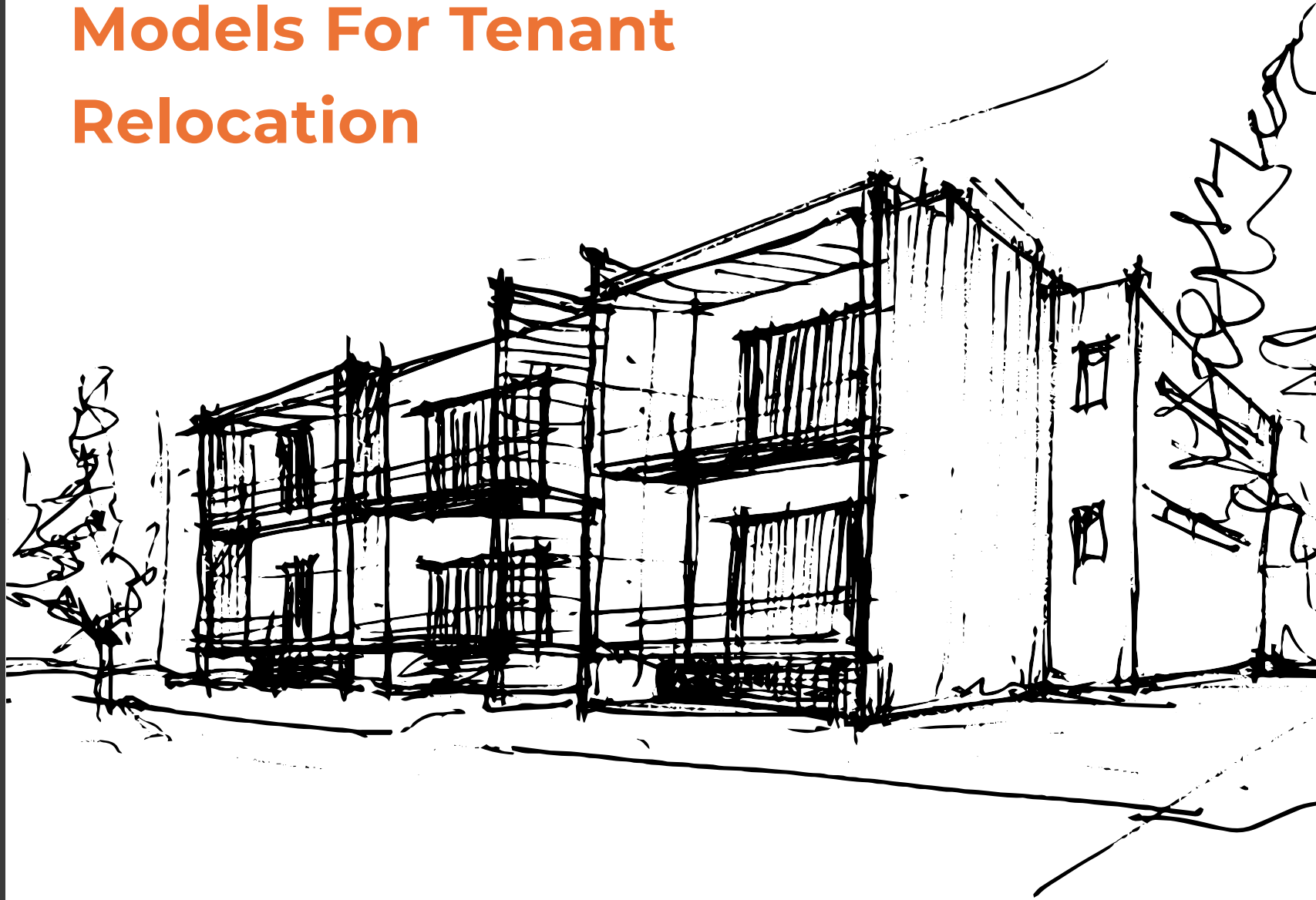


Exploring Innovative Models For Tenant Relocation



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About the SCARP Studio: SCARP's Planning Studio (PLAN 526) is an intensive, six-month long professionally oriented course in which graduate students partner with municipalities, community organizations or businesses to identify problems and propose solutions.

This report was prepared by Mark McNaughton, Itzel Sánchez, and Mark Poskitt.



TABLE OF CONTENTS

Foreword

Project Context	1
Methodology	3
Key Themes	4

Guiding Principles

Questions	10
Principles	11

Scenario Planning

Tenant Relocation	19
On-site	22
Swing Site	26
Evaluation	31

Looking Ahead

What We've Heard	35
Recommendations	37

References	39
-------------------	----

Glossary of Terms	41
--------------------------	----

Appendices	42
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Note: This document is best viewed in “two-page” mode, as facing pages tend to complement each other.



FOREWORD

This Ideas Book is the culmination of a six-month research partnership with Metro Vancouver. Its purpose is to explore innovative development and design models that Metro Vancouver stakeholders could employ to provide housing for displaced tenants. The book is broken into four sections. Section one provides some context on the project and the overall methodology. The second section outlines a set of guiding principles that were developed to ground the research and analysis. Section three uses scenario planning to test potential solutions in a hypothetical real-world context, and section four summarizes what we've heard and provides some recommendations. Throughout each section, case studies have been scattered to illustrate how different innovations could be used to make a project more viable. We hope that the ideas explored in this book will provide some valuable insights and inspiration for the reader about alternative ways to improve the tenant relocation process.

PROJECT CONTEXT

While Metro Vancouver municipalities seek to accommodate new growth, tenants living in these communities are increasingly facing the threat of displacement as rental buildings reach the end of what is conventionally considered to be their useful lives. Tenants of purpose-built market rental housing facing major renovation or redevelopment are often at risk of displacement. Finding replacement housing in the short-term can be very difficult, particularly at comparable rents or in the same neighbourhood. This housing insecurity can lead to emotional distress for tenants.

Metro Vancouver plays a vital role in the region by collaboratively planning for and delivering regional-wide services to 21 municipalities, one treaty First Nation, and one electoral area. Recently, the area has seen robust growth and an ageing housing stock. Most notably, housing availability and affordability remain challenging with vacancy rates below 1% for many municipalities.

The region's ageing stock, combined with very high demand for rental housing, has led to an increase in redevelopment and renovation in recent years. While these activities are important for maintaining and renewing the existing rental stock, they can put tenants at risk of displacement.

As buildings age and operating agreements expire, many non-market buildings may need significant upgrades or even complete redevelopment. Therefore, it is crucial to ensure that alternative affordable housing options are made available to existing residents that respond to residents' preferences and needs as much as possible.

Involuntary displacement has serious impacts on tenant well-being, especially for vulnerable groups. Challenges include stress and anxiety about the future of their homes when their building is sold to a new owner; pressure from landlords to take buy-out agreements rather than accommodate renovations; and fear of finding a home they can afford.

Tenants with low incomes and/or those facing additional barriers to housing, such as seniors, persons with disabilities, or those experiencing health issues, are among those most affected by redevelopment or renovation. They often require more assistance in the relocation process as there are fewer choices available to them.

Some policies have been enacted to address the impacts of tenant displacement. The provincial *Residential Tenancy Act* (RTA) specifies the legislated minimum requirements for notice and compensation for tenants when a tenancy ends due to redevelopment. In 2017, the RTA was

amended to include a 'no vacate' clause on fixed term tenancies. In 2018, further changes to this legislation require that four months notice be given prior to renovation or demolition, and that tenants be given the Right of First Refusal for moving into the new building upon completion. Finally, municipal tenant relocation policies have also become more prevalent in municipalities across Metro Vancouver, providing an additional set of regulations that landlords and developers must comply with to ease the impacts of displacement due to redevelopment.

However, many of these existing tenant protection policies rely on the assumption that alternative or interim accommodations will be available within the existing rental stock, which does not adequately account for currently low vacancy rates and the high cost of market rental housing.

