Future Living in Auckland's CBD
Master Thesis Explanatory Document

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ABSTRACT

This thesis addresses parts of the Auckland Central Business District (CBD) infrastructure that contain sites/land not living up to their potential, such as parking lots and abandoned land. These sites contribute to an ever-changing environment catering for the automobile. They also affect Auckland’s environment by either spoiling views from neighbouring buildings or destroying the streetscape. This has become a norm and needs to be changed, in order to improve Auckland’s urban environment, by using New Urbanism principles.

It is suggested by the Auckland Regional Council that by the year 2036, the Auckland region could grow to about two million people.¹ The intention of this thesis is to suggest New Urbanism principles in the context of the proposed growth, to create an alternative view and to inform and alter the perception/direction of conventional living.

This project promotes the fundamental principle of New Urbanism through creating a small community plan which includes a sustainable living environment that provides people with opportunities to live, work, and play in a single area while still supporting and enhancing the surrounding infrastructure of the city. This will be achieved by designing an exemplary environmentally-friendly apartment complex, which will provide convenient living in close proximity to jobs, businesses and retail, and by promoting a walkable distance between these urban functions.

This apartment complex will cater for the needs of single and extended families. The retail and commercial part of the complex will cater for the family’s everyday needs and services. This project will lead to a planned community which will be connected and interactive; it will provide jobs for dwellers and eliminate the need to commute for some.

This complex concept will promote a pleasurable living environment using materials that complement our sustainable environment and enhance internal living and services. The New Urbanism ideas of walkability, connectivity, mixed-use and diversity, mixed housing, sustainability, and introducing public transport will enhance Auckland’s CBD environment.

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1. RESEARCH PROBLEM

“We have neglected the ground, the sky, and most of the user”

Brolin suggests the reason for this failure of Modern architecture is that architects impose their own views on the public and ignore the needs of the client, the culture, public, tradition, visual and social values of the city at large. People look on the structures, and are told that they are functional and economical, dictated by new materials and techniques but rather they are the architects’ style preferences. This tends to produce places that reject spatial orientation, walkability, connectivity, mixed-use and diversity, mixed housing, sustainability and public transport. Modernists were inspired by the mechanical and technology age.

1.1 The Main Research Problem

Auckland is New Zealand's largest city and holds approximately 401,500 people within its boundaries, and has about 1.25 million in the outer Auckland area. This is about one third of the population of the whole country. This number is expected to grow as Auckland is the centre of growth in New Zealand.

Why Auckland City? The Auckland Regional Council and the Ministry for the Environment, Urban Design Protocol has identified Auckland City as having the potential to be the world's most liveable city. Mayor Len Brown hopes to achieve this “via a range of new initiatives, which focus largely on the city's environmental credentials....[and] he’s asking staff to evaluate the setting of a target that will see a 40 percent reduction in carbon emissions by 2025.” This evaluation will consider enhancement of existing parks and open spaces, improvement to streets, connections, and pedestrian circulation, and defining the spaces between the street and the building frame.

Auckland Regional Council is also proposing several upgrades to the existing framework of Auckland City. These include Lorne Street, Elliott Street, Fort Street, Wynyard Quarter on

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the Waterfront, Auckland Art Gallery development, and several parts of the city's walkways on Queen St.

The reason for this growth in the CBD derives from the way it is planned and how it functions, with most buildings being commercial office buildings. Residents outside the CBD commute to the city either by public transport or private transport. As the automobile is the favourite mode of private transport, much of the CBD's streets are gridlocked; producing pollution and noise, and creating an unpleasant surrounding for pedestrians who walk along these paths every day. The region's land transport strategy has forecasted that Auckland's car numbers will grow from 652,000 (2005) to more than 830,000 in 2016, excluding vehicles owned by over 150,000 of Auckland’s population living outside the areas of the computer modelling system.\(^7\) The Ministry of Transport states: “New Zealand has one of the highest levels of per capita vehicle ownership in the world, with over 700 vehicles per 1000 people”\(^8\).

Because of this, much of Auckland City’s sites are dominated by off-street parking and large parking lots. This has caused the streetscape to suffer; producing ugly, bland structures and abandoned land aligning the paths and walkways for pedestrians, and making it unsafe, unhealthy, and unpleasant.


\(^8\)“Core Strategy - Chapter Two - Key Challenges,” \textit{Ministry of Transport}, \url{http://www.transport.govt.nz/ourwork/CoreStrategy-ChapterTwo/}.
The site I have chosen for my project (see Figure 1.1) is located in the heart of Auckland's CBD, and is currently a prime example of the city’s decay. The site is located at the corner of Kitchener Street and Bankside Street. It is one of many locations in Auckland dominated by the modern movement which started here around the 1920's and 1930's with the advent of standardisation and mass production. The site is surrounded by tall high-rise buildings from the North, East, and West sides, all contributing to large shadows cast over the site. As a result, solar gain and daylight is decreased immensely, increasing the energy requirements for the proposed apartments. (see section 5.4 regarding sun studies). Because of the functionality of the modern commercial office building, the surrounding environment is not taken into consideration, and this has effectively altered road and street layouts, creating small lanes that lack pedestrian quality, such as walkability, open space, and focal points that create a sense of place.

Site topography is another considerable issue, producing an approximately 10 degree slope, which is a fifteen metre drop from the top to the bottom of the site; therefore destroying the walkability of the site, and creating streets and walkways that are unpleasant and unsafe - especially in winter months - and in turn reducing pedestrian movement through the site.

The issues above create a site that is dominated by undesirable facades and unusual spaces, destroying pedestrian life and usable spaces, thus decreasing the value of the site.

