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### **Hyperautomobility and governmentality in Auckland**

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#### **Abstract**

A number of cities around the world are associated with very high levels of private motor car usage, and Auckland provides an example of one of these ‘hyperautomobile’ cities. There are many problems with this system of transportation and dependence on the private car, including environmental, social and city design dimensions. Though there is a clear aspiration to move towards reduced levels of car usage in the city’s transport and spatial planning strategies, there are major difficulties in implementation terms. We develop and consider future scenarios to 2041 to reduce these levels of motorisation, and subsequent transport CO2 emissions, with a much greater use of public transport, walking and cycling, urban planning, and low emission vehicles. The current implementability of such a ‘sustainable mobility’ future is however questioned in the current political and social context, and critically debated in terms of the available governance mechanisms and the limited attempts to shape the behavior of the public. We conclude by calling for a reconsideration of the policy measures being considered, including the range and levels of application and investment; with a much wider framing of the transport planning remit, and carried out within a much stronger participatory framework for decision-making.

#### **1. Introduction**

During the twentieth century, the use of the private motor car has become the dominant form of individual movement, acting as a central facilitating element of many people’s daily lives. Providing space for the car has had a large influence on urban development, increasingly over much of the world. The ‘hyperautomobile’ cities (Freund and Martin, 2007), which can be viewed as the group of cities with extreme levels of motorisation, of over 500 cars/1000 population, represent a very large problem for decision-makers in moving towards the goal of ‘sustainable mobility’ (Banister, 2008). Most cities have aspirations towards sustainable travel, even many of the hyperautomobile cities, yet the policy statements often seem to be little more than postulation. The private car, fuelled by petrol or diesel, remains the dominant mode of use and choice, and there are few changes being made to this. There are very few examples of cities implementing policies that are leading to radically reduced transport CO2 emissions. This paper considers the case study of Auckland, as an example of a hyperautomobile city, where the urban structure is dispersed and the vast majority of travel in the metropolitan area is carried out by the private car. The city is representative of one of these difficult contexts in which to reduce transport CO2 emissions.

The paper discusses the framing and discourse of policy making within transport planning in the

Auckland context, including the influence this has had on the nature of policy interventions. It considers the concept of governmentality (Foucault, 1991; Hajer, 1995) as an opportunity to widen the policy debate. The Auckland case study is then used to develop scenarios representing different possible futures and discussed using the governmentality perspective. The scenarios include a 'business as usual' (BAU) projection, with an increase in car-based travel in Auckland; and also different potential trajectories with greater use of public transport, walking and cycling and low emission vehicles. The scenario impacts are quantified to help estimate the likely scale of change in terms of CO2 emissions. The contributions of the paper are to build transport scenarios for Auckland that move away from high levels of motorisation, to consider these from the perspective of the literature on governance and governmentality, and to argue for a much wider range and application of policy measures to be used within transport planning. The case study approach is utilised (after Flyvbjerg, 2011) to help understand the detail and richness of transport planning and travel in Auckland, and then to generalise in terms of practice in wider, highly motorised cities, and also to reflect on the scenario analysis approach.

## **2. Dominant Policy Perspectives and Governmentality**

The framing of the current debate on transport in Auckland is critical to the transport initiatives being considered and the travel behaviours that, in part, follow. Foucault's (1991) concept of governmentality is not often used in the transport planning domain, but can be utilised to help understand what policy measures are being considered – and not considered – and the possible reasons for this, together with the wider options that might be available in terms of governmental intervention and indeed personal conduct, i.e. the 'conduct of conduct' (Gordon, 1991).

There are cultural practices that are important to lifestyles and travel, including psychological and sociological dimensions to travel (see, for example, Steg, 2005; Urry, 2007; Banister et al., 2011; Schwanen et al., 2012; Shove, 2012), meaning that improving infrastructure or changing the built form are unlikely to be sufficient by themselves to change travel behaviors markedly – there needs to be some emphasis, alongside, on changing cultural practices, norms and beliefs. This seems critical in a city such as Auckland, where there is much reliance on the private car for travel, the car-based lifestyle is often very popular, and the use of the car is central to many people's lives. In Auckland, to date, perhaps the most significant lever for changing local practices around vehicle use has been petrol price increases, used since 2007. This has contributed to overall regional fuel consumption remaining static, despite significant increases in population (Austin et al, 2011). This, and many of the other policy measures used in Auckland, remains relatively limited in ambition – there can be a much strengthened application of transport planning, tackling infrastructure and social dimensions.

In seeking to deliver changed travel behaviours, it is important to understand, and respond to, the symbolic value of the private car. Baudrillard's 'Four Logics of Objects' (1968) is still useful here, insofar as allowing an understanding of the systemic, yet constructed, nature of particular features within society, i.e. 'the world as produced – mastered, manipulated, inventoried, controlled'. This can be logically extended into the system of mobility, particularly concerning the constructed rationale around the purchase and use of the car. The argument is that people's relation to consumption has a hierarchical 'status value' in a system of 'symbolic exchange'. Hence there is a functional value (of 'getting from A to B'), an exchange value (the transaction value), the value of

symbolic exchange (symbolic of another subject, such as the offer of 'freedom', or of the transition to adulthood), and a sign value (the consumptive difference relative to others). Signification and meaning are only understandable in terms of how particular objects or signs interrelate, hence are relative rather than absolute. Applied in the transport domain, there is much more to owning a car, and in car travel, than the functional value of travelling from one location to another. Thus the social institution determines behaviour as well as the action of the individual (Urry, 2007; Shove, 2012). The classic manifestation is that consumption becomes linked to social status. The act of consumption is not simply a purchase, but the means for an individual or group to define his or her place in an order. This relates well to the choice, purchase and use of cars (Steg, 2005; Anable and Gatersleben, 2005) and is important to understand when a transition in behaviour is being considered. Very often these 'more-than-functional' and systemic issues are overlooked. Hence, challenging the current dominance of the car involves significant societal transformation as well as infrastructure investment, requiring a deeper understanding of why and how people choose and are required to travel, by particular modes and to particular destinations, within wider patterns of consumption and living.