The purpose of this Ideas Book is to establish options for innovative temporary housing models that Metro Vancouver stakeholders could employ to provide housing for displaced tenants.

OBJECTIVES

- » Generate an Ideas Book that comprehensively explores and assesses different types of temporary housing interventions that may be implemented to provide housing for displaced tenants.
- » Explore, in particular, how modular construction can be used to enhance temporary housing interventions.
- » Through the Ideas Book, promote conversation about the role of design and development in the tenant relocation process.
- » Strike a balance between [a] a diversity of stakeholders' feedback, [b] design ideas and practicality / financial feasibility, and [c] the priorities of different stakeholders, including municipalities, investors, non-profits, landlords, tenants, and private developers.

What is happening in Metro Vancouver?



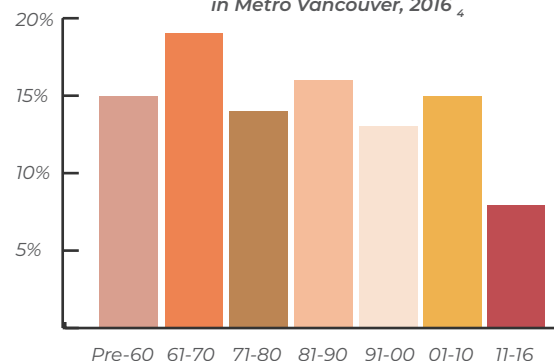
The current rental housing stock is being replaced due to the need to renovate **ageing buildings** combined with **high development pressures**.

The City of Vancouver has the greatest amount of renter-occupied units built prior to 1961 of the region. ⁴

In 2018, there were **6,425** rental housing starts in the region. ¹

There is very little rental available that is affordable to low and moderate income households.

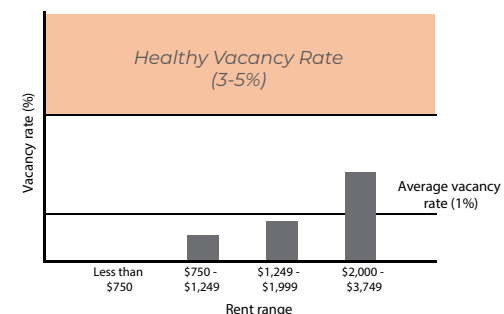
Rental Households (including both purpose-built and privately owned) by Building Age in Metro Vancouver, 2016 ⁴



Due to demolitions or renovations, displaced tenants face barriers to finding a stable and affordable place to live because of **low vacancy** and **high rents**.

The vacancy rate for purpose built rental apartments in the region is **1%**, while average rents for purpose-built rental in municipalities such as the City of Vancouver have increased by over **25%** since 2014. ²

Existing rental units have approximately **30%** lower rents than newly-constructed rental housing. ²



Vacancy Rate of Market Rental Housing by Rent Range, 2018 ²



Sources:

¹CMHC Rental Market Report, 2018.

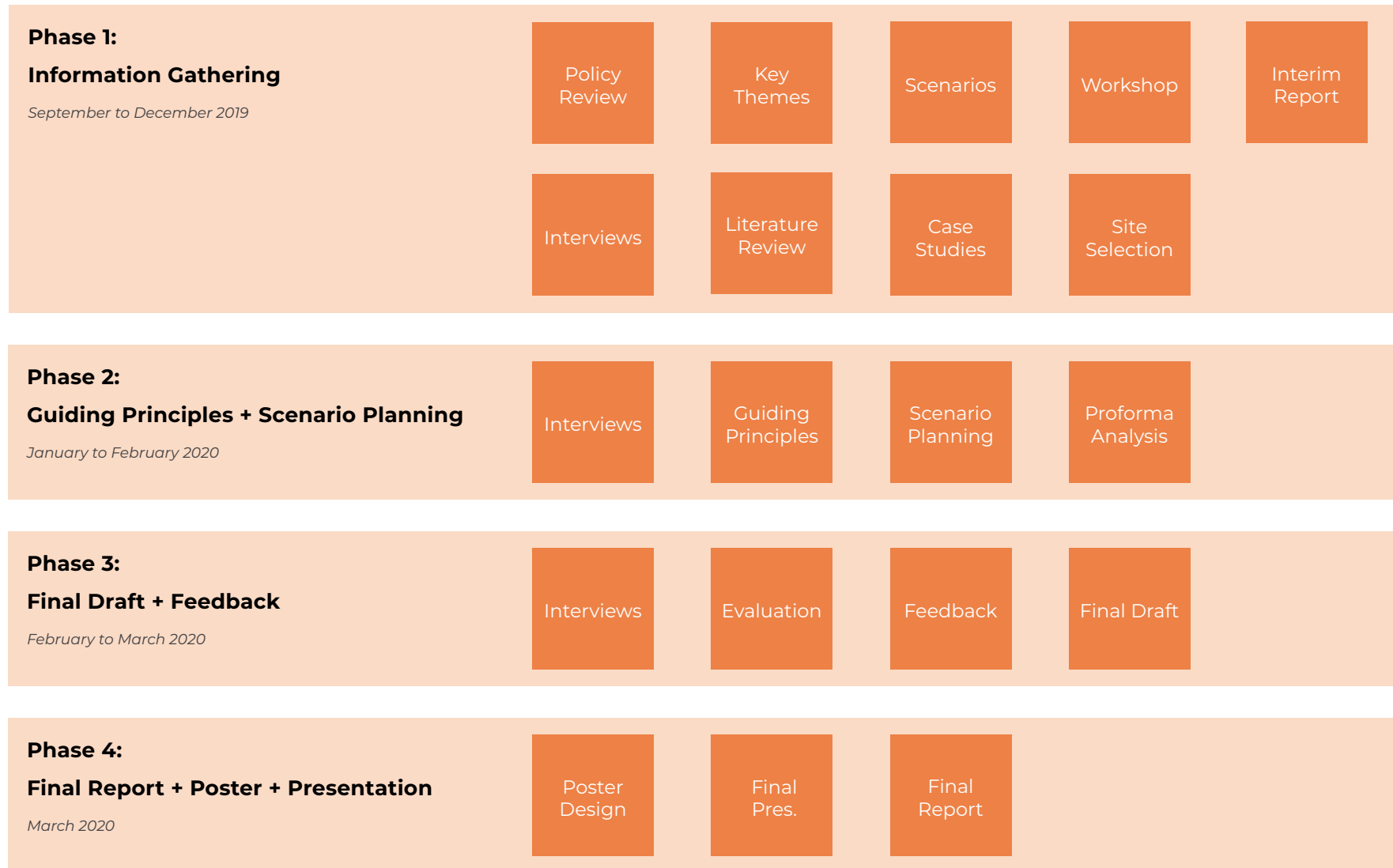
²City of Vancouver Tenant Relocation and Protection Policy, 2019.

³Housing Vancouver Strategy: Annual Progress Report and Data Book, 2019.

⁴Metro Vancouver Housing Data Book, 2019.

METHODOLOGY

The Ideas Book research was divided into four phases.



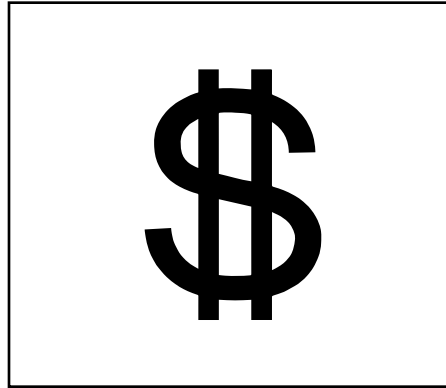
KEY THEMES

As part of this research, Key Themes are used to organize information across sections and allow the user to easily identify information that is pertinent to them.

These Key Themes are used to structure the Ideas Book.

