Living in the shadow of the most liveable city: An exploration of unliveable sites.

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Explanatory Document

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Supervised by David Turner
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Abstract
This design project explores the possible potential of sites with unliveable conditions that have been overlooked in recent planning schemes in Auckland. There is a need in Auckland for development land that can help ease housing shortages and to reduce the pressure to build on greenfield sites. The design attempts to incorporate contemporary sustainable concepts that are required for architectural developments and explore how their interaction with unliveable conditions effect design outcome. It is expected there will be a clash in agenda between unliveable conditions and sustainable concepts, but this will identify limitations and points of compromise when developing other sites in Auckland. Research is required in this area as architectural outcomes on these sites have created a negative stigma in the past and good development is required to assist Auckland to realising its full potential.
1. Introduction

1.1. Outline

This research investigates how locations or sites that have been left behind, ignored, or put in the ‘too hard basket’, can be used to facilitate sustainable growth in Auckland.

Current predictions indicate Auckland’s population will increase to 2.5 million by 2040, at the speculative rate of 1.2-1.5% per year for the next 25 years. Ultimately, this growth is beneficial to the local economy, but with the current housing stock, housing culture, inefficient land use, and a shortage of houses, Auckland is not prepared for this level of growth. Housing is not the only service Auckland needs to better invest in; public and private services will also need to increase to provide jobs and a sustainable economic platform.

A majority of Auckland’s urban developments are still reflecting the car centric urban sprawl of the 1950's, further pushing out the Auckland boundary, and using greenfield sites inefficiently for low density detached housing. Up to 74.7% of Auckland’s housing stock is of this kind of development - detached villas. This does not reflect the contemporary household trends, in which up to 50% of households are 1-2 people. This increased growth has created a housing shortage and in response Auckland Council has set a target of...

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1.4 Methodology
Research into contemporary literature will determine the current thinking towards what makes a sustainable city. The scope will initially be city wide then will be narrowed to consider the urban environment and specifically investigate the factors which influence architecture.

A site and locale study will be used to investigate the current situation in Kingsland in comparison to the factors identified from the literature review, to see where improvements need to occur to improve the sustainability of the area.

A historical analysis of the urban development of Auckland will also be researched to inform the best course of action and to understand the wider context and why it functions the way it does.

Some statistical analysis will be used to support the argument, but the majority of the information provided from this will have already been determined by the locale survey of Kingsland i.e. demographic data can be obtained from housing density and local services.

A case study will be useful to explore precedents and their interactions with unliveable sites. Local and international examples will be researched.

Based on the information gathered a brief will be formed to further research through design.

1.5 Definitions
Unliveable site- a location that consists of one or more conditions that makes it an unpleasant place to develop on.

Greenfield- a development site that was previously unused for urban or architectural development.

2. Urban Development of Auckland

For Auckland to move into a more sustainable urban model the first area of investigation must be: the current condition of the city, where it has come from, and, with the implementation of the unitary plan, where the city is heading in the future.

From its establishment in September 1840, Auckland’s urban form, or shape, has seen a huge change initially from a response to the natural typography, then by the expansion of the rail network, and now more recently the motorway system, which is the main shaper of the urban environment.

2.1. Pre 1900

The first permanent settlement of Auckland was established by William Hobson when 12km² of land was purchased from local Iwi to be set up as New Zealand’s capital. Located at the base of Queen Street, this area was then known as Commercial Bay. Once the plan of this section was drawn up into lots in 1841, land and parcels were sold by the Hobson administration, and people started to live in the area. Over the next few decades Auckland expansion was driven by the need of access to the port and due to retaliation from Maori in Waikato over land sales, expansion was focused to the south with the construction of Great South Road to the now Franklin region. In 1864, after the end of the land wars, urban expansion continued in the Franklin region, with the towns of Pukekohe and Bombay, assisted by new infrastructure of regular horse and carriage transport, and the invention of electric telegraph.

Brownfield- a development site that has been used for industrial or commercial activity, and is sometimes polluted.
Polycentric/monocentric morphologies- the organisation of a city in regards to the relationship between urban areas and non-urban areas.
Density- the measure of how many dwellings there are per hectare
Sustainable development- a development that meets the needs of the present without compromising the ability of future generations to meet their own needs. 6

Figure 1: Auckland’s urban footprint in 1915.

2. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 5.
3. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 5.
4. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 7.
Urban development was also driven by the industrial activities in the outer suburbs, at this time Auckland was the most industrious city in the country. These industries continued to strengthen the identity of the suburbs they facilitated—bricks and tiles in New Lynn, orchards in Glen Eden and Henderson, and dairy and beef farms in Penrose and Otahuhu.

By the 1930’s cars were beginning to be more present in the urban environment, leading to expansion of road infrastructure, and the state housing scheme was introduced as a result of the Great Depression. With the development of asphalt, road expansion became a more sustainable option for city growth, as it was more durable than traditional materials, which made access easier to Henderson and the North Shore, subsequently leading to suburban expansion since more land was accessible for development.

2.3. 1950–2000

The early 20th century was a turning point of Auckland urban development with the introduction of the electric tram system and increased economic growth from the dairy industry. In 1901 building started on the electric tram system providing public transport along New North, Mt Eden, Dominion, and Manukau Roads. This new infrastructure was the main tool for urban expansion at the time, allowing for increased population growth within the central suburbs of Mt Eden, Panmure, and Mt Albert. A result of this expansion led to the dispersion of society; the middle working class and upper classes moving out of the central city to outer central suburbs (Mt Albert), and eastern and northern suburbs.

Population continued to grow in this period with immigration predominantly from the British Isles, which helped to grow the settlements to the East and South (Howick, Panmure, Onehunga, and Otahuhu). Towards the end of the 1860’s Auckland lost its capital status to Wellington, but managed to maintain economic stability in the region with the help of the gold mining industry in the Coromandel, agricultural industries, and other primary industries such as logging and brick making.

Nearing the end of the 19th century Auckland’s economy started to move into industrial manufacturing as well as the primary industries. Investment into the rail network and public transport (horse carriages, and rail) allowed for growth in outer settlements (Onehunga and Otahuhu) and the birth of new ones (New Lynn, Glen Eden, and Henderson). These rail systems often grew new manufacturing industries around them, creating a working settlement that would be known to produce only one thing, such as New Lynn (brick production), or Birkenhead (sugar refinery), giving the suburb its own early identity.

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Through the second half of the 20th century the urban form of Auckland changed dramatically from an environment built upon public transport, to one in which private vehicles are prioritised. This led to major infrastructure developments such as the Waitemata Harbour Bridge to the North Shore, and the construction of the junction connecting the western, northern, and southern motorways. Consequences of this connectivity were huge for the city’s urban environment, allowing for further population growth in the outer suburbs (Manurewa, Otara, etc.)

