Reducing Transport Carbon Emissions in Auckland

Strategic and Local Urban Planning Policies
to make a difference

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1. Introduction

The purpose of this report is to examine and analyse the policy framework that exists in Auckland whose purpose is to shape, direct and manage the sustainability of regional and local urban development in terms of its demand for carbon based energy for transport and its consequent production of greenhouse gas emissions.

The New Zealand Government has recently announced (NZGovt, 2009) that it is: “prepared to take on a responsibility target for greenhouse gas emissions reductions of between 10 per cent and 20 per cent below 1990 levels by 2020….”

Further Government information on the Ministry of Environment (MfE) website describes this target (NZGovt - MfE, 2009) thus:

“a ’responsibility target’ means that New Zealand can meet its target through a mixture of domestic emission reductions, the storage of carbon in forests, and the purchase of emissions reductions in other countries…. New Zealand’s 2020 target forms part of a step towards ensuring that New Zealand’s long-term target to reduce emissions by 50 per cent below 1990 levels by 2050 (“50 by 50”) is achieved. Reaching the 50 by 50 goal is a significant challenge and it is important that we make a start now to give us a realistic chance of reaching it…. Because of New Zealand’s projected 35 per cent population growth over the period 1990 to 2020, our target reductions are more stringent when considered on a per capita basis. A target of 10 per cent below 1990 levels equates to a 35 per cent per capita reduction in emissions from 1990 to 2020. A target of 20 per cent below 1990 levels equates to a 42 per cent per capita reduction in emissions from 1990 to 2020…”

While there is criticism of Government’s greenhouse reduction targets (the NZ Green Party advocates reductions of 40% compared to Government’s highly conditioned proposals which range between 10% and 20%), even these will require significant structural changes in sectors of New Zealand’s economy, as well as behavioural change on the part of individuals.

Almost half the energy consumed in Auckland is for transport (MED, 2007) including private transport, public transport and freight transport. Most of this transport energy is derived from non-renewable fossil fuels which burn to produce energy and greenhouse gases. This relatively wasteful use of transport energy (Newman and Kenworthy, 1999) will need to change for Auckland to play its part in reducing New Zealand’s overall greenhouse gas emissions.

Adding weight to this imperative is the need to ensure that Auckland’s transport systems become less reliant upon increasingly scarce and increasingly expensive fossil fuels.

There are many ways of reducing Auckland’s carbon-based transport footprint, such as improving public transport, using lower emission vehicles, more walking and cycling, and others. This report concentrates on the effect on transport energy of Auckland’s land use patterns - which are dispersed following decades of sprawling development – and examines policy options to improve and change Auckland’s urban development form so it uses transport energy more efficiently and less wastefully, and is thereby responsible for less greenhouse gas emissions than now.

This first section of this report examines and analyses relevant policies and strategies in force in Auckland region now, to address the matter of Auckland’s transport energy demands and the related carbon emissions, and specifically those policies operative in North Shore City.
The next section of this report introduces and describes a range of policy options in use and under active consideration in other OECD countries, which are aimed at reducing transport demand and related emissions by changing and influencing land use patterns.

These policy options are then assessed in the final section of this report in terms of their applicability and acceptability in Auckland New Zealand.
2. Executive Summary

Auckland’s regional strategic and local urban planning documents comprehensively recognise that the energy intensive and green gas emitting character of Auckland’s transport system can be mainly attributed to Auckland’s dispersed and sprawling urban form.

However, apart from the powerful Metropolitan Urban Limit policy contained in the Auckland Regional Policy Statement that became fully operative in 1999, there is a remarkable paucity of other effective policies that will head Auckland’s development pattern in a compact, less carbon-intensive direction. This is confirmed by the findings of detailed analysis led by the Auckland Regional Council and set out in Growing Smarter (2007). Further policy ideas that would lead to a more compact urban form and reduced green house gas emissions from transport are contained in Auckland’s Long Term Sustainability Framework, in particular a range of densification and development measures.

Most of the world’s cities are attending to similar problems, and there is much that can be learned from their experiences. Casual assessment suggests that Auckland would be low on any list compiled to rank the effectiveness of policies and initiatives being taken by cities to reduce the need for travel and related green house gas emissions by changing the development and redevelopment of city urban form.

The VIBAT – Visioning and Back Casting Transport – innovation being carried out now in London with support from Greater London Authority and the UK Government Department for Transport is exemplary because of its focus on linking green house gas emissions reductions to specific policy initiatives, and carrying out this assessment in a way which is widely accessible to the public and interested stakeholder organisations. Auckland can learn from this work in many ways. One of the recommendations of this report is that we need a VIBAT system for Auckland.

Closer to home – in the sense that city development in Canada more closely resembles Auckland’s urban form - the Victoria Transport Policy Institute (VPTI) is a store-house of policy ideas that focus on successful compact city development. I note that the VIBAT work has leaned heavily on the research findings of VPTI in regard to urban form impact on travel demand and green house gas emissions. VPTI advice that reductions in travel demand of between 20% and 40% may be achieved through a mix of policies aimed at producing an urban form which leads to significantly less demand for private car travel.

This report brings together relevant policy recommendations from research carried out in Auckland, plus VIBAT and VPTI work, and sets out a number of policy packages and other initiatives that would guide Auckland’s urban development in a more sustainable direction than where it is heading now.

The recommendations are for National, Regional and Local levels.
3. Regional and Local Urban Planning Policy Framework

Five strategic planning documents play an integrated and interconnected role in shaping Auckland development. The Regional Policy Statement, the Regional Land Transport Strategy and local District Plans are statutory planning instruments prepared according to legislation, while the Auckland Regional Growth Strategy and the Auckland Long Term Sustainability Framework are non-statutory documents that have been produced by the Auckland Regional Council in consultation with stakeholder organisations including the seven territorial authorities responsible for local governance functions within the region.

These planning documents are described here, and extracts provided, with specific attention to provisions about energy and carbon emissions and transport. Emphasis is added by underlining. Subsequent critiques and supporting documents are also summarised. My comments intersperse this section.

3.1 The Auckland Regional Growth Strategy 1999 (ARGS)

This document represented a radical step forward for Auckland region when it was published in November 1999. It was prepared in response to Auckland’s sprawling development patterns and put forward a vision for Auckland shift its form of development to one which included growth nodes and growth corridors characterised by compact city form, all interconnected with high quality and high frequency public passenger transport systems. The ARG was produced by the Auckland Regional Council (ARC) in partnership with all of the region’s seven territorial authorities (Auckland City Council (ACC), Manukau City Council (MCC), Waitakere City Council WCC), North Shore City Council (NSCC), Papakura District Council (PDC), Franklin District Council (FDC) and Rodney District Council (RDC)). Agreements reached in the course of developing the ARG were enshrined in a number of sector agreements.

These agreements lie at the heart of the failure to actually implement the strategy. Territorial authorities reserved significant rights to local autonomy in determining local land uses and development patterns. Compact city form required that certain areas of the region – around growth nodes and along growth corridors – needed to be selectively and more intensively developed – but such change necessitated changes to local authority District Plans. Local Council retained the right to self-determination in this regard, and – as the review of the ARG spells out (ARC, Growing Smarter, 2007) – most were remarkably reluctant to robustly engage with their local communities to win support for such plan changes.

Among the sixteen outcomes sought by the ARG is: “Sustainable Use of Resources”, which is further described as follows: “more efficiency in use of natural and physical resources, including urban land, rural land, infrastructure and energy resources…”. No mention is made in the ARG of carbon, greenhouse gases, or emissions. It was a document of its time.

By contrast the principles set out in the ARG for the type of compact urban form envisioned appear appropriate even today. Principles include for example:

“… (the need to)… Encourage a regional land use and transport pattern which:
• Enables people focused communities, and protects and fosters existing and future community values and integrity.
• Recognises different types and functions of transport corridors and their relationship with adjoining land uses such as the location of freight forwarding/distribution near motorways and/or rapid transit interchanges; or the location of housing and community facilities near passenger transport.”
• Is flexible and accommodates change (e.g. new technology, road reform/pricing, new work practices, new industries etc.,) while providing sufficient certainty for planning purposes.
• Enables a range and quality of business locations to accommodate employment growth (e.g. industrial areas near motorway/rapid transit interchanges; a variety of mixed use, sub-regional or town centres for offices and services outside the CBD).
• Enables a good local, cross-region, inter-region and international transport network, including passenger transport for ease of movement for goods and services, business traffic and commuter traffic.
• Reduces the need to travel by car by encouraging more employment/business/retail/community facilities close to residential areas and the opportunity to walk or cycle. This pattern needs to foster a critical mass in terms of population to support a range of small local enterprises.

…(the need to)…Enable a regional land use pattern where local areas have sufficient critical mass in terms of population to support a range of quality and accessible community facilities and services, including health facilities and education and training to support employment choice.

• All intensification areas to be served by an effective and efficient passenger transport system.
• All intensification areas to be within walking distance of a commercial or employment centre.
• All intensification areas to be located in a manner that maintains identified residential character areas.
• All intensification areas to be located and developed in a manner that provides adequate open space for the needs of local residents.
• All intensification areas to have access to appropriate and affordable education, health, community, recreation, social services and facilities.
• All intensification areas to provide a range of dwelling types and densities including mixed use development activity where appropriate.”

3.1.1 Long Term Sustainability Framework 2007 (LTSF)

This planning document was prepared by ARC in a joint project with all of Auckland Councils in the period 2005-2007, to address the global challenges including climate change, reducing resources (finite renewables and non-renewables), population growth and globalisation. Sustainability was the underlying driver. Underlying behavioural “shifts” were identified in the LTSF including: the need to “reduce Auckland’s ecological footprint”, and the need to “build a carbon neutral future”.

Specifically the LTSF states:

“Addressing climate change will require Auckland to reduce greenhouse gas emissions as part of New Zealand’s overall response to its commitments under the Kyoto Protocol agreements. However we do not yet know how we would build a carbon neutral future, by when, or what this specifically would mean for the economy and for Aucklanders’ lifestyles. Steps to reduce greenhouse gas emissions will create challenges for agriculture, transport and energy generation.”