**The Link between Auckland City Council Upgrades and my Proposed Project**

Kitchener Street (South) is one of the main upgrades on the council’s list. It involves the redevelopment of the Auckland Art Gallery and renewal between Wellesley Street and Khartoum Place. This project has been underway since early 2011, and has an estimated cost of about $2.34 million, funded by general rates and the CBD target rate. The upgrade will involve widening the footpaths to help improve pedestrian access between the art gallery and Khartoum Place. It will calm the traffic by creating smaller lanes and pedestrian crossing areas, giving pedestrians priority over cars.

In my opinion, this upgrade on the southern side of Kitchener Street will be a perfect integration towards my proposed design of a New Urbanism mixed-use complex in the northern part of Kitchener Street. It will promote a wider community bond in Auckland CBD, and hopefully, be portrayed as a model of living and be added to in future development, increasing connection and providing Auckland with a more sustainable and healthy outlook.

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1.2 Aims and Objectives

This research project is based around adapting and integrating New Urbanism principles into an existing Auckland site. The main aim and objective of this project, is to propose an intervention that tests the principles of New Urbanism in creating a liveable, sustainable community. These principles will include: walkability; connectivity; mixed-use and diversity; mixed housing; and emphasises on a sense of place through urban design.

The proposed project will address the boundaries and limitations of the site and surrounding areas by research and analysis, and my brief will explore the proposed changes by Auckland Regional Council and the Ministry for the Environment (Urban Design Protocol).

This research project is a stepping stone towards a much bigger plan in improving the existing Auckland framework, planting an idea for future developments in and around Auckland City.
2. CURRENT STATE OF KNOWLEDGE

2.1 Introduction towards Modernism
Modernism is an ideology suitable to its age, spanning from World War 1 to about the early 1970’s, with an influence in the 20th century. It was thought to have presented a new way of thinking in the architectural realm. It was described as an „International Style“ applying scientific analytical methods to design stylistic ideas with little or no ornamentation. These ideas were a revolutionary creation, from man-made materials and embraced metal, concrete and glass with the rebellion of traditional styles, adopting a more international influence. Modernism has been criticised for imposing man over nature designs, stripping buildings of personality, and making them from materials not healthy to the environment. Modernism lacked an aesthetic judgement.

Peter Blake acknowledges the words of Philip Johnson that “[m]odern architecture is a flop...[because] there is no question that our cities are uglier today than they were fifty years ago.”

Blake explained that modern architectural failures were due to architects trying to integrate iconic symbols and metaphors from modern art into their designs. It was new and energetic and maybe a little too enthusiastic.

Modernism was thought to be an era which did not take the whole into consideration, resulting in carelessly planned cities. Modernism focused on an elite style, inaccessibility to all, rather than the social movement and essential needs of the people.

2.2 Introduction towards New Urbanism
New Urbanism is making attempts to right the wrongs of the past. Architects, planners and developers work together in smart growth legislation, to return traditional neighbourhoods and sustainable environments, so consumer demands can be met. Robert Steuteville believes by adapting New Urbanism and teaching its language, we can reconnect its links to sustainable design, “If we are going to understand one another, we must use the same terms and agree on their meaning.”

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11 Ibid.
13 Ibid., 2
New Urbanism is blending the old and new communities to create a balance known as neo-tradition, it is not intended as a replication of the past but rather a revitalisation of the past. The aim of New Urbanism is to create a walkable neighbourhood, with street grids that create calm traffic control, living spaces, amenities, and parking that please the people. The principles of New Urbanism improve quality of lifestyle by creating walkable distances to major centres and safe walking routes. There are a variety of building types to suit individual needs, thus catering for a diverse class of people. There is the enclosed backyard for the feeling of separation from the main roads, and mixed use of buildings for shops and office convenience - which again caters for individual and collective needs. There might be small buildings at the rear of dwellings - which could be used as an additional income, and schools and parks within a short walking distance. Streets fit into the natural landscape network, catering for the pedestrians and commuters, and public transportation reduces travelling time and cuts down on pollution. There are community meeting venues, and friendly use of parking at the rear of buildings - all of these principles self-governed, keeping the power of the surroundings in their own hands.

New Urbanism, creating liveable, sustainable communities has plenty to prove. However, it has redefined possibilities and is re-establishing a building language. It is a movement which is flexible and ambivalent; it has its place in integrating the arts, community and the environment. It has opened the way for the collection of shared ideas. Practitioners are working together with the principles of Urbanism to create a sense of community and a holistic model for planning. Moving away the sprawls and isolation, and rather regions are treated as a whole, socially, economically and ecologically. New Urbanism looks at other elements such as site plans, environment, surroundings, community and the people, before leaping into any design or plan. Vincent Scully suggests this in-depth investigation can profit and cover critical issues before design, such as crime, environmental hazards, health and traffic, in building the utopias of today. Leon Krier reflects on New Urbanism as a way of regaining our natural legacies, reclaiming art, our landscapes and environment. We do not need to be victims of our failed ideologies. It does not need to be our fate, rather choice.

14 Ibid.
15 Ibid.
17 Ibid.
18 Leon Krier, Architecture Choice or Fate, Great Britain: Andreas Papadakis Publisher, 1998.
2.3 Beginning of New Urbanism

New Urbanism was first introduced in the United States in the 1980s and was an Urban Design movement to improve the standard of living and quality of life, by fixing and evaluating cities, creating new and altering old neighbourhoods by restoring traditional ways of living. The idea originated from taking the typical old suburban housing developments and making them more environmentally and pedestrian friendly, moving away from the suburban sprawls and essentially the reliance on transportation. The American house owner favourably accepted the idea of mixed commercial and residential use. This mixed living arrangement reduced traffic congestion. The urbanism principles promoted the ideas of self-contained neighbourhoods, with everything one would need within walking distance. New Urbanism promoted a walkable community living with, shops, schools, post offices, parks and the essential everyday living needs without commuting distances in peak traffic. The environmental factors within New Urbanism developments reduced the carbon footprint. Housing was compact with tree lined roads or paths. It is a collection of characteristics that implement alternative tools and guidelines creating a wider range of choice and experiences. New Urbanism encourages collaboration, involving architects, the wider community, and the government to co-ordinate with each other to ensure the quality of urban spaces, by rethinking how spaces and buildings are arranged and by introducing Traditional Neighbourhoods Developments (TNDs), and Transit-Oriented Developments (TODs). New Urbanism is not based on a single architectural style or project but relies on input from a variety of sources, such as using mixed-use income areas, replacing single zoning codes with form-based codes, providing a diverse range of housing and building types, and exploring walkability connectivity, mixed-use and diversity, mixed housing, sustainability, introducing public transport, and providing community building public spaces.

