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City Living: A Residential Development in Central Christchurch

Explanatory Document
A Research project submitted in partial fulfilment of the requirements for the degree of Master of Architecture (Professional).
Unitec Institute of Technology, 2015
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Full title of thesis/dissertation/research project:
City Living: A Residential Development in Central Christchurch.

Department of Architecture

Degree: Master of Architecture (Professional) Year of presentation 2015

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Abstract

Redesigning and inhabiting an empty city is a rare experience for planners, architects and developers to consider. On the surface of it, this is the situation in Christchurch City following earthquakes in 2011 and 2012. Local Council have a realistic view of the issues that faced Christchurch before the earthquakes and have an intent and a plan to create a liveable city from the opportunity that presents itself.

This research project considers an alternative approach to that suggested by Council for the inhabitation of the Central City by creating a high quality, public outdoor space, anchored by repurposed existing buildings. It proposes that the concept of Village is a vital component to the inhabitation and the nature of growth in the city.

The project then looks at the form and function of both repurposed and new buildings to contain the outdoor space and considers the importance of the edge zone - where building meets ground. It looks at an opportunity for Village community life to occur and prosper.
Acknowledgements

David Turner supervisor, generous supporter, coffee buddy, someone who also understands ‘ and “, someone who I would like to call a friend.
Karen proof reader and principal bent-ear extraordinaire and also a good friend.
Michele who puts up with me and puts me up in Christchurch – much more than an old friend.
Simon and Robyn, family, Christchurch experts and discerning guides.
Other Unitec staff for their support – the extended bent-ear brigade – Cam, Dushko, Graham, Reagan, David C, Kerry.
Brendan Smith, a very supportive distant presence.
Therese Loney CERA – for arranging and providing access to the MED building.
Anthony O’Donnell Property and Projects Manager Orion Ltd - background to MED building and CAD drawings.
Susan Anderson and Margaret Lovell-Smith for their suggestions and assistance.
The Loud One – for his continuing un-judgemental presence.
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Background

In February 2011 Christchurch city was severely damaged by a major earthquake. As a result the central business district (CBD) became a no-go area or Red Zone. The people of Christchurch were not allowed back into the CBD until the end of 2012, and then only to parts of it. Since then much of the city-scape has irretrievably changed as buildings damaged in the earthquakes were demolished. Christchurch became a city of orange road cones, demolition equipment, workmen and trucks.¹

Even before the series of earthquakes, Christchurch city lacked an inhabited heart. With the exception of distinct zones centred on a few popular bars, the CBD was abandoned at night. Few had the opportunity to live there. The social scene improved somewhat with the development of the laneways in the southern part of the CBD however these areas have been sadly lost. Central City residential areas occupy a band across the north and east of the CBD.² It is likely a sense of community exists within these areas but there is no focus and the relatively low density of these areas result in the provision of few amenities. The closest supermarket for example is well over a kilometre away and even a corner dairy appears absent. The residential density in this area is approximately 30dph.³

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¹ Damage to the city infrastructure and housing extended to many suburbs in Christchurch and beyond in the Canterbury region. It was not just the CBD that was severely damaged but the Red Zone became a focal point for media. Workmen is used as the generic gender unspecific descriptor.

² Christchurch Central City is defined as an area bounded by the four avenues; Fitzgerald to the north, Bealey to the east, Moorhouse in the south and Deans in the west. Deans Avenue is in fact on the far west side of Hagley Park and for greater accuracy, Park Terrace would be considered the western boundary of the Central City. The original 1850’s city street grid is centred within these boundaries.

³ Which is high by New Zealand standards and observably due to the number of ownership flats
The Christchurch Central Development Unit (CCDU) and the Canterbury Earthquake Recovery Authority (CERA) are local and national government agencies set up to plan and manage the post-quake recovery of Christchurch and the Canterbury region. These agencies have set up comprehensive websites that are continually updated. They have formulated concept plans, setting aside part of what was the CBD as the East Frame. This area is designated for medium density housing amongst park-like settings with restaurants and cafes. However, although the idea of ‘community’ is mooted, nowhere in this section of the website is the word village mentioned.

Outline

In the view of the writer, this recovery, or rebuild, is an opportunity to leap forward several decades of urban planning. The problem therefore considered in this document is that of the inhabitation (not re-inhabitation) of Christchurch Central City. The project will consider a greater housing density than previously experienced in Christchurch and set out to provide (by design) the amenities to attract potential residents to a village focussed community development located in Central Christchurch.

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5 This problem has been previously considered by the Christchurch City Council (CCC) and more recently by the CCDU. Both bodies have surveyed Christchurch residents and in 2009 the CCC commissioned Jan Gehl Architects to undertake a study of the outdoor spaces in the city. As part of the rebuild plan, the area of the CBD is to be reduced and some of the land freed up by this is designated for privately funded residential development. The area of land is identified as the East Frame. Additionally, a design competition has been held for a residential demonstration project named Breathe.
Aims / Objectives

The principal aim of this research project is to outline a plausible scenario whereby village style inhabitation of Christchurch Central could occur. Furthermore, it proposes that this scenario and associated urban and architectural design will be appealing and convincing.

The research project is intended to offer an alternative approach to the ‘housing first’ slant that the CCDU appear to be putting on the rebuild of the Central City by looking beyond just housing.

Key objectives include:
- design of a wind protected public outdoor space
- provision of amenities appropriate to village life
- a range of housing in the vicinity of 40 - 50 dwellings per hectare (dph)

This research project will suggest that a similar outcome can be achieved (inhabitation of the Central City) through a different approach to the rebuilding.

What is a village?
Village – Oxford Dictionary’s (online) definition:
A self-contained district or community within a town or city, regarded as having features characteristic of village life.6

Therefore a village would be a place where you:
- would feel that you belong
- would have at least a nodding acquaintance with your neighbours
- perhaps walk to work and certainly be able walk to buy your daily needs
- would have a “local” where you would be known

The concept of village, also suggests an entity that grows informally, organically. A village provides identity, focus, and support for its inhabitants. The village idea should meet these objectives and be transportable so that it could be replicated in other parts of the city.

Master Plan
A master plan of the site will respond to its context, some of which have been predetermined by site selection criteria, some of which will be inherent to people and location.

Research Question

The CCDU East Frame plan calls for private development to achieve the intended inhabitation of the Central City.

So the question is; is an alternative approach to the inhabitation of the Central City which focusses on a village community with a public outdoor space at its core a more viable approach than medium density housing in a park-like setting as proposed by local government?

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Scope and Limitations

The project is based on both urban design and architecture. An early intention was to identify ways to reduce wind speed at ground level in outdoor space utilising ideas such as agricultural principles, wind modifying shapes, devices or wind turbines and how they might be integrated within architecture to create sheltered outdoor areas. This has been excluded from the scope despite it being an intriguing idea for research.

The political scene is excluded.

The project site will consist of a 250 x 100m Christchurch central city block. A master plan will be developed for the block that will relate to its context and location. The master plan will take into account the local climatic conditions and in particular the impact of the winds in Christchurch. Three existing buildings on the site will be included in the design, two being repurposed in the process. Conditions on the site have changed with the demolition of one building in July. For the purposes of this project it will be assumed that the building remains or is rebuilt in a similar manner.

Design of an outdoor public space is a key component as is the design of the buildings surrounding this space. Other buildings indicated in the master plan will not be designed in detail, reflecting a real-world environment where architecture from different sources would more than likely be involved.

State of Knowledge in the Field

Texts/Other
The principle text consulted during the project is Gehl’s *Life Between Buildings: Using Public Space*. This text describes a number of aspects of human behaviour in relation to public outdoor space. It examines the way people react in outdoor space, how they interact with others, and the conditions whereby friendships and communities develop. Gehl covers everything from the scale of spaces, edges and ramps, to climate and comfort. He looks at the importance of the edges of spaces and suggests strategies to encourage people to linger in spaces. He considers these details to be important and discusses the way people enjoy watching human activity and are naturally drawn to others.

This text was augmented by a study of public space in Christchurch, carried out in 2009 by Gehl Architects; *CHRISTCHURCH 2009: PUBLIC SPACE PUBLIC LIFE - A Summary* is direct and to the point. The study provides a number of recommendations such as creating a “city with a wide range of people and activities” by encouraging residential inhabitation of the inner city and making it liveable. It also promotes the development of a range of different public spaces with better amenities and improved connections to attract wider groups of both residents and visitors.

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8 At the outset of this project an engineering report prepared for CCC on the Manchester Street car park building indicated that it could be repaired and recommended cost to repair versus replace be considered. “Manchester Street Car Park Detailed Engineering Evaluation Quantitative Assessment Report,” (Opus International Consultants 2013 est).
John Hewitt lectured ARCH 6313 “Critical Studies: Urban Design,” a semester 2 lecture series in 2012 which provided a compact version of theories relating to outdoor space. These theories come from several principle authors; Ralf Weber, Kevin Lynch, and Gordon Cullen and included concepts such as centricity, coherence, centrality, containment and internal division, as they relate to the quality of outdoor space and its perimeters. Weber’s theories include concepts in relation to width of a space relative to its height and the degree of comfort that results, or not. Course notes taken by the writer and reference to the original texts have been a valuable source of theory for this project.

One thing that became clear while reading these texts was that although the authors are writing about communities and cultures elsewhere in the world, what they describe is immediately acceptable. This points towards a universality of human behaviour.

Locations
The Queen Victoria Market in Melbourne is an appealing indoor food market where a large range of delicatessen food is available from permanent shops located within a heritage building. The proposed repurposing of the MED building into a food market is directly derived from the experience of the Vic Market.

SOL Square was a development within the laneways running at the rear of warehouses in the Christchurch CBD. The environment was rich with semi industrial heritage buildings turned bars that came alive at night. It had a slightly decrepit feel that gave it character. Unfortunately, being of unreinforced masonry, post earthquakes, the buildings no longer exist.

A relatively recent development in Woolston on a 19th century industrial site is called The Tannery. It consists of rebuilt, brick clad buildings of industrial
Site selection criteria
A set of criteria was developed in order to select a site that had the potential to meet the objectives outlined above:

- Proximity of existing residential zones
- Proximity to CBD
- Public transport routes
- Cathedral Square
- Existing retail eg. New Regent Street
- Existing outdoor space – eg. parks

Methods

Research and reading of both text and internet sources has been on-going. The location of the project results in information that is not static over time. Topics of research can be broken down as follows:

Understanding the context
- History
- Climate
- Roads and traffic
- History of the site
- CCDU plans
- Surveys
- Surrounding densities

Understanding the theory
- Urban design
- Effect of climate on buildings and outdoor space
- Living streets

Fig. 5 CCDU plan from the south showing the East Frame extending up the right side of the CBD
ongoing design work. 2D CAD drawings have been used for more precision and these imported to Revit for 3D modelling.

