

Linear City - Water City

How can an exchange between landscape and infrastructure generate an alternative Auckland Plan?

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In 2011, Auckland consolidated its seven councils and the regional council into a single governing entity – the Auckland Council. Effectively, four cities and three rural districts were meshed into one city-region, with million and a half inhabitants.

For a year the new Auckland Council worked on the Spatial Plan, a document to guide the development of a city expected to gain an extra million inhabitant in 30 years. The plan advocates a ‘compact city’ model, loosely based on New Urbanist thinking. The plan proposes a rough 70-30% split of development - 70 % within the existing cities boundaries, and 30 % outside.

This paper outlines an alternative growth strategy for Auckland to the official ‘compact city’ vision. Our proposition recognizes that the link between density and sustainability is much weaker than commonly understood. It also anticipates that the topology and technology of urban infrastructure is bound to profoundly change over the next couple of decades. This will further entice the centrifugal rather than the centripetal forces in the shaping of metropolitan form. We argue that the next million inhabitants of Auckland should be allocated, roughly evenly, to four main zones of the city-region: urban, suburban, peri-urban and ex-urban.

Our proposition also stems from the recognition that, in the face of climate change and expected resources shortages in the not too distant future, Auckland has neither time nor money to rapidly or radically transform its predominantly suburban urban form. We also question the wisdom of encouraging high-density living when this clearly carries significant risks for a city founded on a very precarious natural site with the threat from volcanoes, earthquakes and tsunamis.

Auckland:

Auckland is New Zealand's largest city, home to an estimated 1.5million people, one third of the entire country's population. Auckland is economically unmatched by other New Zealand centres and is a hub of transport infrastructure with airports, ports, freight stations making Auckland a gateway to the rest of this trade dependent nation. Because of Auckland's importance to the economy and trade, the wellbeing of the entire country is closely intertwined with its success or failure.

Auckland's unique character has been primarily shaped by its history and geography. To this day, Auckland maintains its feel as a collection of joined together villages rather than one big metropolis. The extensive waterways permeating the region help provide a lovely temperate climate and contribute to the wide diversity of the flora and fauna. This expansive city is set in an incredible natural setting rare amongst cities and is also very culturally diverse, giving Aucklanders a unique setting to live in.

Auckland is a typical post-industrial city. Valued as a lifestyle destination, surrounded by three harbours, and possessing a benign climate it is at the same time guilty of many of the sins of the western new world city. Despite its setting, it is a sprawling car based suburban city where the citizens connect to a city of malls, big box retail, and office park through a pervasive motorway infrastructure.

The council's Spatial Plan aims to create a 'quality compact city' by increasing density within new boundaries (metropolitan urban limits) and limiting development growth outside of these boundaries with the exception of a few selected locations (Warksworth and Pukekohe). High quality design and the preservation of rural land are key components to this plan. The compact city model proposed is loosely based on New Urbanist thinking and a number of overseas case studies, and suggests that increasing density is the solution to creating a sustainable liveable city. Ideally the compact city model is supposed to limit and contain the much-maligned urban sprawl that is seen to be taking over Auckland. The increased density should provide a more efficient use of public transport and is thought to reduce energy consumption,

create a better social mix and a tighter community (Frey, 1999). The council also hopes that the denser city will

- Generate greater productivity and economic growth
- Make better use of the existing infrastructure
- Maintain rural character and productivity
- Reduce environmental impacts and
- Create greater social and cultural vitality

Proposition

We believe that the compact city model is not appropriate for the Auckland region and will prove ineffective and unachievable in the time frame proposed. Unfortunately we don't see how it can change Auckland into "the world's most liveable city" in the time frame proposed and without great cost. As can be seen in contemporary urban planning research there are other options available to us that may suit the topography and form a better and more resilient city. There are 6 main reasons we do not believe the compact city model suited for Auckland

- The car has already shaped Auckland's growth.
- While there are densely populated cities with challenging topographies the geography and topography of Auckland does pose problems for creating a high-density city without great expense. The isthmus constrains a dense growth pattern with its many estuaries, hills, basins and volcanic cones.
- Modern technology (It/Et) indicates increased decentralisation and mobility. Personal automotive transport will become more expensive with the expected peak oil crisis, but the impact will be moderated by transport technology such as fuel efficiency gains, and energy source substitutions. In Professor Hugh Byrd's research report, *The Solar Potential of Auckland* (Byrd, 2011). Professor Byrd investigates how much potential energy that can be derived by efficiently installing photovoltaic (PV) systems on buildings from the central business district (CBD) to low-density suburbs. Professor Byrd concluded that low dense suburbia is actually the most efficient collector of solar energy. 'While a compact city may be more efficient for the internal combustion engine vehicles, a dispersed city is more efficient when distributed generation of

electricity by PVs is the main energy source and EVs are the means of transport'.(Byrd, 2011)

