

Submission PR250/17

Beacon Pathway Submission to the Draft Auckland Plan (Spatial)

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What is Beacon?

A shared vision of the potential benefits of improving New Zealand's homes has brought together interested stakeholders to form an Incorporated Society, Beacon Pathway Incorporated. The Society's objective is to transform New Zealand's homes and neighbourhoods to be high performing, adaptable, resilient and affordable through demonstration projects, robust research and a collaborative approach to creating change.

Beacon Pathway Inc builds on the successful research programme completed by Beacon's original consortium which developed a whole-of-house approach to improving the performance of both new and existing homes, using demonstrations and monitoring to provide proof of the benefits of improving New Zealand's housing stock.

Beacon's Members include: New Zealand Steel, Fletcher Aluminium, Certified Builders, Insulpro Manufacturing, Resene, EECA, and Christchurch City Council.

Further information is available at www.beaconpathway.co.nz

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I am happy to be contacted about our submission. We would be interested in presenting the key elements of this in person and being heard by the Council.

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1 Overview - Beacon's perspective on the Draft Auckland Plan

Beacon congratulates the Council, Council staff and community of Auckland for preparing a dynamic and robust plan that encompasses many of the aspects required to create a vital, resilient and sustainable city of the 21st Century.

We are particularly pleased to see further detail regarding climate change strategies, addressing housing needs, a move to a low carbon future for Auckland and other aspects of 21st Century sustainability form the core of the plan. This emphasis has been strengthened since the release of the original Auckland Unleashed document, and that is welcomed.

Whilst the plan is to be congratulated on worthy rhetoric, the devil will be in implementation, and Beacon does have some questions regarding the achievability of some aspects in the Plan. In addition to this, some of the targets and goals may well work in opposition to each other – for example, achieving a 40% reduction in carbon emissions may be difficult to achieve alongside the pursuit of higher economic growth and a GDP increase which is traditionally linked to energy use. Council will need to work hard to decouple some of these competing targets. Some of this may be achieved through innovative strategic approaches at a council level – and Beacon has a range of tools which may be of assistance in achieving the transition to the world's most liveable city.

In summary, alongside the amendments discussed below, Beacon is a strong supporter of many aspects of the Plan, and we look forward to working with Auckland Council and a range of stakeholders to bring this into fruition to deliver a sustainable, resilient and low carbon city that works for the people of Auckland and New Zealand.

2 Beacon's submission on the Draft Auckland Plan - Submission Questions and Answers

This section follows the outline provided by Auckland Council in relation to the key questions asked of submitters.

Q 1. There will need to be five transformational shifts (section C) to make Auckland the world's most liveable city. Do you agree or disagree with the five transformational shifts identified in the draft Auckland Plan and why?

Whilst the shifts identify some of the important transformations required, Beacon feels that these there may be further transformations that are needed in order to become the world's most liveable city – and especially if it is to become a resilient and sustainable one.

Beacon supports the move to place people at the centre of the plan and is also supportive of the transformational shift toward accelerating the prospects of young people. However, positioning this as the first transformational shift over-emphasises a somewhat small segment of the population at the expense of more fundamental shifts required (a move to a less fossil fuel-driven Auckland and lower carbon intensity), and at the expense of other important segments of society (i.e. anyone who isn't young).

Beacon suggests that the focus in the plan on preparing for a 'low carbon economy' should be widened and strengthened. In an era of peak resources and increasing effects of climate change, Auckland needs to focus on becoming a low carbon city – encompassing society, the built form, our communities, the economy and the wider environment. The world is inevitably moving into the post-carbon era – and the plan represents a timely vehicle through which to transform Auckland at this critical time.

Beacon supports the intent of Transformation 5 (*Substantially raise living standards for all Aucklanders and focus on those most in need*) but we feel that the focus is, once again, too intertwined with economic growth and the pursuit of GDP. The shift that needs to occur is a rise in living standards measured through a variety of indicators – not simply economic growth and GDP, which after all is increased through more hospital visits, greater number of accidents on Auckland's roads and any environmental catastrophe that might occur¹. Beacon strongly recommends that Council examine a recent NZ Treasury Report 'Working Towards Higher Living Standards for New Zealanders' which outlines the potential for alternative indicators

¹ See for example, Max-Neef (1992) or Sen (1999). Sen writes: "An adequate conception of development must go much beyond the accumulation of wealth and the growth of gross national product and other income-related variables. Without ignoring the importance of economic growth, we must look well beyond it... it is simply not adequate to take as our basic objective just the maximisation of income or wealth... Development has to be more concerned with enhancing the lives we lead and the freedoms we enjoy." (Sen, 1999: 14)

through their Treasury Living Standards Framework, and then augments this with their own approach to an alternative living standard measurement which accounts for Auckland's local environmental and social aspects of wellbeing.

Q 2. The Auckland Plan contains a high-level development strategy (section D) to deliver a compact quality Auckland. Do you agree or disagree with this approach and why?

Designing a compact city through a network of interconnected towns and villages with a distinct rural urban boundary is strongly supported. Beacon applauds the Council for moving toward a densification strategy in key areas of development – the 'urban village' approach. Beacon also strongly supports the adoption of a RUB for Auckland but notes that in subsection 5 the tools identified are somewhat vague and too high level. Further work is required to identify **where** zones will allow greater densities, **how** council-owned land will be used as a catalyst, **who** in the private sector will be involved in joint ventures, **what** sort of development targeted reductions in development contributions will go towards. In short, the ideas are laudable – but more detail is required on how they will be implemented.

Future growth of rural satellite areas, such as Pukekohe and Helensville, should similarly be designed with higher densities and good urban design principles in place. In other words, good quality high-density communities with a sense of place should be targeted as opposed to further suburban residential sprawl.