2.4 Principles of New Urbanism

Walkability

This principle is concerned with how friendly an area or path is to walk alone, creating pedestrian-friendly environments and to create a comfort zone between traffic, people and buildings. There are several factors that go into making a walkable space successful, such as traffic, road conditions, safety, quality of the space, size of footpaths, distance between pedestrians and traffic, building accessibility, and street connectivity. By using these factors in designs it can increase social activity and interaction, reduce crime, decrease the automobile footprint, thus creating an environmentally-friendly space.
The idea of walkability can also be related to New Pedestrianism which originated in 1929, with the planned community in Radburn, New Jersey. This community was planned by Clarence Stein, Henry Wright and Marjorie Sewell Cautley; their vision was to create a neighbourhood that would incorporate New Urbanism principles. It was designed to provide a separation between pedestrians and automobile traffic, which was achieved by using separate paths for people and cars. By doing this, it created a pedestrian path without the need to cross any major roads.

**Connectivity**
Connectivity is the interconnection of transportation - such as streets, railways, walking paths, or cycling routes - giving the public accessibility and security routes in which they can travel. It is a grid network of hierarchical paths creating a pattern of links and connections which can easily be used by pedestrians.

**Mixed-use and Diversity**
Mixed-use and Diversity is a combination of different social environments in one neighbourhood/area, such as shops, apartments, and offices, encouraged by reducing the distance between retail, commercial and residential locations. It provides people with the opportunity to commute on foot, reducing automobile traffic and decreasing the carbon footprint, creating better quality spaces.

**Mixed Housing**
Mixed Housing is creating a range of housing types that can be occupied by a diverse range of people, providing a mixed cultural environment.

**Quality Architecture and Urban design**
This provides a sense of place, adding beauty and quality to buildings and spaces.

**Traditional Neighbourhood Structures**
This is a structural system incorporating a habitat that blurs the line between man-made and nature, creating a natural lifestyle. It also includes analysing a site, in terms of providing appropriate buildings and streets, according to the level of density and hierarchy of the area, and promoting quality public spaces, and a discernable centre and edge.
Increased Density
This aims to provide a higher density community that accommodates a range of buildings, residences, services and shops that are within walking distances, creating a more convenient and accessible place to live.

Green Transportation
This is a network of public transport that is pedestrian-friendly, providing easy access to transport systems through neighbourhoods, and creating a stronger link between people and public transport.

Sustainability
This promotes energy efficiency, eco-friendly technologies, reducing the carbon footprint of finite fuels, and promotes the use of local production of goods and material. Adding all these principles of New Urbanism into a design will improve the overall quality of lifestyle and will create places that are naturally sustainable.

2.5 The Congress for the New Urbanism (CNU)
The Congress for the New Urbanism is the primary promoter of New Urbanism in the United States and was established in 1993 by co-founders Andres Duany, Peter Calthorpe, Elizabeth Moule, Stefanos Polyzoides, Dan Solomon and Elizabeth Plater-Zyberk. The views of the CNU are to discourage the spread of sprawls and promote town and urban centre restorations within comprehensible metropolitan regions.
The organisation consists of architects, developers, planners, engineers, public officials, community activists and investors. The goal is to reconfigure suburbs affected by sprawling and introduce traditional neighbourhood planning. The CNU defends changes to public policy and development practices to support principles such as diverse population, income, race, and functions, supporting designs for public transportation, pedestrians, and universal public spaces. The organisation dedicates itself to providing people with a multidisciplinary community that establishes and reclaims local history, ecology, and building practices.

2.6 Auckland City and its involvement in New Urbanism
Much of Auckland City has been affected by Modernism and has become a city for the automobile. This is seen nearly everywhere, with high traffic flow through the streets, and very little buffer between roads and walkways. The automobile has dominated the city with
large parking areas. Auckland Council is now trying to right the wrongs of the past by introducing upgrades to the city, which involve using New Urbanism principles, such as shared spaces, spaces that are vibrant and attractive and are people-friendly. Creating streets shared by cars, bicycles, pedestrians, and limiting car access and providing walkability. The parts of the city that will be upgraded are: Lorne Street, Elliott Street, Fort Street, and the Auckland Art Gallery development. The council will also be upgrading several parts of the city’s walkways in Queen St.

2.7 Urban Design

The Urban design theory is a study of public places and its concern with streets, squares, boulevards and public parks as well as the building facades that surround them. Cliff Moughtin describes Urban Design as the interface between architecture and planning, requiring the skills and knowledge of both disciplines.\textsuperscript{19} He explains that the complexities of many buildings form a single composition. This means that the streets, public parks, and building facades define the outcome. The town planners and architectural designers have to create a balance between public and private domains when creating urban designs.

Understanding the people

Tension erupts when principles exclude people from being involved in the design process. It is felt that if people are involved from the beginning it will promote creativity in the design. Cliff Moughtin suggests that cultural expression is never static and is ever-changing through social, economic, political, and religious aspects.\textsuperscript{20} The urban designers, architects, and the planners need to be open-minded for a successful outcome. The level of participation should include appeals, questioning, public awareness and press involvement. By asking the right questions of how and where people live and work, and their educational needs, gives them respect and dignity which is needed to promote a healthy community.