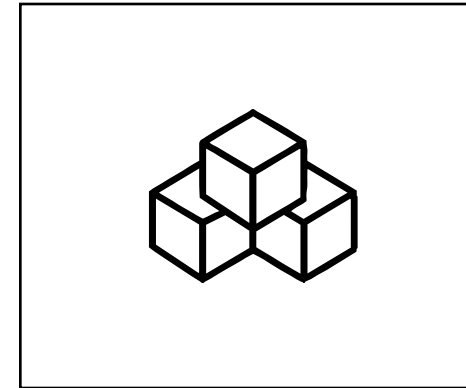
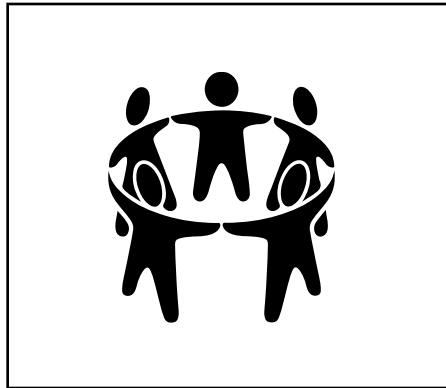
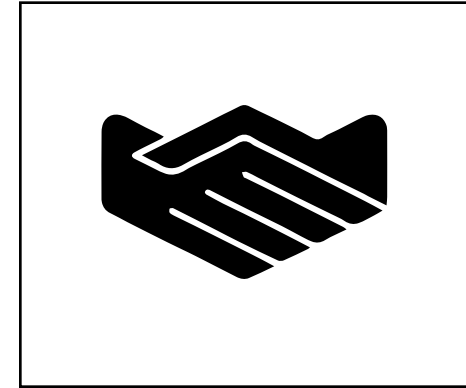
Cost

Cost will consider individual unit costs, land residuals, construction costs, operating costs, timeframe, and potential costs associated with assembling and disassembling units.



Partnership

Partnership will consider the roles of developers, investors, non-profits, and various levels of governments and their relation to providing temporary housing accommodation.



Community

Community will consider the quality of housing units and their suitability to tenants' needs regarding location, access to transit, services, public space, affordability, and sociability. Generally, we will be looking at impacts on displaced tenants and the surrounding neighbourhood.

Design

Design will consider the functionality, suitability, and quality of temporary housing projects at a site, building, and unit scale.

TEMPORARY HOUSING TYPOLOGIES



Vacant Units

Existing vacant units are a form of temporary housing whereby a displaced tenant will move into a vacant unit. A tenant may use this space temporarily as they find other accommodation, or they may use this space as a permanent home. Moving tenants into existing vacant units is the standard approach for rehousing displaced tenants in Metro Vancouver. However, as vacancy rates remain extremely low, and housing has become less affordable, it has become difficult to find affordable existing vacant rental units. Additionally, as more and more development takes place in Metro Vancouver, these units will likely dwindle in numbers.

This approach is considered current policy for many developers and municipalities and has little potential to satisfy the need to house displaced tenants in the future.



Retrofits of Existing Buildings

Retrofits of existing buildings refers to the retrofitting of non-residential buildings into residential. These spaces would likely be vacant commercial or industrial spaces. Moving tenants into retrofitted buildings has not been extensively tried in Metro Vancouver. This is due to Metro Vancouver having few large vacant industrial or commercial space as land continues to be a commodity that is in short supply. Additionally, sites like these would likely be redeveloped into new buildings as the market would likely support more density.

This approach is considered to have little potential in Metro Vancouver mainly due to the availability of such buildings.



Modular Housing

Modular housing refers to whole building units prefabricated under controlled conditions and transported to the construction-site on a flatbed trailer. These units are lifted into their final location on a foundation that is constructed ahead of delivery. In the past, only buildings which employed a repetitive plan were built using modular construction since exact repetition was the only way to achieve economies of scale. This resulted in buildings that were often banal and homogeneous. However, this boundary has been pushed by advances in technology that allow mass customization. Modules can come together in a number of ways to create a variety of spatial forms.

This approach is considered to have potential as a temporary housing option in Metro Vancouver and is the focus of this Ideas Book.

**Current
Approach**

**Limited
Potential**

IDEAS...



“...Modular is 30% to 50% quicker than regular construction”

- Modular Producer

“We have waste of 2-3% compared to 20-30% of waste in typical construction”

- Modular Producer

WHY MODULAR?

1

SPEED

The shortened construction schedule due to the ability to perform site work and building construction simultaneously is the greatest time savings opportunity on a modular construction project. Reducing the time that large expenses such as cranes and hoists are needed on a site is a further reduction of overall cost. Modules can typically be installed at a rate of 6-10 modules per day depending on-site conditions.

2

HIGH QUALITY

Modules expose more surfaces and spaces throughout the construction process, which allows better access to a greater number of building components after finishes have been applied. Additionally, modular construction allows for the ability to more closely monitor work quality. Quality control is a very methodical and consistent process, which eliminates error and reduces the time needed to perform quality checks at the end of the line.

3

WEATHER EXPOSURE CONTROL

Many of the indoor air quality issues identified in new construction result from high moisture levels in the framing materials. The potential for high levels of moisture trapped in building materials is reduced with modular construction since the modules are assembled in a dry factory setting. The factory setting is monitored and controlled for proper air quality and ventilation.

4

INCREASED SITE SAFETY

Conventional construction workers regularly work in less than ideal conditions dealing with temperature extremes, precipitation, wind, and sun exposure. Safety risks, such as potential for injuries including falls, is much higher in the field.

5

LESS MATERIAL WASTE

Modular construction makes it possible to optimize construction material purchases and usage while minimizing on-site waste. While there is some redundancy since the joining of modules creates a double wall condition, Bulk materials are stored in a protected environment safe from theft and exposure to the environmental conditions of a job site.

6

LESS ENVIRONMENTAL DISTURBANCE

The duration and impact on the surrounding site environment will be reduced, which makes it a good choice for greenfield sites or urban infill. The limited site disturbance is important when a site has limited room for a staging area. Modular construction takes the mess and noise produced by construction out of the site and behind the walls of a factory. This is an advantage for projects that are highly controversial or with difficult neighbours.

GUIDING PRINCIPLES

The intention of the guiding principles in this section is to provide a best-practice framework that will be useful for local governments, private sector groups, and non-profits; who are interested in developing new tenant relocation solutions. The principles explore different development considerations that should be taken into account to provide better results in terms of cost, partnerships, community impacts, and design. These are used to direct scenario planning undertaken in the subsequent section. The content of the guiding principles was informed by different existing guidelines and toolkits that have previously explored this topic, such as the Happy Homes Toolkit: Building Sociability through Multi-family Housing; the BC Housing Design Guidelines and Construction Standards; and the BC Housing Community Acceptance of Non-Market Housing Toolkit.



GUIDING PRINCIPLES | QUESTIONS

Cost

FINANCING

What **funding sources** can the project access?
What is the **project timeline**? What can be done to expedite this timeline?

RENT LEVEL

What **rent levels** will the project have during operation?

MUNICIPAL INCENTIVES

Is the project eligible for any **development cost charges (DCC) waivers**?
Can **density bonusing** and **community amenity contributions (CAC)** be negotiated to make the project more financially feasible?

Partnership

FUNDING

What **public-private partnerships** could be developed to help fund the project?

DEVELOPMENT

How can the developer partner with future tenants and neighbours to **co-create suitable temporary housing**?
Is the project being developed by the **private sector** or by a **non-profit**?

OPERATIONS

Upon completion, will the project be operated by the **private** or **non-profit sector**?

Community

NEIGHBOURHOOD

How proximate is the development to **key daily needs**?
How close is the development to **transit**? Does it promote **walkability**?
Is the development **accepted by the community**?

BUILDING

What **common spaces** exist within the project?
What are the **demographics of the intended tenants**? Does the **unit mix** reflect these demographics?
What **building typologies** are best suited for encouraging sociability and meeting tenants' community needs?