Auckland began to realise the large city it would become; thus an urban limit was introduced from the Outline Development Plan to ensure urban consolidation was preferred over urban expansion.

During this time the state housing scheme was still a large driver of urban form, representing a large proportion of suburbs in South Auckland (Otaba, Mangere Bridge, and Papatoetoe). By the 1970’s the threat of urban sprawl was being recognised by local government and to contain sprawl the Regional Planning Scheme of Auckland was created. A key aspect of this plan that had also been considered in the 1950’s was the formation of a compact city with intense urban development. This notion had been used in the 1960’s but had promoted some poorly designed infill and terraced housing. Dissatisfied population would sooner move to outer suburbs than live in a flat with little privacy, parking, and garden spaces.

In the late 20th century the population continued to grow in the outer suburbs, further increasing the effects of urban sprawl. Auckland’s population growth and traffic congestion was at an all-time high. The outer districts of the Auckland area (Rodney, Franklin, and Manukau) were most affected by the population increase of 300,000 during the 90’s half of which populated greenfield sites.

Nearing the end of the 20th century the effects of the policy for urban growth control can start to be seen with the increase of mixed use developments. Government intervention for housing declined and was replaced with a case by case welfare system and private sector supply of housing.

2.4. 2000-Present

From the beginning of the 21st century, urban form began moving to a compact form, with increased investment into CBD apartment buildings and public transport systems. An increase in apartment building in the CBD has resulted in a population growth from 2800 in 1991, to 9000 in 2006.

Looking towards the future of Auckland’s urban form, emphasis will continue to be on improvements to public transport, creating a more compact and intense urban environment, and emphasising characteristics important to Auckland. The Auckland Unitary Plan has recognised this and intends to reinforce policy that regulates urban growth through; controlled greenfield use and expansion, increased intensified urban development, and more investment into public transport. The plan also identifies specific intensification areas, which will provide up to 300,000 new houses over the next 25 years, however, Fontein questions the likelihood of this being possible.

Through his research he analysed these areas based on the limitations set by the plan (setback, building height, etc.) and concluded the intensification zones will only provide a

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18. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 15.
19. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 15.
20. Auckland Regional Council, A Brief History of Auckland’s Urban Form, pg. 19.
further 30-40,000 houses\textsuperscript{25}. He then makes further suggestions to the council on how to achieve such a high number: up-zone land to allow more dense development, be more relaxed with some constraints for developers, and to re-evaluate land outside of the initial intensification areas that has low value and high potential\textsuperscript{26}.

To control urban expansion a rural urban boundary has been outlined in the plan to contain Auckland’s urban footprint in the next 40 years. This land will be sequentially released for residential and industrial development and is supplementary to urban intensification, which will occur at a local level around the city. This has created smaller outlying centres and localised super centres from the expansion of motorway infrastructure. The unitary plan acknowledges this and suggests Auckland embraces these outlying centres be supported by the CBD.

The existing motorway system is the main infrastructure network to connect the CBD to metropolitan areas, and the public transport system is envisaged to connect the CBD, metropolitan, and town centres together. Currently this system is secondary to the efficiency of the motorway network, resulting in traffic congestion issues\textsuperscript{27}. The Unitary Plan recognises this and is investing in public transport network expansion through a city rail link, more bus routes, as well as a second Waitemata harbour crossing for both public and private transport\textsuperscript{28}.

These developments are crucial to preserving the character and the lifestyle of what Auckland is: a coastal and water centric city.

Auckland seems to be heading in the right direction to sustain its growth, through investing more in public transport, evolving to a polycentric urban model, and retaining what it means to live in Auckland.

\textsuperscript{25} Patrick Fontein, Auckland Plan: Total Auckland development potential using a Fine Grain Analysis\textsuperscript\textregistered\textsuperscript{PGA}.
\textsuperscript{26} Patrick Fontein, Auckland Plan: Total Auckland development potential using a Fine Grain Analysis\textsuperscript\textregistered\textsuperscript{PGA}.
\textsuperscript{27} Auckland Regional Council, The Auckland Plan, pg. 13.
\textsuperscript{28} Auckland Regional Council, The Auckland Plan, pg. 13.
3. The Sustainable City

After investigating the urban development timeline in Auckland, hindsight shows that it is easy to point out the mistakes made during the process. Focusing on the private vehicle rather than public transport, and the emphasis placed on detached dwellings rather than investigating higher density opportunities, created an unsatisfactory urban environment. However, the good and the bad decisions that were made along the way have positioned Auckland as it is now: a city with an excellent motorway system, looking to move towards a future with more emphasis on public transport and urban intensification, all of which is progressing to a more sustainable city model.

What comprises a sustainable city? This is a highly debated topic as there are multiple avenues to sustainability (economic, cultural, environmental, etc.) and there are also cities around the world adopting different models, which work in their circumstance, but not in others: where does Auckland stand?

There are two main aspects to consider: the layout or model of the city, and the conditions of which are necessary within the city. The layout or model of the city doesn’t affect architecture as much as the conditions (as architecture can create some of the necessary conditions), but it needs to be investigated to understand how architecture contributes to the bigger picture.

3.1. Growth Patterns

Closely related to the urban models of cities are the patterns by which cities grow, through compaction, dispersal, or planned expansion. Each of these approaches has benefits and consequences for sustainable growth and are argued for and against; there is no clear answer to which method is better, as each performs under different conditions.

Compaction growth focuses on developing at higher densities within city boundaries on brownfield sites, to take advantage of existing infrastructure, such as public transport, to support it. This has been the promoted method since Richard Rogers and others wrote Urban Task Force in the 1990’s. Compaction is a reaction to dispersal, as the main ideals behind compaction is to reduce land consumption, reduce private car use, and to reduce CO2 emissions, all of which are results of urban sprawl. Reduction of CO2 emissions has been questioned by Newman and Kenworthy, to whether it actually does as it claims. Their findings suggest car use is modestly affected by compaction and CO2 reduction is more greatly affected by the cost of transport: if transport costs are cheap, consumers don’t mind travelling further. Furthermore compaction works best to reduce CO2 emissions if developments are mixed use: having work close to home will reduce emissions far more than just single use areas (residential zones). The consequences of compaction are the increased pressure on infrastructure, especially roads and traffic, but this can be offset through public transport services.

