on the edge of a park could attract premiums between 0.44% and 19%. That variation appears, in part, to be associated with differences in the nature of the open space itself and the way in which it relates to private spaces.[29]

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5.1.11 Resource Minimisation

Domain	Measure/Indicator	$ Value
Minimised cost	+ % who expend more than half their food expenditure in the neighbourhood	$4,597.50 per household based on average annual expenditure on food and beverage

The dollar value associated with the resource minimisation indicator of households expending half or more of their food expenditure in the local area is conservative. It has been restricted to assigning half the average annual household expenditure on food and beverage for 2008 ($4,597.50) to the proportion of households in a neighbourhood reporting a spend of half or more of their food expenditure in the local area weekly.

This is a conservative approach for two reasons. Firstly, even households that may have, for instance, spent three quarters of their food expenditure, have only half the national average weekly food and beverage expenditure associated, accounted against them. More importantly, this approach does not take account of any of the multiplier effects or reductions of cost that

[28] ***Espy, and Owusu-Edusei, 2001.***

[29] ***For instance, some private properties gain amenity value from having a view of trees planted in a public space. This will generate value for that private property which is greater than the value generated for a private property with similar walking distance to the public space but does not have a view of the trees. Dunse et al., 2007; CABESpace, 2005.***

may be associated with local shopping. A number of overseas studies have shown that shopping locally generates a variety of local benefits including employment and increased amenity value. It also reduces costs associated with travel. The value of spending locally is even more pronounced if local purchases are in neighbourhood stores which are independent and locally owned.[30]

Those studies confirm that local shopping can be monetised. However, it is difficult to assess the applicability to New Zealand of dollar estimates generated in the context of very specific and complex local economies elsewhere. This is clearly an area in which future research could usefully be undertaken.

5.2 Method for Estimating Neighbourhood Value

Using the dollar values assigned to each indicator in the NSF domains set out in Section 5.1, the value of different types of neighbourhoods was undertaken using the Resident Assessment Self-Report Tool calculator and data derived from Beacon's 2008 National Neighbourhood Survey. Seven virtual neighbourhoods were generated. These are:

- A generic New Zealand neighbourhood
- High density mixed neighbourhood
- High density non-mixed neighbourhood
- Medium density mixed neighbourhood
- Medium density non-mixed neighbourhood
- Low density mixed neighbourhood
- Low density non-mixed neighbourhood

It must be emphasised that none of these neighbourhoods are real neighbourhoods. They are composites derived from the data of all dwellings responding to the 2008 National Neighbourhood Survey. The pattern of households responding to the 2008 National Neighbourhood Survey located in each strata of the sample has been applied assuming 500 dwellings in each neighbourhood. This approach controls for neighbourhood size.

[30] ***Civic Economics, 2008.***

6 The Sustainability Value of New Zealand Neighbourhoods

This section presents data around the sustainability value of seven different neighbourhood types. It then compares and contrasts those monetised values with the sustainability assessment generated by the NSF and comments on the differences between them.

6.1 Monetised Value of Neighbourhoods

Using the 2008 National Neighbourhood Survey and the Resident Assessment Self-Report Tool of the NSF, it is estimated that the built environments of New Zealand neighbourhoods overall have a sustainability value in the region of $289,270 annually per neighbourhood. That value is an aggregate value of all the values calculated on each domain measure. In some cases, as the previous discussion shows, value does not accrue to or is realisable by an identifiable individual or group. The sustainability value of the generic neighbourhood per household is around $580 annually.

Those estimates are based on a nationally representative pattern of neighbourhood behaviours. In reality, of course, there is variation in sustainability behaviours according to both prevailing residential density and the use profile of a neighbourhood built environment.

Table 6 sets out the monetised aggregate value of six different types of neighbourhood in New Zealand. The neighbourhood type which shows the highest net value per dwelling is high density neighbourhoods with mixed use characteristics. The neighbourhood with the lowest value is low density neighbourhoods in which there is no mixed use.

Neighbourhood Built Environment Category	$ Sustainability Value per Dwelling
High density – mixed use	$1,362
Medium density – mixed use	$88
Medium density – non-mixed use	$1,143
Low density – mixed use	$595
Low density – non-mixed use	-$595

Table 6 $ Sustainability Value of Virtual Neighbourhood per Dwelling

6.2 Comparing NSF Assessment with Monetised Value

It has been previously noted that it could be expected that the pattern of monetised value for different neighbourhood types could be expected to follow the assessed sustainability pattern using non-monetised measures. As a comparison of Figures 3 and 4 shows, however, this is not quite the case.