And in a section entitled “doing more with less” the LTSF states:

“One of the 21st century’s biggest challenges involves finding ways to … use resources more efficiently… resource efficiency and waste reduction can be achieved by radically improving
technology and processes… It will also involve changing consumption patterns such as rapidly reducing our reliance on carbon based fuels (and therefore on cars) and developing a more compact urban form.

It will not be easy to achieve significant behavioural shifts at an individual or organisational level. The region needs to determine to what extent additional public sector action will be required. One consideration is the limited timeframes we may have in which to make these behavioural shifts. In doing more with less, care must be taken to ensure that measures to moderate demand patterns (e.g. through price changes or prohibitions) do not excessively burden those who are already vulnerable, and who are financially unable to shift their demand.”

Comment: The cautionary notes are a significant reminder that it is not a straightforward matter to introduce changes of the scale and effect that may be necessary.

Goal 6 of the LTSF is the achievement of a “quality compact urban form”, which is identified in the LTSF and the ARGS as a critical factor in reducing travel demand, related energy use, and subsequent carbon emissions. A number of measures are identified to assess the extent the goal has been delivered. I have selected from these optional measures that relate to the relationship between land use, travel demand, and transport energy use:

- Proportion of private motor vehicle travel compared to sustainable transport.
- Community resource accessibility index.
- Percentage of population within identified growth areas.
- Percentage of employment within identified growth areas.
- Fuel consumption per capita.
- Means of travel to work.
- Average length of journey to work.
- Percentage of population within 500 metres from a train station or transport hub.
- Activity mix in centres and pedestrian traffic (measure of vibrancy in centres).
- Total urban footprint and measures of land use (industrial, residential, business etc).

These suggested measures could form the basis of a set of energy efficient urban settlement success factors that would be monitored over time, by urban area.

3.1.2 Growing Smarter: An Evaluation of the ARGS 2007 (GS)

Over a two year period culminating in the publication of Growing Smarter in July 2007, ARC conducted a review of the ARGS. This focused on how successful its implementation had been, and what had been learned.

Right up front Growing Smarter (GS) states: “The evaluation suggests that the region will need to develop additional responses to meet the region’s sustainability goals to improve energy and water efficiency and security of supply, reduce the region’s carbon emissions and ecological footprint and ensure community cohesion and social wellbeing…. And adds further: “The message through the (Long Term Sustainability Framework) LTSF process and ARGS evaluation has been clear that a compact urban form, or any other urban form, in itself is not sustainable, resilient or adaptable unless a number of things happen together…. ”

However, the GS confirmed the direction of the ARGS: “The LTSF process has confirmed that the compact settlement pattern promoted by the Growth Strategy remains a core regional goal. The quality, compact settlement form supported by an effective passenger transport network addresses, at least in part, a number of sustainability goals and shifts. It can help achieve improved energy efficiency, reduce ecological footprint (and land-take), reduce CO2
emissions and reliance on oil…” (Note to readers: The LTSF document is described below. Inevitably there has been some overlap in the preparation of these documents. I apologise for the need to jump back and forward.)

GS considers the relationship between energy demand, land use and transport in these terms (GS, 2007, pg 67):

“…Land use measures on their own will not lead to changes in travel behaviour. A combination of improved transport choice, connectivity and accessibility, together with concentrated mixed-use activity and supportive transport-oriented design, is critical meeting many of the RGS’s outcomes. As both transport and land use planning set the development pattern and shape cities, it is ideal to have close coordination between them. To provide a greater degree of certainty, these large-scale plans are likely to be prescriptive, but the consistent implementation of the plans remains an important issue. In many cases, road projects have received higher levels of funding and been implemented earlier, leading to an imbalance in priorities and resulting outcomes. The evaluation has shown that:

• Investment in transport infrastructure to date has not been closely aligned with growth areas. Centre and corridor redevelopment has been slow, and is compounded by continued requests to shift the MUL to provide for more greenfield development. This has stretched passenger-transport resources by requiring continued service investment to low-density sprawled development.
• Development is not aligned to or sequenced with significant public-transport provision and upgrades. Developers’ projects and transport planning are often not aligned.
• There is limited evidence of Transit-Oriented Design (TOD) in practice.
• Densities to support passenger-transport investment are not happening or happening too slowly in key locations throughout the region.
• Subdivision codes and traffic engineering codes and parking requirements are often in conflict with good urban design and TOD-type development….”

These bulleted points describe a number of problem areas specifically, and suggest policy directions. GS goes on to suggest related challenges for the Auckland region if it is to meet the challenge posed by the LTSF and the findings of GS. These include the following:

• The Australian BRANZ report suggests that in meeting the climate-change challenge, cities will need to be denser, greener, more energy efficient, better serviced by public transport, and more adaptable to deal with increasingly frequent extreme-weather events.
• To avoid the worst impacts of climate change and rising oil prices we need to rapidly reduce the use of carbon-based fuels, develop ways of recapturing carbon, facilitate a shift to the widespread use of renewable energy, and radically reduce energy use. Aucklanders will also need to significantly reduce their dependence on the private motor vehicle, and redevelop their urban form and rural centres into a compact urban form.
• The RLTS review needs to find ways to reduce CO2 emissions from the transport system.

3.2 The Auckland Regional Policy Statement 1999 (RPS)

The Auckland Regional Policy Statement (RPS) is a requirement of the Resource Management Act (RMA) and is the paramount planning document for the Auckland Region. The current policy was made operative in August 1999, and is now being reviewed. In March 2005, major plan changes in respect to land use and transport planning policies in the RPS
were notified. Those plan changes (RPS Plan Change 6), which were required by the Local Government Auckland Amendment Act 2004 (LGAAA 2004) and were intended to ensure that the Regional Policy Statement “gives effect to the growth concept contained in Auckland Regional Growth Strategy”, are described in the next section of this report.

It is important however to note that the RPS did set a very important policy. It put in place Auckland’s Metropolitan Urban Limit (MUL) regime. Extracts from this policy follow:

2.6.1 Policy: Urban Growth Management
1. The growth of metropolitan Auckland is to be managed with reference to a 30 year time horizon, in a manner which gives effect to the Purpose and Principles of the RM Act…
2. Urban development shall be contained within the defined limits (including the metropolitan urban limits and the limits of rural and coastal settlements – referred to in Strategic Policy 2.5.2-3) shown in the RPS from time to time, and its form shall be planned and undertaken through an integrated process on a regional basis and in ways that are consistent with the Strategic Direction and:

(i) provide for urban intensification around selected nodes and along selected transport corridors;
(ii) provide for higher intensities of urban activities at selected locations within areas of new development;
(iii) bring about patterns of activities that will mitigate the effects of increased travel and improve the energy efficiency and convenience of urban areas…

This policy was immensely controversial at the time, and remains very important to the present day. North Shore City Council (NSCC) was one of the region’s TLAs to appeal the policy to the Environment Court after the RPS was notified. At great cost to the ratepayers. NSCC lost. The policy stands today, supported by detailed policy from Plan Change 6 to the RPS giving effect to other aspects of the growth strategy.

However, the following provisions from the 1999 RPS in respect to energy still stand today. These are quoted comprehensively here, for reasons that are explained at the end of this section. The introduction sets the scene for the policy and provisions that follow. Significant provision relevant to the matter of transport carbon are underlined for emphasis:

5 Energy

5.1 Introduction
Energy is included in the RM Act definition of “natural and physical resources”. A mandate is therefore given to promote the sustainable management of the energy resource (section 5, RM Act) and to have particular regard to the efficient use and development of the energy resource (section 7 (b), RM Act). The efficient and sustainable use of energy is therefore central to the formulation of policy relating to the production, distribution and use of energy. However, because there is a need to approach the management of energy in a strategic and consistent way, efficiency and sustainability objectives are best implemented at the national level. The regional role, on its own, is less effective. The sustainability of the energy resource is an issue that must be addressed at a national level. The contribution that the ARC can make to the efficient and sustainable use of energy, apart from encouraging a form of development that is more energy efficient, will mainly be in the fields of education, advocacy and coordination.
5.2 Issues

5.2.1 More efficient use needs to be made of energy
There is evidence of the inefficient use of energy in all sectors of activity. This ranges from personal use in the home to community use in a low-density, car dependent, sprawling urban form. There is considerable potential to save energy through behavioural change and adoption of energy efficient technology and practices. However, because of a general lack of knowledge and complacency among energy consumers, this potential has not been realised. There is a need therefore to increase public awareness of the benefits of energy efficiency and conservation measures.

5.2.2 Because of the high dependence on non-renewable fuels, the present use of energy is not sustainable...

5.2.3 The existing form of urban development in Auckland, including the associated transport system, is not sustainable...
Urban Auckland is large in area and has a low population density by world standards. Its low-density sprawl has been accelerated by the adoption of a motorway system and reliance on the private use of motor vehicles. There is a growing recognition of the environmental costs of such a transport system and the low-density urban sprawl that is determined by it to a large extent. These costs include the continuing expansion of the urban area onto land which is valued for its agricultural, ecological and aesthetic qualities; the emission into the air of a variety of pollutants, including greenhouse gases; and the lowering of water quality of waterways and harbours by polluted runoff from roads. In addition, the current transport system is a relatively high user of energy and relies on consumption of non-renewable resources, not only in the use of land, but also in the use of fuel. There is a need to develop the transport system in a way which contributes to a more sustainable urban form, and recognises the need for greater efficiencies in energy use. Policies are needed to reduce both the reliance on car transport and on the use of non-renewable fuel. The main thrust is through encouraging a form of urban development that results in shorter commuting distances, reduces consumption of fossil fuels, and makes fuel efficient forms of travel (such as public transport, cycling and walking) more viable.