How this will influence my design

The form of the urban realm, and its concern towards the public, defines a new way of thinking. Considering how the viewer moves through spaces, how their eye is lead through a space. How they react to external and internal architectural space. What is the feeling, when relating to colours, textures, and forms? Cliff Moughtin suggests understanding and involving


\textsuperscript{20}Ibid.
people in the design process has created a dilemma, “[t]his dilemma is caused by the tension between the desire to practice, and the art form based upon method and principle, while, at the same time, involving people actively in the design process.”

*Basic Design concepts suggested by Cliff Moughtin*

Order

Order is a basic principle in design, which explains the natural order, the balance or blend between the natural environment (landscape) and the architectural design. Kevin Lynch describes order as a communication process of ‘imageability’ creating a perceptual order of the whole design.

Unity

Unity is said to be the first and most important aspect of urban design. Unity creates composition of proportion and connection, creating order out of chaos. Cliff Moughtin suggests, architects should take concrete ideas and express them in an abstract way. He explains this as a clear expression of a single idea; it cannot be composed of scattered elements.

Proportion/Scale

Proportion relates to geometric forms, creating duality and relating to the adjoining elements of a design. Proportion is making sure that one part of a design is not dominating adjoining or connecting elements. Unified and balance are key words when talking about urban design, as are scale and harmony. The scale is appropriate in relation to people needs, building types in the same setting and the natural surroundings, all creating harmony, unity and order with the existing developments.

Harmony/Proportion

Harmony plays a vital role in development planning. Harmony is created when all the concepts are analysed and interwoven in the final design. Moughtin (1992) sees these as important architectural tools for a successful outcome.

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21 Ibid.
22 Ibid.
Symmetry/Balance and Rhythm
Symmetry design is best described by Moughtin, as balance between all parts of a human body, working in relation to other parts creating a harmony. The equal balance of length, width, height and breadth, with an equal weight and distance distribution. Asymmetrical design is considered a challenge in urban design because it is more complex, and should have attention paid to the focal point at the centre of the design with all parts learning from this.24

Rhythm, Harmony and Contrast
Again, Moughtin describes rhythm as the human reflection of a dancer moving with energy and controlled motion and direction. These relate to emphasis, interval, accent and direction in architectural design. Without the element of contrast in design the outcome would be bland, however, one must avoid perceptual overload. The contrast balance between the hard and soft landscape, vertical and horizontal directions of space, creates a balance between all the essential elements of an urban design; order, unity, scale and proportion, harmony, symmetry, and rhythm.25

25 Ibid.
3. INFLUENTIAL FIGURES AND PRECEDENTS OF NEW URBANISM

3.1 Influential Figures of New Urbanism

Andres Duany & Elizabeth Plater Zyberk
- Andres Duany - born 07/09/1949 (American architect)
- Elizabeth Plater Zyberk - born 20/12/1950 (American architect)
- Founded design firm, 'DPZ' Duany Plater Zyberk in Miami Florida, and is a major leader in urban planning
- Major Architectural works - Seaside in Florida, Kentlands in Maryland, and Downtown Rosemary Beach in Florida
- Well-known authored texts – „Suburban Nation: The Rise of Sprawl and the Decline of the American Dream”, and „The New Civic Art”

Leon Krier
- Leon Krier - born 07/04/1946 in Luxembourg City, Europe
- Architectural theorist and urban planner
- One of the most influential architects in New Urbanism movement
- Major Architectural works - Poundbury in England, contributed to Seaside in Florida, and the New Neighbourhood Centre in Alessandria, Italy.
- Well-known authored texts – „Architecture Choice or Fate”, and „The Architecture of Community”
- Krier is well-known for his support towards Classical and Traditional architecture
### 3.2 Architectural Precedents of New Urbanism

<table>
<thead>
<tr>
<th>Seaside, Florida, USA</th>
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<tbody>
<tr>
<td>- Designed by 'DPZ' Duany Plater Zyberk</td>
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<tr>
<td>- Master-planned community on the Florida Panhandle</td>
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<tr>
<td>- Founded by Robert Davis in 1979 who was a Developer/Builder</td>
</tr>
<tr>
<td>- New Urbanism-based community</td>
</tr>
<tr>
<td>- It included architects such as Leon Krier and Robert A.M. Stern</td>
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<table>
<thead>
<tr>
<th>Kentlands in Gaithersburg, Maryland, USA</th>
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<tbody>
<tr>
<td>- Designed by 'DPZ' Duany Plater Zyberk</td>
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<tr>
<td>- One of the first attempts to create a traditional neighbourhood community</td>
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<tr>
<td>- The development began in 1988, using traditional principles such as walkability and mixed-use developments</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Poundbury in England</th>
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<tbody>
<tr>
<td>- The overall plan was developed by Leon Krier in the late 1980s</td>
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<tr>
<td>- Developed using New Urbanist principles, intended to encourage walking, cycling and public transport, decreasing car dependency.</td>
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<tr>
<td>- Mixed-use development</td>
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<tr>
<td>- Designing the development around people rather than the automobile</td>
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<tr>
<td>- Aimed to provide a high-quality environment</td>
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3.3 Other Influential Precedents

Celebration, Florida, USA
Planned community created by a real estate division of The Walt Disney Company
Founded in 1994
Architects, Peter Dominick and Robert A. M. Stern were one of many commissioned to create the master plans and designs.