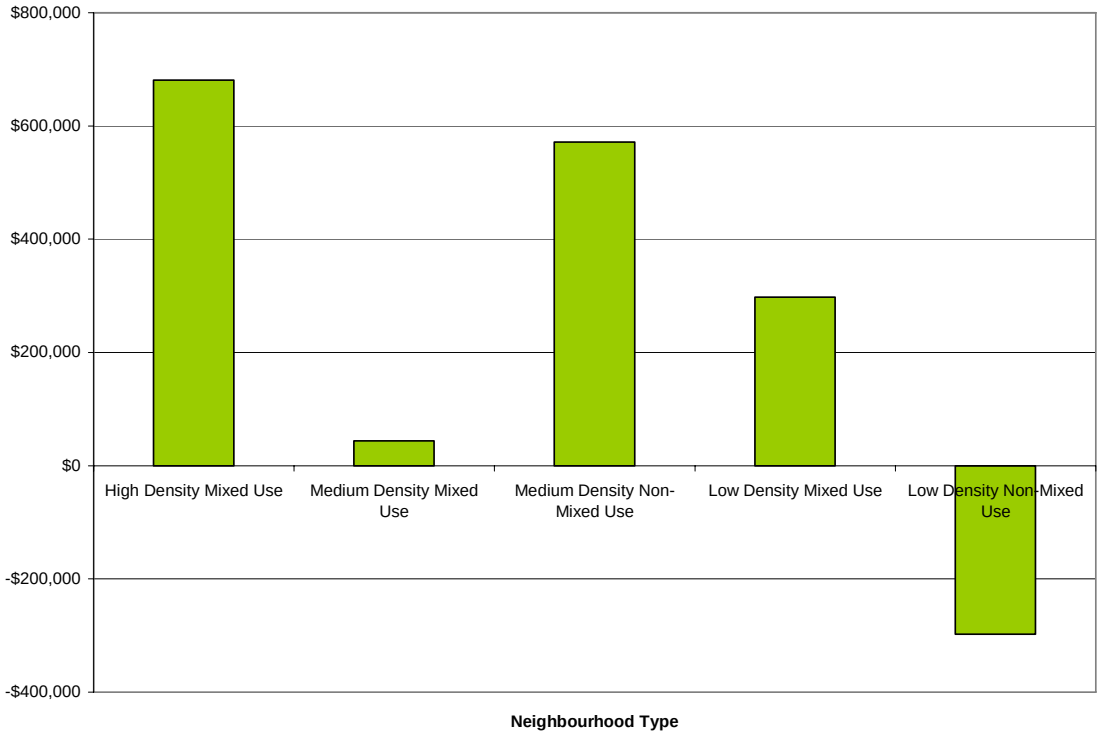

Figure 3 $ Value of Sustainability for Each Virtual Neighbourhood and Type

Figure 3 shows that low density, non-mixed use neighbourhoods have a lower aggregate value than other neighbourhoods. By way of contrast, however, the NSF Resident Assessment Self-Report Tool suggests low density, non-mixed use neighbourhoods in New Zealand are showing higher sustainability than New Zealand's current medium density mix use neighbourhoods (Figure 4).

Why this occurs is quite simple. In medium density mixed use neighbourhoods the indicators on which those neighbourhoods 'scored' poorly in the Resident Assessment Self-Report Tool had relatively low monetary values. Consequently, the impact of poor performance on those areas does not offset the monetary value of better performance in other indicators. By way of contrast, in the low density neighbourhoods, poor performance around transport use, biophysical health and so forth have relatively high monetary costs. In low density neighbourhoods, those are somewhat offset by the value associated with community participation, residential stability and so forth.

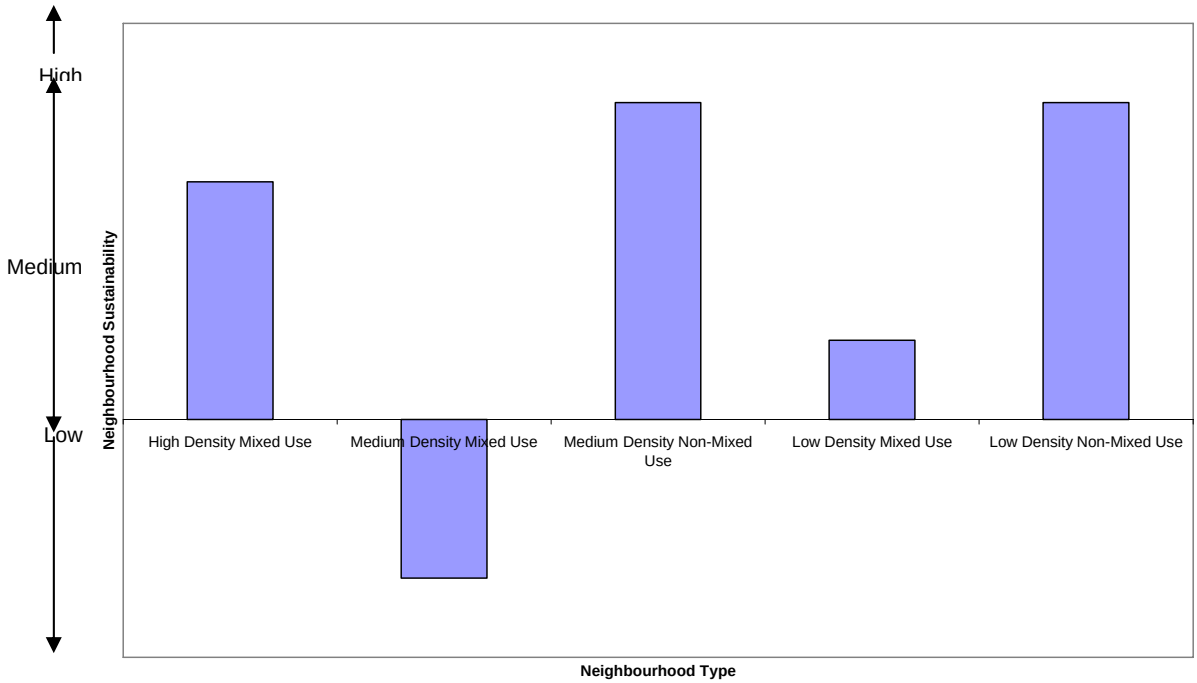

Figure 4 NSF Sustainability of New Zealand's Current Neighbourhood Types Using Resident Self-Report Data

The dollar impact of neighbourhood types to generate sustainable behaviours and experiences are by no means trivial. The difference per household between a dwelling in a low density, non-mixed use neighbourhood and one in a high density, mixed use neighbourhood is in excess of $1,900. As neighbourhoods are managed on a city wide basis, the prevalence of certain types of neighbourhoods across the city system will impact on the sustainability value of neighbourhoods and on those who live in the city as a whole.