Relationships to CCDU projects:
• Performing Arts Precinct
• Convention Centre
• Avon River Precinct
• East Frame
• Walk/cycle loop – South Frame, East Frame, Avon River Precinct

Site investigation and survey
Various areas in Christchurch were considered, initially using Google Earth and then at ground level on foot. This commenced in December 2014. Once a specific site was chosen, both it and its surroundings were visited on two further occasions. The last visit included a survey of existing buildings. Access was gained to one of these and reasonably detailed information was obtained.

Modelling:
The existing buildings have been modelled in Revit. This has provided a detailed idea of their construction and led to the design of their reuse.

Physical modelling of the proposed outdoor space, its colonnades and surrounding masses has provided a sense of what can be achieved, in particular the sense of enclosure of the outdoor space and its edges. Theory has overlaid modelling and vice versa.

The master plan has been mass modelled in Revit and this model tested in Flow Design – a Revit plug-in that simulates wind tunnel testing.

Sketches and drawings:
Perspective drawings of street scenes, components of buildings etc. are still being drawn as are facades, sections, and plans. Drawing continues with
The rivers both terminate in a tidal estuary which exits to the sea at Shag Rock and the Sumner Bar. The Port Hills, named for the port of Lyttelton, protect the city from any south westerly wind but in doing so set up conditions for an inversion layer which is known to trap winter cold air and smog over the city itself. The area had abundant food supplies and growing areas for early Maori settlements. Subsequent European settlement faced the Bridle Path over the Port Hills or The Sumner Bar in order to reach Christchurch City. These natural features have had a strong influence on the settlement of Christchurch.

Christchurch History and Heritage

Christchurch is situated at the base and to the north of the Port Hills. Many areas of the city were originally swamps and numerous streams drain into two rivers; the Heathcote and the Avon. The Avon runs through Central Christchurch itself.
Pre European Settlement

Christchurch or Otautahi (actually the part of ground on the Avon River between Madras and Barbadoes Streets and named after a Ngai Tahu chief, Tautahi) was settled by Māori in pre-European times. Pa sites existed in the (now) wider city area from Riccarton to Pleasant Point and Halswell to North New Brighton. It is logical to assume that pa sites were established near food sources and on ground that was not swamp. One of the significant sources of food or mahinga kai is the Avon River or Ōtākaro and its surroundings. Ōtākaro means “the place of a game, is so named after games the children played on the river’s banks as the food gathering work was being done.”

It is claimed that the Ōtākaro area was not widely inhabited and that those that did inhabit it were known as Ō Roto Repo, or swamp dwellers, by Māori living outside the region. A Maori village named Orua paeroa, situated in North New Brighton, was known as a “place where strong east winds blew in from the sea,” and was possibly not inhabited year around, being used principally as “a place of mahinga kai.” This brings into question the full time inhabitation of Otautahi, as due to its topography, few areas would be defensible. Areas on the Port Hills on the other hand are more readily fortified and sites at Rapaki in the Lyttelton Harbour and Kaipoi to the north of Christchurch became major settlements. These settlements were linked by a track through the rivers and the swamps.

European Settlement

A Scottish family, the Deans, were one of the first to settle in Christchurch in an area which they named Riccarton. They also named the Avon River which has its origin in the Riccarton area. Settlement of Christchurch is strongly linked with ‘the first four ships’ which arrived in Lyttelton in December, 1850. These ships bought the first settlers who became the basis of a Church of England settlement. Prior to this, Captain Joseph Thomas, a surveyor, planned Lyttelton, Sumner and Christchurch as well as a road to link from Lyttelton to Sumner (later Evans Pass). The plan of Central Christchurch was a grid pattern of streets, laid over the course of the Avon River. These were the only parts of the settlement initially planned, further growth was less organised outside the central city and probably dependent on ground that was not swamp.

The settlers had to carry their lighter possessions over the Bridle Path and send their heavier items by small boat from Lyttelton Harbour, across the Sumner Bar and through the estuary to Ferrymead for trans-shipment to smaller boat and up the Avon River to Christchurch itself. In 1857 a road was completed from Lyttelton to Sumner and six years later a railway line was opened from Ferrymead wharf to Christchurch city. Four years later, a railway tunnel was constructed between Lyttelton and Heathcote valley.

By the 1870s the population in the city had risen to such an extent that public health problems caused several epidemics. These were blamed on poor health conditions and in particular the pollution of the city’s rivers with human and animal waste, not to mention industrial effluent. In the 1880s, Christchurch was the first city in New Zealand to have an underground

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11 Lore and History of the South Island Maori.
12 Ibid 46.
13 “Early Christchurch - a Brief History,” in Local History (Christchurch City Libraries).
14 Ibid.
15 So called because it was so steep a horse had to be led by the bridle.
16 A precarious route, many boats foundered on the Sumner Bar.
Over time, the banks of the rivers were planted with deciduous trees, predominately willow but also poplar, oak, sycamore, and chestnut. These were the trees of the settlers’ England and established their proprietorship of the city. A number of public parks were formed including Hagley Park and Market Square (which is now known as Victoria Square).

Building materials were initially thought to be in abundant supply with stands of trees in the Riccarton and Papanui areas. These proved short lived (except for a patch retained to this day in Riccarton Bush) and timber and coal was shipped by sea from the West Coast.

The local clays in the valleys of the Port Hills provided raw material for a supply of bricks and pottery (pipes, chimneys, etc.) and brick works remained in these areas until the mid 20th century. Stone was also quarried from these areas and from around Lyttelton. Both blue stone (hard basalt) and red stone (soft volcanic) was taken from these areas. Limestone was taken from areas to the north of Christchurch (Waipara) and Oamaru stone (a soft cream coloured stone) from near Oamaru. These were familiar materials to the settlers from England and after timber construction was deemed a fire hazard, brick and stone became the preferred construction materials in the central city. Limeworks were also established in the Woolston, Heathcote and Riccarton areas, providing lime and cement mortars for construction and concrete. These material choices were made without the knowledge of the seismic liveliness of the area let alone the design skills to compensate for it. The architecture was contemporary English with pseudo-Gothic churches and classic lines. Timber was used to replicate what in England would have been stone but despite this use of timber, no development of it as a material occurred.

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17 “Early Christchurch - a Brief History.”
18 Joan Patricia Morrison, The Evolution of a City : The Story of the Growth of the City and Suburbs of Christchurch, the Capital of Canterbury, in the Years from 1850 to 1903 (Christchurch: Christchurch city council, 1948), 84.
19 Coal was required for heating and also early industry. It was also used to produce coke, an industrial and domestic fuel, coal gas was used for street lighting, heating and cooking. “Christchurch City Contextual History Overviewtheme ii: Infrastructure,” (2005), http://www.ccc.govt.nz/assets/Documents/Culture-Community/Heritage/ChristchurchCityContextualHistoryOverviewTheme11-docs.pdf. Coal was also used to.
20 The Halswell quarry (supplied Halswell stone) remained active until the later 20th Century.
This has left Christchurch with a stock of heritage buildings (although somewhat diminished) and many timber houses and cottages that are up to 150 years old. Unfortunately, many stone or brick buildings whose owners did not have the foresight or finances to adequately earthquake strengthen during the last few decades, have been lost. Also many industrial and commercial buildings constructed in brick within the central city have also been lost.

The relevance of Christchurch history –

- The Avon River has always been an important element within the area, in particular its relationship with food.
- The river acted as a means of transportation and eventually became a focus of Christchurch city.
- Locally available materials that early settlers were familiar with were/are not suitable for the earthquake prone area. However they are heritage materials that locals are familiar with.
- The original Church of England settlement still influences the conservative nature Christchurch culture today.
- A swamp was not the best location for the city.

Climate

Christchurch sits on latitude 43.5 degrees south, the northern hemisphere equivalent of Boston or Massachusetts in the USA or Sienna or Florence in Italy.

The weather is directly affected by Christchurch’s position on the east coast of the South Island. Three predominant winds affect the climate. The most frequent, a north-easterly, directly off the sea, cools temperatures to less than comfortable levels in areas exposed to it. A south-westerly wind is most common in the winter months and is generally accompanied by rain. It is often preceded by a north westerly wind which picks up warmth across the Canterbury plains and causes high temperatures during the summer months. It is an unpleasant wind, gusty and strong. These three predominant winds exceed 5m/s, 70% of the daytime hours during summer. Gusts reach an average of 180% of mean wind speed. During the winter, clear cold days start with a frost and often temperatures will not rise above a few degrees, however these days can be calm with clear blue skies which make areas exposed to the sun pleasant places to be. Summer average daily maximum temperatures reach 23 degrees and drop to 11 degrees in the winter. The minimum average daily temperature is 12 degrees in the summer and 2 degrees in the winter. Extremes of temperature

22 Personal experience and anecdotal. For example, the first question you ask a Cantabrian in Christchurch is what school they went to.

23 Personal experience.
range from maximums of around 30 degrees to minimums of -2 degrees. Average sunshine hours range from 4 to 7.4 hours per day, winter to summer. It is more likely to be overcast or cloudy during summer months than winter but more likely to rain moderately during the winter. It is slightly more likely for there to be drizzle in the middle of summer but throughout the year the probability of some form of precipitation ranges from 41% (March) to 49% (December).²⁴ Snow has been known to fall in December but generally snow will fall to sea level during the occasional winter.

Maximum sun altitude is 23 degrees in mid-winter and is above 20 degrees from 11am to 2pm. It increases to a maximum of 70 degrees in December, staying above 40 degrees between 9am and 4pm.

The relevance of Christchurch climate
• Wind protection is desirable from 3 directions; E-NE, S-SW, W-NW.
• Shelter needs to be balanced with access to the sun.
• Access to the sun is highly desirable, particularly in winter.
• Well insulated indoor spaces are desirable.

Geotechnical

Christchurch sits on the edge of the alluvial Canterbury Plains which connect the foothills of Southern Alps to the volcanically formed Banks Peninsula. The geography of the area affects conditions in the city in numerous ways; the city is only 10m above sea level, many areas of the city were originally swamps, the water table is less than 1m below ground, alluvial gravel sits in layers from 20m below ground, interspersed with silt, sand, clay and organic material. The city’s water supply is artesian. Fresh water springs feed the Heathcote and the Avon Rivers. As has been demonstrated in Christchurch in 2011, the city is located in a seismically active region. The combination of these conditions results in liquefaction on the ground surface, ground sinking or lifting, and the need for engineered foundations for most buildings, particularly those located in Technical Class 2 and 3 (TC2, TC3) areas.