The Spanish Steps in Rome, Italy
- A set of steps that climb between the Piazza di Spagna and Piazza Trinita dei Monti
- Widest staircase in Europe
- Built in 1723-1725
- Designed by architects Francesco de Sanctis and Alessandro Specchi
- Contains 138 steps

The Arc de Triomphe and Haussmann's Grand Avenues, Paris
- Haussmann's twelve grand avenues, radiating from the Arc de Triomphe - one of the most famous monuments in Paris
- Arc de Triomphe - designed by Jean Chalgrin in 1806
- Haussmann's renovations of Paris in the 1860s lead to the design of the Grand Avenues
4. DEFINE PROJECT

4.1 Brief
The intention of this project is to design a model which demonstrates an enhancement in Auckland's living environment, helping to inform the design outcomes. This will be achieved by designing a mixed-use apartment complex that addresses architectural researching issues, problems, and solutions that have been explored in the past.

The reason for this project is to investigate the possibilities of improving Auckland’s city infrastructure, presenting future architects with a working model to use when improving other parts of the city and used in a context for bringing about New Urbanism improvements and overshadowing the existing failure of the Modernist Movement.

4.2 Site
The site I have chosen for my project is located in the heart of Auckland's CBD, and is currently a prime example of the city’s decay. The site is located on the corner of Kitchener Street and Bankside Street, and is currently used as Chancery and Tournament car parking, which hold around 850 cars.

The location of this site has great potential for being a link between central Auckland city and the University of Auckland. The site is very steep and has a slope of about 10 degrees which is a drop of 15 metres from top to bottom. The site is bounded by high-rise blocks from the North, East and West sides, these are the WHK and RJJ buildings, Vero Tower, AXA building, Fonterra Centre, and Waldorf Apartment block. Albert Park is seen from the south of the site and Chancery Square is located on the west site on Bacons Lane.

Figure 4.1 Location of the project site in Auckland CBD context
4.3 Site Images

Figure 4.2 Aerial view of selected site
--- Red line shows selected site location (on the corner of Kitchener St and Bankside St)

Figure 4.3 Site from Bowen Ave (site is located behind the trees)

Figure 4.4 Site from the top of Kitchener Street looking West
Figure 4.5 Site from corner of Bacons Lane and Chancery Street, looking Southeast

Figure 4.6 Site from corner of Bacons Lane and Kitchener Street, looking Northeast

Figure 4.7 Site from corner of Shortland Street and Emily Place, looking South

Figure 4.8 Site from Shortland Street, looking East

Figure 4.9 Site from corner of Chancery Street and Bankside Street, looking West

Figure 4.10 Site from Bankside Street, looking North
Figure 4.11 View from site looking outward to the South

Figure 4.12 View from site looking outward to the West

Figure 4.13 View from site looking outward to the Northeast
5. SITE ANALYSIS

Figure 5.1 Functions of surrounding buildings

Figure 5.2 Walking radius from the site (shows a 5 minute (min) and 10 min walk) (analysis shows that most of Auckland CBD can be accessed within a 10 to 15 min walk)
5.1 Analysis - Squares and Public Spaces in Auckland's CBD

Pedestrian routes are one of the most important elements in creating great architecture design. By looking at Auckland’s existing squares and public areas it will give some indication of how size, shape, and function works. Displayed above are some of Auckland’s main public squares. This gives a better understanding of the space layout and function.

What was found by doing a basic figure ground diagram was that most of these squares or plazas are very open, exposing the space, making it larger than it really is. This increases the height to width ratio, making it difficult for the spaces to accommodate small events. By incorporating multiple spaces it will give my design an integration of areas, which will be
unique, creating a multi-functional area. Entry and exists are also important features to consider, giving people choice in the way they interact with the spaces.

5.2 Auckland Council Upgrading Kitchener Street (South)

In early 2011, the Council started the upgrade between Kitchener Street, Wellesley St and Khartoum Pl. The upgrade will cost $2.34 million and involves improving pedestrian access
by widening the footpaths. Short term car parking will be provided and priority will be placed on pedestrians, by reducing the southern end of the road and adding a raised crossing area in front of the art gallery.

Part of this upgrade is the restoration and expansion of the Auckland Art Gallery. This will involve strengthening and modernisation of the existing heritage building.

The upgrade on Kitchener St is a perfect link to my proposed design on the northern end. This upgrade connects and links with my design, creating a wider integration into Auckland’s fabric and bringing a large pedestrian count to the bottom north side of Albert Park.

5.3 Site History - Air Raid Shelter Tunnels

Site history records show evidence of air raid shelter tunnels under Albert Park. The tunnels are located directly beneath Albert Park and were built by council workers in 1941 during World War II, just after Pearl Harbour. The tunnels were air raid shelters which housed first aid posts, toilets and airshafts. They were designed to hold more than 20,000 people.
Figure 5.8 Line drawing of air raid shelter, and location of landmarks (document from Auckland City Library)
The tunnels consist of:
- 9 horizontal entrances (Figure 5.8)
- Main and secondary tunnels, the main tunnels which run from Constitution Hill to Victoria Street are almost 620 metres long. The narrowest tunnel is about 2.06 metres wide and 1.98 metres high. (Figure 5.10)
In 1946 the tunnels were sealed and filled in with clay bricks. The total volume of the tunnels is around 27,000 cubic metres.
Incorporating Albert Park Air Raid Shelters into my Proposed Design

Because of the close proximity of the tunnels to the site and its connection to other parts of the CBD, this potentially creates an opportunity for a future transport system, by transforming the existing tunnels into a tram system, using my site as one of the nine stops will improve transport flow from and to my site, decreasing car parking and traffic congestion. This idea would also produce an extra/alternative transport system.

Existing tunnels will act as a connection to the wider part of Auckland, creating a chain of paths which will lead in and out of Chancery Street, producing more pedestrian life in this area because of its convenience and easy public access.