Table 7 estimates the dollar sustainability value of the neighbourhoods in seven New Zealand cities on the numbers of dwellings in each of the neighbourhood density/use categories in the neighbourhood taxonomy. Some cities have no dwellings situated in neighbourhoods that can be categorised as high density, mixed use. Manukau, Waitakere, Hutt City and Dunedin may have some multi-unit buildings, but they do not have whole neighbourhoods that are high density.

Urban centre	High mixed	Medium mixed	Medium non-mixed	Low mixed	Low non-mixed	Per dwelling
Auckland City	$30,270,784	$1,768,373	$54,169,374	$1,190	-$36,779,791	$326
Manukau	$0	$1,076,060	$13,653,196	$2,025,193	-$30,289,730	-$173
Waitakere	$0	$0	$7,142,586	$6,555,247	-$23,869,883	-$177
Hamilton	$1,205,546	$601,356	$6,612,321	$2,649,474	-$15,319,806	-$97
Hutt City	$0	$85,316	$5,732,354	$2,618,528	-$15,077,626	-$186
Wellington	$11,191,826	$1,116,955	$14,512,592	$4,305,693	-$18,532,407	$175
Christchurch	$2,695,792	$1,721,220	$33,028,462	$8,160,881	-$40,370,836	$40
Dunedin	$0	$139,961	$6,666,033	$3,228,526	-$10,821,331	-$25

Table 7 $ Neighbourhood Sustainability Value of Cities Generated by Dwellings Located in Different Neighbourhood Types

The 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 those cities' neighbourhood built environment tends to forego value.

7 Does Valuing Neighbourhoods Add Anything?

It has already been noted that the estimates of neighbourhood value need to be treated with care because of the fragmentary nature of the data on which those estimates have been based. Despite that, this part of the neighbourhood research programme has generated three significant findings. Firstly, it demonstrates that the NSF provides an orderly framework for exploring the value of neighbourhoods. Secondly, results generated through this process support Beacon's decision to develop the NSF and its tools as decision-making rather than simple rating tools. Thirdly, the results indicate important lessons for the planning, design, development and management of neighbourhoods and the residential building in them.

7.1 The NSF and its Tools

Estimation of monetary value requires a framework or model which identifies the key dynamics, characteristics or aspects of neighbourhoods that need to be values and weights each of those components relative to each other. It also requires each of those components to be valued. This research shows that the NSF provides a framework for the estimation of the value of neighbourhoods. The Resident Assessment Self-Report Tool provides a set of indicators and measures that is amenable to empirical measure and is able to order a range of diverse existing information of values, costs and benefits. Those estimates must be treated with care because of the fragmentary nature of the information around value. Those informational deficiencies could be resolved by using the indicators set out in the Resident Assessment Self-Report Tool to underpin and systematise information, research and monitoring.

7.2 Rating or Decision-making Tools for Neighbourhoods

Beacon's NSF and associated tools have been developed as decision-making tools. They are not intended to rate neighbourhoods ipso facto. Rather they are intended to assist a range of stakeholders – developers, local authorities, designers, planners and neighbourhood managers – to optimise the ongoing performance and sustainability of existing and new neighbourhood built environments. The development of the NSF as a decision-making rather than a rating tool emerged in response to three issues. First, there is a substantial body of research that shows that neighbourhood performance and sustainability is dynamic and the determinants of performance are complex. Second, because neighbourhoods are both dynamic and complex, neighbourhoods present ongoing challenges of management, servicing and investment focus if they are to optimise performance and sustainability.

Beacon's NSF and associated tools, like a rating tool, provide the ability to assess a neighbourhood at a single point in time. But it goes beyond that and provides an ability to identify and reflect on the changes and trade-offs around neighbourhood built environments that will improve performance.

Beacon is aware there has been a vogue for rating tools in recent years and that some developers would like the equivalent of an accreditation assessment system such as a green neighbourhood accreditation with associated stars. Such an approach assumes that developers and their customers have the greatest control over the performance of a neighbourhood in sustainability terms. This is not the case. Land use decisions, decisions around transport infrastructure which in New Zealand are taken in part at regional and central government levels irrespective of local planning, all affect the sustainability performance of neighbourhoods. The approach the NSF has taken is that it is designed to assess sustainability of a neighbourhood irrespective of who the decision-makers are that have had the most impact on that sustainability. If the neighbourhood is well-designed and well-located it is likely to achieve a high sustainability rating. If a neighbourhood is poorly-located, neighbourhood design may optimise the neighbourhood's performance, but the deficiencies of location, whether in relation to biophysical impacts or connectivity, will still be accounted for by the NSF calculators. Similarly, well-located neighbourhoods can be unsustainable because of poor development.

7.3 Lessons for Neighbourhood Planning and Design

Perhaps the most important findings emerging from this part of the neighbourhood research programme is the data around the NSF assessed sustainability of neighbourhoods with difference density and use profiles and the monetary value of those neighbourhoods.

There is considerable debate in New Zealand and overseas about the relative sustainability of city and settlement built environments. Two major, albeit contested, strategies have emerged out of those debates. First, there is a strong thrust away from strongly separating different uses within the city and generating neighbourhood precincts that are mixed use. Second, environmental concerns have also promoted intensification of existing residential areas as well as new subdivisions.

The merits of intensification have generated considerable debate. Many developers are resistant to intensification because building an existing site creates a number of complexities around redevelopment and construction. Also, land prices tend to be higher for existing and developed sites than perimeter, greenfield sites. Consequently, a number of commentators argue that intensification will increase the costs of new housing relative to the city perimeter, greenfields developments. Increasing residential density, particularly by way of local authority planning, has also been resisted, despite a strong market tendency towards intensified land use, on the grounds that intensification reduces quality of life and neighbourhood liveability.