Dispersal acknowledges private transport is universal in developed countries and argues growth on greenfield land is better economically as land is cheaper, and socially as it is not as crowded. This growth is commonly known as urban sprawl and is the result of...
Sustainable City Morphologies

Expanding more on the debate between urban growth patterns, the terms monocentric and polycentric are used to describe the arrangement as a completed form, also known as morphology. Monocentric relies on a central urban economic centre, supported by surrounding suburban neighbourhoods, bordered by rural space. Polycentric is a series of established urban areas separated by green space or suburbia, which work collectively as an economic region. Both of these models have been proven to be successfully sustainable in certain contexts. Okabe compares examples of both and suggests if monocentric regions want a more sustainable future they will need to switch to a polycentric morphology before they become too large. He compares the European region of Randstad (polycentric) and the Tokyo city region (monocentric), he then concludes, rating each model in terms of economy is impossible for each region because both examples are economically sustainable, but it is social sustainability which polycentricism succeeds at. The success of this morphology is the recognition of the balance between separation and connectivity: to establish a distinction between urban and rural, and acknowledge they are different. Both are required in the city region to allow for the lifestyles of an urban city, as well as open and rural space only within a short distance. By separating these urban centres, an effective public transport system must also be in place, like in Randstad: it is only an hour train ride between centres. This public transport system is necessary to adapt to changes in social and economic context, as each of the four cities of Randstad (Amsterdam, The Hague, Rotterdam, and Utrecht) have

Auckland has implemented a combination of growth methods: a large amount of Auckland’s growth is from dispersal (Botany, and Albany), compaction from enforced city urban limits in the 1980’s, and planned expansion (Stonefields, Hobsonville Point, and Flat Bush). The future of Auckland sees growth being focused on compaction and limiting dispersal, but reserving land for planned expansion if demand continues to grow, but what shape will the urban form take?

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4. Sustainability and Architecture

Some conditions for a sustainable city have started to emerge from this analysis. These are larger scale attributes that are helpful in containing growth, but do not directly inform architecture. This section will focus on conditions that affect the potential contribution architecture has to a sustainable city, such as; density, urban permeability and access, the mixture of services and transport, place and identity, and urban comfort.

4.1. Density

Density was debated in the previous section: the choice to compact or to disperse became a decision, to aim for a higher density of living now considered necessary to achieving a sustainable city. What is meant by high density?

Increasing density is beneficial to the city for urban development, but alone it cannot improve the sustainability of a city. Jenks and Dempsey show the evolution of high density developments in late 19th century UK led to the creation of high density 3-4 storey back to back terraces, which had densities of up to 385 dph. This created overcrowding, health risks through unsanitary conditions, and a socially unsustainable environment. Figure 10 portrays different architectural solutions, but with the same dwelling density. These forms have different applications depending on the local culture of housing. For instance, the high rise tower block will be appropriate in Hong Kong, but not in Mt Albert. Jenks and Dempsey suggest for higher densities to be successful, the creation of a contextual image is desirable, and more focus on the social implications rather than promoting different industrial and working purposes, but rely on each other as an economic whole.

From the comparison between Tokyo and Randstad, there are similarities with Auckland’s urban morphology. Auckland primarily developed as a monocentric city, whilst other metropolitan centres developed around it, such as Manukau, Pukekohe, Waitakere, and Takapuna. From this growth Auckland is set to change to a polycentric morphology, as seen by the consolidation of the regional councils into a ‘Super City’, followed by the AUP that acknowledges 11 metropolitan centres around Auckland, expansion of public transport infrastructure to connect these centres, and to preserve and allow access to the natural beauty the Auckland region has to offer.

The Auckland region is moving towards a more sustainable polycentric city model, focusing on planned compact development, better public transport, and access to Auckland’s character, but how can architecture contribute?

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environmental and economic advantages.

For density to shape a more sustainable urban environment, other spatial factors need to be introduced, such as urban permeability, delivery of close transport and services, urban comfort, and citizen engagement and place identity: all of these factors positively influence the social sustainability of a city.

4.2. Permeability and Access

Urban permeability is the degree to which an urban environment gives citizens choice of route within it. Permeability and the grain of an environment are closely related and are used to describe the morphology of the urban environment: the relationship between urban form and space.

Siksna’s research on urban tissue of urban environments in the USA and Australia found that the ideal relationship between urban form and space should be proportional and that urban space should be between 30 and 40% of the environment. If there is less than 30% space (as the footprint) there is not enough diversity in circulation, resulting in a coarser grain and larger building footprints. If the urban space is greater than 40% the result is a finer grain with smaller building footprints. This can lead to an inefficient use of resources, and visual permeability can become confusing, as there are too many access points and paths.

Larger footprints, Davies argues, can be beneficial to provide a larger interior space away from the street, such as an urban park, and are more appropriate for taller buildings. Proponents of smaller footprints, such as Krier and Jacobs, state that larger footprints

47. Llewelyn Davies, Urban Design Compendium (London:English Partners/The Housing Corporation,2000), 58

Figure 10: Density can create multiple architectural forms. From http:/ /sagacitymovie.org/2011/no-density/(accessed July 2015).
Figure 11: nolli map highlighting the public accessible spaces. From https:/ /a1rchitecture.files.wordpress.com/2008/10/nolli-map.jpg (accessed August 2015)
cannot provide a type of vitality which smaller ones can; it encourages smaller less bulky forms and more efficient connections to a greater range of services as it creates more moments of sociability and spontaneity – more opportunities for casual social interaction.

The context can be useful to determine the grain of a planned urban development, as it is necessary to understand the existing access routes (train, bus, roads, and footpaths) to be able to integrate. A method to analyse the connectivity and integration of an urban morphology is to use space syntax: a form of quantitative research. Space syntax, developed by Hilliar, is able to map natural movement through an urban environment by evaluating the relationships between paths. This kind of analysis is used to show two values: connectivity and integration. The first is the value for the number of other paths intersecting it, and the latter is how easily it is to get to from other paths. A designer can then compare these two values and determine where pedestrians will naturally move in an urban environment.

4.3. Mixture of Services

There are benefits to gain by having a mixture of programme within a neighbourhood or within a building: it creates a diverse community, a mixture of building form and scale, convenient access to services, and increases vitality. Barton, Davis, and Guise have developed three principles for urban development when designing: (i) have a balance of homes jobs and services, (ii) overlap these to increase the viability and vitality, and (iii) to

allow multi-functional trip sharing. Jacobs encourages this, as different demographic groups will mix in common areas, and the urban environment is used more intensively throughout the day. She also argues that vitality of a neighbourhood relies on the interweaving of different activities.

Not all services need to be represented in a mixed use urban environment as some will not be used frequently enough, such as stadiums and theatres, or require a larger population than just a neighbourhood to support, such as a university. Towers and Barton each developed a hierarchy of services for distance based on how much the service is required. Both of their hierarchies place services that are used more frequently (grocery store) closer to residential development so that they are easily accessed on foot. Having better access to services, through public transport or by foot, should reduce private vehicle use for daily commutes. Further to this, Camona suggests it is more beneficial to have multiple uses in a single building than to have a group of buildings each with a different use, as it creates diversity in section, not just in plan, to reduce transport costs further, and to encourage diversity.

