MORE RESILIENT CITIES

With most of us now living in urban areas, we need to find workable solutions in the transition to a low-carbon, sustainable society and economy.

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Over 80% of New Zealanders live in urban areas. Our cities now sprawl around the green belts set up in the 19th century by far-sighted forebears and spread into the suburbs. But cities face important environmental, social and economic issues from climate change to rising energy prices. There are also health issues associated with lack of physical activity.

Despite wide differences of view over policy solutions, some strong themes and conclusions are emerging. One is that smart solutions for tomorrow's cities should target active modes of transport, such as walking and cycling, and increased use of public transport. Another is that we can and should make our urban areas more resilient to the economic and social adjustment that climate change and associated policies will bring.

There is strong impetus for change, and solution-focused research is being developed to find workable answers. For instance, instead of building more roads, which reduces resilience by encouraging fossil fuel use, we can more judiciously use the roads we have. To reduce traffic, infill housing can be built near transport nodes. Safe cycleways can be separated from roads where possible. Helping people to 'level board' buses and light rail with greater safety and speed also matters.

The 'traffic generation' effect

Our recently published book *Sizing up the city: urban form and transport in New Zealand* (available from www.steeleroberts.co.nz) collects and expands on papers presented at the New Zealand Centre for Sustainable Cities 2009 national symposium on sustainable transport and our built environment. It looks at the costs of urban sprawl and the co-benefits of compact cities.

The work of one contributor in particular has challenged us to ask critical questions about the plasticity of urban form and carbon emissions. Reid Ewing asks, in the US context, what reduction in vehicle miles travelled is possible with compact development rather than continuing urban sprawl and what reduction in carbon emissions would accompany such reductions?

Ewing has shown that, as more roads are built, more vehicle miles are driven – the so-called traffic generation effect. This has potentially disastrous consequences for reducing carbon emissions.

Benefits with 'smart growth'

By contrast, people who occupy more intensive housing (a greater density of people per hectare) built near transport nodes are more likely to use public and other active modes of transport. In the US, people tend to prefer 'smart growth' communities that are close to places of work and local amenities, have mixed-use development and incorporate public transport and walkability.

Auckland is a city that has been designed around New Zealand's car culture.

Ewing and colleagues conclude that a 7–10% reduction in total transport CO_2 emissions by the year 2050 is possible with smart growth, under a plausible set of assumptions.

They also note that, in the US at least, more compact residential areas generate carbon savings of around 20% in primary energy for space heating and cooling. This saving is mainly due to less exterior wall area in attached and multi-family housing and less floor area consumed at higher densities.

This saving is one of the many co-benefits that, together, are likely to outweigh the costs of implementing a smart growth strategy.

NZ survey of urban versus suburban living

Stimulated by this work, we carried out an online survey of New Zealanders' housing and locational preferences and attitudes towards council involvement in keeping growth within urban limits. The study's main focus was on preferences for urban or suburban living.

We found that over three times as many respondents see urban limits as necessary than not. Twice as many people thought that councils rather than market forces should have the key role in defining the form of cities.

The proportion of respondents identifying travel costs as a significant influence on their decision about where to live, either now or in a future with rising oil prices (61%), significantly outweighed the proportion (36%) for whom travel costs is not a significant factor.

Three times as many people as not favour mixed-use, smart growth communities, but most still want to live in a stand-alone house. Twice as many people (particularly those currently renting) prefer to live in a larger house further out than a smaller inner city apartment, with opportunities for gardening being just one reason.

These preferences for more land and space, even if it means more commuting time, were more marked when respondents were asked about their 'no constraints' preferences. We infer that real-world factors such as fuel prices are influential. It may also be that mixed-use developments that put housing within walking and cycling distance of offices, shops, parks, schools and transit stops are still fairly uncommon in New Zealand. Because of the leaky homes saga, those that do exist may not necessarily be of adequate quality.

Demography also matters. Relatively larger households with children prefer the suburbs whereas younger and older people with no dependent children prefer inner city living.

Future research targets big issues

Our research agenda for sustainable urban development in New Zealand takes account of strategic and council interests and government concerns.

The big external issues are the price volatility and insecure availability of oil products and the inevitability of climate change. Weak signals from central government that a change in energy use is required mean many opportunities for incrementally refashioning our housing and cities are being overlooked and belated adjustment will be more painful as a result.

People want better urban design

The nature of urban development in New Zealand is a major contributor to carbon emissions, and changes in urban form offer significant long-term potential to cut greenhouse emissions. In redesigning cities, it makes sense to choose investments that simultaneously reduce pollution and improve quality of life.

With the urban/suburban development model of the last 60 years being based on roads and cars, little attention was given to the quality of life in city or suburban centres, the needs of pedestrians and cyclists or our dependence on insecure liquid fuel supplies. Change is in the wind, but it won't happen overnight. For families with children, the suburbs and big cars will likely hold an allure until an external shock causes a painful realignment of ideas.

Our research has shown that some households are changing their values and there is a distinct interest in more liveable city centres with more accessible facilities. People don't want urban expansion to continue unchecked and are looking for better urban design. They also support councils to actively constrain urban development, thus enhancing the conditions for active travel and supporting better quality and design of intensified housing and urban centres.

The New Zealand Centre for Sustainable Cities links the expertise of researchers in universities and Crown research institutes to undertake research on urban systems. This research reflects an ongoing partnership with urban stakeholders, particularly regional and local councils, to strengthen urban resilience and sustainability.