5.3 Objectives
1. The sustainable use of energy resources (excluding minerals), and the efficient use and development of energy resources.
2. To avoid, remedy, or mitigate any adverse effects of development proposals relating to the production, distribution and use of energy.

5.4 Policies, methods & Reasons

5.4.1 -3 An urban form, supported by transportation systems, which improves efficiency and conservation in energy use, shall be promoted.

5.4.2 Methods

7. Policy 5.4.1 -3 will be effected by implementing the policies and methods of Chapters 2 (Regional Overview and Strategic Direction) and 4 (Transport).
8. Policy 5.4.1 -3 will be effected by implementing the policies and methods of the Auckland Regional Land Transport Strategy, November 1993.
9. Policy 5.4.1 -3 will be effected by supporting the proposal by the Ministry of Transport (in its Discussion document, “Land Transport Management”, May 1993) to produce a National Land Transport Policy Statement. The following methods will be requested to be included in this statement:

(i) introduction of regulations, taxes, or other policy instruments, to encourage greater use of renewable motor vehicle fuels, such as biomass fuels or methanol;
(ii) introduction of regulations, taxes, or other policy instruments, to encourage the use of low polluting motor vehicle fuels and penalize the use of high polluting fuels;
(iii) introduction of regulations, taxes, or other policy instruments, to encourage the use of vehicles with low fuel consumption and penalise use of vehicles with high fuel consumption;
(iv) introduction of vehicle emission standards to ensure that vehicles are properly tuned and that the amount of emissions from each vehicle is minimised;
(v) introduction of measures to move motor vehicle taxation from ownership (i.e., vehicle registration fees) to taxes on vehicle use (i.e., fuel taxes based on efficiency, conservation, environmental effect factors, and road user charges) while not increasing the total tax collected from transport users;
(vi) introduction of measures (such as a carbon tax or other externality charge) in respect of motor vehicle fuels that reflect the true cost of the use of each transport mode.

Methods 10 and 11 below give effect to Policies 5.4.1 -1 to 3, and to matters raised in the issues that are not addressed in the policies.

10. The ARC will advocate that central government considers all the above points and introduces a comprehensive and consistent range of measures to promote energy conservation and efficiency, and the development of sustainable forms of energy, and formalise these in the preparation of a National Policy Statement on Energy in accordance with the powers and processes provided by Part V of the RM Act.
11. The ARC will establish a regional energy forum to bring together energy interest groups of the Region in order to advocate relevant energy matters on behalf of the Region, including the need for a National Policy Statement on Energy.

5.4.3 Reasons
Under the RM Act, the ARC has a role in promoting the sustainable management of energy. Auckland is an energy demanding Region with almost all of its energy being imported.

Where regulation is necessary in order to achieve energy efficiency and conservation, this can be best realised at a national level, because:

• Although the above factors are important issues for all New Zealand regions, the ability of regional councils to resolve these issues in their own right is restricted to one of providing education.
• A consistency of approach is needed among regions in order to achieve conservation and efficiency objectives.
• Regional differences and inter-regional relationships need a national context. Some regions are major producers of energy, major users, or are neither major producers nor users, but incur the impacts of energy transmission.
Energy is a matter of national significance and can have major effects on the use, development or protection of natural and physical resources. There are obligations in meeting or enhancing energy aspects of the national and global environment. The assessment of actual or potential effects of any new energy technology needs a national context. Conservation objectives, which may be at odds with the imperative for supply agencies (as commercial enterprises) to secure a return on the capital invested, and to recover their operating costs, can best be resolved at a national level.

For these reasons the policies and methods largely rely on national actions in order to achieve sustainable management of the energy resources.

By giving strategic direction to Auckland’s development, the ARC, through its regional development policies of containment and selective intensification, is able to provide a framework within which more efficient use of energy may be realised. Investigations of urban forms and densities indicate that the more compact an urban area and the more land use activities are intensified at selected places, the lower its consumption of liquid fossil fuels, the lower its per capita production of greenhouse gases, and the greater its chance of making fuel-efficient forms of travel more viable.

5.5 Environmental Results expected

(a) There is a sufficient supply of energy to meet the social and economic needs of the Region’s population.
(b) More efficient use of energy.
(c) Progressive reduction in the Region’s dependence on non-renewable resources.
(d) Avoidance, remediation or mitigation of any adverse effects of generating and distributing energy.

5.6 Monitoring

The ARC will liaise with the EECA to determine an appropriate programme for monitoring energy efficiency.

Comment: It is evident that the RPS pretty much absolves the ARC and territorial authorities from responsibility for energy efficiency and conservation through transport and land use policies, save for a certain amount of advocacy, and the extremely important step of establishing a policy of Metropolitan Urban Limits. At the time, it was evidently the expressed intention of the Ministry of Transport to produce National Land Transport Policy Statement in terms of the RMA. This never happened.

One energy policy (5.4.2.6) calls for TLAs to “consider energy efficiency” when considering the effects of an application in the resource consent process.

It was also clear from the RPS that the Regional land Transport Strategy was expected to be the vehicle for delivering: “…an urban form, supported by transportation systems, which improves efficiency and conservation in energy use…”

3.3 Plan Change 6 to the Regional Policy Statement 2005 (PC6)

Plan Change 6 (PC6) to Auckland Regional Policy Statement (RPS) was notified in March 2005, in accordance with the LGAAA (2004). It made significant changes to
chapters 2 and 4 of the RPS which deal with urban form and transport respectively. The LGAAA (2004) explicitly requires that the growth concept in the Auckland Regional Growth Strategy be given effect to through the Auckland Regional Policy Statement (ARPS) and other planning documents in the Auckland region. As a consequence, the Auckland Regional Council (ARC) promulgated Plan Change 6 to the ARPS, to comply with the LGAAA. The introduction to Plan Change 6 states that: “…to achieve the purposes of the RM Act and Local Government (Auckland) Amendment Act 2004 it is necessary to:

• contain expansion of Auckland’s urban development while still providing for population and economic growth;
• require that high density centres and corridors within the metropolitan urban limits are the focus for accommodating urban growth through intensification;
• provide restricted opportunities for greenfields development through limited movement of the metropolitan urban limits;
• guide the providers of urban infrastructure and transport facilities or services so that they plan and programme their facilities or services so as to support urban development being contained within urban limits and growth being accommodated through intensification at selected locations;
• guide Councils to plan for the regeneration of existing sub regional centres and town centers to maximise opportunities for public and private investment;…”

The following urban form discussion and policy extracts from PC6 pertain to carbon emissions and travel demand:

2.2 The Setting – Auckland Today
….. Auckland’s low-density urban form has led to poor relationships between transport and landuse and to inefficient travel patterns and use of energy. People have to travel further to get to the services they require and to get to and from work. Not only does this require more travel than a more compact urban form, but it has led to the need for more and higher capacity roads and greater reliance on private vehicles and less effective use of public transport. More travel means greater use of non-renewable fuel, more emissions to the environment from vehicles, a greater contribution of greenhouse gases to the atmosphere, community health impacts, noise, community severance through the development of large transport infrastructure projects…

Issue 2.4.6
…..The development of the motorway network has been a key contributor in the development of Auckland as a low density city since the 1960s. This low density of development, which includes single dwelling housing suburbs and single storied industrial areas, has had a number of adverse effects on the natural environment. In turn this form of development has led to the need to invest even more in the roading network which has perpetuated the expansive growth of the city and the dependency on the motor vehicle for the vast majority of all trips being made in the region.

The adverse environmental effects of a road based transport system and of the low density urban form and lifestyle it supports are well known. These effects include; …
• increased emissions into the air of a variety of pollutants, including greenhouse gases; …
• relatively high use of energy and reliance on consumption of non-renewable resources both in fuel use and in land use; …
• impacts on sustainable urban form and design, including town centres, and on urban and rural amenity values…
2.5 From Issues to Strategic Direction

An overview of the issues arising in the Region leads to the conclusion that to achieve the purposes of the RM Act and Local Government (Auckland) Amendment Act 2004 it is necessary to:

• contain expansion of Auckland’s urban development while still providing for population and economic growth; …
• require that high density centres and corridors within the metropolitan urban limits are the focus for accommodating urban growth through intensification;…
• direct urban, rural and coastal settlement development and countryside living to areas in a form which is efficient in terms of travel patterns and energy use…

2.6.5 Strategic Policies – Urban Structure

High Density Centres and Corridors

1. Urban intensification is to occur in specified locations…
2. A network of high density centres and corridors is developed which are linked by high quality public transport ranging from frequent local bus services supplemented by express buses to rapid transit (rail, ferry or bus) on separate rights-of-way
3. Development within high density centres and corridors should be in a form that supports compact mixed use environments

2.6.6 Methods - Urban Structure

1. Strategic Policies – Urban Structure shall be given effect through the provisions of any relevant regional plan, changes to the RPS, district plans, and the RLTS, and should be reflected in the LTCCP process and any relevant strategic planning process.
2. TAs shall include a programme for the sequencing and timing of the development of areas identified in Schedule 1 sufficient to accommodate growth based on a minimum 20 year time frame in District Plans. These programmes should include:
   a. An indication of the anticipated increase in household densities and employment densities having regard to Appendix H;
   b. The location and nature of higher density development;

2.6.7 Reasons - Urban Structure

… Intensification can enable the more efficient use of physical resources including infrastructure and also shift the emphasis of development of metropolitan Auckland toward an urban form which is more efficient in transport and energy terms, and which enables an integrated multi-modal transport network including walking, cycling, motor vehicles and public transport services….

Comment: These provisions are long on description but short on prescription.

The sharp end is in 2.6.6, which provides broad direction to the RLTS and district plans. It should be noted that district plans are required under the RMA “…to give effect to…” the Regional Policy Statement. It should be noted however, that this new RPS requirement, makes no mention of the need for energy efficiency, or of the need to reduce greenhouse gas emissions. The driver of the provision remains the need to accommodate growth.