4.4 Identity and Place

For a city to be sustainable it has to be filled with places to go that are memorable and desirable. When designing a place we cannot create a place as Carmona says, but...
rather create an environment that has the potential to be a place\textsuperscript{56}. This thinking stems from Montgomery and Relph, who distilled the elements in urban design that contribute to creating a sense of place, but not a place, as it is too complex to simplify\textsuperscript{57}. These elements are- activity, physical setting, and image/meaning, explained further in figure 18.

Identity and citizen engagement are possibly the most important issues when thinking about architecture and the urban environment. As the private vehicle became the preferred method of movement over walking and public transport, the way in which we engage with an urban environment changed dramatically. Effects of the 20th century technologies have been, amongst others, a reduction in activities that constitute citizenship in cities\textsuperscript{58}; reducing concepts of identity, character, and place from urban environments, and replacing them with bigger buildings partly to facilitate the private vehicle. This problem is further noted by Relph, who describes this phenomenon as placelessness. He sees it as a result of the destruction of distinctive places and standardisation of locations, from the effects of globalisation, mass culture, and loss of place attachment\textsuperscript{59}.

For an urban environment to regain an identity and to have a sense of place, it is reliant on the urban space and what it contains (physical setting), architecture to establish character (meaning), and citizen involvement to gain vitality (activity). To retain the citizenship of a city and identity, the urban environment needs to; be aimed at the pedestrian, have a diverse range of architectural character from contemporary and

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure18.png}
\caption{A sense of place requires a physical setting, image/meaning, and activity. (Author.)}
\end{figure}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|}
\hline
\textbf{Scale} & \textbf{Intensity} \\
\hline
\textbf{Permeability} & \textbf{Public Realm} \\
\hline
\end{tabular}
\caption{Physical setting and image/meaning. (Author.)}
\end{table}

\begin{itemize}
\item Edward Relph, Place and Placelessness, (London: Pion, 1976) ii.
\end{itemize}
Creating a place and making it accessible is important, but making a desirable environment to inhabit is another concern. There are many conditions which affect comfort in an urban environment: the lighting, shade, wind protection, safety from cars, enclosure, and civility, all of which present can make a space pleasant and sustainable. As Matthew Carmona says, basic human needs as represented in Maslow’s pyramid of needs will need to be fulfilled before sustainability can be pursued. Not all needs can be fulfilled by urban conditions, but the first three steps can be the fourth with identity and place.

Microclimate conditions such as solar access and wind in the urban space need to be controlled to form a comfortable urban space. These are both contextually sensitive topics, as different locations and climates have their own microclimate requirements. Givoni’s research exemplifies this, as he compares thermal urban comfort in hot cities and cold cities. He shows contrast between them: in hot cities during the summer the urban design focuses on increasing ventilation, shading, and decreasing dust levels, but in cold cities, increasing sun access and providing protection from wind is more important. It is best if the urban environment is controlled through good design and by natural means. Carmona suggests that a more sustainable approach needs to be taken with the microclimate of urban environments and buildings, where technology needs to be used with the natural

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climate rather than against it\textsuperscript{63}.

Secondly, safety is important in a car-oriented urban setting. There are multiple approaches that benefit the urban environment greatly, and increase the safety of citizens. The first is to reduce the reliance of private vehicles by focusing on public transport and pedestrian traffic in the area. Unfortunately in most circumstances the private vehicle cannot be completely removed, but attempts can be made to integrate different forms of transit more effectively, or to reduce their dominance in the area. Carmona advises to rethink the form of the road and suggests first to rearrange the urban hierarchy so that pedestrians and cyclists have priority, followed by public transport, then the car. Often this results in shared roads, increased footpath width, and speedbumps, consequently it results in a safer pedestrian environment. This approach is advocated by Newman and Kenworthy, who believe most people would prefer a pedestrian and public transport focused environment\textsuperscript{64}, rather than one which is car centric.

Expression of civility in a public space through symbols, meaning, and culture, is important to controlling the social behaviour passively in an urban space. Civility, which Brain describes, is the recognition and allowance for occupation of a shared world without a demand that differences be erased or ignored\textsuperscript{65}, is linked to the identity and the culture of an environment. As Carmona suggests, designers have the ability to set the civility or incivility of an urban space through the use of urban and architectural details\textsuperscript{66}, for example, benches or chairs could be used as a place to stop and rest, but a bench evokes a completely different social engagement from, for instance, a chair, promoting a more engaging social experience.

4.6. Concluding Remarks

Auckland needs to move towards a more sustainable urban form that is supported by a polycentric morphology and promoting public transport use. At an architectural level, higher density, urban permeability, identity, citizen engagement, and well-designed urban spaces are needed. Auckland Council has recognised these needs in urban areas, as is expressed in the Unitary Plan. An issue Fontein identified, and the Auckland Council has not addressed, is there is limited land available to develop in intensification zones\textsuperscript{67}. Primarily urban development would occur on brownfield land, but that also signifies a downturn of the economic environment in that area\textsuperscript{68}. To build there would not be economically or socially sustainable at this time, and, as Fontein suggests, developing here has to be planned carefully to not overwhelm the area\textsuperscript{69}. Newman and Kenworthy say, firstly a sustainable city needs to revitalise its central and inner city, by focusing on transit corridors which are underutilised\textsuperscript{70}. Then, as Fontein suggests, other available land opportunities need to be re-explored outside of intensification areas\textsuperscript{71}, that can be improved by providing a mixture of uses, an engaging urban environment that is flexible and permeable, and which ensures that the area becomes a part of the polycentric city model.

\textsuperscript{63} Matthew Carmona et al., Public Places – Urban Spaces: The Dimensions of Urban Design, 2nd ed. (Kidlington, Oxford: Architectural Press, 2010), 226


\textsuperscript{65} David Brain, “From Good neighbours to sustainable cities: Social science and the social agenda of New Urbanism”, in International Regional Science Review 28, no. 2 (2005).23


\textsuperscript{67} Patrick Fontein, Auckland Plan: Total Auckland development potential using a Fine Grain Analysis(FGA)


\textsuperscript{69} Patrick Fontein, Auckland Plan: Total Auckland development potential using a Fine Grain Analysis(FGA)


\textsuperscript{71} Patrick Fontein, Auckland Plan: Total Auckland development potential using a Fine Grain Analysis(FGA)
5. Analysis of Kingsland

For Auckland to become a sustainable city it has to re-evaluate land that has previously been over looked within the already established urban limits. Compacting town and metropolitan centres around Auckland is a good start, but there are other places of opportunity. Some urban centres have been identified in the AUP for intensification, but there are other centres that have not been designated for intensification areas. Kingsland is one of these areas that sits on a major transit corridor and has some underutilised land.