In the context of that debate, the NSF tools have given more credit to intensified settlement forms than low density forms. It promotes mixed use relative to single use neighbourhood built environments. There are good reasons for that approach. Those are set out in the various reports describing the rationale, development and operationalisation of the NSF and its associated tools.[31]

[31] ***Saville-Smith, et al., 2005.***

Moreover, the 2008 National Neighbourhood Survey further confirmed that householders living in dwellings located in high density and mixed use environments have activity patterns that are more environmentally sustainable. Householders in higher density locations are, for instance, much more likely to walk or cycle and/or use public transport. The average kilometres driven by members of households in higher density neighbourhoods are considerably lower than among households in low density suburbs.

At the same time, however, the 2008 National Neighbourhood Survey found that on some of the neighbourhood satisfaction, civic participation and governance indicators, there was a tendency for households living in high density neighbourhoods to be somewhat less engaged or attached to the neighbourhood. Similarly, while those households used public open spaces more they gardened less and were less likely to provide environments that promoted biodiversity within their private space.

The data suggests that New Zealand built environments except in high density areas are not well adapted to mixed use. Further research into this is required, but the data suggests that the problems residents find with medium density environments with mixed use may reside in the failure of dwellings and street design to mitigate the impacts of mixed use. That is, it may be that low density, single use designs are simply being compacted in medium density mixed use environments.

What is evident here is a broad alignment between values and prevailing planning views around sustainable urban form. There is considerable complexity, however. For instance, mixed use neighbourhoods with medium density showed the highest rates of households reporting a desire to move because of the neighbourhood.

Mixed use in the low density neighbourhoods does not have the same impact as in the medium density neighbourhoods. Among medium density neighbourhoods, mixed use neighbourhoods are associated with a lower sustainability dollar over all indicators. In low density neighbourhoods the overall dollar value of sustainability is greater in the mixed neighbourhoods.

The complexity evident in the value results confirms the findings of a significant body of settlement research that notes the importance of the specific design of a neighbourhood built environment design as well as the position of within, and the sustainability characteristics and amenities of, the wider settlement.[32]

However, as Section 6 shows, when the monetary value of these different neighbourhood types is estimated, the sustainability value of these low density environments is significantly lower than the sustainability value of medium and higher density environments. This difference in sustainability assessment and sustainability value is driven out of the use profile of medium density and low density neighbourhoods. In particular, the evidence suggests that the location of dwellings, the management of noise, and the management of traffic all contribute to lower sustainability experience in mixed use neighbourhoods. These problems appear to be most

[32] ***Jenks and Burgess, 2000; Williams, Burton and Jenks, 2000; CMHC, 2008.***

pronounced in medium density neighbourhoods. This suggests poor adaptation of dwelling and lot design as New Zealand has moved from low density towards medium density.

Both market trends and sustainability imperatives are pushing settlements towards intensification and mixed use. Given that, there must be a concerted effort to establish appropriate design for both neighbourhoods and residential buildings in medium density, mixed use settings, given the poor performance of medium density, mixed use neighbourhoods on high dollar value indicators.

8 References

Atkinson, R. (2002). Does Gentrification Help or Harm Urban Neighbourhoods? An Assessment of the Evidence-Base in the Context of the New Urban Agenda. *CNR Summary 5*. ESRC Centre for Neighbourhood Research.

Clark, M. (2007). *National Value Case for Sustainable Housing Innovations*, Report PR240/4 for Beacon Pathway Ltd, downloaded from www.beaconpathway.co.nz.

Berube, A. (2005). *Mixed Communities in England: A US perspective on evidence and policy prospects.* Joseph Rowntree Foundation. Brookings Institution.

Bijoux, D., Lietz, K., and Saville-Smith, K. (2007). 'Measuring Neighbourhood Sustainability in New Zealand.' Conference paper NH102/11 to *UPE7:World Class Cities – Environmental Impacts and Planning Opportunities.*

Bijoux, D., Saville-Smith, K. and Lietz, K. (2008). 'The Importance of Urban Neighbourhoods: Measuring Neighbourhood Sustainability in New Zealand'. Conference paper NH102/12 to the *Ecocity World Summit, 2008*. Vancouver (web download).

Bijoux, D., Saville-Smith, K., and Lietz, K. (2007). *The Beacon Neighbourhood Case Study Feedback Report*. Confidential report NH103b for Beacon Pathway Limited.

CABESpace (2005). *Does Money Grow on Trees*, London, Commission for Architecture and the Built Environment.

Carter, T. and Polevychok, C. (2003). Comprehensive Neighbourhood Studies: Characterizing Decline. Winnipeg, Institute of Urban Studies.

Christie, M. and Matthews, J. (2003). *The economic and social value of walking in England*. Report Commissioned by The Ramblers' Association.

Civil Economics (2008). *Local Works!Examining The Impact Of Local Business On The West Michigan Economy*. www.civileconomics.com.

Civil Economics (2007). *San Francisco Retail Diversity Study*. www.civileconomics.com.

Civil Economics (2005). *The Andersonville Study*. www.civileconomics.com.

CMHC (2008). Breaking Ground: A Fused Grid Neighbourhood in Calgary. Socio-economic Series 08-020. Ontario, Canada Mortgage Corporation.

Commission for Architecture and Built Environment (2007) *Paved with Gold: The real value of good street design*. CABE, UK.

Commission for Architecture and Built Environment. (2006). *The Cost of Bad Design*. CABE, UK.

Cole, I. and Flint, J. (2007). *Demolition, Relocation and Affordable Rehousing: Lessons from Housing Market Renewal Pathfinders*. Joseph Rowntree Foundation, York.

Council of Ministers for Urban Development and Territorial Cohesion. (2007). Leipzig Charter on Sustainable European Cities.

Department of Land Economy. (2002). 'Neighbourhood regeneration: Lessons and Evaluation Evidence from Ten Single Regeneration Budget Case Studies'. *Urban Research Summary* (1).

Department of Prime Minister and Cabinet (2003). *Sustainable Development for New Zealand: Programme of Action*. Department of Prime Minister and Cabinet, Wellington.