Figure 5.11 and Figure 5.12 show proposing a future tram system in the existing tunnels would be possible and plausible because of the structure quality of these tunnels. This is seen, in Figure 5.11, by blast block and side passage. In terms of a tram system, these baffles could be used as intersections, a place for trams to change track before swapping sides. By doing this, it would decrease the time intervals between tram stops. The baffles could be used as stopping stations, or emergency lanes. Ventilation would not be a problem because of the existing vent system which tunnels up into Albert Park (Figure 5.13).
Because of this direct connection to the site, it would provide the perfect connection to the other parts of the CBD, producing a strong pedestrian link, especially in conjunction with the proposed upgrades of the Auckland Council. This connection is shown in Figure 5.8 by the variety of tunnel entrances - Tunnel 1 Wellesley Street, Tunnel 2 Khartoum Place, Tunnels 3, 4, and 5 Victoria Street, Tunnels 7, 8, and 9 Stanley Street.

Figure 5.13 One of the vent system holes from the top of Albert Park

Figure 5.14 Entrance of tunnels 3, 4 and 5, which lead out into Victoria Street

Appendix 8: Kitchener Street entrance to tunnel complex with inspection hatch installed. Taken from Bourke

Appendix 9: Kitchener Street entrance to tunnel complex before inspection hatch was installed. Taken from Bourke

Figure 5.15 Entry of tunnel 6 which leads out into Bacons Lane (one of the lanes that run along my site)
5.4 Sun Study

Figure 5.17 shows the starting process of the sun study on the site. The site was divided into 17 different sections, all leading out from a single centre point. The idea behind this was to produce several sections which would cut through the site producing data points/lines, indicating heights of buildings, levels of the ground, and creating a series of sectional cuts (refer Figures 5.18 and 5.19). These sectional cuts were then analysed with the help of the Auckland sun diagram (Figure 5.16), producing a combination of shadows, determined by month, angle, and time of day.
As you can see in Figures 5.18 and 5.19, each section cut corresponds with the time of day and directions in which it cuts through. As a result, it produces a series of section cuts showing the degree of shadow exposure according to the conditions of the site. Doing this produces data that can be used in conjunction with the proposed design to ensure an accurate estimate of how the site reacts to the neighbouring buildings and their shadows.

Figure 5.18 Analysed cross-sections of building height (Blue), ground level (Green), and the casting shadows (Red). This study is on the summer month day of December 22\textsuperscript{nd}

Figure 5.19 Analysed cross-sections of building height (Blue), ground level (Green), and the casting shadows (Magenta). This study is on the winter month day of June 22\textsuperscript{nd}
Figure 5.20 shows an abstract version of the sectional cuts, producing lines showing heights of buildings (Blue), and level of the ground (Green). This produces a series of lined data calculating the degree of exposure of each section, and cut in terms of the overall differentiation. Doing this produces data that can be used during the design process to help understand level change, and the intensity of areas.

The shadow data collected from the sectional cuts from Figures 5.18 and 5.19 was then placed back into Figure 5.17 producing sets of data for both summer and winter months, showing where the shadows of the existing neighbouring building would land in conjunctions.
to the ground levels. Producing a map showing areas of the site that receives sunlight during the whole day. This data is shown in Figures 5.23 and 5.24.

As you can see in Figures 5.23 and 5.24, there is a dramatic difference between the summer and winter in terms of shadows cast on the site.
5.5 Traffic Analysis

Figure 5.25 above shows the intensity of possible traffic congestion around the site. This is shown by a red line, and the thicker the line, the more congested the street, road or lane might be. The red circle indicates the intensity of the intersections surrounding the site, the bigger the circle the higher the intensity. As you can see, the most intense places are seen in Shortland Street and Princes Street, evident by the size and width of the roadway as well as the number of inter-leading roads connecting to them. By doing this analysis, it gives a better understanding of the main automobile paths as well as the possible pedestrian paths creating links to the main public areas.
6. DESIGN PROJECT

6.1 Design Brief
Project: New Urban Community

Current Sites
Chancery Car Parking Lot on the corner of Kitchener St and Bacons Lane
Total = approximately 5,000m²
Tournament Car Parking Lot on the corner of Shortland St and Bankside St
Total = approximately 2,300m²
Total = 7,300m²
Overall Site Coverage around = 16,000m²

The Programme
Retail ranging from 30-60m²
- Internet /Cafes
- Souvenirs shop (New Zealand Tourism)
- Dairies
- Bar
- Clothing Shops
- Fresh Food Shop
- Library (University Students)
- Small Food Court
- Small Takeaway Stores
- Game Arcade
- Small Gym Centre
- Hardware Store
- Stationary Shop
Total around =7,189m² (number includes commercial)

Residential ranging from 30-90m²
- Studio Apartments (for University students)
- Family Apartments (Long Term)
• Single Apartments (Long Term)
• Tourism Apartments (Short Term)

**Overall number of apartments = approximately 200**

**Total = approximately 28,000 m²**

**Commercial** ranging from 60-80m²

Small Business Offices (range of accommodation)
• Banking
• Computer Repairs
• Tutor Service
• Study Link Office
• Restaurants
• Post Office
• Laundry/Dry-cleaning
• Travel Agencies
• Printing and Copy Shop

**Total = approximately 7,189m²** *(number includes retail)*

**Extras**

• Future Extension - Tram Stop/Station (positioned on Bacons Lane - free public and tourism transportation)
• Walkable routes through the site (easy access to each part of the site)
• Underground car parking (for occupants)
• Off street parking (temporary)
• Service lane(s) (for Market Place, Retail, Commercial offloading bays)
• Private lane for occupants
• Small park area (connected to the Albert Park area)
• Fountain
• Bicycle stations
• Market Place
6.2 Principles of my Proposed Design