The identification of growth being consolidated in rural and coastal settlements and rural and coastal villages (181) will need to be carefully planned in relation to the expected effects of climate change and associated sea level rise and increase of flooding.

In discussion of key structural shapers and enablers (197 onwards), Beacon suggests that Council take a wide view of the meaning of infrastructure and note that houses are a key part of infrastructure with potential to supply energy and water and reduce the impacts of waste and stormwater depending on their design. For instance, in [199] the discussion of the 3 waters could easily mention rainwater which could be harvested at the domestic level thereby reducing demand and reducing the impacts on stormwater and wastewater infrastructure.

Beacon commends the Council and is strongly supportive on the deliberate step away from an engineer-led approach [202] to more of a design-led approach – and we further suggest that this is as attributable to energy and water supply as it is to the transportation network. There is considerable scope to utilise energy and water demand strategies at the household and neighbourhood level to reduce the requirement to provide large engineering projects (such as the Waikato to Auckland water pipeline).

Obviously this is a high level strategic document, but the maps were too small and indistinct to accurately show development areas and Beacon has some concerns that the blurring of the lines could provide a lack of certainty to those reviewing the plans. Specifically, Beacon supports the

intensification of development around transport hubs following appropriate human scale (below 5 storey) development with a resulting reduction in suburban sprawl identified in the somewhat vague pink development areas (e.g. intensify development around Orewa village centre as opposed to losing valuable remaining land between Orewa and Silverdale).

Beacon submits that the Plan should consolidate urban form around urban villages throughout Auckland and link these with viable integrated transport. This would be expected to include a much greater utilisation of water transport and alternative fuelled public transport (bio fuels and electric vehicles). Furthermore, the Plan should enable Auckland to prepare for peak oil and the transition to different energy futures, including preparing for greater self reliance in energy supplies (including urban energy generation and community owned energy systems) and a move away from the dependence on the private car.

Beacon only supports the identification of new Greenfield development once the full options for densification around these village hubs has been exhausted.

Q 3. Two big initiatives have been identified to effect Auckland's transformation on the world stage - City Centre and Southern Initiative. Do you agree or disagree with these two big initiatives?

Beacon supports the 'Two Big Initiatives' but draws the attention of Council to the underlying theme of housing within both initiatives, which we feel requires more prominence. Within the City, there is a need for better examples of mixed-use urban residential development of a high standard. In addition, there is a wealth of opportunities for such developments to provide for their own energy, heat, cooling and water needs. Higher density living has the capacity to deliver economies of scale, which can help make such innovation affordable – and this should be explored in more detail by the Council as it develops its City Centre strategy. Importantly, Council could explore policy mechanisms to ensure that a greater level of sustainability is integrated within any new and existing developments. This may be through such initiatives as a renewable energy policy requiring a certain percentage of any new developments to offset their carbon footprint through renewable energy provision on site (following the Merton Rule example from the UK²).

The Southern Initiative is supported in principle, but once again **housing** should receive more prominence. This is particularly the case with existing housing in South Auckland which, like much of New Zealand housing, is cold, damp and unhealthy which leads to poor social and health outcomes. Further detail, and a greater emphasis, should be provided regarding retrofit of the poorly performing housing stock as part of the Southern Initiative. In addition to this commentary, Beacon would welcome the chance to explore with Council how such a project could be pursued in South Auckland in a way that engages and involves the community.

²For more information please see 'The Merton Rule, A review of the practical, environmental and economic effects' available from www.nhbcfoundation.org

Q 4. Do you agree or disagree with the priorities that have been identified for Auckland's economic development and why?

Beacon is broadly supportive of the approach provided in the economic development strategy, however we would prefer to see a more holistic approach to the main targets (away from GDP) as well as more focus on delivering a more resilient and self-reliant economy. Undoubtedly the next 30 years will provide significant challenges to the economy of Auckland from the perspective of energy price increases, resource availability and energy security; and Council should be setting the stage for delivering a structure supportive of an economy that is not primarily dependent on exports products which in turn are dependent on imports of energy (oil and gas).

The development of a sustainable eco-economy is supported but Beacon suggests that this goes beyond an economy that simply develops green products and services, and instead provides an economy that is, in itself, more sustainable. For example, high performance battery manufacture could well assist the world in pursuing more environmentally advantageous transportation methods [box 4.1], but unless Council works closely with businesses to deliver environmentally responsible business operation, the development and manufacture of this technology in Auckland could result in negative local environmental effects.

Beacon is strongly supportive of the economic development strategy's focus on facilitating an iwi/Maori economic powerhouse and the support of a diverse ethnic economy and we look forward to seeing more detail as this strategy develops.

Q 5. Are there any other economic priorities that the council should focus on?

Beacon believes that housing and neighbourhood sustainability, both in terms of new build and retrofit, are key aspects to developing a resilient city, and these aspects should be further strengthened in the Plan. In addition, as covered in the preceding text, we strongly recommend that Auckland Council seize the opportunity of this Spatial Plan to be a key part of the transformational move toward a low carbon sustainable and resilient Auckland.

3 Further Comments

The following more detailed submissions relate to those aspects of the plan that have particular resonance with our programme of research and demonstration activities.

3.1.1 Section A: The Auckland Plan and how to be involved

Beacon appreciates the opportunity for consultation on the plan and only has one specific comment on this section. It would have been useful to see a large-scale diagram regarding the main aspects of the plan, particularly how the goals and directives relate to the actions specified at the end of the Plan. A poster diagram would be beneficial in communicating this information to the public.