Diaz-Serrano, L. (2006). *Housing Satisfaction, Homeownership and Housing Mobility: A Panel Data Analysis for Twelve EU Countries*. Paper provided by Institute for the Study of Labor (IZA).

Dixon, T. and Adams, D. (2008). Housing Supply and Brownfield Regeneration in a post-Baker World: Is There Enough Brownfield Land in England and Scotland? *Urban Studies* 45(1); 115–139.

Dunse, N., White, M. and Dehring, C. (2007). *Urban parks, open space and residential property values*. RICS Research Papers Series: 8(7).

Easton, L. (2006). *Defining the Benchmarks for Beacon's High Standard of Sustainability*. Confidential report PR109/2 for Beacon Pathway Limited. October 2006.

Ellen, I.G. and Turner, M.A. (1997). "Does Neighbourhood Matter? Assessing Recent Evidence". *Housing Policy Debate,* Vol.8, Issue 4.

Espy, M., and Kwame Owusu-Edusei (2001). Neighborhood Parks and Residential Property Values in Greenville, South Carolina. Unpublished Paper. Department of Agricultural and Applied Economics. Clemson University.

Galster, G., Walker, C., Hayes, C., Boxall, P. and Johnson, J. (2004). 'Measuring the Impact of CDBG Spending on Urban Neighbourhoods'. *CNR Paper 27*. ESRC Centre for Neighbourhood Research.

Genter, J.A., Donovan, S., Petrenas, B. and Badland, H. (2008). *Valuing the health benefits of active transport modes*. NZ Transport Agency Research Report 359, Wellington: NZ Transport Agency, Wellington.

Gibbons, S. (2003). Paying for Good Neighbours: Estimating the Value of an Implied Educated Community. *Urban Studies*, 40(4).

Gibbons, S. (2001). *Paying For Good Neighbours? Neighbourhood Deprivation and the Community Benefits of Education*. Centre for the Economics of Education. London School of Economics and Political Science, London.

Gillan, D., Leland, L., Davies, A. and Walsh, K. (2003-2004). 'Reducing Curbside Waste Volumes by Promoting Household Composting'. *Journal of Environmental System.* 30(4).

Green, G., Grimsley, M., Stafford, B., 2005, *The Dynamics of Neighbourhood Sustainability*. Joseph Rowntree Foundation, York.

Hancock, L. (2006). 'Urban Regeneration, Young People, Crime and Criminalisation' in: Goldson, G. and Munice, J. (eds). *Youth Crime And Justice*. Sage Publications, UK.

Hartwick, E.F. (n.d.). The Impact of Environmental and Aesthetic Factors on Riverine Property Values. Michigan State University.

Holyer, E. (2009). Lv= Insurance Research Reveals Untidy Neighbours Are Bad For Your Wealth, Croyden. Liverpool Victoria Friendly Society Limited.

Institute of Local Self-Reliance (2003). *The Economic Impact of Locally owned Businesses vs. Chains A Case Study in Midcoast Maine*. Minneapolis, Institute of Local Self-Reliance. www.newrules.org.

Ioannides, Y. (2002). Residential Neighbourhood Effects. *Regional Science and Urban Economics*, 32(2).

Jenks, M. and Burgess, R. (eds) (2000). *Compact Cities: Sustainable Urban Forms for Developing Countries*. Spon Press, London.

Kaliner, M.E. (n.d.). Does Neighborhood Reputation Matter? Estimating the Cost of a "Bad" Reputation on Housing Prices. Unpublished Paper. Harvard University. kaliner@fas.harvard.edu.

Katz, B. (2004). *Neighbourhoods of Choice and Connection: The Evolution of American Neighbourhood Policy and What It Means for the United Kingdom*. Joseph Rowntree Foundation, York.

Kearns, A. (2004). 'Social Capital, Regeneration and Urban Policy'. *CNR Paper 15*. ESRC Centre for Neighbourhood Research.

Kilmartin, L. and Thorns, D.C. (1978). *Cities Unlimited*. George Allen and Unwin, Sydney.

Klaeboe, R. (2005). Are adverse impacts of neighbourhood noisy areas the flip side of quiet area benefits? *Applied Acoustics* 68.

Lambert, C., Boddy, M. (2002). 'Transforming the City: Post-Recession Gentrification and Re-urbanisation'. *CNR Paper 6.* ESRC Centre for Neighbourhood Research.

Land Transport New Zealand (2006). *Economic Evaluation Manual – Volume 1*. Land Transport New Zealand, Wellington.

Lietz, K., Bijoux, D., Saville-Smith, K. and Howell, M. (2006). *Testing the Prototype Neighbourhood Sustainability Framework.* Report NH102/2 for Beacon Pathway Limited.

Lietz, K., Saville-Smith, K., and Bijoux, D., (2007). *The Beacon Neighbourhood Tools.* Confidential report NH103a for Beacon Pathway Ltd

Lietz, K., Saville-Smith., K. and Bijoux, D. (2008). *West Harbour Neighbourhood Project.* Confidential report NH105 for Beacon Pathway Limited.

Litman, T. (2009). *Evaluating Public Transit Benefits and Costs Best Practices Guidebook*. Victoria Transport Policy Institute, www.vtpi.org.

Lucas, K., Fuller, S., Psaila, A. and Thrush, D. (2004). *Prioritising Local Environmental Concerns: Where There's a Will There's a Way.* Joseph Rowntree Foundation, York.

Lucas, K., Ross, A. and Fuller, S. (2003). *What's In A Name? Local Agenda 21, community planning and neighbourhood renewal*. Joseph Rowntree Foundation, York.

Lucas, K., Tyler, S. and Christodoulou, G. (2008). *The Value of New Transport in Deprived Areas: Who Benefits, How and Why?* Joseph Rowntree Foundation. University of Westminster.