- There is plenty of evidence that there is more to sustainability than cars, travel distances and density. Buildings are a primary culprit in GHG emissions and dirty energy consumption.
- A new focus on resilience (instead of sustainability, understood as mitigation) tells us that low-density urban development is less risky. On many accounts high-density cities are dangerously dependent on outside resources and in the case of a natural disaster more damage could be done with the condensation of people and services.
- While traditionally sprawl has often resulted in the loss of productive landscapes, we believe that paying attention to the qualities of Auckland's existing landscapes, including the location of valuable soils, will help determine the location of the future city.
- Liveability and lifestyle is an important factor if Auckland is indeed to become one of the best cities in the world to live. Enabling a close connection to its extraordinary natural landscape through a low density urban model is more likely to attract the type of people we are told we must draw to make Auckland a successful city. A unique low density city connected to the landscape through gardens and public landscapes will be more successful rather than attempting to imitate the dense urban environments of the Old World.

We are not suggesting that a people should not have a more urban lifestyle if they want to pay for it however we believe that the old urban dialectic that describes suburbia as soulless, profligate, real estate money making device that atomise the collective by producing lonely, deracinated individuals, vs. the city as a collection of warm hearted communities making collective decision for the greater good, is no longer applicable.

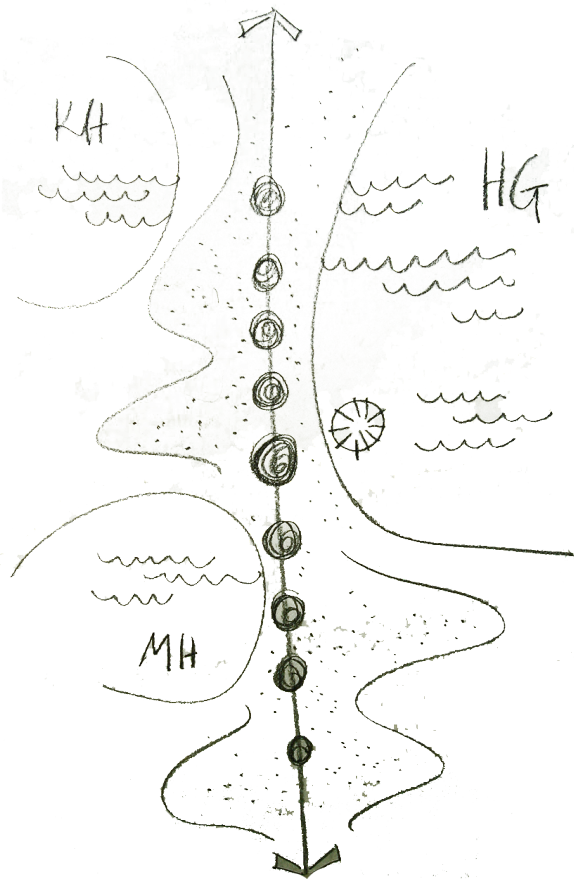
Our alternative development strategy sees landscape as the new infrastructure and is based on a close study of the recent history of Auckland's development, which is a low-rise sprawling city along the north-south motorway system; with a strong

acknowledgement of the importance of the natural water landscapes that permeate Auckland

Our research indicates that Auckland should grow along two different rationales. The first is industrial and commercial growth in a linear pattern that follows the existing State Highway One and the second is residential growth seeking natural landscape and climate amenity patterns reflecting the many waterways and coastlines along the isthmus. These can be considered the 'Linear City' and the 'Water City' respectively.

Linear City

The shape of the Auckland isthmus has guided Auckland's pattern of growth into a roughly cross-shaped structure with a main north-south axis. The main linear axis is focused around State Highway One and the historical railroad that connect Northland to the rest of the North Island through Auckland. The linear shape and organisation is almost inevitable due to the natural suitability of land for urban development. The overall land suitable for urbanization is about 100km long and on average 15-25km in width. Even if there should be a reason to fight against the natural linearity, policies and instruments aimed at alternating the form would struggle to succeed. This is the essence of the 'Linear City'. The linear city is the backbone of the transport network and metropolis. A series of urban nodes along the linear spine such as high-density, mixed-use town centres would punctuate important points along the backbone. Each node would have a specific emphasis on a particular service or industry or amenity that would make them unique and important in the greater scheme and complement the other development nodes.