Design

STRUCTURE

Is the development going to be constructed from **wood** or **steel**?

BUILT FORM

How can **building orientation and massing** be used to improve access to natural light and **improve energy consumption**?
How can the design of the building **create passive circulation**?
How does the building incorporate **accessibility design features**?

FUNCTION

How **flexible** is the building design?
How can the design of the building and individual units allow for greater **personalization** amongst tenants?

FINANCING

*What **funding sources** can the project access?*

Several grants, programs, and tools have been developed at different levels of government to finance affordable housing or social purpose projects. Funding resources from Federal and Provincial governments may include direct capital funding, construction loans, grants / contributions, and program funding. Local governments are more limited in their financial resources, but can use regulatory powers to incentivize developers by waiving certain fees and taxes.

*What is the **project timeline**? What can be done to expedite this timeline?*

Real estate development is a multi-stage process that can be complicated, lengthy and risky. It can take years to bring a project from the initial planning stage to final completion.

Development project timelines often involve three main phases: predevelopment, construction, and operation. Cost is an important consideration in all stages. The predevelopment phase is the one of the most challenging phases to fund

as the project risk is high during this period. This phase includes building design, engineering and permitting. Partnering with local governments may allow an easier and faster revision of the project timeline.

RENT LEVELS

*What **rent levels** will the project have during operation?*

Increasing the rent levels is one option to make the project more financially feasible but has a negative impact on tenants being rehoused. Current tenant protection policies typically require that displaced tenants be rehoused in accommodation with comparable rents to their previous building.

MUNICIPAL INCENTIVES

*Is the project eligible for any **development cost charges (DCC) waivers**?*

Local governments can waive permit fees, development cost charges, and offer property tax exemptions for projects that provide a social benefit.

In the case of the City of Vancouver, projects creating new affordable rental supply with secured tenure, where 100% of the residential development is rental, are eligible for a DCC waiver for the rental portion of the development.

Can **density bonusing and CACs** be negotiated to make the project more financially feasible?

Density bonusing allows developers to build more floor space than normally allowed. When there is a change of use or an increase in density, the value of the land increases, and provides the developer or landowners with a financial benefit.

When a rezoning process is initiated, density bonus zoning and CACs are negotiated. As result, the developer's financial contribution may be exchanged for amenity or affordable housing shares according to the specific needs of a particular neighbourhood.

Under the rationale that temporary housing for displaced tenants provides a social benefit for the community, these units could be considered as an amenity contribution.



Negotiated density bonusing can improve the financial feasibility of projects, allowing incentives for developers to provide temporary housing for displaced tenants.

- » Affordable housing projects should seek out governmental and non-governmental funding sources.
- » Eligible affordable housing projects should seek out loans with long amortization periods and low interest rates.
- » Projects that respond to a social need may be eligible for cost waivers.
- » An efficient and well-planned development process that minimizes risk can reduce the project timeline, and therefore, its costs.
- » In order to be consistent with local tenant protection policies and to minimize the negative impacts of displacement on tenants, rents should be kept as close as possible to tenant's previous rental rates.
- » Density bonusing can be used to improve the financial feasibility of social purpose projects that benefit the community.

GUIDING PRINCIPLES

FUNDING

What **public-private partnerships** could be developed to help fund the project?

A public-private partnership is a cooperative arrangement between two or more public and private sectors, and it involves an arrangement or collaboration between them to improve the city's capacity to operate effectively.

To encourage social purpose projects, municipalities can offer financial incentives such as waiving permit fees and DCCs and allowing property tax exemptions, or by providing land. From the private sector side, developers are key stakeholders for financing housing projects, building them, and ensuring the delivery of a high quality social purpose product.

Provincial and Federal governments can also be key funders for these types of projects.

DEVELOPMENT

How can the developer partner with future tenants and neighbours to **co-create suitable temporary housing?**

Partnering with the community and having their support throughout the development process is essential for project's success.

Developers should work together with residents as much as possible to plan the project. Listening to and addressing residents' needs and concerns will help developers tackle the project in a more community orientated way and mitigate the negative impacts of displacement.

Is the project being developed by the **private sector or by a non-profit?**

Different partnerships can be formed to develop housing projects. Most projects are developed by the private sector, but to date, more non-profit developers are working to provide affordable housing and community projects. Often, private and non-profit

sector groups may come together in order to make a development project more affordable.

Bringing together the private and non-profit sector may alleviate the cost of development of a project and lead to creative solutions.

OPERATIONS

Upon completion, will the project be **operated by the private or non-profit sector?**

Partnerships for the operation of the project will be needed according to the project duration. For long-term projects, operational assistance is needed not only to manage the financial side of the project, but also to provide services to residents and to support ongoing communication with the community. Although the private sector can operate the management of the project, non-profit agencies are well known for providing this type of service.



Civic engagement; SFU.



Participatory event; Civic Plan.

- » Foster partnerships that allow an improvement on the financial feasibility and improve the quality of the project.
- » Collaborate and engage with possible tenants and neighbours to plan for the development.
- » Bringing together the private and non-profit sector may alleviate the cost of development of a project and lead to creative solutions.
- » Due to their experience in operating social purpose buildings, non-profits provide a good option for the long-term operation of these projects.



Complete streets; Urban Sustainability Directors Network.



Amenity space; Propmodo.

NEIGHBOURHOOD

How proximate is the development to key daily needs?

New rental housing developments should be located in areas that have access to existing infrastructure and community services such as commerce and services, medical services, daycares and playgrounds, schools, public space, greenspaces, and community facilities. Being able to satisfy daily needs within walkable distances promotes the creation of more livable and sustainable communities, and enhances quality of life.

How close is the development to transit? Does it promote walkability?

Access to transit is important for tenants as it allows them to commute to work, access amenities, and carry out their daily activities. Neighbourhood infrastructure should be designed in a way that favours walkability with pedestrians as the highest priority.

Special attention should be focused on the design of walkways, crosswalks, and shade and shelter elements to create complete, continuous and

safe networks. Walkable areas should be accessible to all people, including those with disabilities.

Is the development accepted by the community?

To ensure the success of housing projects, developers must consider the needs of the residents. Effective strategies for increasing community acceptance of a project include: providing amenities for the whole neighbourhood; asking for inputs on design features; maintaining community communications in all phases; and creating an agreement with the community to secure a suitable operator for the building.

BUILDING

What common spaces exist within the project?

Common spaces provide residents with the opportunity to socialize and create connections with others, and encourages a sense of community.

Common spaces may include administration and service areas, indoor amenity spaces for resident use, building access points, courtyards,

and outdoor recreational areas. The design of common spaces may allow different levels of privacy within the building, delineating private space from semi-public and public spaces.

What are the demographics of the intended tenants? Does the unit mix reflect these demographics?

All resident groups have different needs according to their age, gender, family composition, economic situation, and cultural background. An appropriate unit mix should respond to the demographics of the project by having the right number and type of units for the groups being rehoused. The internal structure of units should be flexible enough to be adapted to the different needs of future tenants.

What building typologies are best suited for encouraging sociability and tenants needs?

Mixed-use buildings aim to combine different uses, such as residential, retail, cultural, entertainment, or community amenities, into one structure or area and also improve the financial feasibility of a project. Mixed-use buildings save resources and space, and provide the neighbourhood's residents with other spaces and services that benefit them.

- » Social projects should be located in areas that offer walkable access to tenants' daily needs.
- » Projects with a social purpose should be located in transit-oriented areas where active transportation is prioritized.
- » Engage with the community: Inform, consult, involve, collaborate and empower.
- » Provide common spaces to increase residents' sense of community and satisfaction with the development.
- » The design of the project should be flexible to meet the needs of both present and future.
- » Mixed use buildings should include amenities that benefit the whole community, not just residents.