Closely linked, is the role of governance mechanisms and the individual, in terms of the range of policy interventions that are considered and utilised to help modify individual and societal travel practices. The concept of governmentality (the 'art' or 'how' of governance) can be used to help understand these issues, i.e. to consider the range of purposeful efforts used to guide, steer, control, or manage sectors or facets of society; the way citizens are produced to help fulfill the government's policies; and the organised practices, including mentalities, rationalities, and techniques, through which subjects are governed (Foucault, 1991; Gordon, 1991). It is this approach to 'social regulation and control' that is perhaps least well understood in terms of achieving sustainability in travel. In Foucauldian terms, it includes the role of government and the control of others, but also a wider definition in terms of self control, the managing of family and friendships, i.e. 'the conduct of conduct'. In other words: any activity aiming to shape, guide or affect the conduct of some person or persons (Gordon, 1991). In Auckland, and similar modern democratic political contexts, many of these issues are seen as efforts in 'social engineering' and attempts to shape individual and societal behaviours are not taken up to any great extent.

### **3. Case Study: Motorisation in Auckland**

Auckland grew rapidly from the 1950s onwards, with the majority of population growth occurring in the last 60 years. Population levels were at around 200,000 in the 1940s, with rapid growth to nearly 800,000 by 1970. The city is now New Zealand's major commercial centre and home to a third of the country's population; the metropolitan area currently includes a residential population of over 1.4 million (Auckland Regional Council, 2010). This period of growth fitted well with the modernist, 'democratising' dream of the motor car society (Paterson, 2007), which was very influential in the development of the city. The building of the highway system, with extensive provision for the motor car, has meant that movement around the city has become very dependent on the use of the car. Examples are the three urban motorways entering into the central urban area near Waitemata Harbour – the Northern, Southern and Auckland-Kumeu motorways – signifying the priority given to the private car in this period. The infrastructure and associated urban structure, once developed, are very difficult to change or retrofit, even though the original values may be questioned and even discredited.

Motorisation rates in Auckland are amongst some of the highest in the world. The comparative data illustrates the motorisation problems in New Zealand, and more generally in Australasia, with consequent high levels of car parking space provision, low levels of public transport usage and low population densities. The differences to Western Europe, for example, are quite marked (Table 1).

**Table 1: Comparative Transport and Urban Metrics**

Area	Motorisation rate (passenger cars per 1000 population)	Total public transport boardings per capita (boardings/person)	Parking spaces per 1000 CBD jobs (spaces/1000 jobs)	Urban density (persons/ha)
Australia/New Zealand	575.4	84	505	15
USA	587.1	60	555	15
Canada	529.6	140	390	26
Western Europe	413.7	297	261	55
High income Asia	210.3	431	105	150
Low income Asia	105.4	231	127	204
China	26.1	375	17	146
Latin America	202.3	265	90	75
Africa	135.1	195	252	60

(Kenworthy, 2011)

Auckland has similar levels of car ownership and use to the national levels, but also higher average densities and incomes. Table 2 shows the high car share in the city, and the very low use of public transport and cycling. The Fordist dream of mass car ownership has been realised – the once high-status object for the very affluent (Paterson, 2007) is now very much mainstream – though, of course, there still remains a sizeable cohort without access to the car.

**Table 2: Mode Share in Auckland**

Auckland region mode share 2007-11, all trip stages	
Car or van driver	80%
Pedestrians	15%
Public transport	3%
Cycling	1%

New Zealand Ministry of Transport (2012)

Auckland is however quite unique to many other highly motorised cities. The ‘City of Sails’ regularly ranks high as one of ‘the best cities to live’ in the city liveability scoring charts<sup>1</sup>. The central business district has a fabulous setting, overlooking Waitemata Harbour, and onwards into the South Pacific Ocean. The high quality of life on offer for many of its residents is based, to an extent, on the dispersed city model, a version of the Broadacre City (Wright, 1935). Large plot sizes and largely two story detached housing predominate – with the city famously becoming known as the ‘quarter-acre pavlova paradise’ (Mitchell, 1972). This includes some high quality neighbourhoods, with access to a higher density urban centre, and also surrounding city parks, coastline, beaches and open spaces. The car fleet in Auckland is relatively old, including a high proportion of second hand cars from Japan. CO2 emissions, as a consequence, are very high – reflecting the car dependency and an old,

<sup>1</sup> See, for example, the Economist Intelligence Unit (2013) *Global Liveability Ranking Report* – Auckland is ranked as number 10 in the world’s most ‘liveable’ cities.

inefficient fleet. The average resident makes 41 public transit trips per year. These levels are even less than those found in Los Angeles (5% public transport for the LA census area; and 49 public transit trips per year). Public transit patronage has suffered a large decline since the 1950s; in 1954, public transit accounted for 58% trips and the car less than a third, whilst public transit averaged 290 trips per year (Utley et al., 2011; Hickman and Banister, 2014).