5.1. Survey: Network

Kingsland is located along New North Road between Eden terrace to the east and Western Springs and Mt Albert to the west. The suburbs supporting Kingsland are Mt Albert, St Lukes, Mt Eden, Eden Terrace, and Grey Lynn. This collection of suburbs make the Albert-Eden district (Grey Lynn excluded), which relies on one another as a whole.

St Lukes is the main shopping centre of these areas, with a mall, big box, and franchise businesses. It is car centric and has a city-wide rail function.

Grey Lynn, although separated by the North-western motorway, is more of a community focused neighbourhood, not as fast paced as St Lukes, with numerous boutique shopping in this area, a contrast to St Lukes.

Mt Eden is highly commercial area, with a lot of office spaces as well as some industrial areas accessed from New North Road. A host of scenic opportunities and sports grounds.

Mt Albert is mainly focused at a student population with the presence of Unitec, as well as the cheap restaurants and cafes. The main activity here is suburban housing and household retailing.

Kingsland is very much a mix of these areas, with industrial areas like Mount Eden, a small amount of boutique shopping like Grey Lynn, but it is also oriented towards entertainment activities such as Eden Park, cafes, bars and restaurants. Kingsland relies on Mt Albert, Mt Eden, and Grey Lynn, for all "high" street shopping, food shopping and all levels of education (primary, secondary, and tertiary).
5.2 Survey: Services

To be a successful sustainable node of Auckland City it is important to have a range of services easily accessible to the growing population of the area. Based on the above research by Towers’ on high density living, and Bartons ‘amenities distance’ wheel, an analysis method will be used to evaluate the services and their effectiveness to the surrounding population of the Kingsland town centre. The services will be separated into six categories:

Health: there are a total of 3 health services in the area, mainly specialty services (orthopaedics and dentistry), and one medical centre within a 5 minute walk.

Education: There are 2 early learning centres near the centre of Kingsland, but no primary of secondary schools within a 10 minute walk. This indicates a reduced number of households with children in the area in comparison to Mt Albert and Mt Eden.

Entertainment: numerous pubs, cafes and restaurants. Eden Park is also across from the train station to the south, with events weekly.

Community: this is the least represented category in Kingsland with only one church, but there are libraries in Mt Albert, Grey Lynn, and St Lukes.

Open Space: there are multiple open green spaces such as Nixon Park, in the north of Kingsland, and two other nearby parks within walking distance, but there is no public urban open space except for an informal space by the public toilets.

In At Home in the City, he determines the necessary services required in an effective higher density circumstance, and the appropriate distance from said services.

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72. In At Home in the City, he determines the necessary services required in an effective higher density circumstance, and the appropriate distance from said services.

73. Health (hospital, dentist, medical centre), Education (primary, secondary, tertiary), Entertainment (pubs, cafes, restaurants), Community (churches, sports, community hall, library), Open space (parks, urban space), and Shops (daily, weekly, monthly).

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Figure 25: The distribution of services near Kingsland Centre.
5.3. Survey: Permeability and Accessibility

Kingsland is well connected into the public transport system with a train station in the centre and major bus routes from west Auckland to the CBD along New North Road, and from south Auckland to the CBD along Sandringham Road. There is no direct motorway access from Kingsland, but a short drive to St Lukes Road offers access to the North-western motorway.

Kingsland has very little permeability, as the urban space is linear as defined by the street, therefore there is little opportunity to connect multiple urban spaces. There is only one connection between New North and Sandringham Road, at the train station, so there is opportunity to connect these two streets.
5.4 Survey: Density

Most of the existing housing stock here are detached houses on moderately sized lots, set out in the early 20th century\(^7\). There are signs of a shift towards higher density living, as some have been converted into multiple flats, as well as 4 storey apartment buildings rising in the eastern end of Kingsland. The dwelling density here is 10.7dph\(^8\), which is slightly higher than the Auckland average of 8.5-10.2dph\(^9\).

\(^7\) The current building ages of the area were compared with the date of establishment.

\(^8\) This is total area of Kingsland including roads. Of just the residential area the density is 21.39dph.

5.5 Survey: Urban Comfort

The town centre sits on the Kingsland ridge along New North Road, looking down onto Eden Park to the south, and to Grey Lynn across the motorway to the north. This is one of the main roads from west Auckland to the CBD and is frequently congested with traffic. It is a pedestrian unfriendly environment, as there are four lanes for vehicles and wide arcing street corners. The topography is harsh on the southern face as there is a 20 meter drop between the ridge and Sandringham Road, creating a visual and physical separation between the two roads. The high ridge does have its benefits as it allows vistas of Auckland’s suburbs, volcanoes (Mt Eden, Mt Roskill, and Mt Albert), and the city skyline.

Solar access is a priority in Auckland’s climate, an issue for the stretch of land on the southern bank of New North Road, which, due to the topography, will have limited sun access in winter months, as does the south-facing street frontage of New North Road.

The prevailing wind in the area is a south-westerly from the Manukau Harbour, which occurs at all times of the year; in winter months there is also a north-easterly wind off the Waitemata Harbour.
5.6. Survey: Kingsland’s Identity and Place

The main demographic in Kingsland are people with a moderate amount of disposable income, with infrequent medical issues, and who do not require a school to be close by. They enjoy local entertainment most weeks and visit Eden Park from time to time. They don’t rely on a car on a daily basis, but most likely have one to use occasionally. This community will be made up of young professionals, flatting or living as a couple, reflecting the high average rent and income. Elderly couples with some financial security could live here, but there are certainly fewer families with young children. The young families who do live here will most likely have a higher than average income and will have to travel out of suburb for schools.

The architectural character of the area is influenced by the historic buildings on New North Road (Portland Building, Post Office, and Pages Buildings), and the original detached villas along First, Second, and Third Avenues to the North.

Currently Kingsland is lacking a sense of place, mainly because there are limited urban spaces. Some existing conditions will help it to become a place: the entertainment culture, as Kingsland is firmly positioned as a day and night entertainment place for the Eden-Albert area, with support from Mt Eden and Grey Lynn, but this could change if Eden Park is re-purposed. Eden Park’s life span is not certain: consequently other cultural activities will need to be added to encourage a sense of place.

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5.7 Survey: Future Kingsland

Kingsland currently has a solid identity of a place of entertainment, a growing population density, a small range of services, and is well networked into supporting areas of the Albert-Eden, but it may lose some of its identity if Eden Park were to move. Opportunity needs to be seen within Kingsland to increase its status in the area. St Lukes, at present, supplies the biggest range of services and jobs, but Kingsland has the greater potential to contribute to a sustainable city.