GUIDING PRINCIPLES

STRUCTURE

*Is the development going to be constructed from **wood or steel**?*

The most common modular construction materials include wood and steel. Wood modular is used for single family homes and low-rise (up to 12 storeys) multifamily buildings. Wood modular buildings are limited in height and require a deep ceiling-to-floor connection.

Steel modular is used in buildings that require a more robust structural system such as taller (12 storeys plus), high-performing, or seismic-designed buildings. Wood structures tend to cost less than steel structures, especially in regions such as British Columbia where wood is a readily available material.

BUILT FORM

*How can **building orientation and massing** be used to improve access to natural light and reduce energy consumption?*

The orientation of the building determines the amount of solar radiation that it receives. Together

with the placement of windows, and external design shading, the building can increase the solar gains during the winter and blocking solar gains during the summer.

*How can the design of the building **create human circulation**?*

Human circulation allows the movement of people through, around and between buildings and other parts of the built environment. Within buildings, circulation spaces can be considered as entrances, lobbies, corridors and stairs.

*How does the building incorporate **accessibility** design features?*

Accessibility is the condition by which an environment or space is fully accessible to all individuals. Accessible universal design standards should be applied to the building, emphasizing access and circulations, washrooms, and certain amenities.

FUNCTION

*How **flexible** is the building design?*

The portability of modular structures enables them to be deconstructed

and moved from one site to another if needed.

Flexible unit design allows occupants to change the size and room composition of the home over time to accommodate changing household dynamics and space needs. The flexibility of common spaces may also allow a variety of activities and uses that could benefit the building community.

*How can the design of the building and individual units allow for greater **personalization amongst tenants**?*

Residents who are involved in the project design phase are more likely to develop a sense of belonging. Therefore, community engagement early on in the development process is encouraged.

Personalizing the design of the building, where possible, may also improve tenants' sense of belonging and attachment to their new home. Intentional use of diverse shapes and color, facade articulation, and interior and landscape design features can promote feelings of personalization.



Tall buildings deny skylight and solar access to low buildings



Building orientation; PLANLUX.



Spectrum Apartments; Fontic Group.

- » For low-to-midrise rental modular buildings, wood is a better choice than steel due to its affordability and availability within British Columbia.
- » Buildings should follow recommended neighbourhood design guidelines to ensure the compatibility and adaptability of the building in an area.

- » Optimize the building's massing and orientation to enhance energy efficiency and access to natural light.
- » Design circulation pathways that promote interactions between residents.

- » Accessibility design guidelines should be used to make all spaces in the proposed development accessible to everyone.
- » Incorporate flexible design principles to units and common areas to allow for adaptable and versatile living spaces.

- » Identify and engage possible residents in the design process.
- » Use colors, shapes, facade extrusions, and landscape design features to create a personalized feel amongst residents for their new home.

CASE STUDY

New Jubilee House

Location: Vancouver, Canada

Structure : Reinforced concrete

Building Type: Social housing; 13 floors above grade

Completion: July 2016 (2013-2016)

Total Floor Area: 84,441 sf

Number of Units: 162

Developer: Brenhill Developments Ltd.

Notable Features

- » Enabled by unique land-trade partnership between City + Brenhill.
- » Entirely residential social housing
- » Replaced + added to existing social housing stock
- » Phased development prevented tenant displacement from Old Jubilee House
- » Array of on-site amenities, including library, computer room, rooftop garden + communal kitchen
- » LEED Gold Certified
- » City owned; 127 Housing society (non-profit) operates; financed by BC Housing



The story of the Jubilee House land-exchange demonstrates how innovative partnerships between municipal government and the private sector can produce important social goods.

Before the land exchange, the City of Vancouver owned a site at 508 Helmcken Street (Old Jubilee House; containing 87 units of ageing social housing), whilst Brenhill owned an adjacent undeveloped site at 1099 Richards Street (New Jubilee House).



Jubilee House; Alucobond.

As part of the land exchange deal, Brenhill agreed to construct 162 units of social housing on the New Jubilee site, which would be handed over to the City on completion. The tenants living in the 87 affordable housing units on the Old Jubilee House site would then be moved into the New Jubilee House building, before the Old Jubilee House was demolished, and the site handed over from the City to Brenhill for redevelopment.

This phasing (and the fact that the Old Jubilee site would only be handed over to Brenhill after the New Jubilee building was completed) meant that no existing tenants were displaced.

It is important to acknowledge the other actors that made this partnership a success. For example, financing for construction of the New Jubilee building was provided by BC Housing (provincial govt.), and upon completion, The 127 Society for Housing (non-profit) took over the operation of the building.

This case study provides one example of how partnerships between different public and private actors can lead to creative developments that minimize tenant displacement.

CASE STUDY

220 Terminal Ave

Location: Vancouver, Canada
Structure : Wooden modular
Building Type: 3-storey residential social housing
Completion: February 2017 (2016-2017)
Total Floor Area: 14,875 sf
Number of Units: 40
Developer: VAHA + Horizon North

Notable Features

- » First temporary modular housing project in Vancouver to be constructed on City land
- » Units deconstructable + movable
- » 70% faster construction than comparable projects using conventional construction
- » Entirely single-unit social housing, renting at 70% of average market rent
- » All units are 250 sf in size, except for 4 accessible units which are slightly larger
- » Operated by the City of Vancouver
- » Predominant funded by CMHC through its Affordable Rental Housing Innovation Fund



Opened in 2017 by the Vancouver Affordable Housing Agency (VAHA), the building at 220 Terminal Avenue was the first temporary modular housing project to be constructed on City land. It was also a pilot for using modular construction to address homelessness and rapidly increase the supply of purpose built social housing. Following the completion of this project in 2017, the Province of British Columbia committed \$66 million towards building 600 units of wooden temporary modular housing in Vancouver.

This case study is important, as it demonstrates one way in which wooden modular is already being innovatively used to address a temporary housing need in Vancouver. The main benefits of wooden modular, as evidenced in this project, is that it is relatively quick (6 month construction period) and cheap to construct (\$199 / sf), as well as being movable. If the City decides to do something else with the land in the future, or that the modular units would be more useful elsewhere, then it is possible to deconstruct and relocate this type of housing. According to industry experts as of late 2019, the entire cost of disassembling and relocating modular housing of this sort would be approximately 30% of the initial capital costs of construction.

Although there are differences between the housing needs of a project like this and rehousing tenants that have been displaced due to renovation or demolition, there are many similarities. Crucially, both attempt to use innovative and flexible design technologies to create suitable and livable temporary homes for residents who are homeless or at risk of homelessness. As such, there are several lessons that can be drawn from 220 Terminal Ave that are applicable to our context.

Firstly, wooden modular is a desirable design solution for temporary housing, on account of its cost, construction speed, and portability. Secondly, diverse partnerships are needed for these projects to be successful. In this case study, local government provided the land for development and managed the building operation upon completion, whilst direct funding was provided by CMHC, a private donor, and a local credit union (Vancity). This reflects that fact that these projects are not for-profit, but rather fulfilling an important housing need that is not being met in the current market.



220 Terminal Ave.; Cahdco.

CASE STUDY

Strathcona Village

Location: Vancouver, Canada
Structure : Steel; corrugated cladding
Building Type: Large mixed-use development, up to 15 storeys.
Completion: July 2018 (2015-2018)
Total Floor Area: 300,00 sf.
Number of Units: 350
Architect: GBL Architects

Notable Features

- » Unique mixed use hybrid (industrial + residential)
- » 60,000 sf groundfloor industrial space
- » 70 social housing units + 280 market residential.
- » Distinctive massing, with a triple-tower structure placed atop single podium
- » Dynamic facade extrusions and coloring
- » 3,000 sf ground floor public plaza + significant rooftop outdoor amenity spaces.
- » Design mimics stacked shipping containers



Strathcona Village; Emma Peter Photography.

Completed in mid-2018, the Strathcona Village development in Vancouver is a powerful example of how thoughtful design can be used to create a building that is functional, attractive, personalized, and sensitive to neighborhood context.