Walkability

Figure 6.1 Existing Framework of the site
--- Red lines show roads, lanes, and streets
--- Thickness of lines indicates density of traffic
--- Blue line represents walkable pedestrian paths (excluding footpaths on roadsides)

Figure 6.1 above shows the existing road structure of the site and its surroundings. As shown, walkable areas are limited to roadides (except for Chancery Square which displays some pedestrian-friendly walkable areas). This presents a site influenced by the automobile, with the focus on roads, streets, and lanes instead of walkways, paths, and open public spaces. Because of the small footpaths along the roadside, it leaves very little buffer between pedestrians and traffic. Another issue is the steep slope which runs throughout the site, making it very difficult to walk from the top to the bottom of the site, as there is no evidence of easier alternative paths. All of the above issues produce a site that struggles to attract the public because of its lack of access, comfort, and quality of space.
Figure 6.2 above shows the proposed site plan. The design has produced an internalised pedestrian environment, composed of many alternate routes, entries, and exits providing choice and freedom of direction through the site. The exclusion to the main roads provides safety and security from high speed vehicles creating open public areas, not disturbed by noise or pollution, and providing people with comfortable, pleasant and socially-active places. This does not mean vehicles are excluded from the site as most of the pedestrian paths and walkways are large enough to fit vehicles through. This access would only be for services and emergency functions (including car access for packing and unpacking the market stalls). The purple lines on Figure 6.2 display internal routes; providing shortcuts through the site as well as wheelchair access.
Connectivity

Figure 6.3 shows a grid network of hierarchical paths for trams, buses, and cycling routes, creating a pattern of links and connections, which can easily be used by pedestrians; this way people are linked to the wider social activities. The use of transportation such as streets, railways, walking paths, or cycling routes, are services giving the public accessibility and security routes in which they can travel. It is important to improve, increase and retain these connections so that the community runs productively and functionally.
The proposed design incorporates a mixture of retail, commercial, and residential units in close proximity. The design has been planned so the retail and offices are on the ground floors and the apartments located on the upper floors, which is seen in Figures 6.4 and 6.5 by the located units and blocks. The retail will consist of cafes, dairies, takeaways stores, restaurants, and the like (refer to the design brief pg 36 -37 for the full list).

**Apartments**

The following figure (Figure 6.6), displays a common apartment layout used in my proposed design. The diagram shows both the private areas (Blue) and public areas (Orange). The apartment layouts were planned to create quality interior space. This could be achieved by separating the apartment into areas of function, giving each function a specific size and location in terms of daily routine, convenience and accessibility.

The plan is separated into six areas: Living, Dining, Kitchen, Bedroom, Toilet, and Entry Hall. The Living is situated in the centre of the plan and is the largest area in the apartment, as it is the area in which the client or occupants would probably spend most of their time. The Entry Hall is a buffer between the private and public activities. The Kitchen and Toilet are placed close to the Entry Hall, because they are significant to everyday use, and this creates easy and quick access. The Balcony (Light Green) can be accessed through the Dining area, Living area, or Bedroom depending on the location and size of the apartment, and is used as an intermediate area between indoor and outdoor space. The apartments are situated facing inward, towards either the courtyards or boulevards, giving full views of the outdoor space,
this is especially important for family members, giving them a line of sight for when their children play in the surrounding courtyards.

Figure 6.6 Showing private and public sections of the apartment layout. Arrows show direction of movement through the spaces.

Figure 6.7 Showing section through site. Line of section is displayed on Figure 6.5 as a red line (section shows position of retail and offices by the red squares)
Figure 6.8 Showing apartment layout (Scale is at 1:200) showing stairwells and balconies.
6.3 Axial Composition

Much of the design was developed through consideration of walkability through the site, as well as sun studies for day lighting. These influenced the design immensely in the way it is formed and functions.

Figure 6.9 Showing axial composition (show the original contour lines of the site). Number refer to contour heights/level of the site in metres

The number shows the height of ground level in metres

---- red Lines show axis

The original site data shows the contours running almost parallel with Bankside St and Cascade down into Chancery and Fields Lane. With the combination of the site data and sun study, the study is presenting a perfect opportunity to align the structure and paths of my proposed design along the axis of the site contours. The benefits of this create long flat walkways, which are sloped at around 1-3 degrees, potentially decreasing the original height
of the site. This produces a more pleasant walking path than cutting across from Princes St to Fields Lane.

*Axis 1* is the original Bankside Street. The street runs from the top of Kitchener St to Shortland St. It is the only street that runs through the proposed design and will mainly be used by the residents and the public as a service lane and/or temporary parking. The axis is aligned with three story buildings on each side, creating the edges of the space. The axis runs from contour level 30 down to 27.5, which is an approximately 1-2 degrees drop.

*Axis 2* is the proposed Boulevard, which runs from Kitchener St to Shortland Street. The Boulevard will be used as a pedestrian transitional space which connects Shortland St to Albert Park. The axis’ main purpose is used to draw people in from both sides. The Boulevard contains a bridge which connects to Albert Park, this runs over Kitcheners St. The bridge structure creates a landmark and focal point, which is enhanced by the line of trees and benches situated in the centre of the Boulevard. In the centre of this axis is a large fountain marking the intersections of crossing axes. This provides another landmark in which to show location, importance and status of the outdoor space. At the northern end of Axis 2 is a small covered arcade indicating the main entry of the site from Shortland Street, acting as an outdoor shaded area for market stalls or cafe seating. This axis is the only one that receives light throughout the whole day (Refer to Figures 6.10 and 6.11). The axis runs from contour level 25 down to 22.5, which is an approximately 1-2 degree drop.