The relevance of Christchurch geotechnical –
• Foundation work will be engineered on deeply driven piles.
• Deep basement excavation will have waterproofing challenges.
• Earthquake design will be important so base isolation and raft foundations may also play a part.

Fig. 13 Section through the Southern Alps, Canterbury Plains to Banks Peninsula. Not to scale.

Christchurch Central Development Unit (CCDU)

Following the earthquakes in Christchurch, the Canterbury Earthquake Recovery Authority (CERA) and the CCC developed the CCDU. The CCDU engaged with the people of Christchurch through a six week ‘Share an Idea’ initiative. 21% of the population participated. It focused on the redevelopment of Christchurch Central City.

The CCDU’s objective is to support the rebuild of the Central City. One of the strategies is to compress the CBD, creating a smaller and denser retail and commercial centre. This will have the corresponding effect of creating space around the CBD, within the Central City, a significant portion of which is being earmarked for private residential development in the East Frame. A number of Anchor Projects have been aimed at stimulating investment and interest in Christchurch. These projects range from individual developments such as a convention centre to designated Precincts and are organised across a number of Chapters. Of these several are relevant to this project by location and intention:

- The Green City projects; the Te Papa Ōtākaro/Avon River Precinct, the North Frame and East Frame residential areas.
- A Vibrant City; the Performing Arts Precinct, Central Library, and Breathe, a residential demonstration project.
- The Margaret Mahy Family Playground.

Te Papa Ōtākaro/Avon River Precinct. This project, which is well underway, combines the improvement of water quality in the river (liquefaction had a large environmental impact on the river) with showcasing Christchurch’s dominant natural feature; the River Avon. Objectives include the promotion of a healthy river and the recognition of the significance of Ōtākaro for the people of Christchurch. The river provided a place of trade and a route to transport traditional food and natural resources for Ngāi Tahu and Te Ngāi Tūāhuriri Rūnanga. The project will eventually be extended to the Estuary.

The North Frame extends from Victoria Square to Madras Street where it overlaps with the East Frame. One of its key features is identified as a residential mixed-use development on its edges.

The East frame is six blocks bounded by Manchester Street, Madras Street, the Avon River to the north and the Innovation Precinct to the south. The East Frame is described as “a new inner-city community” located within a public park-like setting. It is intended to include privately developed medium density housing for 2,000 people.

The Margaret Mahy Family Playground borders the Avon River within the East Frame. Work on the $20 million playground is underway.

25 “Christchurch Central Development Unit”.
28 “Avon-Otakaro Network,” Avon-Otakaro Network, http://www.avonotakaronetwork.co.nz/home/home.html. The design creates access to the river via boardwalks, pathways and terraced steps to the river’s edge. The entire project will eventually extend from the Antigua Boatsheds, downstream to include the Avon Loop at the east edge of the Central City. A broader project: Avon-Otakaro Network extends projects further downstream through the red zoned land to the Estuary.
29 “Christchurch Central Development Unit.”
Breathe, an international competition to provide a residential demonstration housing development on a site immediately north of Latimer Square was won by Italian architects Anselmi Attiani Architettura in conjunction with Holloway Builders. There is now some doubt about this development going ahead. For the purposes of this project it is assumed that it will proceed and the typology utilised will be reflected across Madras Street to the east perimeter of the project site.

Central City Zone
Maximum Building Height
The CCDU site indicates there are two maximum heights applied to the Central City. 28m will be allowed in the core (perhaps 8 levels might be achieved but 7 is more likely). 17m is the maximum allowed in the Mixed Use areas and the Victoria Street Gateway (this would allow 4 levels and 5 at a squeeze). There is some objection from land owners to the CCDU plans regarding maximum building height and restricted car parking.

The implications for this project are significant if more than four levels are proposed as sites may lie outside the core area. It does not rule out some flexibility through the Resource Consent process. For the purposes of the project an assumption is made that up to six levels would be achievable.

Residential Activity
Residential activity will be permitted throughout the Business and Mixed Use zones within the Central City.

31 Ibid.
32 For example, from Colliers International where the writer, L Semple, acting on behalf of building owners in Christchurch indicates that the restrictions will disadvantage owners of sites where redevelopment could occur, forcing anchor tenants to look outside the CBD with a resultant negative impact on foot traffic within the CBD. L Semple, “Written Comment - Central City Plan,” (Christchurch: Anderson Loyd Lawyers, 2011).
33 “Christchurch Central Development Unit”
Choosing a Site

A number of sites were considered and the various attributes considered. The site had to be large enough for a public outdoor space, amenities (shops etc.) and housing at 40 - 50dpf which makes a city block the logical choice. The criteria established that it had to have existing residential areas close by and be on the edge of the CBD (see under section Methods).

The chosen site is part of, and sits at the north end, of the East Frame (intended residential development). The site is across the street from both Latimer Square and “Breathe.” Immediately to the north the Margaret Mahy family playground is under construction on the banks of the Avon River. In the block directly to the west a new main library and a Performing Arts Precinct are intended. A block further west (across Colombo Street) a new Convention Centre is planned.

The south west corner of the site is located a block north and a block east of Cathedral Square. This also places it at the north east corner of the new reduced CBD. It is bounded by east-west streets; Armagh to the north and Gloucester to the south and north-south streets; Manchester to the west and Madras to the east. 34

Of the sites considered, this site has the largest existing and future residential population in close proximity. In terms of residential support for retail investment this bodes well. It has cycling and walking connection via the playground to the river and subsequently around the CBD, returning via the South and East Frames. New Regent Street is 80m west and Victoria Square a block away.

It is however over 1200m to the nearest supermarket. There is a nearby

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34 The Central Christchurch street grid is aligned north-south, east-west.

was affected. The report includes the data from eight Borelogs, six of which are in the west half of the site and the other two on the edge of the CBD. Some of these date back to the 1903 – 1920 period and given their 128m depth, suggest a search for artesian water. This notwithstanding, the logs suggest that piling to a depth of at least 20m to provide support for medium to large buildings would be a realistic proposition.

Transportation and Roads

Nearby Streets
Main Christchurch Streets near the site including one-way streets have 13.5 - 14m wide carriage-ways and 20 to 20.5m overall width including footpaths. They are wide enough for two vehicle lanes plus parking on both sides without cycle lanes or vehicle calming employed. They generally employ an additional turning lane at intersections.

Main distributors - Christchurch’s One-way System
The site is bounded to the east by Madras Street which is one-way north and part of Christchurch’s one-way system. Kilmore Street, one-way west is immediately north of the site, over the river. Salisbury Street is one-way east, two blocks north of Kilmore. Barbados runs south and is one block to the east of Madras Street.

Geotech

According to the Opus International Consultants’ report on the Manchester Street Car Park, the site of the car park does not have a liquefaction issue. However it suggests that the land between the car park and the Avon River

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Local distributors
East—west streets, Armagh and Gloucester, effectively bound the north and south perimeters of the site respectively. These are cross-city linking streets which were previously retail streets through the CBD. Metered parking was provided on both sides of these streets. Manchester Street is to the west of the site and was a north-south retail street, again with metered parking on both sides.

Minor Streets
Near the site are several minor streets; New Regent Street, Oxford Terrace, Chester Street, and Latimer Square. These vary in width but are generally narrower and utilised for parking and minor linking (except New Regent Street which is tram and pedestrian only). The playground to the north of the site will incorporate Oxford Terrace east of Manchester Street providing immediate access to the river. It is possible that Latimer Square (a minor street on the west side of Latimer Square itself) may also become incorporated as part of the park setting for the East Frame.

Public Transportation and Other Access
• Manchester and Gloucester Streets are both two way bus routes providing bus access to the Bus Interchange.
• The Bus Interchange is approximately 600m walking distance from SW corner of the site. It is located between Tuam, Colombo and Lichfield Streets. It will include secure cycle parking.
• New Regent Street, approximately 80m west from the site, is a tram route which provides an unhurried yester-year means of getting about parts of the city. Its route passes the Arts Centre and the Museum to the west, returning through Cathedral Square.
• The river banks will form the Te Papa Ōtākaro/Avon River Precinct and provide a continuous park with pedestrian and cycle routes following the river. This route takes pedestrians and cyclists from the site via the Margaret Mahy Family Playground through the CBD to the Botanical Gardens in the west. From there it will be possible to link up with the South Frame and continue east to the south End of the East Frame, then continue north back to the project site.
• The river is used by punt operators, principally for a recreational experience of the city from the river.
• It should also be noted that Christchurch, with the exception of the Port Hills, is an excellent city for cyclists as its topography is flat.
Parking

- The main streets surrounding the site have previously provided metered parking.
- For the purposes of this project, the Manchester Street car park on the south-west corner of the site is replaced or repaired. It occupies a strategic location at the north-east corner of the CBD potentially serving the playground to the north, people working and shopping in the CBD, as well as the site itself.

Surrounding Residential Densities

Estimates have been made of nearby blocks using Google Earth satellite and street views.

- To the north; bounded by Manchester, Salisbury, Madras, and Peterborough Streets. The block is 22,300 sqm with a net residential area of 15,800 sqm (excluding commercial premises) and indicates 59 dwellings, a mixture of multiple units and stand-alone houses. This equates to 33 dph.
- To the east; bounded by Barbadoes and Chester Streets, Fitzgerald Avenue and Armagh Street. The block is 36,400 sqm with a net residential area of 32,200 sqm and indicates 94 dwellings with a similar mix to the block above. This equates to 29 dph.
- The proposed Urban Demonstration Project - Breathe - on the corner of Madras Street and Gloucester Street (directly across Madras Street from the project site) is planned to have 72 dwellings made up of stand-alone houses and 5 storey apartments. This is on an 8,160 sqm site which equates to 90 dph.
- The East frame consists of several blocks between Manchester and

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37 David Turner, “Housing in the City Arch 8614,” (Auckland: Unitec, 2015). These density figures
Who Would Inhabit Central City Housing?

CCDU asked this question (and others) via a survey of Christchurch residents in 2013. The result was that 48% of respondents said that Central City living was something they would consider. Of these, about a third said it was something they would consider during the Central City rebuild. 5% were already living in the Central City and 29% would consider it post rebuild.