Water City

Waterways form an important part of Auckland's isthmus giving rise to the 'Water City' concept. (Toy, D. 2005). Aucklanders have a special relationship to the water due to its permeating presence. The beach acts as a social catalyst to bring people together no matter their social position, similar to the square's role in Europe. The challenge for intensifying Auckland's urban development by the water is to find sites that are not going to attract the criticism of existing inhabitants, yet can provide a water experience. The use of industrial/brownfield sites is one opportunity that has not been fully explored for this purpose. Many obsolete industries are located on the edges of both the Manukau and Waitemata harbours. Although they are often heavily contaminated and in need of extensive remediation, their location next to the water means they have high real estate value. We suggest that local government agencies could take the lead in decontaminating the foreshore and establishing treatment facilities. Auckland would then gain remediated harbour, a new green public foreshore and a zone of intensified accommodation for the increasing population—

the 'Water City'. The water city symbolises the attraction of the beach and waterside living and embodies the idea of a good life between nature and city.



The Water City can connect to the Linear City through a new water public transport infrastructure. Ferries of all sizes and types can be used connect Aucklanders to their city through a watery landscape. Perhaps we can finally fulfil Doc Toys dream of personal hovercrafts negotiating Auckland's myriad estuaries.

The resulting concept is a combination of the water and linear city, creating a deliberate duality. The two ideas highlight the tension in contemporary life between the rationality of work and the hedonism of free time and consumption. This new combination heralds a new culture of urban living—the interaction of work and play and economy and lifestyle. The linear city is the symbol and guarantee of Auckland's efficiency and the water city is the symbol and locus of Auckland's status as the 'world's lifestyle capital'. The new urban sustainability paradigm sees horizontality as strength, not a weakness. It is about a regional approach, smarter use of low-density areas, and hybrid infrastructure. In other words, about creating a symbiotic

relationship between the city and its region; pursuing polycentric development with multiple densities across the entire region; and an integrated mix of green, blue and grey infrastructure.

Most of the global urban landscape in the 21st century will be suburban and peri-urban. However this is not the parasitic suburbia of the 20th century, completely dependent on urban infrastructure. This is a productive, low-density landscape, consisting of partly autonomous properties, which are supported by a highly decentralized, 'smart', 'clean' and literally green infrastructure.

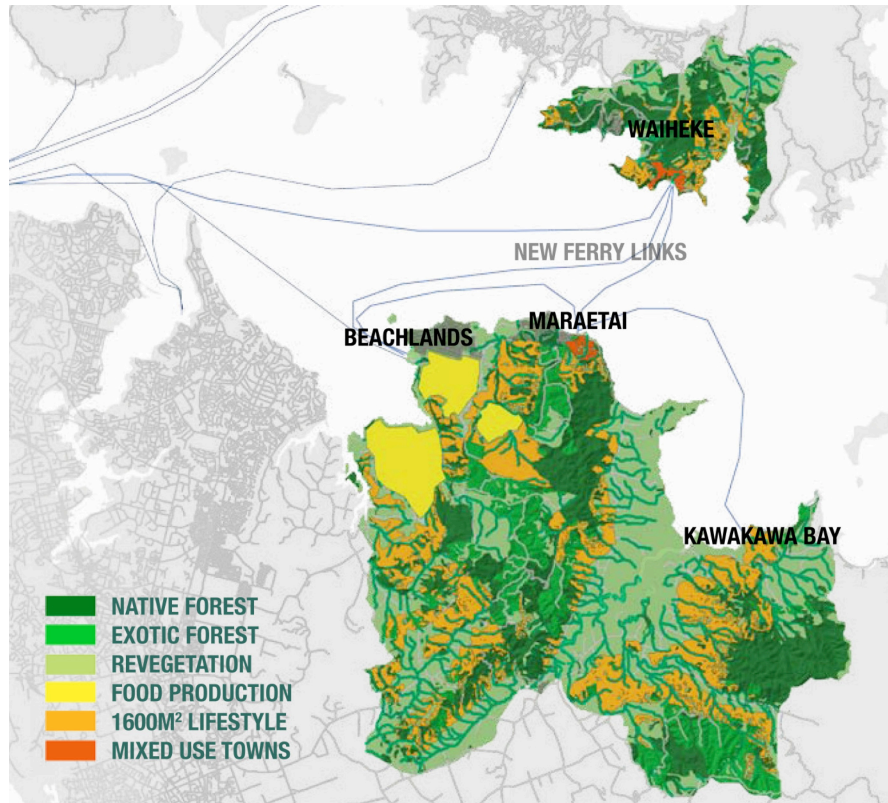
Water City / Case Study--Potential Periurban Growth Areas Southeast Auckland 2012.