Furthermore, Beacon recommends, as part of this Plan, that a communications hub is set up in central Auckland to communicate to the public the ideas and transformation required by the Spatial Plan, and engage them in a programme of action. Wide public awareness and acceptance of the need to move to a more resilient, self sufficient and sustainable Auckland is required to facilitate the transformation. A public interpretation and engagement centre would assist to achieve ‘buy in’ from local communities (and perhaps, in the short term, the Cloud on the waterfront could be a suitable venue for such a centre).

3.1.2 Section B: Auckland Now

Beacon commends the Council on recognising and setting out the key trends and challenges for Auckland [Box B.2]. However, the analysis in the table somewhat glosses over the issues of peak oil and resource availability, which are likely to be key constraints on the ability of Auckland to respond to other challenges identified. We recommend that the table is re-prioritised and further weight is added to the requirement to move Auckland towards a significantly lower carbon future (recognising that the concept of peak oil is introduced in paragraph [72]). Related to this, in paragraph [75] there is discussion of Auckland’s per capita carbon emissions being ‘moderately low’ and comparing us to Sydney. Beacon strongly suggests that a wider comparison to the rest of the world would show us to be comparatively high, and it would be beneficial to remove the wording indicating us to have low emissions.

This same paragraph highlights a key issue and challenge for the Plan – that without additional interventions, Auckland’s emissions are predicted to increase by 46% by 2025, whilst at the same time the Plan targets a 40% reduction by 2031. Beacon strongly recommends that this key challenge is highlighted as it points to the nature of the fundamental shift required by Auckland. This is picked up to some extent in paragraph [76] but once again the language used suggests that only Auckland’s **economy** needs to move to a lower carbon future, whereas the reality is that we need to shift our society and communities, our urban fabric and transport systems, our means of production and consumption – in short, a fundamental shift of every aspect of Auckland’s future.

3.1.3 Section C: Auckland's Strategic Direction

Beacon supports the inclusion of the Eco city diagram [Figure C.1A] and applauds Council for indicating the economy and people sitting within the framework of the wider environment. Beacon recommends that Council re-examine the emphasis of this Spatial Plan with this diagram in mind and ensure that the focus on the economy is set firmly within the framework of the wider environment at all times (at times the economy dominates to the exclusion of the environment).

In relation to Figure C.1B, Beacon draws Council's attention to work completed (and available) for New Zealand on the sustainability of New Zealand homes and neighbourhoods. Beacon's Neighbourhood Sustainability Framework, based on New Zealand-specific research, indicates that the neighbourhood scale presents opportunities for:

- House retrofit
- New design and construction awareness/desirability
- Distributed reticulation systems – electricity and water
- Improved stormwater management
- Improved connectivity and mixed use

And, further, that sustainable neighbourhoods are critical to:

- Achieving higher densities
- Sustainable settlements and regions

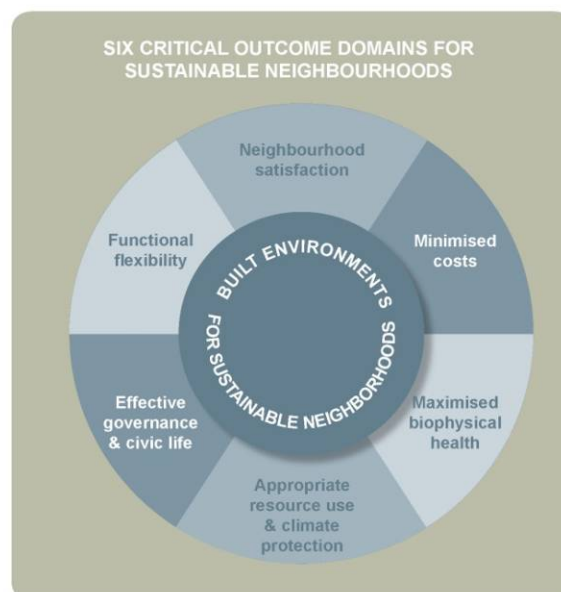
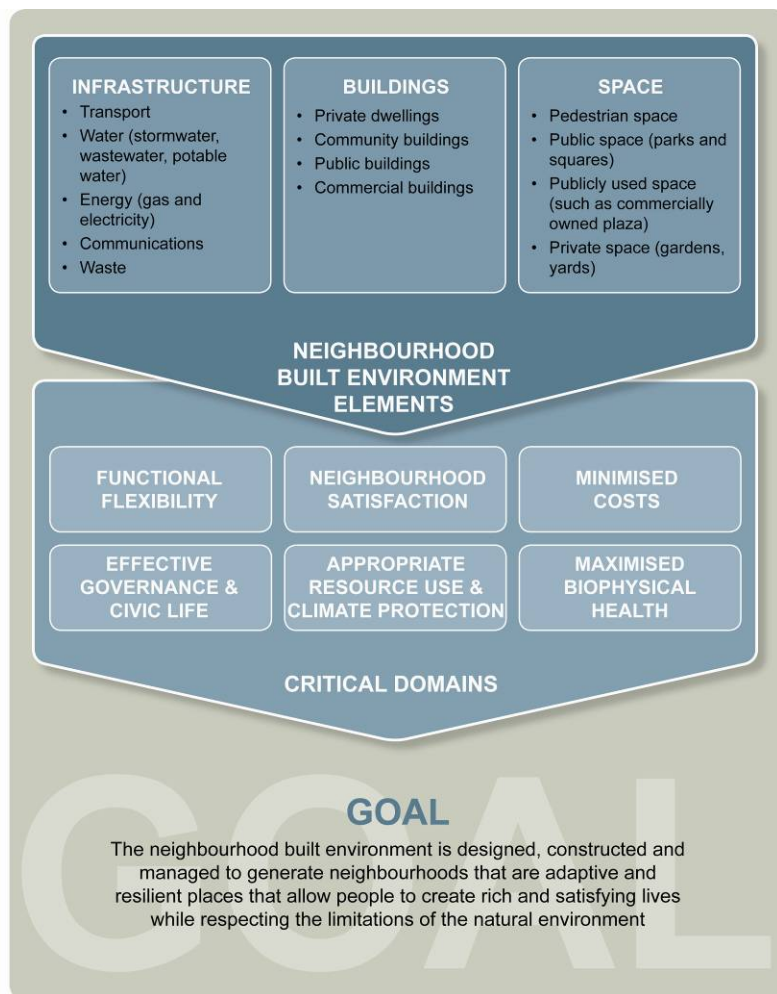
A neighbourhood analysis needs to include how both buildings and the spaces around them work together and their impact on the activities that take place within them. It must consider the state of the infrastructure systems and services available, such as public transport. The design, quality and aesthetics of the buildings and spaces all work together to shape the neighbourhood and influence how people behave and get together as a community. In turn, this develops local social and cultural identity.