The following transport discussion and policy extracts from PC6 pertain to carbon emissions and travel demand:

4.1 Introduction: ….A more sustainable transport system is one in which trip numbers and lengths are minimised, and the use of energy and space-efficient modes of transport, such as public transport, cycling and walking, are viable and encouraged….
4.2.2 Issues: The Transport System has adverse effects on the environment....The regional transport system is a relatively high user of energy and for the foreseeable future will rely on the consumption of non-renewable resources, including fossil fuels, construction materials and land. A failure to address energy issues which have a direct bearing on urban form, such as the efficient and effective supply of fuel to Auckland, will have serious environmental (including social and economic) consequences. These include inhibiting the operation of the transport system, an increase in the volume of heavy traffic on the roads and, consequently, a constraint on successful economic development. In order to mitigate environmental effects and meet Kyoto Protocol commitments the use of renewable energy resources should be investigated at a local, regional, and national level....

4.3 Objectives
1. To develop a transport network which supports a compact sustainable urban form.
2. To avoid, remedy, or mitigate the adverse effects of transport on the environment and, in particular:
   (i) to avoid, remedy, or mitigate the adverse effects of transport on air quality, water quality and heritage;
   (ii) to reduce the need for the transport system to use non-renewable fuels; ....

4.4 Policies, Methods and Reasons
4.4.1 Policy
1. Land use and transport planning will be integrated in a way which reduces the need for private vehicle travel and significantly increases the amount of travel made by public transport, walking and cycling.
2. Development of the transport system will be guided in a way which:
   (i) promotes the use of forms of transport which have fewer adverse effects on the environment;
   (ii) reduces the environmental effects of transport at source;
   (iii) reduces the need to use non-renewable fuels;....

4.4.2 Methods
1. Land use and transport planning should be integrated by:
   (i) District plan provisions which address the interaction between land use and the transport system and, in particular, should contain provisions concerning:
      (a) control of existing and future land use to enable new developments or redevelopments to be serviced efficiently by public transport, walking and cycling;
      (b) ensuring that planning controls do not unnecessarily restrict the development of high density centres, and corridors serviced by public transport, working from home or telecommuting;

...9. The ARC in consultation with EECA will develop targets for energy efficiency improvements from transport in the Auckland Region and support initiatives for achieving this target.

4.5 Environmental Results Anticipated
The policies are intended to produce a transport system which:
(a) is less reliant on non-renewable energy sources and requires less land to function effectively;
(b) reduces adverse impacts on air quality (including greenhouse gases) and water quality and heritage; ....
(f) improves the effectiveness of the public transport system;
(g) improves the effectiveness of walking and cycling modes;

4.6 Strategic Results Anticipated

The policies are intended to produce a transport system which:

(a) Increases the number of people moved through key corridors, and impacts on goods movement;
(b) Improves accessibility to and between growth centres in peak and interpeak periods by car, public transport, cycling and walking
(c) Significantly increases the level of fixed rapid transit services to and between growth centres.
(d) Provide transport infrastructure investment which assists both in leveraging further higher density development within high density/growth centres making these centres more attractive places in which to live, work and play.
(e) Enhances the regional economies competitiveness and efficiency while maintaining and enhancing the natural environment qualities of the region.

Comment: While the “introduction” section of the plan change acknowledges that trip lengths and numbers need to be “minimised”, and “energy efficient modes… encouraged”, the “issues” section of the plan change confines itself to a narrow consideration of energy. First – that a shortage in supply of energy would be bad for Auckland’s economy, second – that to comply with Kyoto the “use of renewable energy sources should be investigated”.

The policy objectives continue the emphasis on a transport system that will support compact urban form, but one with a reduced need for non-renewable fuels. The main policy is really a wish. It states that: “Land use and transport planning will be integrated in a way which reduces the need for private vehicle travel and significantly increases the amount of travel made by public transport, walking and cycling…””, and requires that District Plans should have provisions: “ … concerning control of existing and future land use to enable new developments or redevelopments to be serviced efficiently by public transport, walking and cycling…”. No mention in these requirements is made of energy efficiency explicitly, nor of the need to reduce carbon emissions.

Instead the policy pins its hopes on the New Zealand Energy Efficiency and Conservation Authority (EECA) and ARC getting together to set transport energy efficiency targets for the region. Nevertheless, the plan change considers that: “…reducing adverse effects on air quality (including greenhouse gases)…”, will be amongst the environmental results that can be anticipated from the policy.

One PC6 policy initiative that has had effect is the requirement for an Integrated Transport Assessment (ITA) to support any application to change the Metropolitan Urban Limit. I am aware that this tool has also been used to assess other land use activities such as plan changes and major projects. The scope of an ITA is set out in PC6. (NB: It is summarized in s.3.4.1 below, pg 23). While the scope includes the need to describe how the application supports local, regional and national planning frameworks, no explicit mention is made of energy efficiency or of greenhouse gas emissions.

3.3 The Regional Land Transport Strategy 2005 (RLTS)

The current Auckland Regional Land Transport Strategy was adopted in 2005 following a short review required by the LGAAA (2004). Its prime objective was to create a RLTS that would support the growth concept set out in the ARGs described above. I was Chair of the Regional Land Transport Committee during this process, and feel able to summarise the main outcome of that review was a regionally agreed policy to shift about $1 billion from roading
projects to passenger transport projects – in particular passenger rail infrastructure and services - over the ten year period covered by the strategy.

The following discussion and policy extracts from the 2005 Regional Land Transport Strategy pertain to urban form, carbon emissions and travel demand:

**Chapter 3: Trends and Issues**

**Global Environmental Impacts**

The transport system is a high user of energy and relies on the consumption of non-renewable resources in terms of fuel, materials and land use. The domestic transport sector in 2003 accounted for over 40 per cent of the national consumer energy use and 45 per cent of CO2 emissions. Key negative trends are:

- Average vehicle engine size is increasing (resulting in more fuel consumed)
- Regional fuel use overall as well as per capita is increasing (see Figure 3.9)
- Regional vehicle kilometers travelled is increasing.

**Environmental Sustainability and Public Health**

Transport activities can have adverse impacts on water quality, greenhouse gas emissions, local air quality, cultural and natural heritage sites, noise, amenity and community severance.

**Travel Distances**

Trends in trip distances are good indicators of the integration between land use and transport and the sustainability of the transport system. Longer trip distances are generally the result of fragmented and dispersed land use patterns and poor transport connections between different parts of the city. Shorter travel distances indicate a more compact city and better transport connections. Shorter travel distances also offer people a greater choice of modes to get to and from their daily activities.

Figure 3.3 shows the total number of trips made for different distances and the mode of travel used in 2001 in the morning peak period while Figure 3.4 shows the trip purposes by distance for the same period. Despite Auckland’s far-flung urban growth pattern, about half the trips (47 per cent) are less than five kilometres with 18 per cent of trips less than two kilometres. Approximately 64 per cent of all trips less than two kilometres during the morning peak are by car and most of these, as shown by Figure 3.4, are to drop children off at school.

**Journey to Work Trends**

Statistics NZ collects information about the mode used by people to travel to work each census year. Figure 3.5 shows the overall trends in the mode used for the journey to work from 1981 to 2001. Key trends are:

- The overriding dominance of car use, which accounted for 78 per cent of all work trips (73 per cent drivers, 5 per cent passengers) in 2001
- The increasing share of car use for all journeys, from 68 per cent in 1981 to 78 per cent by 2001
- The low and declining share of public transport (8 per cent in 2001) and walking and cycling (5 per cent in 2001) although there are indications that between 1996 and 2001 this trend has levelled off
- The increase in the number of people choosing to work at home.

Also important are sub-regional trends in mode share that show:

- 58 per cent of people living in the central city use cars to get to work compared to 78 per cent for the region as a whole. Walking and cycling (30 per cent) and using...
public transport (12 per cent) are more popular for central city dwellers than for people living in other parts of the region…

- The central city as a destination attracts a far greater proportion of trips by walking and cycling (6 per cent) and public transport (20 per cent) than other sub-regional employment centres

Chapter 4. Outcomes sought

Objective 5: Ensuring Environmental Sustainability

The National Energy Efficiency and Conservation Strategy 2001 (NEECS) aims to promote energy efficiency, energy conservation and renewable energy. It is estimated that the transport system accounts for 40 per cent of all consumer energy use in New Zealand annually. The Regional Land Transport Strategy can support the NEECS by reducing congestion, the number of vehicle trips made and providing for low energy transport options. In addition to energy used, specific commitments and targets to reduce greenhouse gas emissions are set out in the Kyoto Protocol. If Auckland is to meet its share of the national targets there needs to be reduced congestion and viable alternative transport options. Also, the vehicle fleet itself will need to improve.

More specific outcomes sought for this objective are: ….

- Reduced non-renewable energy use and consumption of non-renewable resources in construction, by the transport system
- Reduced carbon dioxide emissions from the transport system

However, the transport system can have positive impacts by bringing people and communities together and enabling them to provide for their social and cultural wellbeing by decreasing the distance or time it takes to travel around the region.

Strategic Options – Chapter 6

Rising Oil Prices

While the agreed strategy best meets the objectives of the RLTS, it should be noted that none of the options considered were sustainable over the medium to long term. This is in large part due to reliance on non-renewable fossil fuels. Over time fossil fuels will become increasingly scarce, which is likely to encourage more efficient fuel use and development of alternative energy sources. This is acknowledged as an issue which is not resolved in this RLTS and needs to be more fully addressed in the next review of the strategy. Recent increases in fuel prices highlight the issue. It is not clear at this point at what level prices will stabilise (or if they will stabilise at all), and what the short to medium term impacts on the transport system will be. Nonetheless the price rises illustrate the volatility of oil prices and the risks of relying heavily on one form of fuel.