Respondents considered the idea of neighbourhood community and a sense of belonging to be important. Pet-friendly featured highly as did closeness to amenities. Key attributes were:

- A safe and secure neighbourhood, particularly at night.
- A range of housing choices from stand-alone high-end houses to affordable units.
- Quality of the housing, surrounds, maintenance, and body corporates.

Housing typology for those who would consider inner city living favours (in descending order) detached laneway housing, terraced mews, walk-up corner housing, and 6-storey housing.

Most leisure time would be spent shopping but bars, cafes, and restaurants (daytime) feature highly. Playing outdoor sports and gyms are important and then in descending order, activities such as swimming (public pool), or going to a specialist sporting facility, library, concert, theatre, movie, spectator sport, museum or art gallery are important, as is gardening. The time spent at these activities varies slightly across the groups of respondents who said they would consider a move to the city.

It is reasonable to take notice of this summary information and reflect the needs and desires of those surveyed in this project.

Looking to the Future

It is reasonable to assume that people will not change their desire to socialise face-face despite the proliferation of mobile devices. Peoples’ desire to live in a safe, secure community-orientated neighbourhood is explained by their basic human physiological needs. Perhaps peoples’ comfort with higher density housing will increase over time as enjoyment of the benefits of inner city living are experienced.

The implications of this are that the social desires and leisure activities identified by the CCC 2013 survey will remain much the same. Planning for these leisure activities and in particular supporting a community neighbourhood is therefore realistic and important.

A CCC parking study predicts Christchurch city will reach pre-quake job and population levels by 2021. This is six years away. Looking twenty years beyond this, the council anticipates 10,400 households (18,400 people) by 2041 in the Central City. This suggests much greater

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38 Ipsos, “Developing the Central City as a Place to Live Who Will Live There and What They Want,” in Christchurch Central City Living Research - Summary Report (Christchurch, New Zealand: Christchurch City Council, 2013).
39 “Maslow’s Hierarchy of Needs,” Wikipedia.
40 “Christchurch Central Parking Plan 2015 “, (Christchurch City Council), 12.
41 Ibid., 13.
intensification of housing in existing residential areas.

The number of cyclists is expected to triple by 2041 - 4,000 cycle parks (public and private) will be needed in the CBD.\textsuperscript{42} This suggests that amenities that support cycling will become more important.

\textsuperscript{42} Ibid., 18.
Central Christchurch City streets were surveyed and planned before settlement of the city began in 1850 as a north-south, east-west grid. The street names were derived from prominent English family names or those involved in the settlement of Christchurch.

At the time of the settlement of Christchurch, much of the ground was swampy and covered with raupo and flax. The banks of the Avon were apparently quite dense. A block to the east and north near the intersection of Barbados Street and the Avon River is “The Bricks,” the original landing place for small boats, transshipping settlers’ heavier belongings from Lyttelton. \(^{43}\)

This connection to water became more conceptual over time with much of the site becoming the location for the Municipal Electricity Department (MED) which in 1915 supplied Christchurch with electricity derived from the first hydro-electric power station in New Zealand.

Initially power was provided to Christchurch from privately owned generators (most likely coal fired steam powered generators). At some stage city rubbish, burnt in “The Destructor”, generated electricity from steam until 1915 when the hydro-electric power station came on line at Lake Coleridge. \(^{44}\)

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\(^{44}\) “Christchurch City Contextual History Overview theme II: Infrastructure”, 59-61.
Existing Buildings

Fig. 19 Rough montage of the street façade of the Heritage protected MED building, Armagh Street.

Most of the block was owned and inhabited by the CCC and the MED (owned by the CCC) which had its head-quarters, a four storey building constructed by 1939, on the north west corner (corner Armagh and Manchester Streets). This building was designed by V.J. Hean (CCC) with R.A. Campbell as structural engineer and had quite expensive features including curved window sashes, black granite, and Australian ribbon walnut panelling. It is described to have been designed in the Moderne style. The building contained a showroom on the ground floor with offices on the three floors above. The building was subsequently passed onto South Power and Orion Energy and demolished in 2012 after sustaining damage in the earthquakes.

Three buildings remain on the site following post-earthquake demolition. On the north side of the site at 198-200 Armagh Street there is a protected heritage building dating from 1928-29. Beside it is one of two internal

The substation is a vital component of the Orion power network in Christchurch and would be cost prohibitive to move. It contains the means to transform the 66kVA distribution feed to 11,000V as well as backup generation equipment.48 Beside it is the extension to the original 1928-29 MED building. The heritage building was constructed for the MED, possibly as their first head office. It is two storeys with multiple hip roofs set behind a façade. It has a 53m long street frontage facing north and is 22 m deep. Concrete pilasters, walls, and steel framed windows have been detailed in an Art Deco style.

The carpark building was apparently constructed for the CCC around 1964.49 It was constructed of precast, post tensioned reinforced concrete as two side-
by-side buildings, 17m wide and 73m long, with a 4m space containing vertical circulation between. The floors of the two buildings are a half level offset and connected by vehicle ramps. About 300 vehicles would have been parked in the building. It housed an MED workshop at the east end. It was entered from Manchester Street (both vehicular and pedestrian) and exited onto Gloucester Street in an easterly direction.

The building suffered structural damage in the earthquakes but its pile footings have performed well. Engineering recommendations suggest that it could be repaired or rebuilt. The parking building served this quadrant of the CBD and has the potential to do so in the future with its proximity to the CBD, Margaret Mahy Playground, Performing Arts Precinct, Christchurch Town Hall and the Public Library.

The MED and carpark buildings have the potential to add value to the project as well as influencing the layout of the site. The parking building, being on the south edge of the site sets up a level of wind protection from the cold south westerly wind. As a parking building it is also an amenity for activity on the site. For the purpose of this project it will be assumed that it is repaired, that a component of it might be repurposed, and that it could have additional levels added to mitigate parking or floor area utilised for this project.

This sets up the prospect of centring an outdoor space to the north of this building in its lee.

The MED building is directly north of the car park building which begins to set up the idea of containment between them. Its two storey height does not cast an excessive shadow and its heritage nature provides a historic connection. The MED building has the potential to act as a northern gateway and a direct connection through the playground to the river.

A survey of the building carried out by the writer revealed a 1940s industrial interior that has had some alterations. Its concrete and steel construction appears to have been earthquake strengthened at some stage and post the 2011 quakes some remedial work has been carried out. It was subsequently occupied for a time by Orion as a network headquarters.

A more detailed description of both these building can be found in the Appendix.

Conclusions/Thoughts

Prior to the survey, thoughts regarding the use of the MED building were focused on the western end of the building, opening it out through to the roof frame and utilising the resultant volume as a gateway connection to public open space to the south of the building. However the fact that this volume already exists at the east end of the building, complete with original industrial steel construction and mechanical gantry cranes, suggests re-evaluating the position of the outdoor space, access, and shape.

The overall condition of the building is reasonable and in particular the interior roof linings, structure and structural steel appear to be in good condition. These components provide the building with a strong link to its history and previous usage - character that is difficult to replicate. This further strengthens the use of the interior gantry galleries as the gateway to an
outdoor space behind. The character begins to suggest that the activity within
the building should be something special.
A CCC sign-board with a plan for the Margaret Mahy Family Playground was
discovered across the river from the playground site. The planned entrance to

This would necessitate a route westward through the building’s interior
and exiting south, roughly in line with the centre of the eastern half of the
Manchester Street car park building. This maximises the wind protection
created by the car park building for an outdoor space. It also sets up an
arcade within the MED building that would maximise retail exposure to foot
traffic.

Noted that during 2015 anecdotal information came to hand that the car park building would
be demolished. At the time of writing demolition was nearly complete. Previously this decision
was waiting on a QS report of rebuild versus repair (from the OPUS report). For the purposes
of this project it will be assumed that - as the car park building is in a strategic location to the
reduced scale CBD - it will be rebuilt with a similar footprint and height.

the playground is directly across the road from the roller doors accessing the
gantry crane galleries in the MED building. This reinforces the idea of utilising
the gallery spaces behind the roller doors as the main gateway to the outdoor
space behind.

Fig. 23 Interior of the MED building.

Fig. 24 Gantry crane and reinforced steel columns.

50 Noted that during 2015 anecdotal information came to hand that the car park building would
be demolished. At the time of writing demolition was nearly complete. Previously this decision
was waiting on a QS report of rebuild versus repair (from the OPUS report). For the purposes
of this project it will be assumed that - as the car park building is in a strategic location to the
reduced scale CBD - it will be rebuilt with a similar footprint and height.
Early thoughts were to set up a range of retail shops to service the local community along the south side of Armagh Street. This was to include a grocery. Retail was proposed to be in the ground floor of terrace housing along the street. As thinking developed, it became apparent it would be better to cluster this closer to the outdoor space and really make this a focal centre. The MED building is a better prospect for this retail cluster as it exists in an optimum position with the potential for significant foot traffic through it. Part of this proposal therefore is the repurposing of this heritage building as a retail space and gateway to the outdoor space. Thus it becomes not only a gateway but a link to the past.

Fig. 25 Revit render - cafe beside the entrance to the MED building
How then might this proposal come about? A village is generally accepted as an organic construct. It does not necessarily grow rationally. Perhaps like the evolving Lennon Wall, it is a concept where individuals have added to it over time. However it must have a place from where it begins. I am arguing that a village inhabitation of Christchurch Central City is vital to the rebuild and that a village must also have a place to grow from. A public outdoor space has the necessary political and social independence that people will relate to. A public space is something people can take ownership of. It is an ideal beginning.

The Scenario

Four and a half years since the most damaging of the earthquakes, the CBD is more open space than structure. Construction of a $20m budgeted playground is underway and parts of the Avon have been cleaned of liquefaction so aquatic life can return. The investment in these projects is small change compared to the major anchor projects. One might argue this is merely window dressing to signify progress. Meanwhile the major projects have not made it off the drawing board.

In the industrial heart of Woolston a development has met with favourable public reaction. The Tannery, a complex of rebuilt industrial buildings, is described as a “unique boutique shopping emporium.” Starting with a bar, it has been extended to a small shopping arcade with retail, cafes and restaurants. It is a destination and the shopping available is unlikely to appeal to locals due to the price tags.