By understanding the nature of sustainable neighbourhoods, Beacon wants to assist stakeholders in the building and construction industry to better understand and develop the designs and construction (techniques, products, materials) to build neighbourhoods that last.

Beacon has designed the neighbourhood sustainability framework to be 'outcomes oriented' and to help facilitate a built environment that is designed, constructed and managed to generate neighbourhoods to:

- Be adaptive
- Be resilient
- Allow people to create rich and satisfying lives
- Respect the limitations of the environment

Beacon is currently working on ways of utilising the framework as a community engagement tool.



Beacon suggests that Council augment the current discussion within the plan with reference to the Neighbourhoods Sustainability Framework and furthermore we would be willing to assist Council in making use of the tools to assist with the transition toward greater neighbourhood and household sustainability required by the Plan.

3.1.4 Section D: Auckland's High-level Development Strategy

Comments relating to this section of the Plan are covered in answer to Q.2 above.

3.2 Specific Comments on Chapters

3.2.1 Chapter 5 – Auckland's Environment; and Chapter 6 - Auckland's Response to Climate Change

Beacon congratulates the Council on strengthening the approach to the environment and climate change in the full Spatial Plan in comparison with the 'Auckland Unleashed' draft discussion document. It is particularly pleasing to see some of the threads provided in preceding documents (such as the Auckland Sustainability Framework put forward by the Regional Growth Forum, 2008) coming through more strongly in the Plan.

Beacon very strongly supports the delivery of specific strategies dealing with energy and climate change for the Auckland area. This is exceptionally timely and a vital piece of work which should take full account of the inter-related nature of climate change mitigation and reducing reliance on fossil fuels as well as the move to a low carbon future and recognition of peak oil scenarios.

In addition, Beacon strongly recommends that Council add to the Plan the development of a specific water demand strategy that explores a range of tools to maximise the ability of housing and neighbourhood infrastructure to utilise rainwater harvesting, grey water re-use, and management of the 3 waters to meet the needs of Auckland moving forward. This would tie in well and be important to achieving Directive 5.8, and would also prepare Auckland to deal with the effects of seasonal variability of water expected as a result of climate change.

Beacon strongly supports the development of a waste minimisation strategy, and the achievement of a zero waste target, although we would prefer to see the target reduced to an earlier timeframe and suggest that a 90% reduction in waste by 2020 might be more achievable than 100% by 2040. Beacon recommends that Council highlight the importance of domestic and neighbourhood initiatives in achieving this goal – both from the point of view of reducing domestic household waste and also construction waste. To support this, Beacon recommends Council take a leadership position in all aspects of Council operations and ensure contractors follow REBRI guidelines in all construction projects.

Beacon strongly supports the inclusion of box 6.1 in the Plan relating to the direct impacts of climate change on Auckland. Beacon recommends that this information is considered more widely and in a more integrated manner throughout the plan for the sake of consistency. For

example, in alluding to coastal development in [181] ‘encourage residential growth to be consolidated in identified rural and coastal settlements and rural and coastal villages,’ there is no apparent identification of the risks associated with climate change and sea level rise. In short, the expected direct impacts of climate change should inform and guide significant aspects of the plan throughout, not be included only separately within chapter 6.

Beacon has some concerns that the discussion of climate change lacks detail on direct implementable methods to achieve climate change mitigation and adaptation. Perhaps this is to come with the development of the climate change strategy but, for example, box 6.2 [Box 6.2 - The Auckland Greenhouse Gas Emissions Reduction Strategy] identifies policy options but lacks implementation methods, so where it states renewable and distributed energy generation, we do not know at what scale nor how it might be achieved. Beacon looks forward to further detail of implementation in the energy and greenhouse gas reduction strategies (or single combined strategy).

3.2.2 Chapter 8 – Urban Auckland

Beacon strongly supports the priorities of realising a quality compact city, creating enduring town centres and neighbourhoods, and demanding good design in all development. Beacon also strongly supports the development of clear design guidelines or similar strategic policy methods, which set out sustainability principles as the underlying framework for urban design and development both for new development or redevelopment of existing sites. This should include an emphasis on resilience and low impact design to produce in particular developments which are low on water, waste and energy.

Beacon also recommends developing specific resilience plans (responding to climate change and peak oil) that would include demand management and diversity of supply as priorities, and take into account in the prioritisation of place-based sustainable urban development the predicted extreme weather events, the risks of flooding, sea level rise and rise in temperatures.

3.2.3 Chapter 9 – Auckland’s Housing

Beacon strongly supports the priorities in Chapter 9, especially the focus on improving the quality of existing and new housing, improving housing affordability and increasing housing choice. However, Beacon recommends that this chapter is strengthened through the use of additional local (and therefore relevant) statistics for the Auckland region. There is also a need for clearer direction of the strategic policy and methods that will be used in this chapter to achieve the objectives. In summary, the overall priority mandated through this chapter is supported but it needs more detail on implementation.