McIndoe, G., Chapman, R., McDonald, C., Holden, G., Howden-Chapman, P. and Bray Sharpin, A. (2005). *The Value of Urban Design: The Economic, Environmental and Social Benefits of Urban Design*. Ministry for the Environment, Wellington.

Morton, T. (2008). 'Demystifying Carbon Credits for the Household – What Does it Mean?' Presented at *Living Streets Aotearoa New Zealand Walking Conference*, 2008.

Mulgrew, I. (2009). Couple Ordered to Pay $15,000 for Being Bad Neighbours. *Vancouver Sun*, June 18.

New Zealand Police, *Annual Report for the Year Ended 30 June 2008*, NZ Police, Wellington.

Power, A., Ploger, J. and Winkler, A. (2008). *Transforming Cities Across Europe: An interim report on problems and progress* Centre for Analysis of Social Exclusion (CASE) Report 49. London School of Economics and Political Science.

Putnam, R. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster, New York.

Saville-Smith, K. (2008). *National Neighbourhood Baseline Survey*. Confidential Report NH3102/3 for Beacon Pathway Limited.

Saville-Smith, K. (2008). 'Neighbourhoods & Ageing Populations'. *Build Magazine* (June/July).

Saville-Smith, K., Lietz, K., Bijoux, D. and Howell, M. (2005). *Neighbourhood Sustainability Framework:Prototype*. Report NH101/2 for Beacon Pathway Limited.

Slater, T. (2003). Comparing Gentrification in South Parkdale, Toronto and Lower Park Slope, New York City: A 'North American' Model of Neighbourhood Reinvestment? *CNR Paper 11*. ESRC Centre for Neighbourhood Research.

Statistics New Zealand (2008). *Household Economic Survey (Income): Year Ended March 2008.* Statistics New Zealand, Wellington.

Statistics New Zealand (2007). *Household Economic Survey*. Statistics New Zealand, Wellington.

Vale, R. and Eason, C. (2006). *A Critical Analysis of Sustainable Development: Buildings and Neighbourhoods in New Zealand*, prepared for the Parliamentary Commissioner for the Environment, September (web download).

Wellington City Council (2008). *2008/2009 Annual Plan*. Wellington City Council, Wellington.

Wilkes, C. and Shirley, I. (1984). *In the Public Interest: Health, Work and Housing in New Zealand Society*. Benton Ross, Takapuna.

Williams, K., Burton, E. and Jenks, M. (eds) (2000). *Achieving Sustainable Urban Form*, Spon Press, London.

Wolf, K. (2007). City Trees and Property Values. *Aborist News*. www.isa-arbor.com.

Xinyu Cao, and Hough, J.A. (2007). Hedonic Value of Transit Accessibility: An Empirical Analysis in a Small Urban Area, Small Urban & Rural Transit Center, Upper Great Plains Transportation Institute, North Dakota State University

9 Appendix A: Resident Self-Report Questionnaire

YOUR NEIGHBOURHOOD

This survey helps us assess whether your neighbourhood provides a liveable and sustainable environment. By understanding your views and experiences, and the views and experiences of your neighbours, we can better assess whether changes in this and in other neighbourhoods need to be made. Your views are important.

CONFIDENTIALITY: All data collected in this survey will be aggregated. Your responses are confidential. No individual details will be used in reports or summaries. No individual details will be released to any other persons or organisations.

1. **Which statement best reflects your intentions within the next few years?**
   Please tick (✓) one box only

   ❑1 I intend to move because this house is not suitable.
   ❑2 I intend to move because of the neighbourhood.
   ❑3 I intend to move because of other reasons.
   ❑4 I do not intend to move within the next few years.

2. **How do you usually travel to your main place of work or study?** *Please tick (✓) one box only*

   ❑1 Public transport
   ❑2 Driving a car/van alone
   ❑3 Driving a car/van with household member as passenger
   ❑4 Driving a car/van with a passenger who is not a household member
   ❑5 Passenger in car/van driven by a household member
   ❑6 Passenger in a car/van driven by someone outside your household
   ❑7 On foot/bicycle
   ❑8 Other
   ❑9 Not applicable, I don't travel to work or study.

3. **If your household uses one or more vehicles, how many kms were driven in those vehicles in the last four weeks?**

   Please state total kms _____

4. **Are there public open spaces (e.g. squares, public green spaces) near where you live?** *Please tick (✓) one box only*

   ❑1 Yes ❑2 No

If yes, do you use these spaces for meeting people or other recreation:

❑$_1$ at least once a month
❑$_2$ less often than once a month
❑$_3$ I don't use these spaces

5. Wildlife in gardens or outdoor private spaces (e.g. terraces, patios, decks) can be encouraged by any of the following. Do you do any of those activities? *Please tick (✓) <u>all</u> that apply*

❑$_1$ Gardening
❑$_2$ Organic gardening
❑$_2$ Providing and maintaining trees and/or shrubs rich in nuts, seeds, nectar, pollen and/or berries
❑$_3$ Preserving an undisturbed wild area
❑$_4$ Providing and maintaining a pond
❑$_5$ Providing water and/or food for wildlife such as a bird-feeder
❑$_6$ Not applicable – we have no garden or outdoor private space

6. Do you take part in, support or help in any way local community or neighbourhood groups? *Please tick (✓) <u>one</u> box only*

❑$_1$ No
❑$_2$ More than Once a Week
❑$_3$ Once a Week
❑$_4$ Once a Month
❑$_5$ Less than Once a Month

7. How safe do you feel walking alone in your neighbourhood after dark? *Please tick (✓) <u>one</u> box only*

❑$_1$ Very safe ❑$_2$ Fairly safe ❑$_3$ A bit unsafe ❑$_4$ Very unsafe ❑$_5$ Don't walk at night