None of the options showed an improvement over 2001 for the environmental sustainability objective. This was due to the increase in travel demand, with associated increases in fuel consumption, greenhouse gas emissions and emissions to water. These factors are not significantly influenced by the different transport systems developed for the strategic options, and are likely to be more sensitive to changes in external conditions such as vehicle technology, fuel prices, taxation, etc

Achieving the Objectives – Policies – Chapter 7

1.7 Develop the transport system in a way that minimises the use of non-renewable resources

The transport system is a major consumer of energy in New Zealand. Transport energy consumption in recent years has increased by more than the rate of population...
growth. There has been a particularly strong increase in per capita diesel consumption over the past decade. As transport is a major contributor to greenhouse gas emissions, the continued increases in the per capita use of fossil fuels are not sustainable. They also work against New Zealand’s Kyoto Protocol obligations to reduce greenhouse gas emissions to 1990 levels by 2012.

The evaluation of strategic options shows that changes to the makeup of the transport network (e.g. increasing public transport) have relatively little impact on fuel consumption. These results point to the need for interventions that are focused on improving fuel efficiency and encouraging the use of more fuel-efficient vehicles. These interventions will generally require action by central government.

The National Energy Efficiency and Conservation Strategy aims to improve New Zealand’s energy efficiency by 20 percent by 2012. It promotes a move towards a sustainable energy future for New Zealand through energy efficiency, energy conservation and renewable energy.

Also needed is a long-term perspective on the reduction of fuel consumption by transport, by addressing the overall pattern of development in the region. The policies in section 3.1 relating to support for the Regional Growth Strategy are premised, in part, on a future urban form that has less demand for travel and transport fuels.

The amount of land consumed for transport purposes is also significant, and impacts on the efficiency and amenity of the urban environment. Policies aimed at making more efficient use of existing transport infrastructure can help to minimise the consumption of land for transport purposes.

1.7.1 Work with central government to develop Kyoto Protocol targets for reducing greenhouse gas emissions from transport in the Auckland region (by 2012) and support initiatives to achieve the targets. (ARC, in consultation with MFE)

1.7.2 Support measures that reduce the need to travel by individuals, business, institutions and government. (ARC, ARTA) (Refer also to section 3.3 under TDM policies)

1.7.3 Work with central government to develop National Energy Efficiency and Conservation Strategy targets for energy efficiency improvements from transport in the Auckland region (by 2012) and support initiatives to achieve the target. (ARC, in consultation with EECA)

1.7.8 Support the use and development of less energy intensive transport options to reduce the need to use vehicles to move people and goods around the region. (ARC, ARTA, TAs)

1.7.14 Take steps to minimise the amount of land consumed for transport purposes through the efficient use of all transport infrastructure including corridors, car parking and park and ride facilities, while having regard to the need for safe and environmentally friendly transport infrastructure design. (TAs, ARTA, Transit, OnTrack)

Manage travel demand – Chapter 8

…Part 175(2)(o) of the Land Transport Act requires a Regional Land Transport Strategy to include a demand management strategy. While Chapter 8 is exclusively about travel demand management, travel demand management is integrated throughout this strategy…. Travel demand management is intervention to modify travel decisions so that more desirable transport, social, economic and/or
environmental objectives can be achieved, and the adverse impacts of travel can be reduced. It includes policy initiatives and actions that aim to reduce the level of demand for travel, particularly for private vehicles, and provide a greater range of travel choices. There is also potential to apply travel demand management techniques to the movement of freight by encouraging better logistical planning and the potential consolidation of freight onto rail.

The Regional Land Transport Strategy recognises that it is not possible to adopt a “predict and provide” approach to transport in Auckland. There are simply too many cars. While additional transport services and infrastructure will be required, the region will also increasingly need measures that reduce the demand for travel, particularly by private vehicles. To this end, the strategy includes policies to ensure that land use development and transport support each other and recognise the importance of catering for non-vehicular travel.

Also needed is a long-term perspective on the reduction of fuel consumption by transport, by addressing the overall pattern of development in the region. The policies relating to support for the Regional Growth Strategy are premised, in part, on a future urban form that has less demand for travel and transport fuels.

**Expected Results – Chapter 9**

**Objective 5 – Environmental Sustainability**

<table>
<thead>
<tr>
<th>Desired Outcome</th>
<th>Result expected by 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced non-renewable energy use by the transport system.</td>
<td>As a result of the significant increase in population and economic activity, energy used to travel as measured by fuel use is expected to increase by 26%</td>
</tr>
<tr>
<td>Reduced carbon dioxide emissions from the transport system.</td>
<td>CO2 emissions generated by the transport system are expected to increase by 21%</td>
</tr>
</tbody>
</table>

Changes in policies or events outside the scope of this strategy may impact on the ability to achieve expected outcomes. This is particularly the case with policies such as fuel quality and engine specifications, which primarily affect environmental sustainability outcomes, and land use development patterns which could affect all outcomes.

**Comment:** The results expected by 2012 say it all. The strategy accepts significant increases in transport energy consumed and greenhouse gas emissions. The RLTS “Emissions” appendix explains that one of the reasons for increased emissions is that under the strategy, people will actually take on average slightly longer trips: “Longer average vehicle trips are due to higher vehicle speeds. The combined effects of significantly more investment in roading, public transport and travel demand management, result in higher speeds, which allows people to travel further in the same time period.”

The strategy expresses support for the growth concept of compact city form, and supports public transport and sustainable travel modes such as cycling and walking. However, there are some problematic outcomes. In advocating for a shift in expenditure from roading to public transport the strategy implicitly supports a more energy efficient mode of transport for some users, but one of the effects of this mode shift, is a reduction in congestion on the road network which has the confounding effect of increasing average travel speeds, making longer...
trips more attractive, and apparently leading to – on average – longer trips being taken, and hence more greenhouse gas emissions.

Good public transport – by itself – does not lead to reductions in greenhouse gas emissions.

3.4 The Regional Land Transport Strategy Review 2009 (RLTSR)

The Auckland Regional Land Transport Committee is presently reviewing Auckland’s RLTS. It is presently proposed to consult on a draft in September 2009. A considerable amount of work has been done on this review, and a range of technical papers are available on ARC’s website. Two papers relevant to this report are summarised here.

3.4.1 RLTSR – Land Use and Urban Design Issues (RLTSR WP18)

One working paper feeding into the review of the RLTS is: Land Use and Urban Design Policies – June 2009 – WP18. The paper explores policy initiatives to “deliver improved land use and urban design outcomes...”. In its introduction the paper notes that the reviewed RLTS include: “a greater focus on the integration of transport and land use decisions and, for the first time, the implications of rising energy costs.”

Draft policies that are recommended include the following extracts from the technical report:

3.2.1 Draft Policies – Land Use Planning

Ensure that land use development and transport are integrated and mutually supportive.

2. Encourage land use activities to develop in locations that reduce the need for motorised trips:
   • Encourage high trip-generating activities to be located in town centres that have good public transport accessibility.
   • Support district plan changes to promote intensification in locations where significant public transport investment is proposed.
   • Encourage, through district plans and long term plans, “transit orientated developments” (TOD), which include a mixture of land uses which decrease the need for vehicle travel.

3. Locate economic activity to maximise the efficient movement of goods and services:
   • Encourage provision for freight-intensive activities to locate in areas with good access to the regional strategic freight network (see Map to be included).
   • Investigate the development of freight hubs, logistics centres and inland port facilities in locations with good access to the regional strategic freight network....

5. Encourage land use activities and urban design that reduce the need for motorised trips and reduce exposure to adverse effects from transport activities:
   • Require high traffic generating activities to adopt “good sustainability practice” into land use developments.
   • Ensure that new developments are subject to integrated transport assessment (ITA)....

7. Discourage high trip-generating activities from developing in locations where transport options are limited, or where there are adverse effects on the safety and efficiency of the transport network:
   • Discourage activities that generate high numbers of person-trips from developing in locations without good access to the rapid transit network or quality transit network (Map to be included).
   • Discourage high freight-generating activities from locating in areas without...
The report repeats the estimates that greenhouse gas emissions will increase by 22% by 2016, but notes that this “works out to be a six per cent reduction in CO2 on a per capita basis (based on forecasted population growth). While improvements have been made towards reducing emissions, there is still considerable work that needs to be undertaken to halve per capita greenhouse gas emissions…” It goes on to discuss opportunities: “There are plenty of opportunities for Auckland to reduce CO2 by encouraging more active modes of transport and providing passenger transport facilities that meet passenger needs. By doing so Aucklanders will build a resilient transport system that supports a more accessible compact urban form and thus reduce CO2…”

An appendix to this report (Land Use Memo), describes the Integrated Transport Assessment (ITA) planning tool which is used – from time to time – to describe the transport effects of a proposal when seeking resource consent. The ITA is described as follows:

The ITA places particular emphasis on accessibility to land uses by all modes, as part of an integrated approach to planning and transport. In essence, the aim is to set out an approach that enables land use development and transport to be sustainable.

The outcome of the ITA is:

- to give clear direction to parties who are involved in development in the Auckland region of the transport and land use agency requirements to enable a comprehensive assessment of the transport consequences of developments,
- to provide all parties with as much information on the transport impacts of developments as reasonably possible.

The ITA framework will require consideration of:

- all modes of transport that would support the land use,
- location policy, ensuring specified development takes place in locations that support sustainable transport mode share,
- planning and development tools to facilitate sustainable transport,
- planning agreements to encourage uptake of sustainable transport options by residents, employers and visitors,
- parking standards in the relevant district plan with justification for the number of spaces proposed, so land is used efficiently and effectively,
- funding matters.

A recommendation for the RLTS is made: “Support the use of the ITA as a comprehensive review of all transport impacts from a structure plan, proposed plan change, a MUL shift or a major trip generating activity. It is expected that the ITA would be done at the beginning of the planning process and the findings of the assessment would be taken into consideration to identify and inform any actions required to avoid, remedy or mitigate adverse effects of the development proposal on the transport system.”

A further recommendation is that the new RLTS would: “Develop tools to calculate a “climate impact” for proposed land use actions and the associated trip generation rates.”

I consider that tools could be incorporated into the ITA process so that it includes consideration of energy and emissions matters.