This suggests that small-scale destination-oriented retail/hospitality developments can be successful. The potential for something of this nature

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53 Woolston is not a salubrious part of Christchurch and the industrial development of this area dates back to the early settlement of the city. It included businesses such as wool scourers, tanneries and glue factories. A malodorous gelatine factory still operates across the road from The Tannery.
on the project site is significantly greater due to its location. The site has existing residential inhabitants from the north and north-east quadrants of the Central City, all within a kilometre radius. These residents would identify themselves as being from Christchurch Central City. Future residential growth, as supported by this project and as envisaged by the CCDU, adds considerably to the site’s potential as a destination but also, and particularly, as a significant neighbourhood community amenity. The playground across the road will attract visitors and residents. As the CBD is gradually rebuilt, the proximity of this development offers a viable lunchtime and after-work destination for the CBD workforce. A public outdoor space within it could provide the identity from which a village could grow.

Temporarily

A plausible scheme could involve a partnership between a private investor/developer and the local body. As most of the land and existing buildings are owned by CCC or its agencies and the remainder presumably purchased by the government, CCC has both interest and intent to initiate development on this land. Long term goals of the council are to see a much greater residential inhabitation of the central City. This site offers a unique place to start.

The council could take a long view and offer a developer a rent and rates holiday for a ten to twenty year period. They could also fund a public outdoor space. A developer could then repurpose the MED building, market the space with council support and lease interior spaces to retail tenants. The council could then repair the carpark building, providing approximately 25% of the ground floor to another investor.

Repurposing the MED building could be achieved at a modest cost compared to a new build. With council support this might become a viable project for a developer. Similarly with the carpark building.

The two existing buildings on the site have a relationship to each other that sets up the north and south perimeters of a space. This can be further defined to the east and west by temporary structures, for example humble shipping containers, as has been successfully achieved in Cashel Street Mall. The area between them could have drainage installed, be paved, seated, even planted, and be ready to take on public duty as an outdoor space. The temporary structures form both enclosure of the space and provide shops offering anything from frocks to food. Public toilets can be made available in both existing buildings.

54 In a conversation with my supervisor, David Turner, he conveyed a situation where the London Docklands Development Corporation incentivised development with a 10yr rates holiday. This was very attractive to London developers. Canary Wharf was the outcome.
This scenario creates a seed from which the council could see the beginning of their long held intentions of a community neighbourhood located in the Central City. It could be grown from an outdoor public space.

The idea of temporary structures is that they act as placeholders for the future. They achieve a temporary purpose within which human behaviour can be encouraged to take ownership of the space. In comparison it seems likely that people will do this more readily than they would take the same ownership of a public building.

With temporary placeholders positioned, a space is defined. Height coherence is achieved by stacking three shipping containers vertically.\textsuperscript{55} A degree of wind protection is achieved and future development (construction of permanent buildings) can then safely occur behind container hoardings, leaving business operators in place and activity for visitors to observe. Although partially of a temporary nature, a destination can be created.

This scenario describes a way that occupation of the Central City might start. The potential is for this arrangement of space and surrounding buildings to provide a place from which development in the Central City could begin. This seed is very firmly planted in both the public and private sectors as a joint project. Profitability is vital as is the involvement of existing residents within the central city. It will be due to their influence that others will wish to become involved and included. From this, rebuilding could begin as demand for inhabitation (and therefore housing) follows.

\textsuperscript{55} To Christchurch residents, containers are not an unusual sight since the earthquakes. They are used as safety barriers at the base of cliffs on the road to Sumner and as noted, Cashel Street Mall consists of containers repurposed as shops. A familiar element in the post EQ landscape.
The Project

Theory

Treatment of the Outdoor Space

One text in particular became the principal reference for considering public outdoor space; Gehl’s Life between Buildings: Using Public Space. In addition to this, Responsive Environments: a Manual for Designers (Bentley et al) and Alexander’s A Pattern Language were consulted. There are a number of common themes within these books that are important for public outdoor spaces; the edges of public spaces and how they are treated, places to sit or lean or stay, protection from winds, and above all, the importance of inhabitation and how, essentially, people attract people.

In addition to this, the theory of Gordon Cullen, Kevin Lynch\textsuperscript{56} and Ralf Weber\textsuperscript{57} have been consulted, in part via a lecture series which condensed much of these writers’ thoughts into a compact format relevant to public outdoor space.\textsuperscript{58}

The public outdoor space – the space – is the focus of this project. The space needs edges and in particular for this project, colonnaded edges. As Gehl says, “Here people walk in pleasant, intimate spaces where they are protected from wind and weather and can enjoy a fine view of the large space from between the columns.”\textsuperscript{59} Alexander suggests that the successful inhabitation of a public space is determined by the success of its edges.\textsuperscript{60} He describes their function to “knit the inside of a building to the outside, by treating the edge between the two as a place in its own right, and making human details there.”\textsuperscript{61} This intersection needs texture so that people ‘rub’ against it, are slowed by it, and are subliminally interested in it. People moving slower are more likely to observe their surroundings more carefully and are more likely to stay if they see something interesting than those who rush through to another destination.

The edges will also contain primary seating amongst the columns – places to sit comfortably and converse with a friend or watch human activity.

In this project the edges will act to create a sense of coherence between existing and new buildings. This is achieved with common height and rhythmic repetition of vertical elements. Ratio of height to width is also considered as have the concepts relating to the enclosure and centricity of a space. Serial vision is in part achieved by the permeability of the site, to and from the outdoor space and through the MED building.

The space is intended to support pedestrian activity, outdoor markets, formal and informal public performance (music, buskers, comedy etc). Activity could occur during the day or night. Much of the space therefore could be paved. It should have a large enough area that is unencumbered by seating or alternatively have portable seating. It should be well lit and have infrastructure such as lighting, water, power and stormwater drainage.

\textsuperscript{59} Jan Gehl, Life between Buildings : Using Public Space, 5th ed. (Copenhagen: Arkitekten
\textsuperscript{60} Forlag. The Danish Architectural Press, 2001), 142.
\textsuperscript{61} Ibid., xxix.
A circular outline will be described by the paved surface of the space. Broad steps will curve 90 degrees around the circumference of this circle in the south eastern quadrant of the space, forming an amphitheatre-like arrangement. The top of these steps is a 1.5m podium level which extends along the eastern perimeter of the space towards the MED building. The broad steps form seating above and below a curved ramp that extends up from in front of the carpark towards the north east. A steeper stairway completes the southern corner, rising from a lane beside the carpark building to the podium height. The stair and ramp combination owes its legacy to a public space in Portland, Oregon.  

Focus of the space will be directed by the amphitheatre diagonally through the space and back behind the amphitheatre. A possibility for the quadrant between the centre of the circle and the north western corner, 400mm high raised grassed plinths will represent the Canterbury Plains and their patchwork fields. They will act as secondary seating. Shallow flowing water will be introduced into a gravel bed placed on the diagonal line between the plinths to represent the braided rivers of the Canterbury Plains. This will leave approximately 75% of the space paved and therefore flexible in its use.  

Street Calming  

Armagh Street on the northern perimeter of the site is shared by the playground. Street calming will be applied to the area between Madras and Manchester Streets. This could be extended east to Barbadoes Street and west to Oxford terrace as a way to link Breathe at one end, to Victoria Square at the other. The historic tram operates on Armagh Street to the west of New Regent Street. The objective would be to reduce vehicular speed on Armagh Street, give pedestrians the right of way, and provide angle parking for short stays. This would improve the quality of the terrace housing on Armagh Street between the substation and Madras Street. It would also provide parking for convenience shopping for visitors as well as Central City residents, encouraging the patronage of the food hall in the MED building and other amenities surrounding the outdoor space.  

Precedents  

Queen Victoria Market  
The Queen Victoria Market in Melbourne has existed since 1878 and has operated as a food market in one form or another. One of the appeals today is the indoor food market where a large range of delicatessen food is available.

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Fig. 29 Steps and ramp being used as secondary seating. Pioneer Courthouse Square

Fig. 30 Deli in the Queen Vic Market.
within a heritage building from permanent shops. The repurposing of the MED building into a food market is directly derived from the experience of the Vic Market. The Vic Market is a destination for visitors and the people of Melbourne. It has a history and a current presence, food being the linkage between the past and present. The MED building seems an ideal space to replicate the feeling of the Vic Market with food being the focus. The objective is to replace the visit to a supermarket with a visit to this building – and then be delighted with what was available and the service offered. More than an architectural outcome perhaps.

Christchurch: SOL Square, Strange’s Lane, The Tannery

SOL Square was a development within the laneways running at the rear of warehouses between Colombo, Manchester, Lichfield and Tuam Streets. The environment was rich with semi industrial heritage buildings turned bars that came alive at night. It had a slightly decrepit feel that gave it character.

People in Christchurch were enthusiastic supporters. An extension of the area called Poplar Lane continued across Manchester and led through to Madras Street. The predominant material was red brick, the colour suggesting they

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64 SOL – South of Lichfield. The location south of Lichfield Street in Christchurch.
The Christchurch locations have several similarities:
- they all have a connection with the past, and a clear sense of re-use
- the use of heritage materials, in particular local red brick, often augmented with concrete
- an original industrial purpose with a strong character or ambience
- they have been or are popular with people in Christchurch
- they were or are destinations

The significance of these similarities readily apply to the MED building. Although the intention is not to make this building into a bar complex, rather focussing it on food; bars, restaurants and cafes as well as retail and service provision (eg. Health) surrounding the outdoor space are intended to diversify the appeal and time of frequentation.

With the exception of the reconstituted Tannery these locations, including the Queen Victoria Market are genuine. The Queen Vic Market was of course always a market location. SOL Square was clearly repurposed and Strange’s Lane is not pretending to be old world, instead it is a genuine space, combining old materials with new in a way that does not ‘pretend.’ These are spaces that deserve to be treasured.

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66 As mentioned above.
68 For example, in one bar interior, pressed metal ceiling panels are used as wall linings – a new take on this material.
Master Plan

Fig. 34 Revit generated proposed block plan from northwest corner.
Once a decision on the location of the site had been made and utilising the contextual information gathered about its surroundings, a master plan for the site was developed. This is not what the research project is about specifically but it provides further context to the project development.

The master plan sets up a combination of public, semi-private and private outdoor spaces. It provides a range of medium density housing as well as space for hospitality, retail and commercial businesses. A high degree of permeability will result in public areas that will feel semi private, urging people to move through them without lingering. Other areas will aim to encourage loitering and the inhabitation of spaces. The plan aims to protect the internal volume that is created by perimeter blocks from prevalent winds. The objective is to form an environment that becomes both a public destination and an attractive place to live. In essence it sets out to provide the opportunity for the formation of a village within the Central City.