There is an interesting historical timeline to the development of Auckland in this manner. Mees (2010) recounts the story of public transit usage in Auckland collapsing over four decades, as the result of planning for motorization – the city's transport planners deliberately adopted a transport policy based around the car. In 1950, a consultancy report recommended the electrification of the suburban rail system, the construction of a central city tunnel, and the reorganisation of bus services to act as feeders to the rail system. A new multi-modal public transit agency would provide coordination and spending on urban roads was to be curtailed. Auckland's City Engineer, however, opposed the strategy, especially the plans to restrict spending on the roads, and he argued that the roads should take priority – reflecting the dominant view of 'progressive' transport planning as perceived at the time. The national Transport Minister, W.S. Goosman, saying to a journalist at the opening of a section of New Zealand's first motorway: 'My boy, the future of Auckland is with the motor car'. The then Head of Geography at the University of Auckland also called the railway scheme a 'potential white elephant', one that 'may prejudice the chances of improvement to the highway system'. The use of language is very important in these examples, and illustrates how the motor car system and surrounding way of life were heavily promoted in positive terminology. In 1954, the City Council voted with the City Engineer's recommendation to reject the consultant's report, and in 1955 agreed an alternative transportation masterplan for Metropolitan Auckland, cancelling the rail scheme and diverting funding into a motorway network. A single public transit authority was also rejected. Though the view of progressive transport planning in the 1950s was very different to that of today, the critical juncture was made, and the pathway towards motorisation began. The process was rapid: by 1963, public transit's share had fallen to only 22%, less than half that of nine years previous (Mees, 2010; Hickman and Banister, 2014).

This storyline is very similar to the development of many dispersed cities in North America and elsewhere, where local transport was changed from the early 1900s onwards, from foot, horse and rail, to a dominant auto-centred system (Freund and Martin, 1993; Newman and Kenworthy, 1999). The problems of car-based, mass suburbanization have become internationalised, characterised by increased journey distances and larger vehicles, including light trucks, vans and sports utility vehicles. In Auckland, this has not particularly been related to the lobbying influence of a motor industry, which is often cited as a contributory factor. This industry has always been weak in New Zealand, with the car fleet always being imported, and usually from Japan as second-hand cars. But, still, the driver has been a central feature of the constructed, aspirational Auckland and New Zealand lifestyle: the quarter-acre paradise.

Nearly 50 years ago, Mumford (1968, p.93) pointed to the problems of car use in modern society and this still stands: "[We have] sacrificed life as a whole to the motorcar, like someone who, demented with passion, wrecks his home in order to lavish his income on a capricious mistress who

promises delights he can only occasionally enjoy.” This remains ever relevant today<sup>2</sup> – including in Auckland – and there are many attendant societal difficulties that seem to be downplayed and overlooked (Hickman and Banister, 2014). These include: finite energy usage, CO2 emissions, horrific casualty figures due to vehicle usage, health problems associated with inactive lifestyles, poor accessibility for those without access to a car, and the adverse effect of mass motorisation on the city fabric. The ‘failed promise’ from the early days of modernism in transport seems very evident. There appears to be an overwhelming imperative for changed travel behaviours, but little understanding as to how we might radically change behaviours; how to turn around trajectories that are seemingly fixed, with many issues of path dependency, including how to encourage public transport, walking and cycling as mainstream activities rather than limited niche activities.

#### **4. Alternative Scenarios for Auckland**

Scenarios for transport and city development in Auckland can be developed to help consider alternative possibilities to the current trajectory and to encourage policy-making into more radical areas. Scenario analysis has been used over the last 50 years to help think through possible (and desirable) future storylines for a range of topics. For example, scenario narratives were developing in the 1960s, by Herman Kahn and others, discussing the possibilities for life in the aftermath of nuclear war in the United States. Scenarios were later used by large corporations, such as Shell, to consider energy futures in the oil crisis of the 1970s, and more recently to discuss resource consumption, climate change and corporate strategy (Wack, 1985; Schwartz, 1996; Van der Heijden, 1996). The two-by-two matrix approach to scenario development has been widely applied and is utilised below to consider the potential transport futures available in Auckland. The initial stage is to consider the key trends and uncertainties affecting transport in Auckland, and these are given below, as developed in discussion with academics at Auckland University and officers at Auckland Council<sup>3</sup>.

##### ***Key trends and uncertainties affecting transport in Auckland***

- Economic growth rate (GDP)
- Globalisation, international trade and movement
- Income levels, income inequality
- Tourism and leisure industry growth
- Population growth and immigration
- Age profile (ageing population)
- Social equity, inclusion of minority groups
- Technological change, including emergence and use of clean vehicle technologies, electric vehicle penetration rate (ranked #1 in importance)
- Energy and power supply – renewable sources
- Climate change
- Major environmental shocks – earthquake, drought, flooding, water supply
- Improvement in environmental and urban quality