3.4.2 RLTSR – Environmental Sustainability & Public Health (RLTSR WP20)

This working paper looks at emissions among other matters. The starting point of the working paper is The New Zealand Energy Strategy (NZES) 2007 which sets out a vision for energy use in New Zealand to 2050 (MED, 2007). The strategy outlines a general set of actions which emphasise reducing emissions and encouraging efficient energy use.
There are six broad areas in the NZES for action including:

- resilient, low carbon transport,
- affordable and accessible energy,
- more efficient energy use,

The working paper notes that “on a per capita basis, New Zealand has a more emissions-intensive transport system than some European countries…”, and that the previous Government had set a target of reducing New Zealand’s transport related carbon emissions by 2040 to 50% of 2007 levels/capita.

A number of specific policies are recommended for inclusion by the reviewed RLTS:

4.1 Landuse planning

4.1.1 Encourage sustainable transport initiatives
1. Support land use strategies which minimise the need to travel, eg:
   - achieve compact urban form,
   - encourage businesses and institutions to locate near transport corridors or population growth nodes.
2. Require high traffic-generating activities to adopt “good sustainability practice” into land use developments, eg:
   - ban “idling” of goods delivery vehicles at supermarkets and malls,
   - locate public transport and biking facilities closest to shops,
   - provide covered walkways to encourage pedestrian access.
3. Work with tertiary institutions, the ARC, ARTA, the public health unit, and providers of research to develop an information base that supports evidence-based transport decision making to ensure that there is a stronger understanding of the assumptions made about the positive and negative effects of transport and land use planning in the Auckland region.

4.1.2 Create liveable neighbourhoods
6. Ensure a high level of pedestrian connectivity between public transport, shops, businesses, other facilities and residential areas in new developments.

4.2 Economic measures

4.2.1 Price transport to include full costs and benefits
11. Advocate for the development of a full externalities model to better encompass the costs of transport on the surrounding environment and people.
12. Advocate for improving the financial assistance rate (FAR) for projects that promote and protect human health.

4.2.2 Incentivise sustainable behaviour
13. Consider incentives such as parking credits or reduced parking rates for low emitting, highly fuel efficient or carpool vehicles…

4.3 Physical travel demand management (TDM) measures

4.3.1 Allocate space based on functionality
16. Allocate strategic corridors for walking, cycling, public transport, car pooling, and private vehicles and implement measures to support their primary purpose.
17. Allocate strategic corridors for freight and mass movements of vehicles and require these vehicles to use these routes preferentially…
4.3.2 Encourage freight mode shift
20. Support shifting freight to lower emitting, more fuel efficient modes such as rail transport (especially if electrified) and coastal shipping (assuming emissions managed during docking).

4.3.3 Enhance active modes
21. Extend the cycleway network around centres until a regional network has been created,  
22. Ensure walking and cycling facilities are considered in all regionally significant transport projects, especially those involving public transport facilities.

Comments: There are many policy ideas worthy of consideration contained in this working paper. While some of the policies included in the extracts above do not directly relate to urban form, they have been included here because they improve the capacity of urban landscapes to provide the quality of transport alternatives to car travel, that are more likely to succeed in attracting people to those modes.

Finally, I note that the Government has announced New Zealand’s commitment to the Copenhagen Greenhouse gas emissions reduction process of between 10 and 20% reductions by 2020 below 1990 levels. Until sectoral contributions to those targets are known, it is unclear what Auckland’s transport carbon budget should be. But it would seem unlikely that business as usual, and unconstrained carbon consumption and emissions, will be acceptable.

3.5 North Shore City Council’s District Plan (NSCCDP)

District Plans are at the sharp end of implementation of many regional strategies. Particularly those affecting how land is developed and used. I have selected North Shore as the area of Auckland for analysis of local policies relating to carbon and transport and urban land use. These are relevant extracts from North Shore City Council’s operative District Plan.

District Plan Section 5: Issues
1. Protecting our high quality natural environment….
   Land use planning, transportation planning and the design of our buildings has a direct relationship with the sustainable management of the natural environment. By undertaking these activities in an integrated manner within a framework of sustainable management a contribution to national and global conservation can be made by reducing emissions, achieving greater energy efficiency, protecting ecological values and minimising waste….

3. Ease of Movement….
   • Auckland's transportation system is essential for the community's social and economic well being and some parts of it are nearing significant thresholds. The transportation system may also give rise to adverse effects... There is growing recognition of the environmental costs of the transport system and of the low density urban form and lifestyle it supports.
   • The existing form of urban development in Auckland, including the associated transportation system, is not sustainable in terms of current energy use. Urban Auckland is large in area and has a low population density by world standards.. traffic levels have increased substantially in recent years as vehicle ownership levels have continued to rise. Just under half of all working residents commute out of the city for employment. Most of their travel is in single occupancy vehicles with the result that during peak periods, parts of the city's roading network are at, or beyond capacity.
District Plan Section 12: Transport

Issues: … One of the key challenges facing the city is to strike an appropriate balance between on one hand, the growing demands on the transport network, and on the other hand, the need to maintain and protect those features of the natural and built environment which are most valued by residents…. Vehicle exhaust emissions are also considered a contributor to global issues such as the greenhouse effect. The increasing rate of consumption of non-renewable fossil fuels raises questions of the long-term availability of these resources. Arising from these concerns is the need to encourage the efficient use of energy resources and achieve more environmentally acceptable transport systems….

Issues: … While the development of an urban form less reliant on the private motor vehicle and more supportive of passenger transport, walking and cycling is desirable, changes to the urban fabric take some time; and the challenge is to make the most of the existing situation…. While increasing congestion and parking difficulties in the Auckland CBD have led to increased bus and ferry patronage…. the motor car clearly remains the preferred form of transport for the city’s residents. In part this is due to a reduction in the real cost of car ownership, but also to the development of new employment centres away from traditional bus routes. It is likely that the majority of person trips will be made by private motor vehicle for the foreseeable future.

Issues:……The relative locations of activities can also determine the amount of travel residents are required to undertake and the mode of travel used, and therefore the quantum of effects such as exhaust emissions which are proportional to the amount of vehicle use. By encouraging activities to make appropriate location decisions relative to transportation infrastructure and other activities, demand for travel can be reduced, avoiding some of the adverse effects associated with vehicle use.

12.3.1 Transport System Effectiveness and Safety

Objective: To enable a transport system that avoids, remedies or mitigates the adverse effects of transport activity on the natural and physical environment and protects the amenity value of open spaces and streets, while maintaining the health and safety and the economic, social and cultural well-being of the people and community of North Shore City. These adverse effects include noise, stormwater contamination of receiving waters and air quality degradation.

Policies
1. By reducing the need for travel by private motor vehicle within the city.
8. To encourage the use of fuel-efficient and less polluting modes of travel, particularly passenger transport, cycling and walking.
9. To support studies of the likely effects and feasibility of economic instruments as techniques for managing travel demand on congested corridors and discouraging inefficient modes of travel.
12. To support measures to avoid or mitigate the adverse effects of vehicle noise and exhaust emissions, including investigations into the establishment of environmental standards.

Methods
• By promoting a closer physical relationship between residential, employment, shopping and other activities
• By implementing these policies through the use of Rules, Council works and Council initiatives as appropriate.

Explanation and Reasons
1. Management of Travel Demand
While the transportation system is a resource of considerable value to the city and should be accessible, convenient, efficient and safe, it is also the source of a variety
of adverse impacts on the life supporting capacity of the environment. The nonrenewable fossil fuels used by motor vehicles release large amounts of carbon monoxide, carbon dioxide and other pollutants into the atmosphere…

Main elements of this management approach to accommodating travel demand are:

a) Promote focal points for business activity

By fostering focal points for business activity, often associated with opportunities for higher density residential development, the city looks to grow towards a pattern of development less dependent on the private motorcar for transportation and less reliant on long commuting trips to employment. Development throughout the city will allow for some commuting against the prevailing flows, using spare capacity to greater effect.  

c) Provide opportunities for fuel efficient modes of travel.

The existing pattern of urban development could be argued to take choice away from residents. Zoned segregation of activities lengthens journeys within the city, making the car the necessary mode for most trips. Newly developing areas afford opportunities for making cycling and walking more attractive through the provision of convenient and safe cycleways and walkways closely integrated with the layout of these areas and separated from heavy traffic flows. In addition, roading patterns in newly developing areas need to be designed so that these areas can be effectively and conveniently served by passenger transport connections to major destinations.

**District Plan Section 15: Business**

**15.3.6 Albany Centre Development Strategy**

**Objectives:**

1. To ensure the Albany Centre develops as a Sub-regional Centre that provides a choice of living, employment, retail, commercial, community, civic and recreation environments within an attractive and sustainable built environment. In time it is expected the Centre will be intensively developed. This will need to be managed to ensure an appropriate mix of uses occurs.

2. To ensure the Albany Centre develops as a Sub-regional Centre supporting greater use of passenger transport, has a high standard of pedestrian amenity and a unique urban environment enhancing the economic and social well being of the City.

**Policies:**

1. By ensuring an appropriate mix and layout of activities, buildings, movement of pedestrians and vehicles, and open space networks within the Centre so as to achieve a sustainable, safe and visually attractive environment, with vibrant public spaces that encourage community interaction.

4. By ensuring development within the Centre proceeds in an environmentally responsive manner, respecting key natural features and ecological systems, utilising energy efficiently, managing stormwater runoff, and reducing reliance on the private car.

**District Plan. Section 16. Residential**

Issues.... The major resource management issues which affect the residential area and which must be addressed in the objectives and policies of the District Plan are:

- How to achieve an efficient form of urban development both within existing and new developing areas which will maximise convenience for residents and reduce the cost associated with transport, energy use and the provision of services and infrastructure

Objectives and policies for the residential area have been developed from these resource management issues. In the development of these objectives and policies it has been necessary to resolve potential conflicts between a number of the identified issues. In this respect, the creation of a truly energy efficient city could have an unacceptable impact on the amenities of the wider residential area and in particular, on the protection of special character areas. Likewise provision for non-residential
activities within the residential area could affect not only amenity and environmental values, but also the ability of the residential area to accommodate anticipated growth in accordance with the Plan’s strategy. In recognition of these conflicts, two primary objectives have been identified for the residential area, they are:

a) To protect and enhance the amenities of the residential area.
b) To maintain and enhance environmental values.