In order to achieve this, Beacon recommends the development of an overall housing strategy for Auckland – one that is concerned with improving existing stock and providing high quality future housing to meet Auckland’s needs. This should be explicitly highlighted in the Plan in the same way as the energy and climate change strategy is. As a key stakeholder in research

and methodologies to improve housing, Beacon would welcome the opportunity to be involved in the development of such a strategy.

Affordability is another key issue highlighted in Priority 4 within the Plan and Beacon welcomes the initiatives dealing with residential incentives and we would be eager to assist in the potential for further developments of these packages. We also strongly recommend that the definition of affordability also takes into account future running costs (operational energy and water costs / maintenance costs etc.). To be truly affordable, housing must not only seek to achieve an affordable capital cost but also deliver acceptable whole of life costs.

Beacon also draws the Council's attention to the potential of reduced initial capital costs in relation to innovative shared equity schemes such as those pursued by organisations such as the New Zealand Housing Foundation. These 'third sector' partnerships show great promise in delivering new models of ownership and Beacon would be happy to assist Council in developing relationships with potential delivery partners.

In addition to comments on the Plan as it stands, Beacon also recommends that Council develop a pilot example of affordable, sustainable urban living in partnership with key stakeholders such as NZIA, DBH, NZPI, social housing providers and developers. Such an exemplar best-practice housing precinct has the potential to deliver a new inner-city neighbourhood of medium density and mixed-use homes, based on affordable design principles, to inspire and shape modern urban living in Auckland. Beacon strongly supports the development of this unique 'eco-precinct' which will meet current and future residents' needs through creating homes and neighbourhoods which are great places to live, work and play. It has the capacity to become a model for Auckland whereby the City could potentially generate more energy than it consumes, conserving / recycling the valuable high quality water from Auckland's skies and delivering living / working environments which are carbon zero and incorporate restorative sustainable design. Beacon recommends the involvement of industry early on to promote industry innovation and learning by providing a living laboratory of sustainable building design incorporating prefabrication, modular designs and green technologies.

Beacon recommends that the exemplar 'best-practice neighbourhood' be established as quickly as possible and become part of Auckland Council's vision of an exemplar sustainable eco-city, as it will contribute to the tools, incentives and education needed to overcome business as usual. It encourages homeowners to seriously consider new forms of central city living, and this will provide an ongoing resource for developers in the area.

3.2.4 Chapter 10 – Auckland’s Infrastructure

The concept of **resilient neighbourhoods/communities** is not explicitly spelled out in this document. With the oncoming of climate change, peak oil and economic tightening, the need for development that is well connected and serviced by public transport, and housing/commercial building stock, which is energy, water and waste efficient, will become even more imperative. The quality of the vision of any place-based development needs to include not only a demand management approach to the management of natural resources but also opportunities for diversity of supply - water, energy and localised waste management.

3.2.5 Chapter 11 – Auckland’s Transport

Beacon strongly supports the goals and priorities of the transport chapter and commends Council for highlighting the necessity of these goals for achieving and supporting the wide range of projects set out in the plan. Beacon strongly supports the inclusion and priority of cycling, walking, slow streets, public transport, connectivity and integrated network identified in the Plan.

3.2.6 Chapter 12 and 13 – Implementation Framework, Monitoring and Evaluation

Beacon strongly supports the statements made in the introduction of the implementation section relating to the requirement for partnerships, and the focus on working collaboratively across industry and Government. To add a greater sense of certainty to the Plan, Beacon recommends that in the summary of projects, further detail is provided of potential stakeholders and potential funders for each of the projects identified.

Beacon also commends the Council on the inclusion of a monitoring and evaluation process. Beacon recommends in addition to this that further work is done with the key themes from the public consultation process to produce a set of community indicators to track progress against goals in the Plan. In summary, Beacon would like to see further consultation on the targets and measures to ensure that they are reflective of community aspirations (although this may come through in the submissions received in response to the consultation phase of this version of the Spatial Plan). Beacon would also then like to see a firm commitment to publicising and tracking these indicators in a transparent and robust manner.

4 Achieving the Transformation

Beacon strongly supports the aspiration to become *the world's most liveable city* within the framework of resilience, sustainability, an eco city approach and the provision of a low carbon Auckland of the future. Achieving this transformation will require a range of innovative strategic and policy approaches – backed up by methods, actions and delivery the like of which has not been seen in Auckland before. We agree with Mayor Len Brown – this is Auckland's time – and this plan is pleasingly pitched as a transformational one, which is bold in reach.

There are many long-term benefits to be reaped from making more sustainable building choices. Improving the performance of buildings can benefit the health, productivity and resource efficiency of building occupants, as well as generating community-wide benefits such as savings in infrastructure investments, and improvements to air and water quality and the natural environment (see figure below – with permission to reproduce this in future versions of the plan if required).