8. How much of a problem is noise from neighbours in your neighbourhood? *Please tick (✓) <u>one</u> box only*

❑$_1$ Not a problem ❑$_2$ Minor problem ❑$_3$ Serious problem

9. Thinking about where you live, do you know: *Please tick (✓) <u>one</u> box only*

❑$_1$ Many people ❑$_2$ Some people ❑$_3$ A few people ❑$_4$ Do not know people

10. Do you know <u>ANY</u> of your neighbours by name?

❑$_1$ Yes ❑$_2$ No

11. Do you chat with or greet your neighbours?

❑$_1$ Yes ❑$_2$ No

12. Do you live in an energy efficient home? *Please tick (✓) <u>one</u> box only*

❑$_1$ Yes ❑$_2$ No ❑$_3$ Don't know

13. Do you live in a water efficient home? *Please tick (✓) one box only*

❑$_1$ Yes ❑$_2$ No ❑$_3$ Don't know

14. Do you use composting facilities in your garden or nearby?

❑$_1$ Yes ❑$_2$ No

15. How would you rate the condition of other homes/gardens in your neighbourhood? *Please tick (✓) <u>one</u> box only*

❑$_1$ Very good ❑$_2$ Fairly good ❑$_3$ Neither good nor bad ❑$_4$ Fairly bad ❑$_5$ Very bad

16. How much of your food expenditure is spent in your local neighbourhood compared with shops outside your local neighbourhood? *Please tick (✓) one box only*

❑$_1$ 0-25% - Nothing to a quarter
❑$_2$ 26-50% - Over a quarter to a half
❑$_3$ 51-75% - Over a half to three quarters
❑$_4$ 76-100% - Over three quarters to all

17. How strongly do you agree or disagree with the following statements? *Please tick (✓) <u>one</u> box only for each statement*

(a) This is a friendly neighbourhood	**(b) I feel that I belong to this neighbourhood**	**(c) My neighbourhood reflects the type of person I am**
❑$_1$ Strongly Agree	❑$_1$ Strongly Agree	❑$_1$ Strongly Agree
❑$_2$ Tend to Agree	❑$_2$ Tend to Agree	❑$_2$ Tend to Agree
❑$_3$ Neither	❑$_3$ Neither	❑$_3$ Neither
❑$_4$ Tend to Disagree	❑$_4$ Tend to Disagree	❑$_4$ Tend to Disagree
❑$_5$ Strongly Disagree	❑$_5$ Strongly Disagree	❑$_5$ Strongly Disagree

THANK YOU - IF YOU WANT TO TELL US MORE ABOUT YOUR NEIGHBOURHOOD USE THE BACK OF THIS PAGE

10 Appendix B: National Neighbourhood Survey

CRESA Neighbourhood Survey

Research New Zealand #3798

7 May 2008

Good morning/afternoon/evening, my name is ^I from Research New Zealand. We are conducting research on behalf of CRESA about community development and energy efficiency in New Zealand neighbourhoods.

We are surveying both men and women; in your household we would like to talk to the male aged 15 years and over who has his birthday next. Could you please tell me his name, and may I speak with him please?

This research takes about 10-15 minutes. When would suit, or is now a good time?

IF MALE NOT AVAILABLE, ASK FOR FEMALE

Could you please tell me, of the females aged 15 years and over in this household, what is the name of the one who has the next birthday? Could I please speak with her?

If person not available, ask:

When would be a good time for me to call back to speak to him/her?

Make appointment

Reintroduce as necessary

Good morning/afternoon/evening, my name is ^I from Research New Zealand. We are conducting research on behalf of CRESA about community development and energy efficiency in New Zealand neighbourhoods. This research takes about 10-15 minutes. When would suit, or is now a good time?

Background information only if needed:

- This is genuine market research. I'm not selling anything.
- Information provided is confidential. We report summary results about groups; we do not identify which individuals have said what.
- CRESA or the Centre for Research Evaluation and Social Assessment is a private research company whose research focuses on encouraging community development and sustainable communities.

Read

As part of our quality improvement process, my Supervisor may listen to this call.

Q1 First of all, can you please tell me which of the following statements best reflects your intentions within the next few years? Read

1 .....I intend to move because this house is not suitable
2 .....I intend to move because of the neighbourhood
3 .....I intend to move because of other reasons
4 .....I do not intend to move within the next few years
98 ...Don't know **Do not read**

Q2 And can you please tell me how you usually travel to your main place of work or study? Probe to check if respondent is a passenger or a driver

1 .....Public transport
2 .....Driving a car/van alone
3 .....Driving a car/van with household member as passenger
4 .....Driving a car/van with a passenger who is not a household member
5 .....Passenger in car/van driven by a household member
6 .....Passenger in a car/van driven by someone outside your household
7 .....On foot/bicycle
96 ...Other Specify
97 ...Not applicable - don't travel to work or study.

Q3 If your household uses one or more vehicles, how many kilometres in total were driven in those vehicles in the last month? A rough estimate is okay.

1 .....Number of kilometres Specify
97 ...Household does not use a vehicle
98 ...Don't know

Q4 Now thinking about where you live, do you use nearby open public spaces such as green spaces or public areas such as squares, at least once a month for recreation or meeting people?

1 .....Yes
2 .....No

Q5 Do you take part in, support or help local community or neighbourhood groups in any way? If yes: How Often?

1 .....2-3 times a week
2 .....About once a Week
3 .....Once a Month
4 .....Less than once a month
97 ...No – Do not take part in, help or support community or neighbourhood groups
98 ...Don't know

Q6 And do you know: Read

1 .....Many people
2 .....Some people or
3 .....A few people in your neighbourhood
4 .....Do not know any people **Do not read**

Q7 If Error! Reference source not found.=4 go to 0, else ask: Do you know any of your neighbours by name?