16.3.6 Land Development

Objective: To ensure that provisions relating to land development in residential areas are integrated with, and give effect to, residential and environmental objectives and policies, especially to those relating to individual residential zones.

Policies:
1. By the inclusion of subdivisional requirements in the District Plan which have been determined by reference to the following criteria:
   i) The need to encourage and facilitate energy-efficient subdivision and roading design, including:
      - provision for safe and convenient pedestrian and cycle access
      - provision for convenient public transport access
      - convenient access for vehicles to areas within and adjoined the development

Comment: There is much general acknowledgement and acceptance of the issue of greenhouse gas emissions. However this is alongside descriptions of citizen’s need to travel. There are many mentions of the desirability of reducing the need for car travel. However, the plan notes at an early stage that it takes time for urban form to change, and that therefore it is necessary to make the best of what is here now (Section 12: Transport).

There are remarkably few specific policies in the NSCCDP that translate into reduced travel demand. The most innovative is the idea of “focal points” which require mixed use areas to be part of larger development proposals. It is difficult to see how the Albany Zone provisions could be relied upon to produce anything other than car friendly development. Similarly, while the Residential Zone provisions aim to “reduce the costs associated with transport, energy use”, a deftly worded set of phrases criticises energy efficiency because it “could have unacceptable amenity affects” and rejects mixed use because it would affect the zone’s “ability to accommodate growth”.

It would be difficult for North Shore City Council to argue that its District Plan “gives effect” to the provisions of the Regional Policy Statement or Plan Change 6.
4. Reducing Transport Carbon: Alternative Policy Options

The previous section indicates that Auckland Region has not been sitting on its hands in considering the issues it faces in striving to better integrate land use and transport planning and to increase the efficient use of transport energy. A wealth of relevant strategies and policies have been prepared, some of which are in play, and all of which are regularly under review. Many new ideas have been proposed in the GS and LTSF processes.

This section brings together a variety of alternative policy initiatives and packages relating to urban form and urban planning that have been advocated internationally by policy analysts, and tried in other cities, with the aim of reducing transport carbon emissions.

4.1 The Victoria Transport Policy Institute (VTPI)

The Victoria Transport Policy Institute (VTPI) describes itself as: “an independent research organization dedicated to developing innovative and practical solutions to transportation problems….”. VTPI is based in Canada, and Todd Litman - its best known representative – has visited New Zealand on a number of occasions and been engaged to run transport policy workshops in Auckland. The VTPI website contains a wealth of policy ideas addressing the matter of transport energy, carbon emissions and urban form:

“…Land use management strategies such as Smart Growth, New Urbanism and Location-Efficient Development can reduce per capita automobile use, transportation energy use and emissions by improving Accessibility and Transportation Options (Donoso, Martinez and Zegras, 2006). Land use reforms can provide a number of benefits (Land Use Evaluation). Increased land use density and mix tend to reduce total per capita emissions (Newman & Kenworthy, 1999; USEPA, 2002; Mindali, Raveh and Salomon, 2004; Lawrence Frank and Company, 2005; Rose and Burkholder, 2008), although it can increase exposure to local emissions such as carbon monoxide, particulates and noise. Ewing, et al. (2007), provide detailed analysis of the ability of Smart Growth land use policies to reduce emissions; they estimate the cost effective land use changes can provide energy conservation benefits comparable to shifting average motorists to hybrid vehicles, while providing other economic, social and environmental benefits. The following land use factors can affect energy consumption and emissions (Land Use Impacts on Transportation):

- **Density** (the number of people and businesses in a given area) and **Clustering** (common destinations located close together) affects the distances that people must travel, and the potential of transit, walking and cycling.
- **Land use mix** (the diversity of land uses in an area) affects trip distances and the feasibility of nonmotorized transportation.
- **Major activity centers** (locate employment, retail and public services close together in walkable commercial centers) increases the feasibility of transit use and allows people to make personal and business errands without driving.
- **Parking management** (flexible minimum parking requirements, shared parking, priced parking and regulations to encourage efficient use of parking facilities) affects the relative price and convenience of driving, and affects land use density, accessibility and walkability.
- **Street connectivity** (the degree to which streets connect to each other, rather than having deadends or large blocks) affects accessibility, including the amount of travel required to reach destinations and the relative speed and convenience of cycling and walking.
• *Transit Oriented Development* (locating high-density development around transit stations) makes transit relatively more convenient, and can be a catalyst for other land-use changes.

• *Pedestrian Accessibility* (walkability) and *Traffic Calming* (roadway design features that reduce traffic speeds) affect the relative speed, convenience and safety of non-motorized transportation.

Although individually each of these factors has relatively modest travel impacts, residents of traditional communities that incorporate most or all of these factors tend to drive 20–40% less than otherwise comparable residents of automobile-dependent communities…”

**Comment:** Many of these policy ideas are mentioned in Auckland’s existing policy framework. However the quality of their implementation is often questionable. In Auckland most of these approaches are part of “good urban design” – rather than an actual District Plan policy – and escape the net of close monitoring and prescription.

Prescription is provided in Auckland planning for policy approaches such as: “mixed use”, “parking management”, “transit oriented development”, and “pedestrian accessibility”. But the softer edges of the VTPI package including: “traffic calming” (which makes walking and cycling much more attractive), “street connectivity” (Auckland has many “dead worm” streets and suburbs), “clustering” and “activity centres” are usually missing, ignored, or just left to market forces. The consequence of this is that the possible “20 – 40%” less driving outcome, and consequent emissions reductions, is not achieved in Auckland urban development.

Much VTPI thinking is dedicated to breaking the cycle of automobile dependency, best exemplified by this helpful diagram available on its website:
A further policy contribution from VTPI is its call for specific “road space allocation” policies. It notes that narrow cycleways, and narrow footpaths made dangerous by cars, are less attractive (stigmatised!) for alternative modes. This is consistent with transport planning that considers “whole trips” for walkers, cyclists and public transport users – not just drivers.

4.2 Visioning and Backcasting for Transport (VIBAT)

The VIBAT project originated in London, Britain, as part of a set of responses that seek to give effect to the UK Government Climate Change Program. At regional level, the Greater London Authority has adopted a cross-sectoral target of a 60% reduction in CO2 by 2050. The VIBAT UK project was commissioned by the UK Department for Transport in 2004/06, and specifically considers the contribution of the transport sector to a 60% reduction in CO2 emissions by 2030, using a 1990 base.

The project enables the integrated assessment of a range of policy packages that each contribute their part in reducing CO2 emissions. It is an exemplary study which Auckland can learn from – and apply regionally. The following extracts from the VIBAT Stage 1 Context and Baseline report (VIBAT, 2009) serve as an introduction:

“…An underlying theme for the VIBAT London study is that the traditional forecasting approach, which is predominant in transport and urban planning, is unlikely to generate sufficiently radical solutions to carbon reduction. Forecasting is based on business as usual scenarios, or limited variations around these. This methodological approach is not of great use to a field which requires trendbreaks….

It is important to look at the longer-term future, particularly when dealing with policies relating to sustainable transport, as many interventions require long lead times, as impacts take time to be effective, and as different policies combined to work in the same direction can be more effective….

London is already well ahead of many other cities in terms of preparing a strategy to tackle global warming. In the transport sector, travel behaviour is already well balanced in terms of public transport usage – hence carbon emissions are relatively low. Moving much beyond the current situation might be difficult, certainly in progressing to a 60% or 80% reduction target….

There are a very wide range of measures available to help achieve more sustainable travel behaviour and lead towards a 60% CO2 emissions reduction target by 2025 and 80% reduction target by 2050. Each measure is discussed below as part of a policy package (PP) of complementary measures. The likely travel and carbon reduction potential and timescale of implementation of the packages is also considered – whether these are likely to be initiated in the short, medium or long term….

The policy packages reviewed are as outlined below:

- PP1: Low emission vehicles
- PP2: Alternative fuels
- PP3: Pricing regimes
- PP4: Public transport
- PP5: Walking and cycling
- PP6: Strategic and local urban planning
- PP7: Information and communication technologies
- PP8: Smarter choices
- PP9: Ecological driving and slower speeds
- PP10: Long distance travel substitution
• PP11: Freight transport

Two external ‘enabling measures’ are also considered:
• EM1: Carbon credits
• EM2: Oil pricing

Comment: Policy Package 6, which relates to strategic and local urban planning, is of central interest to this report. The VIBAT report cites the work of Litmann (VTPI) extensively, as well as that of Newman and Kenworthy, to support its contention that: “urban spatial structure, at the strategic and local scales, can be extremely influential in determining the main characteristics of travel – the numbers of trips made, journey lengths and mode share. Urban structure thus provides the underlying rationale for travel (and consequently CO2 emissions)… despite this, urban planning is often underplayed as a tool in traffic demand management studies…”

The VIBAT analysis is based on the London experience. London is a mature city by comparison with Auckland. Much of its urban form is intensive, while much of Auckland’s is dispersed. The VIBAT analysis of London’s transport sector was disaggregated into four sub-sectors: city travel; long distance travel; freight transport; and air travel - which respectively accounted for 26%, 12%, 54% and 8% of transport’s CO2 emissions in 2002. This is very different for Auckland, where “city travel” is responsible for a greater share of CO2 emissions, and freight much less.

I note also that the average/capita carbon emissions due to transport in Auckland is three times greater than in London. Aucklanders are profligate emitters of CO2 compared to their London counter-parts, who, nevertheless, will find their current transport activities curtailed through Government supported initiatives to drive transport emissions down by 60% by 2030.