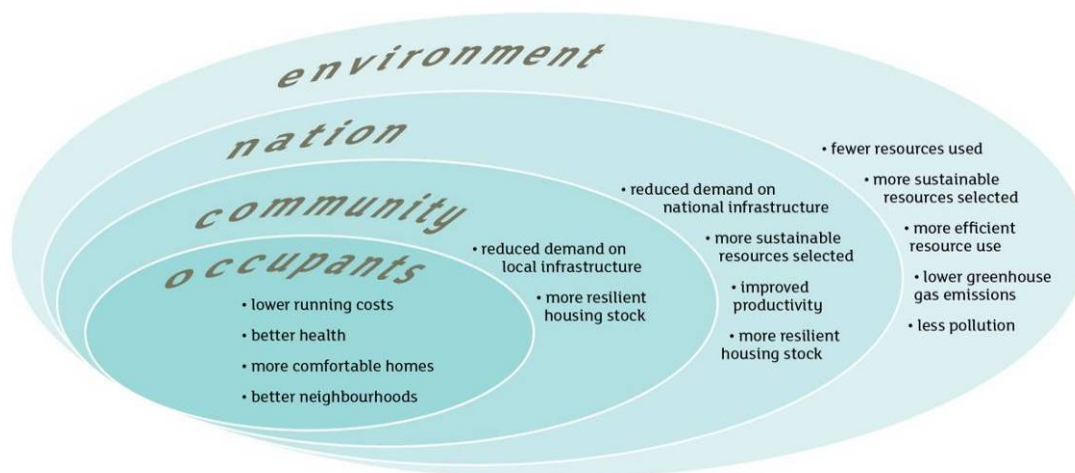


Figure 1: Benefits of Sustainable Homes

Sustainable building is variously defined. For housing, Beacon has focused on five key performance areas: energy, water, indoor environment quality (essentially, health and comfort), materials, and waste. Benchmarks for these key performance areas are defined in Beacon's HSS High Standard of Sustainability® (HSS®) (See Appendix 1).

However, upfront capital costs, lack of reliable information, skilled technicians, and limited cultural expectations can act as barriers to implementation. Beacon Pathway has conducted research into the council-induced barriers to building and renovating homes to a high standard of sustainability. The research found that policy and regulatory barriers to sustainable building choices exist in:

- administering the Building Act and Building Code;
- inflexible conventional infrastructure standards (particularly for water); and

- District Plan provisions that provide no allowance for sustainable designs such as passive solar orientation or features such as rainwater tanks (e.g. traditional development controls for height, yards, and height-in-relation-to-boundary).

Of particular note, process issues were found to be a major barrier to sustainable building choices. That is, the way policies and plans are interpreted and administered in council practice.³ Additional costs, uncertainty and delays of getting consent for discretionary and non-complying activity consents (including the need for written approvals) can have the effect of deterring people from incorporating sustainable features.

Beacon's assessment of existing council policies and programmes across the country suggests that councils who want to successfully promote more sustainable homes and neighbourhoods in their districts *can* make it easier for developers and homeowners. Local government's role in promoting sustainable building is grounded in the purposes of:

- Section 3(d) of the Local Government Act 2002: to provide for local authorities to play a broad role in promoting the social, economic, environmental, and cultural well-being of their communities, taking a sustainable development approach.
- Section 3(d) of the Building Act 2004: to ensure that buildings are designed, constructed, and able to be used in ways that promote sustainable development; and
- Section 5(1) of the Resource Management Act: to promote the sustainable management of natural and physical resources.

In the context of the Auckland Spatial Plan, creating more sustainable homes and neighbourhoods for Auckland can deliver:

- **Improved productivity outcomes** – for individuals, communities and business
- **Improved health outcomes** - Cold damp homes pose serious health risks, particularly for the most vulnerable groups in the community who spend the most time at home.
- **Employment generation** - By encouraging sustainable renovation of homes and neighbourhoods, councils can provide a substantive economic stimulus to their local economies⁴.
- **Reduced load on infrastructure** – Auckland Council has a significant role in the provision of infrastructure and services, including potable water supply, stormwater and wastewater infrastructure, transport infrastructure, and household waste collection. Efficiencies that can be gained at the household level have direct benefits at the community scale, particularly where there is growing demand within catchments – as per water in the Auckland area. In recognition of this, many councils now offer incentives to promote aspects of sustainable

³Easton et al., 2006, p.8.

⁴Beacon's briefing for the February 2009 Job Summit calculated that a standard 1940–1960 home renovated for improved performance would require an estimated 277 hours of labour split between a variety of sub-trades. For every 1,000 houses retrofitted, a total of 151 full time equivalent jobs would be required for delivery solely of on-site retrofitting services, and a total of 392 full time equivalent jobs would be required to provide the products and services involved in the renovation activity.

building (e.g. subsidies for rainwater tanks, reductions in development levies) and information and guidelines on aspects of sustainable building (e.g. ways to conserve water).

- **More efficient resource use and savings** – insulating the community from inevitable price increases and providing a more resilient infrastructure and carbon savings whilst at the same time keeping more money within the local economy.
- **Improved performance over the life of the building** - When the whole life of a building is considered, and given the length of the operation phase compared to other phases, the manufacturing impact of a particular product may be relatively small. Efforts should focus on how to get the best results during operation, in particular, by reducing the energy requirements for heating and hot water supply through good solar orientation and passive solar design.

Beacon research has shown that councils throughout New Zealand have developed a range of initiatives to encourage people to make more sustainable choices in their homes and neighbourhoods, and are seeing some good results. As a response to the policy barriers, Beacon has developed a resource manual of policy options for councils [‘the Resource Manual’].⁵ The manual provides an overview of the range of tools available to councils, and gives detailed examples of policies and practices already in place in New Zealand. **Beacon recommends that Auckland Council explore a number of the options outlined in the Resource Manual to assist in realising the visions outlined in the Plan.** Beacon extends an offer of support to Council to work collaboratively in exploring some of these tools and approaches in the Auckland region.

4.1 Catalysing the Transformation

The value case, described above, sets out some of the reasons that councils may wish to promote more sustainable homes and neighbourhoods. In order to achieve the level of transformation required in the Spatial Plan Beacon recommends that Auckland Council consider the following behaviour change framework outlined below.⁶

⁵Howell and Birchfield, 2010.