1 .....Yes
2 .....No

Q8 Do you chat with or greet your neighbours?

1 .....Yes
2 .....No

Q9 How safe do you feel walking alone in your neighbourhood after dark? Read

1 .....Very safe
2 .....Fairly safe
3 .....A bit unsafe or
4 .....Very unsafe
97 ...Not applicable/Don't walk at night **Do not read**

Q10 How much of a problem is noise from neighbours in your neighbourhood? Read

1 .....Not a problem
2 .....A minor problem or
3 .....A serious problem

Q11 Now, on a scale of 1 to 5, where 1 is strongly agree and 5 is strongly disagree, to what extent do you agree or disagree with the following statements? Probe: Is that strongly agree/disagree or just agree/disagree?

	Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	Don't know
a. This is a friendly neighbourhood	1	2	3	4	5	98
b. I feel that I belong to this neighbourhood	1	2	3	4	5	98
c. My neighbourhood reflects the type of person I am	1	2	3	4	5	98

Q12 How much of a problem do you believe crime is in your neighbourhood? Read

1 .....Not a problem
2 .....A minor problem or
3 .....A serious problem

Q13 Now thinking about your own home, in your opinion, do you live in an energy efficient home?

1 .....Yes
2 .....No
98 ...Don't know

Q14 And do you believe you live in a water efficient home?

1 .....Yes
2 .....No
98 ...Don't know

Q15 Do you use composting facilities in your garden or nearby?

1 .....Yes
2 .....No

Q16 Do you do any of the following activities to encourage wildlife in your garden or outdoor private spaces such as patios? Read. Code many

1 .....Leave an area undisturbed for wildlife
2 .....Provide and maintain shrubs or trees rich in nectar, pollen, berries, nuts, seeds
3 .....Provide and maintain a pond
4 .....Provide food and water for wildlife
5 .....Use organic gardening methods
95 ...Not applicable – we have no outdoor spaces or garden **Do not read** ;E
97 ...No/none of the above **Do not read** ;E

Q17 How would you rate the condition of other homes and gardens in your neighbourhood? Read

1 .....Very good
2 .....Fairly good
3 .....Neither good nor bad
4 .....Fairly bad or
5 .....Very bad
98 ...Don't know **Do not read**

Q18 How much of your food expenditure is spent in your local neighbourhood compared with shops further a field? Read if necessary:

1 .....0% -25% - Nothing to a quarter
2 .....26% -50% - Over a quarter to a half
3 .....51% -75% - Over a half to three quarters
4 .....76% -100% - Over three quarters to all
98 ...Don't know **Do not read**

Q19 Overall, how adequate do you believe the following facilities and services are in your neighbourhood? Do you believe [insert facility/service] are: Read

	Unavailable and sorely needed	Available but inadequate	Just adequate	Good	Very good	Unavailable but not needed **Do not read**	Don't know **Do not read**
a. Local doctors	1	2	3	4	5	97	98
b. Library Services	1	2	3	4	5	97	98
c. Early Child Care Centres	1	2	3	4	5	97	98
d. Shops	1	2	3	4	5	97	98
e. Parks	1	2	3	4	5	97	98
f. Playgrounds	1	2	3	4	5	97	98
g. Sports fields	1	2	3	4	5	97	98
h. Community Centres	1	2	3	4	5	97	98
i. Social Services	1	2	3	4	5	97	98
j. Churches	1	2	3	4	5	97	98
k. Police Presence	1	2	3	4	5	97	98

Demographics

Q20 Now, to help us analyse our data, I would like to ask some questions about you. Can you please tell me, what your annual personal income is? Is it: Read

1 .....Up to $15,000
2 .....Between $15,001 and $20,000
3 .....Between $20,001 and $30,000
4 .....Between $30,001 and $40,000
5 .....Between $40,001 and $50,000
6 .....Between $50,001 and $70,000 or
7 .....$70,001 or more
99 ...Refused **Do not read**

Q21 And can you please tell me what your household's annual total income is? Is it: Read

1 .....Up to $15,000
2 .....Between $15,001 and $20,000
3 .....Between $20,001 and $30,000
4 .....Between $30,001 and $40,000
5 .....Between $40,001 and $50,000
6 .....Between $50,001 and $70,000 or
7 .....$70,001 or more
98 ...Don't know **Do not read**
99 ...Refused **Do not read**

Q22 Is your home…? Read

1 .....Owned mortgage free (by yourself, or someone you live with)
2 .....Owned, but with a mortgage
3 .....Rented through a private landlord
4 .....Rented through Housing New Zealand Corporation
96 ...Other Specify **Do not read**
98 ...Don't know **Do not read**

Q23 How many people live in your household in each of the following age groups? Read

1 .....People 5 years or younger Specify
2 .....People 6 years to 16 years Specify
3 .....People 17 years to 64 years Specify
4 .....People 65 years or more Specify

Q24 And finally, does anyone living in your household need assistance with every day tasks because of a disability?

1 .....Yes
2 .....No
98 ...Don't know

Closing Questions

Q25 Thank you for that. Do you have any other comments you'd like to make about the subject of this interview?

1 .....Comments Specify
2 .....No

Q26 May I please confirm your name in case my supervisor needs to check on the quality of this interview? Record first and last name

Q27 And can I just confirm that you are the *male/female* in the household who is 15 *years or over*, and has the *next birthday*? Code "Yes" if all three elements are confirmed. If answer to any element is "No", code No.

1. ....Yes
2. ....No
98. ..Don't Know**Do not read**
99. ..Refused**Do not read**

Those are all the questions I have. Thank you very much for your help. My name is Q0IV from Research New Zealand. If you have enquiries about this survey, please ring the Project Manager, Bronwen Hansen on our toll-free number: 0800 500 168. (Wellington respondents 499-3088).