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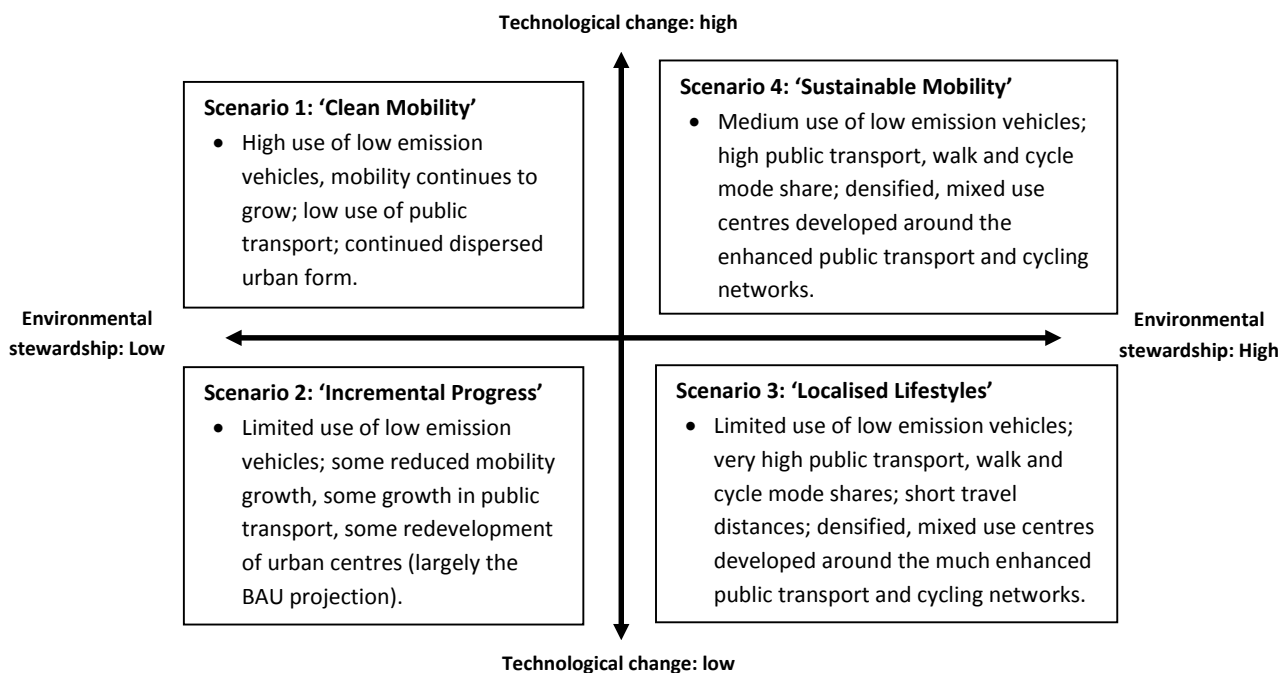
<sup>2</sup> Though the language may today be viewed as sexist in phrasing.

<sup>3</sup> The scenario process was developed by considering policy documentation and using discussions with a small number of academics at the University of Auckland (3) and a series of meetings and discussions with various technical officers at Auckland Council in the transport and planning teams (2 officers in particular, but also wider discussions with 10 more officers).

- Urban design quality; extent of urban sprawl
- Environmental stewardship, including level of funding in public transport, walking and cycling (ranked #2 in importance)
- Levels of continued funding for highway building
- Continuing extent of car dependency

The approach is then to develop scenarios, drawing on the two perceived ‘most important’ issues in terms of likely impact. Importance is viewed here as the highest likely impact on transport in Auckland, but in other scenario exercises often includes levels of uncertainty. The ranking of issues emerged during the discussions with academics and technical officers, and the key issues are shown as ranked #1 and #2 (technological change and environmental stewardship). They are used as the key parameters of the scenario matrix, as illustrated in Figure 1. A participatory approach is seen as important in the development of scenarios, to help develop more robust viewpoints, with more chance of acceptability in implementation. Ideally this process would take a much more intensive approach, such as using a wider range of governmental officers, interested stakeholders, and members of the public in discussion.

**Figure 1: Transport Scenarios for Auckland**



The matrix shows the potential futures open to transport in Auckland, with some clear alternative routes and outcomes (in terms of transport CO2 and other metrics). The storylines can be developed in more detail to help illustrate the potential differences; and to help develop the future strategy for transport and city development. We explore below just one of the scenarios: Scenario 4 ‘sustainable mobility’. The assumed components of the scenario are given in Table 3 by policy packages, level of application and summary specification. This scenario envisages a medium level of progress to be made with a fuel efficient vehicle fleet, with reduced car and light commercial vehicle (LCV) emissions (but this is still very ambitious relative to current trajectories). In terms of private motor cars, the average fleet in Auckland emits around 95 gCO2/km by 2041, hence to the level of the

current best international hybrid and diesel vehicle technologies. There is very heavy investment in public transit, walking and cycling, beyond that currently being considered and implemented; and the streetscape and urban structure of Auckland is retrofitted to help support the use of non-motorised travel, with mixed use, higher density urban centres developed around the public transport and cycling networks.

The likely impacts of the scenario were modelled by Auckland Council using their metropolitan transport model, and the scenario results show that CO<sub>2</sub> emissions might be reduced by around 70% relative to the BAU in 2041, or to 0.6 tCO<sub>2</sub> per capita relative to 3.8 tCO<sub>2</sub> per capita under the BAU projection (Hickman et al., 2012; Hickman and Banister, 2014). There are issues within the modelling itself, in that many of the results are uncertain and difficult to model. For many policy areas, beyond the infrastructure plans, the modelling capability is poor at estimating impacts. Behavioural change results are as much driven by the modelling assumptions than any inherent understanding of relationships or elasticities, and this is an area that is common across all transport modelling internationally. Synergies across policy packages are also poorly understood. Beyond the changes to travel, there are also likely to be major co-benefits in reduced local air emissions, such as noise, and improved health, including impacts from active lifestyles, reduced traffic casualties and air pollution (Woodcock et al., 2009). The modelling of future scenarios can be much enhanced, however perhaps the more critical question is whether these types of futures can be delivered.