The east boundary is a 100m section of Madras Street, a north going one-way street. Directly across Madras Street is the location of Breathe, a planned residential demonstration project consisting of five and six storey apartment buildings on Madras Street and four storey townhouses behind. This perimeter will have the greatest influence on reducing the impact of the easterly wind on the site so it is proposed to reflect the construction of Breathe across Madras Street to the east perimeter of the site. This will transform this section of Madras Street into a short tree lined avenue between apartment buildings.

The south boundary will have the greatest impact on the effect of the south-west wind on the site. The northern façade of the carpark building will be enclosed to prevent wind blowing through and the ground floor will be repurposed as a bar or restaurant. The remaining length along Gloucester Street will act as a perimeter block with apartment buildings of four to five storeys built over a 1.5m podium. A semi excavated car park is constructed below the podium. The buildings will be set back from the street to accommodate large deciduous trees, reflecting those in Latimer Square across the road.

The north boundary on Armagh Street is across the road from the Margaret Mahy Family Playground. It is proposed to employ traffic calming measures on this street, creating a living street. Trees and short stay angle parking will become part of this environment. The remaining two storey MED building sits 50m from the Manchester Street corner and at its east end an internal electrical substation building. It is proposed that three storey terrace houses are constructed on the remainder of this boundary. The west end of the street will be occupied by a hybrid building that will extend to the Manchester Street corner. Hospitality, retail and commercial space will occupy two levels up to a podium matching the height of the MED building beside it. The building will step back and then up with a further two floors of apartments. This building also forms the western edge of an outdoor space located between the MED and carpark buildings on the north and south boundaries of the block.

The west boundary faces the reduced CBD across Manchester Street. It is proposed to build a six storey hybrid building on this boundary with an opening between it and the building on the northern boundary. The opening becomes the Manchester Street entrance to the development. Both this

69 Or ‘Woonerf’ where pedestrians share the space with motor vehicles and footpaths do not have curbs. Speed humps may also be employed along with speed restrictions for vehicles.
building and the one on Armagh Street are intended to provide protection from the north-west wind.

The site will be highly permeable with entrances through the MED building, and between or through buildings on all boundaries.

Perimeter blocks will create an interior space which will in part be occupied by a public outdoor space. A new building will form an eastern boundary to this space, fully enclosing it and protecting it from the wind. This will be three levels and will sit on the 1.5m podium. Its ground floor will be hospitality and it will have apartments above. Between this building and the apartments on Madras Street an open area will be used as allotments for the use of interested residents as well as a private area with BBQs and landscaped outdoor green space for the residents’ use.
Existing Buildings: Combining Theory with Design

MED Building (and see Appendix)

The decision to repurpose the MED building is based on more than its heritage protection status. Familiarity is considered important in a city where little remains. Therefore the reuse of the building and in particular opening it to the public while respecting and valuing the original character of the building, is important. As a food market in the fashion of the Queen Victoria Market in Melbourne the building has the potential to become a destination in its own right. The industrial aesthetic of concrete floor and walls and exposed structural steel of the open double-height volumes in the gantry-crane galleries would adapt very well to this purpose. It would be an attractive and appealing interior, well adaptable to this utilisation. Shop fronts could simply be roller doors or shutters, allowing the proprietors to spill their displays out into the arcade space during the day, then push them back at night. It is envisaged a person’s entire daily shopping needs could be catered within this building - to the extent that it would entirely replace the need to visit a supermarket. All of this would be offered in surroundings of fascinating and authentic industrial character. The interior scale of the building, just over 50x20 metres roughly (1,000sqm), is certainly large enough to achieve this.\(^{70}\)

The proposed collection of shops offering a full range of groceries, deli items, fish, meat vegetables, flowers, wine, beer etc. creates a destination for the existing residential inhabitants. In doing this, it becomes a community focus for these residents where they will begin to develop nodding acquaintances with their neighbours. Perhaps within this intimate character filled space, the food may seem fresher, the service more personal, and the allure to return

\(^{70}\) As a comparison, the Four Square at the bottom of Alberton Avenue in Mt Albert is approximately 480sqm.
Fig. 38 Proposed ground floor plan of repurposed MED building showing permeability. Armagh Street is at the top.
difficult to ignore. The development provides amenities to visitors to the playground across the road. It provides a place to buy and eat lunch, a destination for those working in the CBD and a place to visit a farmers’ market in the weekends or watch an outdoor performance or the 2019 Rugby World Cup on big screens in the public space.

Permeability through the building is planned with two main entrances on the northern Armagh Street façade, visually open to minor and major entrances on the south façade. A central arcade links the two north-south connections along the main axis of the building. The east connection and central arcade are open to the roof structure with south facing skylights providing a degree of natural light. A second roller door entry on the north façade becomes a café which is also accessible from the central arcade and able to spill out onto a widened footpath. Vertical circulation is provided near both ends of the arcade with a lift at the east end.

The second level is open to the main volume along each side of the central arcade with a

Fig. 39 Render of the proposed interior space looking east down the central arcade with natural light through existing skylights.
tubular pipe handrail - consistent with the nature of the interior. It is bridged across a gallery space at the west end to stairs. Toilets are located at the east end on the ground floor and the west end on the upper floor. It is envisaged that small service oriented businesses would occupy the upper level where retail tends to be less successful. Various sized leasable areas can be created and there is room for a fitness centre or even art gallery at the west end. The original part of the building would benefit from having its ceiling above the upper floor removed, opening it to the roof structure.

Modernisation
Modernisation of the building might not be a prospect at the outset but as time confirmed the value of the development, work might be considered. The interior of the building is cold. Insulation and double glazing would be difficult and expensive to retrofit. It is proposed that a high R-value roofing insulation system is fitted over the existing roof structure, retaining the original timber sarking. The south facing skylights could be double (or triple) glazed. Warmth, particularly in the winter, is important to attract customers. Glass self-opening doors at all entry points would create the opportunity to heat the interior volume in the winter with ducted heat pump systems. Ducting could be left exposed and painted a bright industrial colour to acknowledge it is not part of the original structure. Insulating the concrete walls is more problematic due to the already deeply set windows. Changing the windows is not an option although an additional interior glass panel could be fitted to create a double glazed effect. Mitigating the heat loss of the building would be a pragmatic strategy. Photovoltaic panels could be installed on the north facing roof planes and connected to the grid (in the building next door). There is a certain logic to this given the heritage of the building.

The Carpark Building (and see Appendix)

Originally, a workshop occupied the east end of the ground floor of this building. This results in an open volume 6.7m in height in its north-east corner which amounts to approximately 25% of the ground floor area. This volume is directly opposite the MED building and faces north. This suggests the repurposing of at least this area, if not the same corner of the floors above. Given Gehl’s recommendation of good access to sun and outdoor wind protection, it is an ideal location for a hospitality offering - bar/cafè/ restaurant. This area may not be designed in detail for the purposes of the project with the exception of the façade. The workshop occupied 450sqm, more than half of this with a 6.7m high volume. A further 110sqm could be taken from car parking space with the effect of occupying all of the northern

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71 A glass balustrade fixed to the interior side of the pipe balustrade would ensure compliance but retain the visual aesthetic.

face fronting the outdoor space. It is proposed to add an additional level of parking on the south of the two structures to accommodate parking for inhabitants in apartments on the west edge of the outdoor space.

Access to the outdoor space from either Gloucester or Manchester Streets is achieved along the eastern and northern perimeters of the carpark building. Users of the building can directly access the space. Public toilet facilities within the carpark building could be enlarged to accommodate a greater number of users.

This building has an important relationship to the outdoor space. The building’s northern edge becomes extremely inhabitable. Seating associated with a hospitality offering will be a key feature along with a colonnade through which people can pass if it is raining. These features set up places to sit, to stand, to stay - as Gehl says “the key word is ‘staying.’”

The 40m dimension to the south façade of the MED building is greater than that recommended by Alexander in *A Pattern Language* for a public space. This can be effectively reduced by the addition of a 4m deep colonnade or awning on the south face of the MED building (Fig. 42). A similar device on the north façade of the carpark building will not only offer outdoor sun and rain protection but reduce the dimension of the space to a little over 30m, more in keeping with Alexander and Gehl’s suggestions.

Repair of the carpark building itself could be delayed as there is no shortage of car parking at present. It could also involve additional floors of parking being added.

### Truck Service Access

Service access to buildings is necessary for the provisioning of shops, cafes, and bars and the removal of rubbish. A service lane on the east side of the substation on Armagh Street with a turning bay will allow trucks to drive in then reverse to the rear of the MED building. This allows them to drive out forwards onto Armagh Street. Unloading and loading shares a small part of the outdoor space with pedestrians, however this is human activity and something that will be watched. This lane will also service a new building on the east side of the space.

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73 Ibid., 147.
Access to the carpark building is off Manchester Street which can be increased in width to allow vehicles to enter the central area between buildings to be located on the west side of the space, turn, and exit back onto Manchester Street. This provides service access to the retail within these buildings and to businesses located in the ground floor of the carpark building.

Existing Buildings, Theory and New Design

There is a commonality of dimension shared by the two buildings; the carpark building’s vertical structure is based on a 7.2m grid east to west, the MED building is also based on a 7.2m grid north to south. Further, the MED building is then subdivided into a 3.6m (or 12 foot) grid. 3.6m is a very human scale dimension, twice the height of a tall person, the length of a piece of timber that can be carried by one person, the stud height of many early residences in New Zealand. This suggests that as a rhythmic interval to walk alongside it would be pleasing experience. Structurally, 7.2m is a readily achievable span for concrete flooring systems. Further it is a workable dimension for the width of a residential unit or for a commercial or retail space.

The structure of these buildings also has some similarity as both utilise a concrete post and beam system. The car park is a precast open structure with shear walls east to west. The MED building is cast in situ concrete post and beam with cast in-fill panels. The later (1939 est.) workshop addition to the building utilises steel universal columns and universal beams as its internal structure, supporting the two gantry cranes and hip roof structure. The external walls are however the same cast in situ post and beam system which is also used in the wall separating the two gantry galleries, possibly to resist torsional loading due to the gantry cranes.

Coherence – the top of the MED building’s façade is 8.2m while the height of the second level of the carpark building is about 7.3m. A colonnade set to
The interior activity can be a complete contrast to this with individual retailers broadcasting their presence with displays of their produce; hanging salamis, cheeses, fruit, vegetables, even wine and dry goods stacked up on moveable trolleys that can be wheeled back within the shop and a roller door dropped down at close of business.