To accomplish this Kingsland will need to:

- Increase population density to absorb some of Auckland’s growth.
- To preserve these suburbs but retain the identity of the area and create a more diverse range of households.
- Improve Kingsland’s urban form so it is more habitable; reduce traffic, reduce street widths, and create public open urban spaces. This will bring more life to the area, making it more socially sustainable.
- Currently Kingsland is well connected through public transport and motorway system to areas outside, but it is not easily penetrable between parallel streets (New North and Sandringham, First and Second Avenues), so opportunities will need to be found to make a more permeable pedestrian network.
- The range of services available will also need to increase to respond to a denser urban area. Kingsland will not provide all services as some of the supporting suburbs can offer them.
- There is currently limited available good land in Kingsland to develop, so some existing buildings and unliveable sites will need to be utilised. The south facing bank of New North Road is typical of land which will be investigated as a way to develop Auckland:

![Figure 38](image)

Figure 38: An old 1940’s state house in disrepair. (Author).

![Figure 39](image)

Figure 39: A 1900’s villa has been repurposed to a commercial space. (Author).

![Figure 40](image)

Figure 40: The station boarding house. (Author).

![Figure 41](image)

Figure 41: The red represents the building which will need to be developed to contribute to Kingsland’s future. For this project the design will focus on the southern side of New North Road. (Author).

prime space for this project, but too difficult to build on for the average developer to consider.

To continue the culture already established by the entertainment scene and Eden Park, but to make it more sustainable. To create a new but familiar architectural character for Kingsland that is not damaging to the historic buildings. By doing this, a sense of place is more likely to occur.
6. Case Study: Unliveable Sites

To understand the best way to approach these kinds of sites, some areas around Auckland have been selected to see how they have been developed in the recent past. The sites chosen have been developed to variable programmes, but can be categorised as “difficult”, with similar conditions to the one in Kingsland (near a railway, on a steep slope, and with limited solar access).


This building in Auckland sits just off Karangahape Road. The site would have been difficult to develop on due to the slight change in level and limited solar access from surrounding buildings. Regardless of this it has managed to achieve some of the outlined sustainable urban factors:

- The materiality of the building (corten) is a stark contrast to the surrounding brick and plaster buildings, but it still manages to successfully create its own identity in a context that is dominated by historic shop-house buildings. It fails to become a place in its own right (due to its lack of mixed-uses), but Ironbank has become an icon, revitalising Karangahape Road as a place.

- All of the office spaces in the design have a north facing aspect to allow as much solar access into the building as possible. Due to the height of the buildings overshadowing would occur to surrounding properties, the inner plaza of the scheme, and on to Cross Street behind the development.

- The development has a mixture of retail and office spaces that are mixed within the buildings. Unfortunately the mix is only limited to two types, but it is done so as a response to the context, to provide much needed office space.


This development in Auckland is built on a brownfield site that previously held a gasworks building. For the most part the site would not have proven difficult to develop on, apart from the western boundary, because it is a cliff face.

Beaumont Quarter achieves a high density (99dph) from the mixture of terrace housing and apartments on the site. There are multiple options to cater to a diverse range of people.

- Solar access to urban spaces and buildings are not an issue due to the spacing between buildings, site orientation, and positioning of outdoor spaces. There is likely to be a wind issue due to the proximity to the Waitemata Harbour, and the development responds to this by varying the building heights and including tall trees in the urban spaces.

- The development is classed as mixed use, but it is mainly residential terraces and apartments. There are a total of 33 different housing unit types, with most of them being terraces (91%), which should accommodate a diverse community within the city.
Beaumont Quarter is very permeable as there is a good network of pedestrian access ways throughout the development, as well as small building footprints. The terrace houses are grouped together in bunch of 4-8 to create a permeable environment. There are apartments perched on the cliff face of the western boundary that have a public walkway above ground to access them.


This apartment building backs on to the railway near the Mt Eden train station and is a common example of what unliveable sites in Auckland are used for: unsatisfactory apartments.

The development achieves a high dwelling density (132dph), made up of one, two, and three bedroom apartments across 5 floors: this caters to Auckland’s diverse community.

The identity of the development derives influence from the surrounding industrial area by using concrete liberally throughout the building. By doing this it has made effort to integrate into the context and establish a contemporary look.

There is little urban space on the site, but the designer has chosen to include a balcony with each apartment. All of the balconies are on the northern face of the building creating a pleasurable space, but is tarnished by the presence of the railway.

There is no mixture of uses here, only a mixture of apartments that add to the limited pool of households in the area.

The apartments are sited close to buses on Mt Eden Road and New North Road, and a short distance away from the train station. There is no permeability on this site as it is not open to the public.

7. Occupying the Unliveable

Sustainable urban ideals are often not met, or not addressed at all on unliveable sites. That is the aim of this research project: to achieve what would normally be considered unachievable on a site like the one in Kingsland and elsewhere in Auckland.

The following section explores how concepts previously outlined that define sustainability (density, urban comfort, identity, permeability and access, and mixture of services) can form a design agenda, even with “unliveable” sites.

7.1. Density

The aim is to locally increase the housing density of the site to 80-100 dph, or approximately five times the current level in Kingsland. The types of housing units needed to achieve a much higher dwelling density will be different from the current paradigm (3 bedroom detached houses), as the density is limited to 30dph - 45dph. 120-150 dwellings will be needed in a combination of terraced houses and apartments. Four types of residences have been used in the scheme, private terraced houses, private-high density apartments, semi-private apartments, and semi-public apartments.

The terrace houses are designed as an alternative to three bedroom detached villas and are aimed at households which require more space than the following apartments: such as a private garage. The terraces are positioned as a buffer between existing residential properties and new high density public spaces in the design. Private vehicle access from New North Road is also provided to retain familiarity with the contemporary household culture in Kingsland.

The private high density apartments are a mixture of 1-3 bedrooms to cater for a variety of the population growth, as well as cater for the existing population and household...
trends of Auckland. This greatly increases the density of the area and creates separation from the main development to evoke privacy for the residents. The position of this building also blocks the prevailing wind.

The semi-private apartments are a buffer between public and private spaces resulting in a public and a private facing aspect. This adds diversity to the housing stock, unseen in the current housing stock. The semi-public apartments are similar in size, but both aspects face onto public space.

Due to site conditions and sustainability intentions, reaching density at the upper goal will be difficult, if not impossible; densities will be lower than hoped. Urban permeability reduced the size of the building footprints resulting in less shared circulation spaces, and solar access requirements reduced the heights of the buildings. Both of these objectives were hindered by the difficulty of the site. There is, from this design study, a limit to dwelling density on these types of unliveable sites, which forces a reduced density.
For Kingsland to contribute to Auckland as a sustainable city it has to (re)gain a sense of place to stand out from other surrounding suburbs with its own identity. It has been shown previously that Kingsland has a strong community identity (mostly young professionals), and a culture of entertainment, but in architectural terms there is little identity, at present limited to the Pages Buildings and the large number of early 20th villas from the early 1900s on the northern side of the ridge. This is shown in an elevation study of the architecture along the southern side of New North Road.