*Axis 3* also runs from Shortland Street to Kitchener Street, and changes level halfway from contour level 22.5 down to 20, which is a drop of 2.5m. At the centre of the axis is a large tree with grass landscaping and circular benches marking the intersection of the three different axes. This part of the axis site will be used as an outdoor reading, eating, and local market area. Two main factors influence the reason for placing the heart of the market in this location: firstly, it is connected to three different axes, creating more pedestrian traffic in the area; secondly, its close proximity to the WHK and RJH office building, which creates a landmark for people to recognise. The convenience of offices not operational on Saturdays and Sundays means the market can be fully operational without disturbing local office residents. The bottom level of these office buildings will be retail, producing pedestrian activity during the weekdays, when the market is non-operational. This will serve as an outdoor eating and lunch area for people working in these buildings.
Axis 4 runs from the centre of Chancery Square to the heart of the market place. This axis was created to bring people from Chancery Square into the site and vice versa. The axis changes contour level from 17.5 to 22.5 up to the market place, which is a drop of 5 metres. To create the transition between these two levels is a large staircase system with an overlooking balcony. A small fountain is connected to the underside of the balcony producing a landmark and focal point when looking from Chancery Square. The axis runs through a series of soft and hard spaces adding a sense of character and dimension when walking through the space.

Axis 5 runs from the corner of Bacons Lane and Kitchener Street and intersects axes 3 and 4. Its main propose is to draw people in from the south part of Kitchener Street. The axis splits into three producing alternative routes, and has a flat ground plan from its centre point, then moves up or down according to the direction and location of its path. The central axis, out of the three, runs towards the large public building designed for public activities and recreation.

Axis 6 runs from Princes Street in the heart of the proposed design. It intersects axes 1, 2, 3 and 4. This is probably one of the most important axes of the design because of its path through four monumental landmarks of the design. This includes the market place, large fountain, monumental staircase and the clock tower. The axis drops through a series of levels. The first is from Princes Street running into Bankside St, with the drop between these two spaces being around 10 metres. This is solved by the Clock Tower, which acts not only as a landmark for the site, but as a spiral staircase that runs through the core, helping to create a link between these two streets. The second drop in level change is from Bankside Street to the Boulevard, with the level drop being about 6 metres. This is solved by the use of the monumental staircase creating the link between the spaces (the staircase was inspired from the Spanish Steps in Rome, Italy). The Staircase, Clock Tower, Fountain, and Market Place not only produce character along the axis but give people a sense of place.
6.4 Sun Data and its Relationship to the Design

Figure 6.10 Showing the 'sun analyses' being placed back to the new proposed plan. (shows summer data)
Figure 6.11 Showing the 'sun analyses' being placed back to the new proposed plan. (shows winter data).
6.5 Facades

Beauty will result from the form and the correspondence of the whole, with respect to the several parts, of the parts with regard to each other, and of these again to the whole; that the structure may appear an entire and complete body, wherein each member agrees with the other, and all necessary to compose what you intend to form.  

The proposed facades are a combination of traditional architecture designs, individually contracted by different architectural companies, incorporating individual identity, portraying character and beauty. The architects that would be assigned for this particular job, would consist of a mixture of New Urban and Traditional designers, which would help control and maintain the traditional manner. Figure 6.12 above presents an example of facades, demonstrating a streetscape, and shows a variation in roof pitch, roof height, building width,

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building height, window dimensions, window numbers, materials, and overall appearance. Building materials would consist of brick, stone and plaster facades, concrete tile and corrugated iron roofing. The main structural system will consist of a combination of steel, concrete and wood framing. By producing a range of slight differentiations in materials and sizes, it gives the space and building boundary a sense of character and variation leading the view or user to the next space, without getting bored of the same facade. It provides better circulation, as people would want to move around the site to see what's around the corner.

*Why this type of design?*

Traditional architecture is not an architectural style, but rather an attitude towards culture, building forms and lifestyles. Traditional architecture has always taken into account the user, and the view; acting as a non-static architecture, not frozen by a particular timeframe, but rather a natural movement, displaying quality of being. Most of Auckland City is covered in glass and steel dominated by bland modern structures, producing high buildings and tight spaces. People prefer interesting spaces, places, materials, and Vitruvian values, and human scale, giving them a sense of place.
6.6 **Design Process - Development**

1. Chosen concept - designed using the sun study data from the research. Producing a radial/fan design, capturing light from the north

2. Looking at axial composition, trying to create paths linking Shortland Street and Kitchener Street. Redefining lower courtyard space for better walkability

3. Redefining the lower courtyard space to produce a Streetscape along Bacons Lane

4. Redefining spaces to produce better axial composition and outdoor spaces

5. Looking at definition of spaces and their connection to Albert Park

6. Looking at and developing the corner of Bacons Lane and Kitchener Street
7. Axonometric shows building form and spaces

8. Further developing into building shape and outdoor spaces, and their connection to the surroundings

9. Axonometric shows building form and spaces

10. Further investigation into connections, links, and form, and its relationship to Albert Park

11. Redefining corner of Bacons Lane and Kitchener Street. Further development into intersecting axes

12. Axonometric shows building form and spaces in relation to neighbouring buildings
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8. CONCLUSION

8.1 Critical Appraisal
This study was aimed at creating a sense of community on an existing site in the Central Business District of Auckland. Throughout the stages of development it was necessary to make constant links back to the research, analysis and surrounding context. New Urbanism principles and site analysis studies provided the information needed in creating a sense of place through design.

Further studies could involve exploring the structural systems of a building and its relationship with traditional architecture in more depth, integrating new ways to comprehensively reshape future urban practices.

An issue which presented a challenge was the study of traditional facades and their structural dimension in terms of proportion. It was important to maintain the relationship and integrate the different parts of the building without losing functional, visual and social dimensions or disrupt the setting and lose attachment to the surrounding environment.

A question which had to be asked throughout the project was did the design hold your eye and interest?


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