⁶UK Government, 2005, p.26. *A behaviour change model developed to promote public sector implementation of the UK’s sustainable development strategy.*

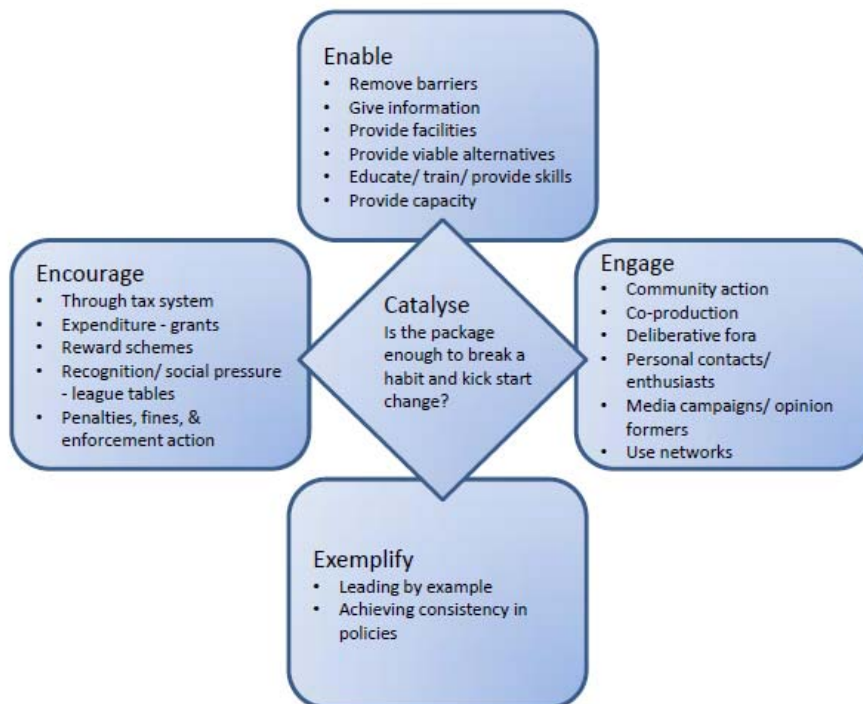


Figure 2: Behaviour change framework⁷

The framework identifies four key methods for the public sector to promote change – in this case, a change to more sustainable homes and neighbourhoods:

- **Enable** – making change easier by removing barriers, providing alternatives and building capacity. For Auckland Council, this includes a focus on the regulatory provisions and administration. Capacity building needs to take place internally (e.g. ensuring officers are equipped with technical knowledge necessary to appropriately process applications and to manage any conflict between assisting with sustainable outcomes and managing risk to council) and with key stakeholders including industry and consumers.
- **Encourage** – giving the right signals through incentives and disincentives including economic instruments and regulation. For local government, encouragement can be signalled through policy statements and through more tangible financial methods such as development contributions, fee waivers, grants and targeted rates and regulatory requirements such as bylaws and District Plan provisions.
- **Engage** – getting people involved in dialogue and action. Community engagement should be core to Auckland Council’s purpose and processes and is also critical to achieving the scale of change necessary in the shift to an Eco-City approach. For Auckland Council, this should include community education and awareness programmes (e.g. Eco Design Advisors for specific one-to-one assessments, and more broadly targeted materials in council publications, information sheets at service counters, festivals) as well as work with key sectors, such as the construction industry.

⁷Source: UK Government, 2005

- **Exemplify** – taking the lead to demonstrate change and also ensuring policies are conveying a consistent message regarding a more sustainable and resilient city. For Auckland Council this should include building practices on council-owned or leased properties (including libraries, community halls, sporting facilities, administrative buildings, investment properties, and buildings associated with infrastructure provision). Leading by example is crucial.

Together, these methods can **catalyse** change and break habits. Beacon's Resource Manual of policy options for local government identifies a range of policy tools that councils are already using across New Zealand to enable, encourage, and exemplify more sustainable building practices, and to engage the community in the change.

4.2 A Resilient Auckland – energy and water

Beacon recommends that energy / water security and issues such as peak oil are highlighted more strongly within the plan in respect to delivering a sustainable and resilient community.

4.2.1 Energy

Various renewable energy assessments, as well as the now widely available NIWA datasets, identify a range of resources that Auckland can draw on to build a resilient and sustainable energy future. These include wind, solar, tidal and wave energy, biomass and hydropower. The Auckland region is rich in many of these resources and **Beacon strongly supports the development of an Auckland Energy Strategy** to frame development and to identify the range of engaged stakeholders who could be involved in developing the resource. Auckland is arguably better placed than many parts of New Zealand to take advantage of both the rich resource base as well as local expertise in the renewables industry.

Investigating sustainable energy options for Auckland is a timely exercise. Energy costs are predicted to increase putting pressure on residents and ratepayers. In addition, security of supply and network transmission constraints could limit future growth and inward investment. There are some large-scale and small-scale renewable opportunities in the region that are currently under-utilised and there is a large potential for improving the energy self-sufficiency of Auckland. This is set within a national context, which suggests that there will be an increasing number of potential large scale renewable developments being put forward for consideration. Auckland Council needs a robust framework to assess the effects of these and maximise beneficial outcomes to the community. The Council should be encouraged to address issues of energy efficiency and the benefits to be derived from renewable energy use within the District Plan (as required under 2004 changes to the Resource Management Act 1991 (RMA) which introduced amendments to s.7 to address energy efficiency and renewable energy issues).