**Table 3: The Components of Scenario 4 ‘Sustainable Mobility’ (2041)**

<b>Policy Package</b>	<b>Level of Application</b>	<b>Summary Specification</b>
PP1 Low Emission Vehicles	High	95 gCO <sub>2</sub> /km average car fleet, relative to the current average car fleet of 235 gCO <sub>2</sub> /km; and 800 gCO <sub>2</sub> /km average HCV fleet, relative to the current average HCV fleet of 1,100 gCO <sub>2</sub> /km.
PP2 Alternative Fuels	Medium	Use of alternative fuels in the vehicle fleet; car and LCV (80% petrol, 20% diesel), HCV (95% diesel, 5% LPG), bus (95% diesel, 5% biofuel)
PP3 Ecological Driving and Slower Speeds	Medium	30 km/hr zones across all residential areas and ecological driving training. Assumed 5% improvement in fuel efficiency and 5% reduction in speeds.
PP4 Traffic Demand Management	Medium	Application of ‘behavioural change’ measures, including walking school bus and school travel plan programmes, community road safety projects, personalised travel planning and area wide travel planning. There is also a tightening of the parking regime by 2041, with a 50% increase to the charge level and a subsequent increase in the number of people paying charges from 30% to 50%.
PP5 Public Transit	High	Complete current passenger rail programme including the CBD rail tunnel and frequency increases, CBD City Rail Link, completion of the planned Rapid Transit Network (RTN) using buses, extension of North Shore RTN, more tangential



		connections, new routes such as Auckland International Airport access, higher frequencies on the Quality Transit Network (QTN), QTN reconfigured to better serve the new RTN (RLTS 2009 WP21 SO2 transit component plus additions). Reduction in fares, by 50%, to encourage mode shift. Significant efforts to improve network planning and timetabling	
PP6 Walking and Cycling	Medium	Complete regional cycle network and finer network of segregated and on-road facilities, extensive cycle hire scheme, parking facilities, and supporting ancillary measures. Encourage greater walking and cycling through widespread measures such as reduced speed limits for cars, cycle priority, reallocated road space, improved signage and mapping (initial target of 10% of trips by cycle and 5% walk, with consequent short trip reductions by car – and much higher mode shares over time).	
PP9 Freight	High	Improved load factors, including intensity per tonne-km, reduced empty running, changed mode share and other operational factors; fuel efficiency; land use and location of facilities; consumption and production patterns, including local sourcing; and infrastructure, traffic restrictions and regulation. Some reduction of trips to the port of Auckland, to and from Onehunga, Southdown and Westfield, and the wider network, reflecting improved vehicle logistics and reduced empty running	
SCENARIO RESULTS (relative to BAU 2041)*		Absolute	Percentage
Climate: Carbon dioxide emission reduction (tonnes CO2)		-6.72 MtCO2	-72.7%
		0.6 tonnes CO2 per capita (2041) relative to BAU of 3.8 tCO2 per capita (assumed aggregate BAU in 2041 is 8.03 MtCO2)	

Policy package components were developed in discussion with Auckland Council, often using previous policy measures such as found in the Regional Land Transport Strategy (Auckland Regional Council. 2010). The scenario impacts are based on modelling for each level of application of policy package, using commissioned runs from Auckland Council's transport model for Auckland. The modelling was carried out for the INTRA-SIM Auckland study (Hickman et al., 2012; Hickman and Banister, 2014).

A number of the key elements of this future scenario are discussed in more detail, as these prove to be very important to the reduction of CO2 emissions: First, the role of public transport. The modelling assumes a reduction of around 11% in CO2 emissions due to a mode shift to public transport. Providing for effective public transit in low density urban areas such as Auckland is difficult, but there are stronger possibilities than are currently being developed (Pharoah and Apel, 1995; Mees, 2010). Zurich, Kassel and Karlsruhe, for example, shows how high quality transport, usually only found in dense urban centres, can be extended into the low density urban areas, suburbs, and even rural areas. Public transport networks are re-configured to serve cross-city, off-

peak (as well as the conventional peak) and even recreational trips. The 'network effect' is enhanced, whereby people can easily transfer and 'pulse' scheduling improves connections. Levels of walking and cycling also increase in support of the public transport network. The current policy approach in Auckland is to develop a Rapid Transit Network (RTN), providing high speed, high frequency services connecting regional areas to the CBD; a Quality Transit Network (QTN), including buses and ferries to regional centres, assisted by prioritisation measures to reduce congestion; and a Local Connector Network (LCN) providing wider coverage over the city. New Zealand's first dedicated busway opened in 2008, offering fast access to Auckland's CBD from the North Shore. Future RTN services will include: a 3-5 minute headway, which allows 'turn up and go' travel; smartcard ticketing, realtime travel information, high quality rolling stock (potentially including Metro-style underground rail), stations located in and integrated with commercial areas, and maximum 3-5 minute waiting times for connecting services (Auckland Regional Council, 2010; Hickman and Banister, 2014). Clearly a much more extensive public transport network needs to be progressed if a significant mode share is to be realised. The current plans would take important first steps, but perhaps more can follow, including an extensive tram-based network.