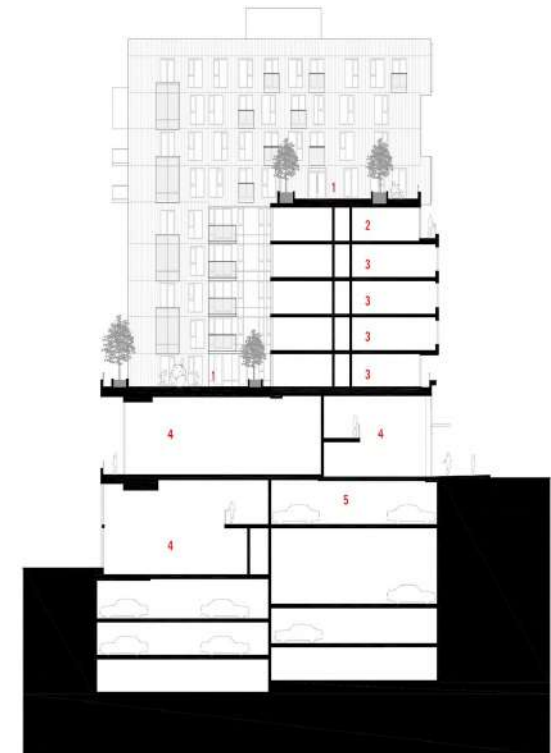
One of the primary functions of this development was to create additional housing without displacing existing neighborhood residents and uses. This was achieved by incorporating light industrial use into the ground level of the building, whilst also providing 70 units of City-owned non-market housing - 17 of which are designed specifically for families with young children. An extensive outdoor amenity space straddling the podium roof also provides a functional area for children to play and roam freely.

Aesthetically, the rustic colors and shapes of the building imitate the railway containers found in the adjacent port, whilst the dynamic facade extrusions create a visually interesting heterogeneity to the building exterior that gives it a personalized feel.

The building massing is thoughtfully distributed across three low-rise towers which sit on top of a multilevel podium. This distinct massing configuration minimizes street shadowing and

disruption to ocean and mountain views, and enables the building to fit in better with the surrounding neighborhood and stand out against a skyline teeming with tall glass towers.

Although built through conventional construction methods, the design lessons from Strathcona Village could easily be applied to a modular building. Indeed, the separate 'pieces' that make up this building very much lend themselves towards a modular construction approach, especially as this technology continues to improve over the coming decade.



CROSS SECTION

- 1 COMMON ROOF PATIO
- 2 MARKET RESIDENTIAL
- 3 NON-MARKET RESIDENTIAL
- 4 PRODUCTION, DISTRIBUTION, REPAIR (PDR)
- 5 UNDERGROUND PARKING

Strathcona Village; Archello



SCENARIO PLANNING

The following section uses a scenario planning approach to illustrate and test our ideas in a real-world context. The section is comprised of three sub-chapters. The first looks at what is currently happening in Metro Vancouver in relation to Tenant Relocation Policies. The second and third look at two innovative approaches for rehousing displaced tenants we believe hold significant potential. Approach 1 explores the possibilities for rehousing tenants on-site in a phased development, whilst Approach 2 explores the capacity of a neighborhood swing site to periodically rehouse tenants from different development sites over a period of several decades. The intention of the scenario planning methodology is to highlight the interconnectedness of different components relating to the key themes (cost, partnership, community, design), and to demonstrate what levers can be adjusted to make these two approaches more feasible and turn ideas into a reality.

TENANT RELOCATION

What is the current situation?

The ageing housing stock, together with high development pressures, has created an environment in the region where older rental housing stock is being replaced with new and more densified housing projects. When rental housing projects are demolished or redeveloped, tenants that occupy units in the building can become displaced. They may also face challenges to find a stable and affordable place to live due to lack of availability and high rents.

In British Columbia, legislation that addresses tenant displacement is defined in the **Residential Tenancy Act (RTA)** and the *Manufactured Home Park Tenancy Act*. It outlines the requirements for the circumstances in which a landlord may end a tenancy for renovations, repairs, and redevelopment.

If a landlord plans to undertake major renovations or redevelop the building, they can give tenants a notice to end tenancy only when the following conditions are met:

- » The landlord has the necessary permits and approvals before giving notice to end tenancy.
- » The landlord must intend, in good faith, to renovate or repair the rental unit.
- » The renovations or repairs must be so extensive that they require the rental unit to be vacant.

The RTA outlines the rights and responsibilities of tenants and landlords, such as:

Minimum **compensation** of one month's rent payable under the tenancy agreement.

Right of First Refusal, where a tenant has the right to enter into a new tenancy agreement with the owner of a unit prior to any third party. It only applies to a rental unit in a residential property containing five or more units.

Form and Content of Notice to end tenancy, where landlords must give four months' notice to end tenancy for demolition, renovation or repair, or conversion, and tenants have 30 days to dispute the notice.

While the provisions of the RTA establish a landlord's obligations to tenants, these mechanisms are limited in supporting tenants with finding alternative rental accommodation. At the same time, one of the goals of the *Regional Affordable Housing Strategy* is to expand the rental supply and balance preservation of existing stock with redevelopment while supporting existing tenants. Some ways for municipalities to achieve this goal are [1] Requiring tenant relocation plans as a condition of approving the redevelopment of existing rental housing, and [2] Ensuring that developers notify tenants impacted by redevelopment of their rights under the RTA.

Municipalities in Metro Vancouver are increasingly adopting Tenant Relocation and Assistance Policies to mitigate the impacts of displacement on tenants. Each municipality develops their own policy to respond to their needs, development context, and city objectives. As a way to complement what is stated in the RTA, Tenant Relocation Policies must provide considerations regarding adequate notification, minimum compensation, and support with finding housing. Each policy establishes parameters regarding, eligibility, applicability, Right of First Refusal, support to tenants, communication and engagement, and Implementation.

The City of Burnaby and the City of Vancouver are two municipalities that have adopted interesting and innovative Tenant Relocation Policies. With different objectives, both have presented considerations on how to deal with the challenge of Tenant Relocation keeping the security and wellbeing of tenants as a priority. The following section summarizes the policies adopted by these two cities.

City of Burnaby

The last amendment of the Tenant Assistance Policy was on March 2020 and was based on direction from the Mayor's Task Force on Community Housing. One of its recommendations to create a more robust tenant relocation policy that better supports displaced tenants.

The policy has new provisions to strengthen tenant assistance during the relocation process, beginning with the initiation of rezoning and ending with the occupancy of the replacement unit. It applies to purpose-built market rental buildings with five or more units that require rezoning either for renovation or redevelopment purposes.

Burnaby's Tenant Assistance Policy contains the following key features:

- » The landlord must help tenants secure new housing.
- » Tenants can move back into a unit in the completed development, at the same rent, adjusted for permitted allowable rent increases as per the RTA (Right of First Refusal).

- » Monetary compensation through a rent top-up or lump sum cash payment.
- » Moving assistance options and support.
- » A Tenant Relocation Coordinator must be designated and will be the primary contact with the City, and must be responsive to both the City and tenants.
- » Special considerations for people with disabilities.

The policy content and implementation is guided by seven principles: Affordability, Accessibility, Clarity, Effectiveness, Individualized Assistance, Proximity and Uniformity.

This policy has focused on improving the tenant experience. As part of the policy, Burbaby implemented a rent top-up approach to compensating tenants where landlords will need to top up the difference in rents between what tenants used to pay in their old building, and what they are expected to pay in their new temporary homes. The implication of this policy is that developers will need to compensate tenants for the duration of their temporary relocation (rather than simply paying them out a lump sum), which in turn provides an economic disincentive to displace tenants earlier than is strictly necessary.



Housing activists with Stop Demovictions Burnaby marched through Metrotown protesting all types of forced eviction, including for redevelopment and non-payment of rent; The Star

City of Vancouver

On June 2019, Council adopted amendments to Vancouver's Tenant Relocation and Protection Policy.