The benefits from greater uptake of local distributed renewable generation are multiple. These include:

- Helps to achieve our national and international targets as well as safeguard the environment locally and globally;
- Helps protect against rising fossil fuel and electricity costs including those associated with the recently introduced Emissions Trading Scheme;
- Increases security and diversity of supply and assists with existing and future transmission / distribution constraints as well as assisting with avoidance of transmission losses;
- Provides the possibility of local ownership, wealth creation, employment and wider economic benefits through demonstration projects;
- Enhances Auckland's reputation, builds the capacity for investment and increases reliability and resilience;
- Provides potential win/win scenarios (e.g. bio-diesel from agricultural waste and local forestry residues, cogeneration opportunities using gas from landfill); and
- Provides a potential new income stream for the Auckland economy.

However, as with sustainable homes and neighbourhoods, Beacon's research suggests that there are still a number of barriers to be overcome. These include regulatory and fiscal barriers, educational and cultural barriers. In short, the development of distributed renewable generation in Auckland is not being held back by lack of available resource but by current policy framework. **Beacon strongly supports the identification of local energy supply and distributed generation as a cornerstone of the Auckland Plan.**

4.2.2 Water

Councils typically spend one third of their annual operating budgets on delivering and managing potable drinking water, wastewater and stormwater. Ageing infrastructure is straining to meet growing demand, with substantial increased costs. The Auckland region's water resilience is also questionable. Although it receives seven times more water (rainfall) than its residents consume, the Auckland region is reliant on another region for much of its water supply.

Of all the water used in homes, less than 5% is required for drinking. Yet we use treated, reticulated potable water for all our lower quality needs in the laundry, toilet and garden – literally flushing away residents' and ratepayers' money.

Water demand management is an essential approach to water use efficiency. It can save capital cost through delaying the need for major new water supplies; reduce the energy use required to provide and pump water and wastewater; provide resilience against climate perturbations (in particular, more droughts); and reduce the impact on the environment. A case in point, demand side management measures in Beacon's Waitakere NOW Home® reduced water consumption by 66% in the first year, with no behavioural change from the occupants.

Likewise, low impact urban design approaches, water policy, engineering standards and design criteria can help to reduce the economic and environmental costs of urbanisation and infrastructure management.

In spite of the clear benefits and efficiencies for the region, demand side management and low impact design are not consistently applied principles in the Auckland region's water management and urban development. Indeed, Beacon research identified that Metrowater's approach is a significant barrier to sustainable water management⁸.

Beacon strongly recommends that the Plan highlights the development of a water strategy and make demand side management and low impact design standard operating practice across Council (and Council's bulk water supplier). These are necessary steps to ensure the region's future as a resilient, successful, and sustainable city.

4.3 Focus on existing built environments

Beacon recommends that the Plan focus more on the needs of the regeneration, improvement and reconditioning of the existing built environments of Auckland's urban and village centres. Too frequently, urban design policies and efforts are directed at new developments or significant redevelopments and developments associated with significant changes of use such as the current redevelopment of Hobsonville. The reality is, however, that the environmental, social and economic viability of our settlements is dependent on built environments that will not be able to be cleared and redeveloped as a clear greenfield or brownfield sites. The Auckland Plan, through its strategic framework, needs to ensure that regeneration and the improved performance of existing built environments is prioritised over new sites.

A precautionary approach needs to be taken with regard to any developments outside the boundaries of existing built environments. Urban design needs to facilitate the interconnections between households, neighbourhoods and broader town and city infrastructure and amenities.

Focus on resilience

The Auckland Plan should focus on the development of resilient neighbourhoods and businesses including:

- Producing and managing key resources within local built environments, particularly energy and water
- Recycling of waste within our urban environments
- Protecting soils that can be used for food production at the household, neighbourhood and Auckland wide scales.

In short, the Auckland Plan should be focusing our communities on resilience and self reliance – closing the loop within our urban and rural communities.

⁸*Easton, PR109, 2006*

5 Appendix 1: The HSS High Standard of Sustainability®

HSS High Standard of Sustainability® 2008

reticulated energy use

climate zone 1:

- New homes: 5800 kWh/yr
- Existing homes: 6200 kWh/yr

climate zone 2:

- New homes: 6300 kWh/yr
- Existing homes: 7300 kWh/yr

climate zone 3:

- New homes: 7300 kWh/yr
- Existing homes: 8400 kWh/yr

reticulated water use

- 125 litres/person/day

indoor environment quality

average temperature:

- Living room 5-11pm in winter >18°C
- Bedroom 11pm-7am in winter >16°C

average relative humidity:

- Living room 5-11pm in winter 40-70%
- Bedroom 11pm-7am in winter 40-70%
- Surface relative humidity <80% year round

checklist:

- Mechanical extract ventilation of kitchen, bathroom and laundry
- Means to passively vent dwelling
- No unflued gas heaters
- Damp proof membrane under house
- No indoor clothes drying

waste

- A maximum of 2.6 tonnes per house or 16kg/m² of construction waste for new building
- Separate construction wastes for collection
- Waste management plan produced for site in accordance with REBRI guidelines
- Provide space in kitchen for organic collection – 5 litres minimum capacity
- Provide space for non-organic recycling bins in or near kitchen – 20 litres minimum capacity
- For detached dwellings on suburban lot sizes, provide space in garden of at least 1 m³ for composting of organics. On sites of 250m² or less, provide for worm farm, communal composting or kitchen waste collection.

materials

new homes:

materials which:

- promote good indoor air quality, e.g. through use of Environmental Choice certified paints and finishes
- have minimal health risks during construction or renovation
- are durable and have low maintenance requirements
- re-use existing or demolished building materials or can readily be re-used
- are made from renewable or sustainably managed resources
- have low embodied energy including minimal impacts due to transport
- minimal impact on the environment (air, water, land, habitats and wildlife)
- have third-party certification (e.g. NZ Environmental Choice, Forest Stewardship Council)

existing homes:

- Retrofit or renovation applies principles from materials checklist where appropriate