The governance issues around the funding and development of the proposed City Rail Link are an example of the difficulty in developing consistency in policy agreement between Auckland Council and central government, particularly over funding. The City Rail Link proposal would connect the existing terminal rail station at Britomart into a rail loop by constructing a 3.5 km underground route under the centre of Auckland, enabling a much higher throughput of trains through the rail network, increasing the accessibility of prime sites in the city centre for economic development and enabling the expansion of activities around the proposed train stations. This central rail loop was first proposed in the 1920s, and similar city rail loops have been constructed in Sydney and Melbourne. The business case for the Auckland Council proposal has been supported by the Employers and Manufacturers Association and the New Zealand Council for Infrastructure Development, but has not been sufficiently persuasive for the Transport Minister to agree to central government funding (the total project cost is estimated at NZ\$2.86 billion), although there has been agreement for property designations along the route to be put in place. Important here are the different levels of governance and the reliance on the national level to provide funding for the city. The conventional cost-benefit analysis (CBA) system used in prioritising transport schemes is also problematic. Developed from the 1970s onwards to help the highway system, it is not well suited to assessing the benefits of public transport or other non-motorised modes, many of which cannot be easily quantified, hence remain beyond the CBA calculation. The reliance on CBA within the appraisal process means that public transport schemes often look very expensive relative to benefits, however the benefits (and costs) are only partially measured. Hence, there are important procedural issues, which are presented as 'technical' issues, but result in funding being spent on particular transport modes, and favouring certain actors in the process (such as the highway industry, oil companies, major housebuilders and private car users). The costs to society of highway investment are hugely underestimated and underplayed, whilst attempts to fund other modes are contested and become very difficult to implement.

Second, active travel modes (walking and cycling) are very under utilised in Auckland, with cycling accounting for just 1% and walking 4.6% of journey to work trips (Tin Tin et al., 2009). Over recent years, their use has been at very low levels, though with some signs of a marginal increase. Recent national policy has tried to encourage walking and cycling (New Zealand Ministry of Transport,

2005), including a programme of long distance cycle routes, but generally, provision for cycling is very poor. There is much potential for greater use of walking and cycling in Auckland, with most trips of relatively short distance. The Auckland Regional Land Transport Strategy seeks to complete the planned 938 km regional cycle network by 2026 and to improve active mode share from 16% of all trip legs to 35% (Auckland Regional Council, 2010). Experience elsewhere – such as in the Netherlands, Sweden, Denmark and Germany – offers important lessons for Auckland. Segregated cycle ways are used along arterials, and high-standard complete networks are very common in urban areas (Pucher and Buehler, 2008). Some towns experience very high levels of trips by cycle, such as in Delft or Groningen, where around 30-40% of all trips made are by cycle (Pharoah, 1992; Pharoah and Apel, 1995; Pucher and Buehler, 2012). Much more extensive cycling and walking facilities, including a fine network of segregated and on-road facilities, an extensive cycle hire scheme, parking facilities, and supporting ancillary measures can all be developed in Auckland. Though there is little current cycling tradition in Auckland (there are only a few cycling ‘enthusiasts’ on the roads), and the topography of the city is very hilly, the ‘outdoor nature’ of the population is quite similar to Vancouver, the Netherlands, Sweden or Denmark; hence cycling can perhaps become a much more important mode for the city. There are a number of initiatives underway to develop segregated cycleways; such as the Grafton Gulley cycleway, due to open in 2014, connecting the existing 9km cycleway alongside the North-Western Motorway to the Auckland waterfront and the inner city, providing easy bike access from the universities to the western suburbs; but progress has been slow as funding and site developments involve three organisations (the NZTA, Auckland Council and Auckland Transport) which slows integrated decision making. Policy makers can become much more ambitious in their cycling and public realm strategy development and infrastructure investments, initially targeting 10% of trips by cycle and 5% walk, with consequent short trip reductions by car, and beyond to the levels of the Netherlands. A key issue here is taking road space away from the car – and using it for cycling and walking (Hickman and Banister, 2014). There seems to be a reticence to plan for cycle usage to any significant degree, with a common belief that cycling, in Auckland, is not possible to the levels found in the Netherlands. This, however, is a conviction that can be strongly challenged, and some good quality facilities are likely to be associated with an upturn in cycle usage.

Finally, a critical part of the future strategy for cities like Auckland, is the implementation of low emission vehicles. This will be the case in many similar contexts where there is a high level of motorisation, the urban structure is dispersed, and the public are supportive of future private car usage. Sperling and Gordon (2009), for example, tend to emphasise the importance of the ‘technological fix’ in the Californian context. These types of vehicles may be the only way to reduce CO<sub>2</sub> emissions in many parts of the dispersed city. The ‘sustainable mobility’ scenario envisages very radical progress to be made with a fuel efficient vehicle fleet, with much reduced car emissions, alongside lower levels of vehicle use relative to the BAU projection. The private car accounts for the vast majority of transport CO<sub>2</sub> emissions in Auckland, hence any improvements to fleet emission rates will reduce aggregate city-wide emissions significantly. The history of developing low emission vehicles in the mass market has however been very disappointing, with sales remaining at the niche scale. There is also often a rebound effect, where more fuel efficient vehicles being driven longer distances due to the savings made on fuel. In the late 1970s and 1980s, the New Zealand government promoted the use of compressed natural gas and liquid petroleum gas in the vehicle fleet with incentives for use (such as a lower fuel excise duty relative to petrol) and requiring government vehicles to be designed for dual fuel usage. This approach was withdrawn in 1985, and the use of