Much of the detailed discussion in the VIBAT report regarding strategic and local urban planning effects echoes policy work that has been carried out in Auckland, and holds no surprises. However it is helpful to summarise its key policy package recommendations (VIBAT, 2009, pg 95-98):

“…In strategic terms… a number of urban form variables (together) contribute up to 10% of the variation in energy consumption in the commute to work. Important structuring features include residential and workplace population and employment density, population size, jobs and housing balance and location of development in relation to distance from urban centre, strategic highway network and public transport accessibility….

At the micro level, local urban planning and design includes concentrating development around public transport nodes (public transport orientated development or PTOD) (Calthorpe, 1993) and better streetscape layout, with permeable and legible networks (Duany and Plater-Zyberk, 1992)….

Similar issues have been discussed in terms of walkable neighbourhoods and pedestrian pockets (Calthorpe and Kelbaugh, 1996). These types of design can help improve conditions for walking, cycling and public transport and facilitate travel by non-car means. Space available for cars can be progressively reduced. Similarly, lower speed zones or contextual design/shared space schemes, at the local level, can actively promote the use of walking, cycling and public transport….

The literature on using urban planning to facilitate reduced car dependent travel behaviour (and reduced CO2 emissions) hence is beginning to focus on composite urban structure indexes, comprising a number of land use variables, which, according
to scale and context, can be important in reducing car-based travel and CO2 emissions…”

A major contribution of the VIBAT approach to addressing the challenge of transport carbon reduction is the integration of all of the policy packages into a single publicly accessible computer model. In my view, winning hearts and minds at all levels has to be a critical part of the policy itself. It is no good having the right answers if the public are not persuaded to do anything about it, and that it is also necessary to do something about it.
5. Transport Carbon: Policy Recommendations for Auckland

This section brings together a range of policy options relating to strategic and urban planning that should be considered to reduce Auckland’s transport carbon footprint. These include national, regional and local level policies. A preliminary assessment of the relative ease or difficulty of implementation is provided, along with a brief justification for each policy initiative. It is assumed that the relevant legislative framework currently in place – ie Climate Change Response Act (and variations), Land Transport Management Act and Resource Management Act - continue to apply.

5.1 National Level Policy Recommendations

<table>
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<tr>
<th>Description</th>
<th>Justification</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>5.1.1 Prepare a National Land Transport Policy Statement</td>
<td>The RMA was designed to be driven by a top-down policy structure. The RPS assumes an NLTPS to regulate energy use and emissions. The timing for this is pressing now with Copenhagen emissions reduction commitments requiring legislative action in NZ. This also needs to change relevant engineering design standards to enable “Living Streets” which accommodate by design: cycling safety, pedestrian safety, public transport.</td>
<td>Unlikely with present Government whose priorities are short-term growth, productivity and economic development based on roading projects. However international and popular pressures will force this on NZ government. NB Govt is presently preparing a NPS for Renewable Energy.</td>
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<tr>
<td>5.1.2 Prepare a carbon reduction target sectoral breakdown for all sectors of the NZ economy. This will include transport. And should include regional/city targets to be implemented by Regional/Local government.</td>
<td>This will be required as part of the Copenhagen commitments, in order to maintain credibility in the face of international scrutiny.</td>
<td>A matter of time, but inevitable.</td>
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5.2 Regional Level Policy Recommendations

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<th>Description</th>
<th>Justification</th>
<th>Implementation</th>
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<tr>
<td>5.2.1 Design and build VIBAT for Auckland.</td>
<td>Implementation of Carbon reduction policies requires consensus understanding and acceptance of the need, as well as the ability to make informed choices in a market led environment.</td>
<td>The region has a sophisticated transport model, with emissions modeling capability. This is achievable in a short time-frame. Officers must engage with educating the public on this matter.</td>
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<tr>
<td>5.2.2 Develop and populate a set of “Energy and Urban Efficiency” matrices for each</td>
<td>There is a lack of relevant measurement systems which enable the monitoring and</td>
<td>Much of this information exists, but not all. Commitment to</td>
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<tr>
<td>Auckland growth node.</td>
<td>comparative assessment of Auckland growth nodes. The measures would include those identified by the LTSF. (See pg 8 above.)</td>
<td>implementation of the growth strategy necessitates the development of support systems. Measures and monitoring are high on the list of priorities. This is why we have a SuperCity.</td>
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<tr>
<td>5.2.3 Provide a spatial plan in the reviewed RPS, which shows the sequencing and location of urban densification needed to accommodate growth, and which will deliver energy efficient urban form, with reduced GHG emissions.</td>
<td>Unless there is such a plan, Auckland’s development and growth will continue to be ad hoc and totally market driven – prescribed only by the MUL (which is under pressure, precisely because there is no densification plan).</td>
<td>Traditionally there has been political reluctance to attempt this. However, failure to implement the ARGS, and increasing energy costs and GHG emission targets, plus SuperCity power, should allow this to happen now.</td>
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<tr>
<td>5.2.4 Require assessment criteria for land use consents (subdivisions of scale, and private plan changes) that impose duties to take account of transport energy efficiency, carbon emissions, and the need for car travel, and also to provide for a range of uses.</td>
<td>There is an absence or insufficiency of explicit requirements in regional and district planning documents and processes, to consider and take account of the travel demand effects when assessing development applications and conditions of consent.</td>
<td>The RPS at present requires the preparation of an Integrated Transport Assessment when applying for new land to be brought inside the MUL. The rationale for this demonstrably applies to scale subdivision and private plan change activities. The time is right for this improvement to the planning regime.</td>
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<tr>
<td>5.2.5 Expand the areas where discretion may be exercised by authorities assessing Integrated Transport Assessments to include the extent an application provides for: a mix of uses; clustering of activities; re-allocation of road space to provide for travel modes other than private car travel.</td>
<td>The planning tool of the ITA needs to be strengthened to enable better integration of the assessment of travel demand, energy use, green house gas emissions effects, alongside urban amenity outcomes with positive effects, when considering land use applications.</td>
<td>The RPS is being reviewed now, and the emphasis is on ensuring it is effective in giving effect to the ARGs. The ITA is one of the main tools now in the RPS. Strengthening it, extending its influence, and requiring District Plans to adopt it, is consistent with this objective.</td>
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<tr>
<td>5.2.6 Include a specific Transport Energy chapter and set of measures in the Regional Land Transport Strategy. Until a NPS for Transport and Energy is promulgated, develop Auckland measures and objectives, in accordance with the RPS (under review).</td>
<td>The RLTS has largely ignored transport energy and green house gas effects, and assumes Government would deliver a National Policy Statement. Ten years later it is appropriate for the region to show initiative and responsibility for this matter.</td>
<td>The RLTS is under review now, though the timing and matters of relevance are somewhat proscribed by law.</td>
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### 5.3 Local Level Policy Recommendations (North Shore City Council)

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<tr>
<th>Description</th>
<th>Justification</th>
<th>Implementation</th>
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<tbody>
<tr>
<td>5.3.1 NSCC District Plan to provide criteria for assessing large scale subdivision and private plan change applications to include the need to prepare an ITA (see regional policies above), with broader requirements about clustering, mixed use, and street space sharing with modes other than private car.</td>
<td>North Shore presently has a “Community Focal Point” method to be used for large scale subdivision and plan change, but there is too much discretion given to go round this provision. Albany is full of single zone land uses that generate travel demand and excessive green house gas emissions.</td>
<td>One objective of the SuperCity is to strengthen regional governance and the implementation of the compact city (depending on who you talk to). This is an opportunity to ensure that all local level District Plans are rigorous in both providing for Compact Urban form, and for reduced GHG emissions.</td>
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<td>5.3.2 NSCC engineering design standards for streets to be modernized along the lines of Living Streets ideas, and as described by VTPI, in order to better provide for quality pedestrian, cycling and public transport road space, instead of present emphasis on the safety of private car travel.</td>
<td>NSCC’s engineering design standards for roads lead to badly constructed pavements, unsafe and erratic cycle-lane infrastructure, though bus lane provision is improving. This policy would be assisted if there was a related NPS. It would help if Council Traffic engineers were given carbon targets to attain.</td>
<td>Private car travel has been pre-eminent in Council transport planning for decades. There is now realization that this needs to change. But it is difficult. Engineers and traffic departments are very conservative. Safety must remain paramount.</td>
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</table>
Glossary

There are many acronyms in the Auckland transport policy space. They are listed here, with the page number where each of these activities is introduced in this report.

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<th>Acronym</th>
<th>Activity</th>
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<td>Auckland City Council</td>
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<td>ARC</td>
<td>Auckland Regional Council</td>
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<tr>
<td>ARGS</td>
<td>Auckland Regional Growth Strategy</td>
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<td>ARPS</td>
<td>Auckland Regional Policy Statement</td>
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<td>CBD</td>
<td>Central Business District</td>
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<td>EECA</td>
<td>Energy Efficiency &amp; Conservation Authority</td>
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<td>FDC</td>
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<td>GS</td>
<td>Growing Smarter</td>
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<td>LGAAA</td>
<td>Local Government Auckland Amendment Act</td>
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<td>LTSF</td>
<td>Long Term Sustainability Framework</td>
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<td>MCC</td>
<td>Manukau City Council</td>
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<td>MfE</td>
<td>Ministry for Environment</td>
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<td>MED</td>
<td>Ministry of Economic Development</td>
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<td>MUL</td>
<td>Metropolitan Urban Limit</td>
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<td>NSCC</td>
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<td>NZGovt</td>
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<td>OECD</td>
<td>Organisation for Economic Co-operation and Development</td>
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<td>PC6</td>
<td>Plan Change 6 (to ARPS)</td>
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<td>RLTS</td>
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<td>RMA</td>
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<td>Transit Oriented Development</td>
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<td>VIBAT</td>
<td>Visioning and Back Casting Transport</td>
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<td>WCC</td>
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References


Peter Newman and Jeff Kenworthy (1999), *Sustainability and Cities: Overcoming Automobile Dependence*, Island Press