In the elevation these buildings have little merit, except for the Pages buildings on the eastern end of the frontage group. The rest are all distinctively different, with only a couple showing any similarities that suggest they were built in the same period. What this shows is that Kingsland has grown, with only the buildings on New North Road changing, while the villas at the back have remained the same. The buildings on New North Road have been periodically replaced, but at a relatively slow pace, mainly due to Kingsland’s limited expansion, resulting in the collage of architecture currently seen.

Similar to other older parts of Auckland, Kingsland also has a fine grain to its urban footprint, which will be utilised to allow the project to integrate effectively into the existing context; the design will be a series of small to medium sized buildings to match the grain, rather than a large complex of new building.

The topography of the area is also contextually relevant to the project, as it is sited on a very steep slope. This aspect should be celebrated, by providing access, and through the insertion of new public spaces. Taller building heights on the ridge will emphasise the change in elevation. The building forms should project the land form into their own form, and is done by pitching the roofs down the slope to suggest the building form was rolling down the hillside.
Several different approaches could be taken to develop an architectural identity for Kingsland: create a whole new identity which is new to the area, use the existing context to create something which is inclusive, or combine aspects from both approaches. The latter option is preferred, as the project should be introducing something new to the area, while appreciating and responding to what has preceded it. If the project were to be completely new in identity, it would be hard to justify the connections with the context. Kingsland’s modest history as a place would be over-written. However, the project cannot be pastiche either, as mimicking the context will not present an authentic model for the suburb, or demonstrate progress in the architecture, which Kingsland deserves to have, and which should benefit the intensified centre. Rather reflect the architectural character of the context, but seek to distil the architecture to its basic principles, such as materiality, scale and proportion. Four different architecture rules will be developed for the buildings in the project. The variations will be applied to individual buildings within the project, somewhat arbitrarily, to give a sense of randomness and to replicate the mixture seen on New North Road.

Activity is an important part of place making and for Kingsland to become a place it will need to increase the opportunities for activity to occur. Mixing a variety of different services, while providing social catalysts such as street furniture, exhibitions, or community events, will encourage people engage with the space. Covered open space is also provided to ensure activity continues regardless of Auckland’s unpredictable weather. Some of these activities will need to be community led initiatives. Activity in the community cannot be created by architecture, but it can be anticipated and accommodated.
Urban Comfort

Urban comfort factors of the microclimate and pedestrian safety had the biggest impact on the urban form of this project due to existing site conditions.

There is a limited amount of solar access available to the southern side of the ridge so reducing self-shadowing is a priority: this is done by limiting the heights of the buildings, having multiple building footprints, and manipulating roof form. The building heights are limited to 3-4 stories (10-14m) to remain at a ratio of 1:2 to 1:3 of the depth of the urban space. This is the optimal height to allow sunlight into the urban space for most of the year. The use of multiple buildings in the design prevents a continuous shadow cast across the site; instead it is segmented allowing pockets of light to penetrate. The design has multiple floor planes that create buildings with different roof heights. To ensure these neighbouring buildings do not shade other urban spaces the roof shapes are sloped toward the bottom of the ridge, this effect is shown in FIGURE.

The approach taken mimics what is already in the context: trees and a hillside. The form of the hillside lets wind flow up and over it and the organic tree arrangement will help greatly in protecting urban environments. To protect the site from the prevailing southwest wind a combination of urban space orientation, urban form, architectural form, and landscaping will be implemented. The urban spaces in the design are orientated so the wind strikes the corner of the building breaking the flow, and not the perimeter buildings flat face creating a down draft at the base. The architecture has been formed and detailed to disrupt and redirect the flow of wind: the variation of building sizes, and architectural features, such as balconies, will diffuse wind current, while the rolling roof forms redirect the flow above the design. Existing natural landscaping at the west end on the face of the hill will be retained where possible to diffuse wind flow.

A climate factor not researched as thoroughly as others is rainfall. As it wasn’t identified as a factor that made these sites difficult to design for; but it is something which needs be acknowledged in the design as a requirement for urban comfort. In response to this, sufficient veranda and awnings (for movement) and canopy space (for public urban spaces) are included in the design allowing continuous use regardless of the weather.

The final urban comfort factors are safety, and civility. Controlling the interface between pedestrian movement and vehicle movement is the main concern in this urban environment because the main arterial road travelling between West Auckland and the CBD is also the main urban space. To create a safer environment for pedestrians,
additional urban spaces, urban landscaping and furniture, the creation of a shared road on New North Road, and separating vehicle and pedestrian movement where possible, will be implemented.

Similar to corridors throughout the design, New North Road is a transition space for vehicles and pedestrians getting about Kingsland. This function does not change, but it is redesigned into a shared space for vehicles and pedestrians. The shared space is identified by a change in surface texture and ground plane to matches the surrounding pedestrian spaces and paths. These pedestrian paths lead into the design to encourage dwelling away from the road. The road is narrowed at points (as shown in figure 67) to make it easier for pedestrians to cross and to reduce traffic speed. Landscaping the kerbside creates a physical barrier for pedestrians to feel safe and a visual barrier for vehicles reducing speed.

Civility can be difficult to imbue in a public space as it reflects cultural norms, which can change over time. The parameters that can be designed with certainty are the differentiation between public and private and expected behaviour in public spaces. Architectural detail is a good indicator of what is accessible to the public and what is
private: this can be expressed by physical or visual means. Examples of this are expressed in figures 64-65 and 68. Figure 66 compares two access ways in the design which are physically different to distinguish public (open and inviting) and private (closed, and intimate). The second figure 65B shows how the difference between public and private can be represented by the amount of visual permeability available is through the use of windows. The windows on the ground floor are the most permeable as it is the most public interface, whereas the windows on the apartments are set back and smaller to show privacy.

The environment cannot control behaviour; it can only convey an expectation of it. The design portrays a sense of sociability, community, and place: the canopies enclose part of the urban spaces, and the furniture in them. The canopy segments the urban space suggesting a change in activity could occur there; this is supported by the lack of furniture in this portion relative to elsewhere in the space. This canopy space is transitional and its function is undetermined.

The environment cannot control behaviour; it can only convey an expectation of it. The design portrays a sense of sociability, community, and place: the canopies enclose part of the urban spaces, and the furniture in them. The canopy segments the urban space suggesting a change in activity could occur there; this is supported by the lack of furniture in this portion relative to elsewhere in the space. This canopy space is transitional and its function is undetermined.
Mixture of uses

To sustain the expected population increase in Kingsland, the amenities available will need a more diverse mixture of service than the existing pubs, cafes and restaurants, and for them to be mixed appropriately in the design.