these fuels has almost completely disappeared from the fleet. There are major opportunities to reinstate this type of approach, combined with higher fuel excise duty (FED) for petrol cars, graded according to vehicle size. Vehicle emission standards were introduced in New Zealand in 2003, much later than countries such as in Europe or Japan, with revisions in 2007 and 2012 (via the The Land Transport Rule: Vehicle Exhaust Emissions). This provides minimum standards for new vehicles imported into the country, however is less stringent than Japanese standards, hence second hand cars can often be lower in emissions than those bought new. Much stronger policies are required to shape consumers in 'green' purchasing directions, including more stringent vehicle emission standards, higher levels of FED, differential vehicle import taxation by emission type, and financial incentives to purchase hybrid and low emission cars. Different means of car ownership can also be developed, with a much greater reliance on car clubs and car rental schemes.

## **5. Discussion**

The practice of transport planning in Auckland can be viewed in discourse and governance terms – as a discussion that is not policy neutral, but instead assembled as a social construction of reality, and one that is shaped to appeal to certain actors in the process. It is heavily influenced by the political context, shapes the policy measures that are being discussed and not discussed, and the potential future trajectories that might be followed (Hajer, 1995; Ockwell and Rydin, 2010). The contemporary form of governance in modern democratic contexts such as New Zealand, has developed, over the last 30 years, to be increasingly characterised by neo-liberalist beliefs. These champion individual freedoms and rights over the 'excessive intervention' of the state (Foucault, 1991; Lupton, 1999; Aldred, 2012). Policy-making reflects these beliefs and is framed and often unquestioned relative to what could happen, or might have happened, under different circumstances. The individual becomes the 'the entrepreneur of himself or herself' attempting to maximise 'human capital'; seeking to attain a certain state of happiness, purity, wisdom or perfection (Foucault, 1988; Gordon, 1991). The role of the interventionist state is put forward as being curtailed. But, importantly, this narrative only extends to some policy areas, and not others. For example, investing in non-car based infrastructure (extensive public transport, walking and cycling networks, a high quality public realm) or increasing densities in suburban areas, is typically framed as 'subsidy', 'unaffordable', or 'politically unacceptable'; whilst new highway investment is seen as 'critical for business and freight', 'investment for the city' and 'providing for the majority, who are car owners'. The continual sprawling urban area in Auckland means that living, working and other activities are often taking place away from the city centre, with the exception of some centralised employment and retail activities; this construct has been developed into 'a way of life' in Auckland. Many of these positions seem very difficult to move away from once they exist. The dispersed way of living, for example, is generally popularly received. Perhaps as a result, the recent Spatial Plan (Auckland Council, 2012) is limited in ambition, for example not seeking to limit development to within the existing metropolitan area, to develop a green belt or growth boundary, or to increase densities along the proposed public transport network to any significant degree. The majority of urban development is proposed beyond the current urban boundary, which suggests further sprawl in an already extensive metropolitan area. The conventional street design and levels of funding in Auckland, as in many other cities, favour motor vehicles over other users, including features such as road hierarchies, wide lanes, large turning radii, straight alignments, synchronised traffic signals, etc. (Freund and Martin, 2007). This structuring of road space and the built environment has hugely adverse impacts for pedestrians and cyclists and the use of public transport.

Travel by these modes is made much more difficult and, at times, impossible. In the end, the “motorised car creates remoteness which they alone can shrink” (Illich, 1974, p.42) – and the only realistic option, for most Aucklanders, is to join the car users.

There are major adverse environmental, social inclusivity, health and other problems associated with these policy positions and choices in design and investment. Many of these issues are seemingly fixed in nature, put forward as ‘technical positions’, and are reinforced in education, public sector and consultancy practices. But they are simple social constructs, involving forms of control, power, guidance and exercise of sovereignty. These meanings do not emerge ‘out of the blue’, but are framed and put forward by a particular set of actors, sometimes in a contested manner, where groups actively attempt to influence a particular issue (Hajer and Versteeg, 2006). Often, as we can see in Auckland, there is much inertia to the original policy trajectory over time.

There are additional issues here in terms of ‘regimes of accumulation’ (Paterson, 2007; Urry, 2007; Woodcock and Aldred, 2008). The motor manufacturing and oil industry, and, more pertinently in Auckland’s case, the associated development industry and engineering companies, use the car as a central element to their continued activity and growth. The various levels of government are also supportive as part of the structural role of the state in promoting accumulation. There is little ‘innate’ desire for the car, rather a necessity to support the regime as the sustenance of growth (Rothschild, 1973). There is large support – and a conventional wisdom developed – for road building, a favourable tax structure for private cars; and, alongside, a neglect of public transport, walking and cycling, support for the dispersal of the urban area, and even the promotion of the quarter acre plot ideal. A positive ‘policy image’ is developed, associated with core political values, communicated through image and rhetoric such as: ‘progress, freedom, choice, democracy, fairness and growth’ – values that are difficult to argue against, and that are positioned as being consistent with the neo-liberal perspective (Freund and Martin, 1993). Highway building and maintenance becomes a ‘natural’ function of the state and consumes by far the largest part of transport budget. This is still the case in Auckland. The car lobby and associated development complex promotes and profits from these constructed ideals, promoting their interests to government. There are lobbyists and technical specialists paid to promote these interests to and in the relevant government departments, and a body of expertise becomes dependent on the industry for their careers – hence a large inertia develops (Tyme, 1978; Paterson, 2007). The role of government and control of others can be seen in the continued limited funding given to public transport, walking and cycling; in the heavily contested nature of attracting more funding for these modes; in the weak traffic demand management measures employed; indeed in the framing of most of the policy areas within transport and city planning in Auckland, and other similar highly motorised contexts. It extends to wider considerations concerning individual and societal behavior – such as the ignoring of the major environmental, casualty and health problems associated with the motor car system. In the end, we experience a clear demonstration of Foucault’s (2009) concept of bio-power: the ‘technology of power’, or in other words, the means of managing people as a group as part of the capitalist effort, involving diverse techniques for achieving the subjugations of bodies and the control of populations. We argue in this paper that the required policy response, if climate change and other societal problems are to be taken more seriously, is for the application of much stronger governance mechanisms: to apply a much wider range and level of application of policy measures and investments – to consider “how to be ruled, how strictly, by whom, to what end, by what methods”