Structure will be used to signpost the rear façade encompassing the major southern entrance, potentially a free standing structure taking a similar approach to what Shelton illustrates in *Learning from the Japanese City: Looking East in Urban Design*. A colonnade will extend across the breadth of the building’s rear which will provide a protected walkway across the outdoor space’s northern perimeter. This will have the effect of increasing the visual complexity and interest of this façade. This will be achieved utilising steel universal columns and universal beams, reflecting the interior structure. The roof will be positioned just below the existing upstairs windows, allowing daylight to penetrate the upper floor, the lower roof level creating a more human scaled colonnade. This colonnade will connect with another running north–south on the western edge of the space.

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77 Ibid., 85.
Permeability is crucial, street access to the building will be clearly visible and sign posted by awnings extending out over the footpath. The internal layout will be permeable with physical and visual transparency from front to rear at each of the entrances. An interior arcade will link the cross paths along the length of the building.

By constructing parapet height colonnades on the edges of both buildings this ratio increases slightly but the open space dimension is reduced to something closer to Gehl’s recommendation (Fig. 47). By construing parapet height colonnades on the edges of both buildings this ratio increases slightly but the open space dimension is reduced to something closer to Gehl’s recommendation (Fig. 47). Considering the space with a west – east section (Fig. 48), there are two height ranges. The parapet height gives a slightly less comfortable 1:5.2 ratio. However the higher level ratio improves to 1:3.8. The space would feel comfortably enclosed yet still open to northern sunlight. Morning and afternoon sunlight will be restricted by taller buildings to the east and west but the space will have sun for about five hours in mid-winter and seven hours in mid-summer. The buildings that will shade the space will in turn provide vital shelter, in particular from the easterly wind. Outdoor comfort is one of the basics of what Gehl calls a “high quality” environment.

A section diagram illustrates the relationship between the carpark and MED buildings. Dividing the distance between the buildings by the average height gives ratio of 1:3.7 which is within Weber’s suggested 2:1-1:7 range (Fig. 46).

Fig. 45 The proposed steel colonnade along the southern façade of the MED building.

The ratio of height of the surrounding buildings and the horizontal dimensions between them affects the sense of enclosure and human comfort within. A section diagram illustrates the relationship between the carpark and MED buildings. Dividing the distance between the buildings by the average height gives ratio of 1:3.7 which is within Weber’s suggested 2:1-1:7 range (Fig. 46).

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79 Ibid., 129.

80 Ibid., 163.
Fig. 46 Section diagram looking west and showing the dimension of the outdoor space between the carpark building and the MED building and midday sun angles.

Across

Ratio = \( \frac{40}{(8.2 + 13.6)/2} \)
= 1.37

Fig. 47 Same section with colonnades added to both buildings.

Across

Ratio = \( \frac{32}{8.2} \)
= 3.9

Fig. 48 Long section looking north showing the dimension of the outdoor space between buildings at the east and west sides of the outdoor space.

Along

Ratio 1 = \( \frac{42.8}{8.2} \)
= 5.2
Ratio 2 = \( \frac{54.8}{14.5} \)
= 3.8
Fig. 49 Render looking back diagonally at the south-east corner of the outdoor space and the raised podium.

Fig. 50 Render looking west across the outdoor space towards a new building with colonnade and access point through to the Manchester Street entrance to the space.
An important role of these buildings is to provide wind protection. As mentioned, the easterly wind can make the outdoors exceptionally unpleasant during the sunniest of Christchurch days. The north westerly is hot, dry and blustery, even described as a mad wind. As a result, these buildings will be stepped back, then up an additional two levels from the top of the colonnades. Gehl identifies wind as being the most problematic condition in outdoor spaces, concluding “good protection against bad weather, good access to good weather.”

The additional two levels will contain residential apartments which will overlook the space. Security of the area is improved by residents’ ability to observe comings and goings. This increases the sense of safety within the space and assists to reduce crime.

The eastern building will be raised up 1.5m above the level of the space. This is the same proposed height as the low podium under apartment buildings on the southern perimeter of the site. Excavation beneath the podium will allow a level of car parking for residents in the block and will extend beneath the eastern building.

This creates an amphitheatre-like arrangement in the south eastern corner of the space as previously described. A reverse mono-pitch veranda structure is proposed for the internal edge of this building. It will extend north towards the MED building. This sets up an over-watch position across the space for patrons of a bar or café. Primary outdoor seating beneath the veranda is expected to be a popular spot in afternoons. The height of the veranda roof will be about 6.5m to correspond with the parapet height of the MED building. Supports for the veranda will be at 3.6m centres, articulating the edge of this structure. The use of a veranda type structure is intended to contrast with the

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81 Urban legend would have it that people go mad in the nor’wester – likely source would be farmers working on the Canterbury plains. Personal experience suggests it is a very frustrating wind to work in.
82 Gehl, Life between Buildings : Using Public Space, 180-84.
83 Ibid., 173.
Fig. 52 Plan of the outdoor space showing relationships with surrounding buildings. MED building is at the top of the page.
more formal nature of the colonnade on the opposite side of the space. While height and rhythm coherence is maintained, when combined with seating it signifies a casual, relaxed place to sit, stay, and watch.

Residential apartments will sit above the retail level. These will be stepped back from the veranda edge so as not to dominate the outdoor space.

The west edge is more complex with two separate but related buildings within the area between the space and Manchester Street. These essentially run parallel with Manchester Street with the eastern most returning west along Armagh Street to the corner. This encloses a courtyard between the two buildings.

Access from Manchester Street is provided through a middle courtyard and into the space. This building will accommodate retail and service offerings in the two lowest floors up to a podium set at the MED building’s parapet height. This will effectively be two buildings; one on the edge of the space will return towards Manchester Street on its northern face, closing off an internal courtyard from Armagh Street. The second building will border Manchester Street, separated on this edge from the first building by an entrance. This will be the main Manchester Street entrance to the outdoor space and will be signposted by a large analogue clock positioned above the podium level and
out over the footpath. This is a direct reference to a clock which once graced the MED head office building on the Manchester-Armagh Street corner. Its position is similar to the original. A broad pedestrian entrance then passes diagonally through an open courtyard between the two buildings and through the eastern building into the outdoor space.

Street frontages and the eastern edge of the interior building will be treated with a colonnade whose structure forms its podium. On the street edges, this provides a covered pedestrian walkway for inclement weather and a zone that cafes and even retailers can spill out onto. It provides texture and rhythm to the intersection between building and ground and makes the inhabited zone a more interesting place to frequent.

The colonnade, veranda, or awning is a sheltering device that is common for the buildings in this project for all of the above reasons. Gehl, Alexander, and the authors of Responsive Environments talk about visual richness that facades contribute. Gehl in particular in Life Between Buildings looks at this “edge effect” as a way to encourage people to linger. His view is that people encourage people and that this is a good condition for any publicly inhabited place.

Residential apartments will sit above the retail levels to a height of six floors in total on Manchester Street. The internal building on the east side which returns on Armagh Street will be stepped from six levels down to four. The eastern building will also be stepped back from the veranda edge so as not to dominate the outdoor space.

The apartments will be generous in their floor area and will range in size from single to four bedroom. These are designed to attract suburban residents into the Central City and will all have outdoor terraces. Some will be maisonettes with circulation on the internal courtyard side at every second level. The concept aims for permanent residences, not transient inhabitants.

The intersection between building and the zone inhabited by people is overlooked in much modern design. It is as if architects forget that this edge zone is inhabited as is the interior. Curtain wall facades seemingly disappearing into the footpath do not make an interesting or inviting place to be. It is as if architecture is designed to hurry pedestrians along, not encouraging them to linger and detract from the appearance of a building. Gehl contrasts soft and hard edges. Soft edges can be achieved, particularly with multi-storey buildings, for example by setting back the ground floor and working this “edge zone.” This is a zone that demands respect as after all, it is the space we inhabit and like many things, it is as Gehl says, all in the details.

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86 Ibid., 22 - 25.
87 This will require Resource Consent as it will be above the 17m height zoning.
89 Ibid., 153.
Fig. 56 Section through the outdoor space looking north, MED building in the background.

Fig. 57 Section through the proposed building on east side of outdoor space and the MED building.
Conclusions

To quote Warwick Issacs, the CCDU director, “It’s crucial that we attract people to live in the central city to add vibrancy to what will be a modern, world-class environment, and the residential chapter is about providing a pathway to this. Over time we want to see more than 20,000 people living in our central city.”

Agreed.

This is ten times the proposed east Frame population and will require the replacement of existing housing stock.

It would necessitate densities in the order of 50pdph throughout much of the existing residential area as per the 2041 target set in 2007 by Christchurch City Council. At the time there was decentralised growth in the region. In 2008 a trend of increasing central city residential population was identified. The problem the Council faced however was one of scale. Only small developments could occur, reflecting the scope of investment and land ownership.

Today that situation is different and it would be unfortunate to see the opportunity squandered.

In 2009 CCC commissioned Jan Gehl Architects to undertake a study of Christchurch City and its public spaces and public life. This study too was pre earthquake. The fact that this study was commissioned is important as it recognises that the CCC wished to improve inner city life. The study identified the laneways as “the city’s treasure.” With these gone, the reuse of older buildings and surroundings becomes even more important. They should be highly valued or in the example of Strange’s Lane, rebuilt in an astute way.

The study identified four principal issues with Christchurch at the time: the city is dominated by traffic, it has weak connections to amenities, a monofunctional city life (inactive at night, unsafe), and a lack of public space attractions and identity. It would be unfortunate to see Christchurch return to this way of life.

What would Gehl Architects make of the current situation and what they might propose now? Is this not an opportune time to commission a new study by them, focused on the inhabitation of the Central City.

People in Christchurch were surveyed in 2013, 48% of them indicating a move to the Central City was something they would consider. The respondents also identified their desire for high quality, safe and secure neighbourhood communities where they felt a “sense of belonging.” Opus International Consultants’ survey in 2013 concluded that a “successful and high quality environment will require a strong relationship between the residential, commercial, and infrastructure sectors, including the provision of different

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92 “Greater Christchurch Urban Development Strategy “, (Christchurch, New Zealand: Christchurch City, Environment Canterbury - the regional council, Selwyn and Waimakariri Districts) along with the NZ Transport Agency and Te Rūnanga o Ngāi Tahu, 2008).
93 Gehl Architects, “Christchurch 2009 Public Space Public Life - a Summary.”
94 The Tannery is to some extent an example of a reused building although much of the original character of these buildings has been lost due to the need to rebuild in other than unreinforced masonry. The original structural brick has been replaced with a veneer of bricks from the site.
95 Ipsos, “Developing the Central City as a Place to Live Who Will Live There and What They Want.”
In the view of the writer, the Council emphasis on housing and parks in the East Frame goes some way towards community desires but lacks a focal point that a community will identify with and through this attain a sense of belonging. The winning design for Breathe, while describing itself as a village, lacks the basic amenities of a village – shops to buy your daily needs i.e. “features characteristic of village life.”