The Tenant Relocation and Protection Policy applies to tenants being displaced from primary rental stock, non-profit social and co-op housing, and secondary rental stock, where there is a proposal for a new dwelling

of five or more units involving the consolidation of two or more property lots. Tenants that are eligible for this policy, must have lived in an applicable rental unit for at least one year, and in some circumstances two, prior to the rezoning or development permit application date.

It provides increased compensation, support, and requirements for ongoing notice and communication in order to mitigate the impact of relocation on existing tenants, with enhanced support prioritized based on need. Developers or landlords who are seeking a rezoning or development application for market rental housing are required to provide a Tenant Relocation Plan (TRP). The Tenant Relocation Plan must meet the following requirements:

- » Communication and engagement with residents through the process.
- » Moving expenses.
- » Compensation based on length of tenure.
- » Assistance finding new accommodation.
- » Support for low income tenants or tenants facing other barriers.
- » Right of first refusal.

Non-market housing providers and residents face different needs. Therefore, Vancouver's Policy provides a separate framework for resident protection and relocation in non-profit social housing and non-profit co-ops based on meeting the following principles:

- » Ensure permanent rehusing options that limit disruption for existing residents: Relocation will minimize disruption for existing residents by providing an alternative accommodation option that involve minimal moves, prioritizes options in the current neighbourhood, and takes into account additional resident considerations such as access to schools and transit
- » Maintain affordability for existing residents: Emphasis will be placed on providing a suitable permanent affordable accommodation option for all eligible residents.
- » Support with relocation and additional housing barriers: Residents will be provided support with moving expenses for all moves. Support will be provided for residents with additional needs.
- » Ongoing communication and engagement: Residents will receive early communication of the intent and regular updates over the process.

Vancouver's Tenant Relocation and Protection Policy has the broadest coverage of any municipality in the region.

The following page contains a comparison table for Tenant Relocation Policies between the City of Vancouver and the City of Burnaby.

Comparison Table | Tenant Relocation Policies

	City of Burnaby	City of Vancouver
Applicability	<ul style="list-style-type: none"> » Purpose built market rental with five or more units that require rezoning either for renovation or redevelopment. » New rezoning applications and currently in the rezoning process. » Applications that have not received Second Reading. » Does not extend to renovations or redevelopments that require only Preliminary Plan Approval and or Building Permit. 	<ul style="list-style-type: none"> » Rezoning and development permit applications. » Primary rental housing stock with 5 or more units » Secondary rental housing with 5 or more units » Non-profit social and co-op housing.
Compensation	<ul style="list-style-type: none"> » To all tenants eligible under the policy with a legal tenancy relationship with the landlord. » Tenants resident at the time of rezoning application submittal. » Tenants eligible under the existing policy, if the rezoning application has not had Second Reading. » Tenants who received buy-outs prior to rezoning application submittal. » Subleasing tenants are not eligible, unless designated by the primary tenant. 	<ul style="list-style-type: none"> » Must have resided in for one year or more at the time of rezoning or development permit application. » For tenants in a secondary rental housing, they must have resided in the unit for over two years, unless the tenancy commenced prior to the transfer of property
	<p>Monetary compensation</p> <ul style="list-style-type: none"> » Applicant found housing with rent top up. » Tenant found housing with rent top up. » Lump sum in a single payment equivalent for a period of 36 months. 	<p>Compensations based on length of tenure:</p> <ul style="list-style-type: none"> » 4 months' rent for tenancies up to 5 years; » 5 months' rent for tenancies over 5 years and up to 10 years; » 6 months' rent for tenancies over 10 years and up to 20 years; » 12 months' rent for tenancies over 20 years and up to 30 years; » 18 months' rent for tenancies over 30 years and up to 40 years; and » 24 months' rent for tenancies over 40 years
	Moving expenses, in kind or as cash.	Coverage of tenant moving expenses or an insured moving company.
Right of Refusal	<p>Right of first refusal on a replacement unit, at the same rent or lower as their current unit, and with the same number of bedrooms. Adjusted to permitted allowable rent increases as per the RTA.</p> <p>Mandatory Needs Assessment.</p>	<p>All tenants offered right of first refusal to return to the new or renovated building at 20% below market rents.</p> <p>Mandatory Needs Assessment.</p>
Communication & Support	<p>Landlord should designate a Tenant Relocation Coordinator to assist tenants.</p> <ul style="list-style-type: none"> » On going communication with tenants and planning department » Notice requirements at each stage of the rezoning process » Attendance at a tenant meeting » Coordination of tenants housing needs assessment 	<p>Tenants will be made aware of the relocation process and their rights and responsibilities through communications from their landlord.</p>
Implementation	<ul style="list-style-type: none"> » Tenant relocation Plan » Bonding from the applicant, equivalent to the total value of the compensation requested. 	<ul style="list-style-type: none"> » Tenant Relocation Plan » The City will assign a Housing Planner to each project to oversee the tenant relocation process, as well as support the applicant to navigate the City's policy requirements.

APPROACH 1 | ON-SITE

Base Case

A private developer has assembled several adjacent sites in Burnaby, and is planning to demolish three existing low-rise rental buildings, and construct two new residential towers in their place. In order to minimize tenant displacement, and to avoid paying out each tenant according to the City of Burnaby's Tenant Assistance Policy, the developer plans to phase their development by creating a 45-unit modular building on the south-west edge of the site on an existing parking lot to rehouse tenants before any demolition takes place. Below are a number of assumptions about the developer's plan.

As the proforma summary indicates, the developer's proposal is not economically feasible, even if the developer has already purchased the land. The following section uses a scenario planning approach to explore what tools could be used to make this project more feasible (cost, partnerships) and functional (community, design).

Assumptions

- » Number of units: 45
- » Demographics: Young families; singles
- » Rent level: 30% of HILs (Housing Income Limits)
- » Site: Burnaby
- » Construction: Wood modular
- » Timeline: Temporary, 5 years
- » Site Area: 14,000 sf (sub-site area = 23,500 sf)
- » FSR: 2.2 (based on sub-site area)
- » Height: 5

UNIT TYPE	# OF UNITS
Studio	5
1 BR	5
2 BR	20
3 BR	15
Total	45

Proforma		Development		Operations	
Revenue	+ \$ 14,831,250			Monthly	Annually
Costs	- \$22,136,916			Cashflow	-\$25,283
Land Residual	= - \$7,305,666				-\$303,395

A full proforma of this site can be found in Appendix A on page 43.

CONCEPT



The subject site is depicted above by a red outline, with the position of the temporary modular building indicated by a purple rectangle.



The image above provides an artistic illustration of what the 5-storey modular on this site could look like.

S.1.1.1 Increasing Rent Levels

In the base case, rent levels were set at 30% of Housing Income Levels (HILs). However, increasing rent levels would have a positive benefit for the overall financial performance of the project. For example, if rents were increased to be in line with current market rental rates, the income produced by the property would be positive and could support a positive land residual. However, increasing rents would be inconsistent with most Tenant Relocation Policies and would have a negative impact on community.

S.1.1.2 Municipal Incentives

Density Bonusing is used as a zoning tool that permits developers to build more floor space than normally allowed in exchange for amenities and affordable housing community needs. In this case, density bonusing could be offered to the developer for either on-site in the existing project or a different project. In exchange, the developer could request to use a portion of the contribution towards the funding of on-site modular units for displaced tenants.



Increasing rent levels would have a positive benefit for the overall financial performance of the project but have a negative impact on community.

PARTNERSHIP

S.1.2.1 Innovation Fund

The CMHC Innovation fund is a \$200 million dollar fund for innovative affordable housing projects. The fund's goal is to encourage new funding models and innovative building techniques in the affordable housing sector. The fund provides three streams which include the development of innovative approaches to affordable housing, creation of inclusive and accessible communities, and contribution to the fight against homelessness. The scope includes affordable homeownership, retrofit models, and affordable rental projects.