A large majority of services in Kingsland are for entertainment and basic services for families such as a supermarket, schools, and community services are missing. These lacking amenities are supported in surrounding suburbs (Mt Albert Library, St Lukes Westfield), but some will be needed for future population increases. The amenities that will be included in this project are: a library, community services, small grocery store, and a mixture of other commercial spaces—offices, retail, cafes, bars, and restaurants. The intention is to provide amenities for residents in the area, while retaining the identity of Kingsland as the entertainment centre of the Albert-Eden district.

Residential apartments affect the way new services in this project will be distributed and mixed. Currently in Kingsland the amenities are not mixed well as there is a clear separation between live, work, and leisure: which is typical of town planning of this time. Currently New North Road has most of the leisure (bar, café, restaurant) and work activities
industrial and office buildings), while the residential buildings are on the side streets. This separation will be reversed, by mixing the uses within the architecture (including apartments).

The site is segmented into two kinds of areas, public and private, each with a different mixture programmes. The services in the public spaces will be mixed vertically as well as horizontally to create the most diversity. The private spaces will only have residential uses in them so it cannot be mixed similarly, instead a mixture of apartment sizes will be used.

Attaining diversity has not been a difficult task, but there is definitely a limitation to what services can be integrated into an unliveable site. The urban form is highly influenced by the grain of the urban tissue (to effectively integrate into the context), and conscious of the effects of limited solar access resulting in smaller urban footprints. These smaller footprints limit the programme that can operate out of them, because of this some amenities could not be included, such as industrious, automotive services, and large offices: including them would hugely compromise the integration potential of the design.

Figure 71: The platforms each represent an urban space, the blue is public, the red is private. (Author)
75. Permeability and accessibility

The permeability of Kingsland was identified as a major issue for the urban environment as the existing urban space (New North Road) is not effective and is failing the urban environment. The model adopted is a main street or high street type approach with no depth in the urban fabric and little networking to surrounding anchor nodes within walking distance, showing little prospect of an interesting urban place.

To create vitality in a public network a series of urban spaces connected by primary and secondary routes. The primary path will be an extension of the Kingsland strip and will connect urban spaces sequentially down the slope as the most direct path. Secondary paths enable connections between urban spaces not connected by the primary path (figure 77). These subsidiary paths allow quicker movement through the site for people familiar of the area, or for private access to access their apartments from them. The secondary paths will be added or reduced to excessively fine grain public spaces and paths will be limited to 30-40% of site area.

Access to Kingsland is already well catered for with the train, bus, and motorway systems, but accessibility between New North Road and Sandringham Road through the site is difficult due to the steepness and the interruption from the railway.

From design developments, there has been some difficulty creating a path from New North Road to Sandringham Road through the site, due to the steepness and the position of the railway. Through multiple iterations it became clear that the project could not work with one ground plane for the whole site, also the path from top to bottom could not be regular.

The proximity of the railway to the southern property boundary is a challenging design problem. With a single floor plane, the form was obtrusive from the southern side: instead multiple ground floors, each with an urban space was found to be the best...
option, also creating an irregular path that worked better on the steep slope. A series of floor planes creates a form that adheres to the site topography, and creates organic opportunities for urban space. The rail corridor essentially creates a lower floor limit, which could not be built into for pedestrian safety reasons. As a pedestrian focused environment, traversing through the project is a ground level experience but it is also accessible by bus, private vehicle, and cycle.

The amount of vehicle traffic on New North needed to be reduced to allow the centre to establish itself as an urban place. Ideally, the only traffic should be citizens who live, work, or go to Kingsland for leisure purposes, and vehicles that service the area. To relieve pressure from New North Road a new road from the intersection (figure 82) would suffice in diverting traffic to Sandringham Road. This road intervention is a response to the recognition of the issue and not a resolved traffic engineering solution, as it is out of the scope of this research.

The deep embedded reliance of Aucklanders on the private vehicle requires new developments to ensure that they have adequate vehicle access and parking. New parking is located in the negative space under the ground plane, separated from pedestrian circulation paths. This allows the carpark entrance road to enter the site from the west along the back of properties on New North Road, where land is also unusable as it is too close to the railway and at the foot of the bank to the Kingsland ridge.

Vertical access is important on a steep site, and one that has many changes in floor level. The aim is to make most of the site accessible to as many people as possible and to not purposefully exclude anyone. Between public urban spaces the two access ways are slightly different; the primary one has shallow stairs and ramps where possible, and the secondary have stairs. Access between parking areas and urban spaces are catered for by public lifts to allow citizens with limited movement ability ease of access. Within buildings vertical access will be use lifts and stairs where applicable and will often be shared.

![Figure 78](image)

Figure 78: Walking down the site is mainly by stairs. (Author).

![Figure 79](image)

Figure 79: Elevator protrudes through the ground and canopy. (Author).

![Figure 80](image)

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![Figure 82](image)

Figure 82: The red is the path for public traffic, and the black, is for citizens entering Kingsland and the development. (Author).
8. Conclusion

Designing architecture and urban spaces on unliveable sites is difficult, but it is not impossible. It is now understandable why there are few good examples in Auckland of these sites being used appropriately; instead the architectural opportunity of these sites has been wasted on single dwellings, industrial buildings, and sub-par apartments. The site conditions hinder development potential. Initially, it was expected the sustainable concepts discussed could not be met on an unliveable site as there was little, but nearly all of them could be met with only a small compromise to site density, and in most cases provided a better result. The initial dwelling density goal of 80-100dph was difficult to achieve on these sites without compromising the other sustainable principles; the urban environment would have less solar access, be less permeable, and would not have enough amenities to sustain growth. The only compromise from this research is density, but a site with deferring unliveable conditions could perform better.

The presence of unliveable site conditions provoked the requirements for the other sustainable concepts discussed to create a richer design. The steep topography made accessing these sites difficult through traditional means, but by breaking up the floor levels this made occupying the site possible. It provided a platform which enabled greater diversity when mixing services, and contributed to an identity which is rarely seen in Auckland outside of residential dwellings: buildings that respond to the topography. Urban comfort could be seen as the priority of the sustainable principles discussed, as it would often be missing in these types of developments in Auckland or done poorly. This aspect could not be compromised like the others, as it would result in an uninhabitable environment, creating an unliveable site. A mixture of services was the lowest priority and had the least impact in the design because the unliveable conditions had little effect on it. A mixture of services in planning is achievable in most circumstances regardless of conditions, but it can be limited by the sizes of the spaces and the arrangement of the site.

This site in Kingsland is one of many in Auckland that has made development difficult or impossible, but the outcome of this project has shown the potential of them with one or more unliveable conditions, and has proven sites like these can contribute to a sustainable city. There are many sites in Auckland similar to this one in Kingsland and an extension of this research would be to apply the approach outlined to other sites to fully understand the lost potential in unliveable sites.
9. Appendix

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