Drawing on the theories of outdoor space and the edge zone and the manner in which those elements can generate an opportunity for community, this project suggests that the focus of inner city inhabitation should be around an inner city Village (or perhaps several). Further, that the creation of a public outdoor space associated with Village amenities is analogous to planting a seed, an opportunity that – if nurtured – could grow into a community.

The architectural component of the project is focused on the quality of an outdoor space, the repurposing of existing buildings, masterplan of a city block and the design of buildings to contain the outdoor space. It suggests that temporary structures can be anchored by existing buildings, creating a viable destination and focal point for existing inner city residents and wider Christchurch residents. Temporary structures suggest an informality that encourages community involvement and the potential to evolve the space. It is intended that a degree of organic growth could then occur with new permanent structures extending from this core.

Above all, this project aims to offer a recipe for viable redevelopment alternatives for inner city Village living in Christchurch.


“Village.”


“Christchurch Central Parking Plan 2015 “. Christchurch City Council.


“Early Christchurch - a Brief History.” In *Local History: Christchurch City Libraries.*


“Greater Christchurch Urban Development Strategy “. Christchurch, New Zealand: Christchurch City, Environment Canterbury - the regional council, Selwyn and Waimakariri Districts) along with the NZ Transport Agency and Te Rūnanga o Ngāi Tahu, 2008.


“Maslow's Hierarchy of Needs.” Wikipedia.


All photographs are taken by the writer unless otherwise noted.

Fig. 1 Avon River looking downstream from the Manchester Street Bridge.
Fig. 2 and 3, Queen Victoria Market interior; SOL Square at night.
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https://cdcu.govt.nz/
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http://christchurchcitylibraries.com/
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Fig. 8 Christchurch City with Sumner Beach in the foreground and the Southern Alps in the background.
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Gehl Architects’, “Christchurch 2009 Public Space Public Life - a Summary,”
(Christchurch2009).
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https://en.wikipedia.org
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https://veolelmundo.com
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http://www.teara.govt.nz/
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Fig. 59 Armagh Street elevation of incomplete buildings showing relationship to MED building (left) and carpark building (behind).
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Fig. 61 South interior elevation of outdoor space showing MED building with colonnade.

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- Development of colonnade from articulation
- Modelling the perimeter block
- Modelling and sketching around the outdoor space
- Manchester Street Facade, MED clock
- Clock, Secondary seating in the outdoor space
- Wind modelling on master-planned block
Appendix

Site Survey 29 July 2015

1. Carpark Building – Manchester Street Car Park
Access to the building was not possible so estimates have been made of dimensions from Google Earth and external observation.\textsuperscript{98}

The carpark building dates back to the 1960s and is a classic utilitarian design with two separate buildings, approximately 4m apart. The floor levels of each construction are half a level (1.6m) offset vertically with vehicle ramps linking the two structures. The dimensions of the northern structure are 73m in length (east – west) and 17m deep. The southern structure is set back from Manchester Street by approximately 3m and is the same 17m depth, extending along Manchester Street 70m. The height of the northern structure is 13.6m – four levels. The southern structure is 12m consisting three levels of parking and a ground floor beneath. Floor to floor height is 3.2m. The structure consists of concrete precast 600 x 450mm columns on the outer edges at 7.2m centres east – west, supporting pre-cambered, precast, post tensioned beams spanning the 17m depth. These beams are 600mm deep and support a concrete floor (details unknown). Each structure has two shear walls between columns on each perimeter, located symmetrically.

Column centres of the north – south perimeters are just under 6m. Vertical circulation is provided by two stairwells and a lift tower located in the 4m space between the two structures. The ground floor pedestrian access off Manchester Street has public toilets. The vehicular entry to the building is on the northern side, extending halfway east along the building before entering at ground level. The exit is down a curved ramp onto Gloucester Street in an easterly direction. The building housed an MED workshop at its eastern end, extending two floors vertically which provides a 6.7m high volume.

The structure of these two buildings has some similarity; both utilise a concrete post and beam systems, although they are decades apart in construction. A further similarity is the dimensioning of supporting structure. The MED building has hip roofs with trusses spanning 7.2m. The vertical columns of the car park building are also at 7.2m.

2. MED Building, 198 – 200 Armagh Street
Access was gained with the kind assistance of Therese Loney of CERA, who currently own the building and are utilising it for storage. The building measures 22m north to south and 53m east to west. It is a two storey building. The street façade of the building is organised in a symmetrical arrangement with four pairs of Art Deco styled pilasters, each detailed with three vertical rebates extending to the height of the parapet. The parapet top is stepped with the areas between the pilaster pairs extending 600mm or so above the parapets between. The roof is series of hips, two extending away from the street at the original west end of the building and three paralleling the street at the extended east end, all set behind a common facade. Steel framed windows with diagonally crossed steel mullions are arranged in a regular grid supporting the hierarchy that the four pairs of vertical columns set up. The remaining two exposed facades (west and south) are utilitarian and penetrated in a regular manner with steel frame windows. Facades reach a common height of 8.2m.

Entrance was gained from Armagh Street through what would originally have been one of a pair of roller doors situated towards the east end of the

\textsuperscript{98} 16”x 8” concrete blocks are useful form of construction for this purpose.
Much of the building’s interior appears to have been originally used as office space and has been used most recently by Orion Energy, following the 2011 earthquake. It appears that at the time of construction of the west end of the building (1929 approximately), it housed the MED head office. The original construction was approximately 22m square and had an entrance off Armagh Street. This was subsequently extended in about 1939 to include workshop space to the east. It housed a main substation which at some stage been removed from the building and a more significant substation installed to the east of the extension. The result is that both floors of the west end of the building are a rabbit warren of corridors, offices, ramps and stairways, separated by fire doors.

The more recent east end of the building was clearly an industrially purposed area. Originally there would have been two galleries extending the full depth of the building behind the two roller doors. These galleries also extend the full height of the building through to the three parallel hip roofs above, exposing steel trusses, timber purlins and sarking, below a corrugated steel roof. Much of the southern roof slopes are penetrated with extensive skylights.

The upper floor height from floor level to the valleys between the hip roofs is 3.2m. The roof slope appears to be approximately 30 degrees. The floor to floor dimension is approximately 3.8m although this varies by half a metre depending on areas where the upper or lower floor has been lifted or lowered.

The building appears to have undergone some earthquake strengthening at the time of the inclusion of the new concrete floor within the western gallery space. Additional steel structure appears to have been added. During the earthquakes it is evident that the building suffered minor damage which is made apparent by strengthening - the addition of lengths of 100mm steel equal angle connecting the upper concrete floor to the concrete wall structure as well as tension ties connecting the original and newer concrete floors.

The condition of the building is on the whole reasonable. Leaking roofs were noticeable in two areas but the resultant damage is limited to ceiling tiles and the like. The general condition of the interior timber sarking and roof structure appears to be generally good. Structural steel has been maintained over the years with paint systems and there is no rust or deterioration showing. Due to the use of the building by Orion Energy, following the February 2011 earthquake, the building has been fitted with smoke/heat detectors, CAT 5 (or 6) cabling, and heat pumps. At the time of the Orion occupation of the building, the smaller of the two gantry cranes was removed from the eastern most gallery and the other welded in place to prevent it being shaken off its rails in another quake.

The external walls and the wall between the two gantry crane galleries is cast in-situ concrete, comprising a post and beam construction with infill panels. The reason for the concrete wall separating the two galleries is possibly to resist torsional loading due to the gantry cranes. The estimated thickness of the walls is 200mm and the columns and beams in the vicinity of 600 x 450mm. The upper floor in the original west end of the building is supported by 200x200 concrete columns in ground floor at a 3.6 x 2.7m grid.

The overall impression gained from the interior of the building was that the interior was by far more interesting than its exterior. The industrial purpose of the interior created a character that is compelling.
Fig. 58 Manchester Street elevation of incomplete buildings showing relationship to carpark building.

Fig. 59 Armagh Street elevation of incomplete buildings showing relationship to MED building (left) and carpark building (behind).
Fig. 60 North interior elevation of outdoor space showing podium, apartments behind and above and carpark building.

Fig. 61 South interior elevation of outdoor space showing MED building with colonnade.
Design process: early sketches of facade ideas and outdoor space
Development of colonnade from articulation
Modelling the perimeter block
Modelling and sketching around the outdoor space
Manchester street facade
Clock (replacing the original MED clock), secondary seating in the outdoor space
Wind modelling on master-planned block

Blue represents low velocity wind, through green and yellow to red - high velocity wind. Outcome from Flow Design in Autodesk Revit.

North east wind, 2m above ground showing the outdoor space is low velocity but work could be done on access ways to the east.

In these diagrams, north is down the page

North west wind, again showing infiltration into the same access way but good protection in the outdoor space.

South west wind also showing infiltration to the east areas of the site but good protection in the outdoor space.

Other buildings around the site will modify the wind, tending to lower its velocity. At present the south west wind will have a great impact as there is an open area of land to the south of the site due to the demolition that has taken place.

Generally the outcome is as intended for the outdoor space.
Images Added Subsequent to Document Submission

Context Plan including Margaret Mahy Playground
3 bedroom, dual level, single aspect apartments over commercial & retail levels
1:50
east facing across outdoor space

1 & 3 bedroom, single & dual level, single aspect apartments over commercial & retail levels
1:50
north facing over Armagh Street

lower floor
single bedroom

mid floor
three bedroom

upper floor
three bedroom
Isometric of dual level, single aspect apartment with commercial levels below
Isometric of single and dual level apartments with commercial levels below
Isometrics of apartments
Cafe - northern internal facade of car parking building
Looking west towards dual level apartments over commercial levels and collonade with access through to Manchester Street
Looking south towards ground level redevelopment of workshop space within car parking building
Looking north-east towards southern entry to MED building with raised grassed plinths in foreground
Looking north-west across the outdoor space from the raised plinth area in south-east corner
1:200 model: outdoor space from south-east
1:200 model: outdoor space from north-west
1:200 model: outdoor space from north-east