(Foucault, 1991, p.88).

## **6. Conclusions**

The hyperautomobile cities, such as Auckland, pose major difficulties for policy makers in seeking to achieve greater sustainability in travel. Once embedded, the automobility system often creates its own inertia, developing a culture that appears to support car-orientated lifestyles. There are some efforts in trying to develop more sustainable transport strategies at the governmental level in Auckland, yet much of the current debate and policy making appears little more than a piecemeal effort. Often the deliverability issues have not been thought through and there is only a narrow range of policy measures being considered. The conflict in policy-making is hidden in the initial definition of the sustainable mobility problem, in the issues discussed and in those that remain undiscussed. A particular framing of the debate makes certain elements seem fixed and inappropriate. Some issues are viewed as 'problematic', whilst others are much easier to discuss and deliver. These are all positioned and viewed as 'technical' positions, but of course conceal a normative stance, supported by the institutional arrangements involved (Hajer, 1995; Hickman and Banister, 2014).

Scenario analysis can help to move us beyond this position, to help discuss a wider range of possible futures for Auckland and to develop a consensus as to the most appropriate policy pathway forward. The current trajectory of travel behaviours, car dependency and rising transport CO<sub>2</sub> emissions is unlikely to change significantly in Auckland unless a future similar to the Scenario 4 'Sustainable Mobility' can be more widely discussed and implemented. This requires a much improved level of participatory policy-making, an area that is conventionally not well developed in transport planning. Support for some currently very unpalatable measures needs to be developed amongst the public and politicians. This means revisiting the conventional definition of, and objectives for, mobility, and focusing renewed objectives for sustainable mobility on the problems of reducing transport CO<sub>2</sub> emissions and improving social equity and well-being. It will involve a much greater investment in extensive public transport, walking and cycling networks, and a reshaped urban form to help support these modes more effectively. Alongside, there can be stringent traffic demand management measures and roadspace reallocation away from the private car; and the development of a clean vehicle fleet, for where the motor car still needs to be used. The roadspace reallocation point is critical – there can be much more space given to public squares, parks, pedestrianisation, cycling, shared space schemes and public transport. There needs to be a much greater debate of the variety of policy measures available within transport and city planning, of the good practice that is available and might be transferable, and the likely impacts of different futures that might be attained. The conventional analytical approaches, such as cost-benefit analysis, need to be reconsidered – to allow a greater investment in different policy areas. All of this can be instigated as a 'strategic conversation' of different policy futures (after Van der Heijden, 1996). In Auckland, there are many issues and policy measures that can be more fully debated. Perhaps the modern political institutions we have at our disposal – as currently framed – are not particularly well equipped to deliver in these areas. The various levels of government are attempting to deliver multiple and competing goals, and the environmental and social goals are usually not given great priority. Addressing climate change is fundamentally difficult in that it is very closely linked to lifestyles and consumer behaviours – yet our systems of governance shy away from acting in these areas. There are excellent examples of more effective public interventions; such as found in the Netherlands, Germany, Denmark and Sweden,

where very high non-car mode shares are developed at the city level. Yet, drawing on these examples seems difficult when the political context and societal practices have been shaped in different ways.

Achieving a more attractive sustainable mobility future is hence a normative task – concerned with developing attractive scenarios for the future, in developing a consensus as to how things ‘should be’ or ‘ought to be’, and considering how to value and more effectively deliver them. In the tradition of Foucault we should think more critically about the conventional ‘regimes’ within automobility and the ways in which they are framed. The hyperautomobile city is seldom efficient, convenient, cheap, stylish, progressive, democratic and liberating; and the individuals are far from free and autonomous. All of these constructions marginalise other forms of transport, and instead we should be looking for some form of discontinuity in events, i.e. the rejection of the business as usual trajectory as natural, progressive and causal. As this paper has argued, we can seek to develop opportunities to break away from the traditional narrative. For other cities less dependent on the car; or those that are looking to invest in extensive highway systems, such as in Asia, Africa and South America; the progress made in Auckland can be instructive – as a warning that the pathways taken can be very difficult to change over time. Even in the most difficult contexts, a trajectory to greater sustainability in travel can be pursued, but the dimensions of governance, of social regulation and control, and the roles of individual and groups within society, all need to be framed and organised very differently to achieve this. As policy-makers and the public, we can change our approaches and engagement in transport and city planning, with a clearer focus on “the right disposition of things, arranged so as to lead to a convenient end” (La Perrière, 1567) (cited in Foucault, 1991, p.94), but, of course, this means many things to many people.

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