To explore how this proposed landscape design approach could be applied to Auckland, three groups of students in the Bachelor of Landscape Architecture program at Unitec undertook a studio project to apply this methodology to South-East Auckland (Maraetai, Beachlands, Whitford, Clevedon). They used a landscape approach rather than zoning to create a structure plan, and then divided selected locations spatially according to different landscape patterns and allocated development types and densities accordingly. They demonstrated how this approach to development could influence and shape the region with a range of approaches and outcomes while still connecting to Waitamata Harbour

The project outcomes generated a number of findings

- The urban outcomes fell into three strategic categories: promote development opportunities, enhance ecological areas or protect productive land.
- The approach tended to be landscape conservative; with only a couple of projects favoured radical development scenarios.
- No one-development strategy was more feasible than another for such a large area.
- Each development project could be framed within a longer timeframe e.g. initial urban growth would first occur around existing settlements + transport nodes.

The study concluded by finding that a low density, lifestyle oriented development could occur outside the RUB yet still connect to the CBD through the provision of a water transport network.



Conclusion

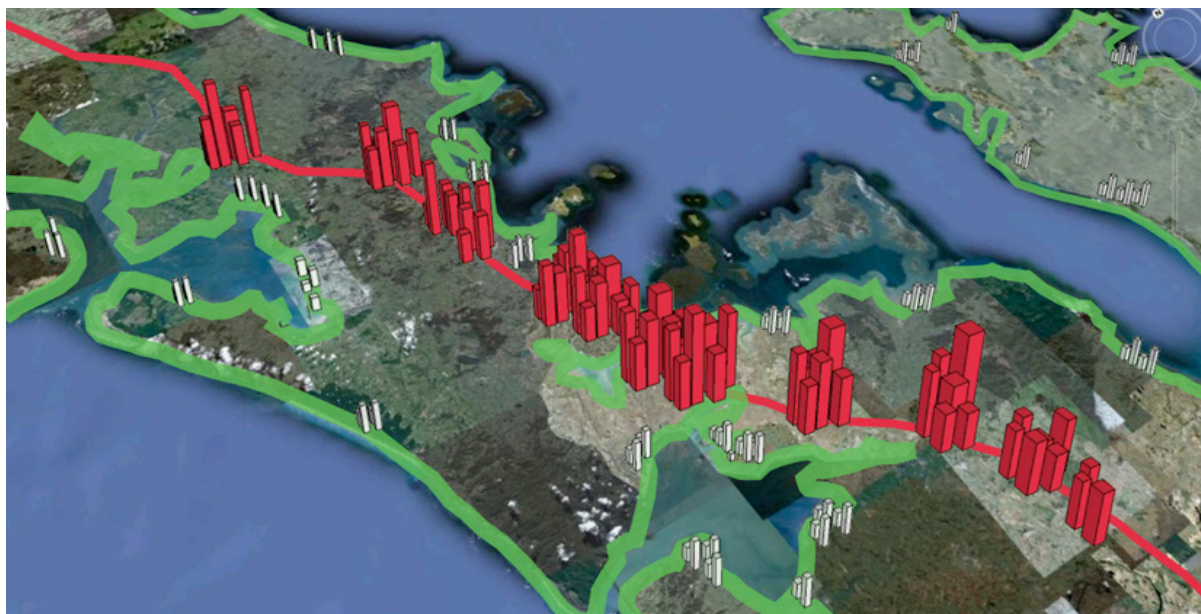
Approaching the city as a landscape, internally supported with green, grey, smart infrastructure, (Mostafavi, M. (2010). (Wellington 2040 (2011). offers a fresh direction. These new technologies offers Auckland a chance to break out of the old urban dialectic by developing a new kind of urban model that is both sustainable and connected to the environment.

In Auckland's case, due to a fortunate set of historic and geographic circumstances this new model would be easy to implement. By accepting a low-rise, regionally polycentric city (Hall, P., & Pain, K. (Eds.) (2006). Auckland can become a new model of urban-regional development of relevance for all low-density cities in the world. This is significant as similar cities now compromise 60% of all the urban fabric in the world, and within 10-20 years might even reach 90%. For them, the compact city model is of little relevance.

We foresee that Auckland 2040 will be a linear city, with a 100 km long 'infrastructure spine' running through its middle. On both sides of the spine, there will be suburbs with town and suburban centres. The spine itself is like a necklace - a corridor of fast-transit and other high order infrastructure connects a dozen of city-hubs. On the spine's flanks, both along the sea and the land side are the suburbs with varying densities. They are endowed with all the local and natural amenities and supported by a mix of green and technical infrastructure, with varying degrees of independence/reticulation.

By adopting a low-density city model that is responsive to the best qualities of the environment, including the productive landscape, a vibrant, decentralised, local, sustainable horticulture can be fostered as an alternative to the present mechanised horticulture and agricultural industry.

While we accept that there will be variations in Auckland's growth, the recognition of landscape-structured growth is key to creating a new Auckland that is both sustainable and highly liveable.



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