S.1.2.2 Temporary Use Permit

Temporary Use Permits allow a use of land, on a temporary basis, not otherwise permitted by a City's Zoning Bylaw. These permits are often stringent on use and purpose of a development. However, partnerships between developers and City could be explored to use temporary use permits for on-site temporary modular structures. These partnerships could help with the costs and timing of the project.

Other Potential Funding Sources:

- » CMHC Affordable Housing Innovation Fund
- » CMHC Seed Funding
- » BC Community Housing Fund
- » BC Housing Community Partners Initiative (CPI) Program
- » Regional Housing First Program (RHFP)
- » New Market Affordable Housing Equity Fund



S.1.3.1 Amenity Spaces

A key strength of housing displaced tenants on-site is that it minimizes the need for tenants to move out of their neighborhood. This is especially important for the demographic in question (families), whose children may go to school in the area, and whose social networks would be disrupted if they were rehoused somewhere across the City.

At a building scale, there are several things the developer could do to improve the suitability of the temporary housing. One example is to create an amenity room, or an outdoor playground for children to use. Whilst this would increase the costs, the community benefits may be worth it. Ensuring that this playground is visible from the units will enhance perceptions of safety and passive surveillance amongst residents.

S.1.3.2 Orientation

One way to mitigate the negative impacts of living on a construction-site would be to carefully orientate the building to screen and face away from the sights and sounds of construction. Intentional landscaping and vegetation could also help with this purpose.



Providing amenity spaces that are functionally useful and attractive to the intended tenant demographic can have a positive impact on the rehoused community.



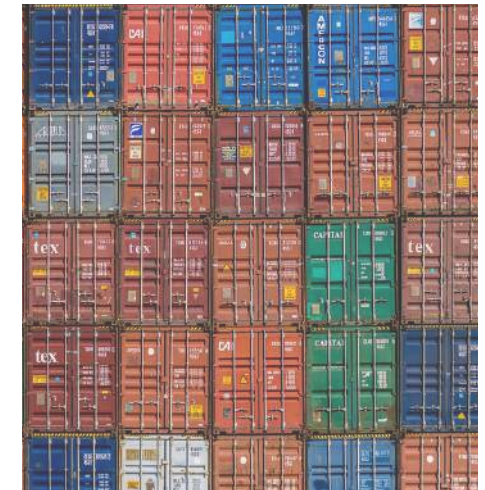
S.1.4.1 Material

In the base case, it is assumed that the material design choice for the building will be wood modular, which has a construction cost of roughly \$300 / sf. One alternative design choice that could save the developer money is to use recycled shipping containers. If the project was to use modified shipping containers, costing \$250/sf, the overall construction cost could be reduced by approximately \$2.6 Million.

Despite the cost savings, there are two design reasons why this approach is sub-optimal. For one, the shipping containers come in a set size, so adapting these to make units which fit the tenant demographic (i.e. 2 & 3-BR) would likely increase costs significantly. Secondly, shipping containers are poorly suited to the Pacific Northwest climate and would require significant retrofitting insulation work.

S.1.4.2 Portability

One strength of wood modular versus conventional timber construction is that modular is portable. This means that the developer has the option to move the units somewhere else, or sell them post-development and redevelop the land. The cost of disassembling and moving these modular units is estimated by industry experts to be 30% of the initial capital cost of construction.



Recycled shipping containers provide an alternative material choice for units, but their inflexible shell and poor suitability to a Pacific Northwest climate make them a secondary design choice to wooden modular.

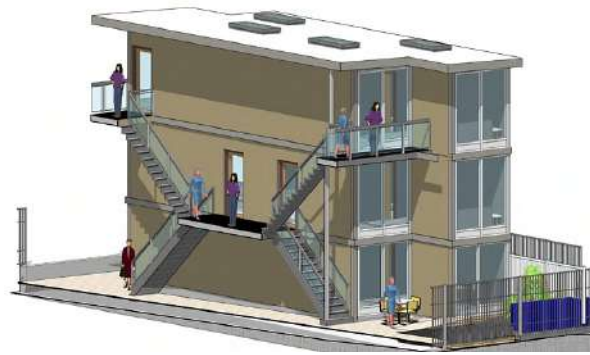
CASE STUDY

Oneesan Container Housing Project

Location: Vancouver, Canada
Structure : Recycled shipping containers
Building Type: Residential, 50% social housing + 50% market rental
Completion: July 2013 (2012-2013)
Total Floor Area: 4,380 sf.
Number of Units: 12
Developer: Atira Women's Resource Society

Notable Features

- » Constructed from stacked, recycled shipping containers
- » Built on regular sized Vancouver lot
- » Made possible by partnership between a variety of funders and financiers.
- » 50% social housing, targeted specifically at older women (55+)
- » Community mentorship program between Oneesan residents + young women housed at Imouto building next door
- » On-site community garden
- » 92% tenant satisfaction



Oneesan Container House; Atira Women's Resource

Located in Vancouver's Downtown Eastside, this unique development by Atira Women's Resource Society is an example of how thoughtful design, community programming, and collaborative partnerships can save costs and create an appealing home for residents.

An immediate design idiosyncrasy of this project is that it is comprised of a series of stacked shipping containers. Similar technologies have been used elsewhere internationally, such as for student housing in Germany and as temporary housing for residents displaced by disaster in Japan, but the concept has received less attention in the Pacific Northwest. Overall, the use of recycled materials saved costs (overall cost in 2013 = \$219 / sf) and shortened construction time (total construction period = 7 months). Atira estimates that if this form of development was carried out on a larger scale, construction costs could be lowered by as much as 32%.

An intergenerational community mentorship program allows for interaction between the 6 older women living at Oneesan and the young women living in the Imouto House next door (a concurrent development). This program involves the mentors from Oneesan cooking communal meals three times a week and contributing to the weekly Sunday Brunch at Imouto. An on-site community garden also provides a space for regular social interaction, and undoubtedly contributes to the high resident satisfaction in this building (92%) as measured in a post-occupancy livability survey.

The success of this project relied on a broad range of partners. The development itself was led by Atira (a community based organization that supports women and their children who have been victims of violence), who also operate the building. The units were staged by Dekora Staging Inc. and Bedrooms Manufacturing Inc. Financing was provided by Vancity and BC Housing, whilst a variety of individual donors (including Ken Shanon and David Cottrell) and capital funders (including CMHC, the City of Vancouver, and BC Hydro) sponsored the project.



Oneesan Container House; Atira Women's Resource



APPROACH 2 | SWING SITE

Base Case

A developer, or consortium of developers, is looking to construct a neighbourhood swing site in an area that is expecting significant redevelopment over the coming decades. This structure is to be used as a temporary home for tenants displaced due to redevelopment.

Below are a number of assumptions about the proposed development. As the proforma indicates, based on the current market and policy environment, the developer's proposal carries a low land residual for the purchase of a property.

The following section uses a scenario planning approach to explore what tools could be used to make this project more feasible (cost, partnerships), and what design factors (community, design) should be considered if the project were hypothetically fiscally possible.

Assumptions

- » Number of units: 130
- » Demographics: Older adults/immigrants
- » Construction: Wood modular
- » Site: Port Moody
- » Timeline: Temporary, 15 years
- » Site Area: 34,000
- » FSR: 3.3
- » Height: 9

UNIT TYPE	# OF UNITS
Studio	40
1 BR	50
2 BR	30
3 BR	10
Total	130

Proforma

Development

Revenue + \$54,287,982
 Costs - \$50,902,028
 Land Residual = + \$3,385,954

Operations

Monthly Annually
 Cashflow + \$352,773 + \$4,233,281

A full proforma of this site can be found in Appendix B on page 46.

CONCEPT



The subject site is depicted above by a red outline.



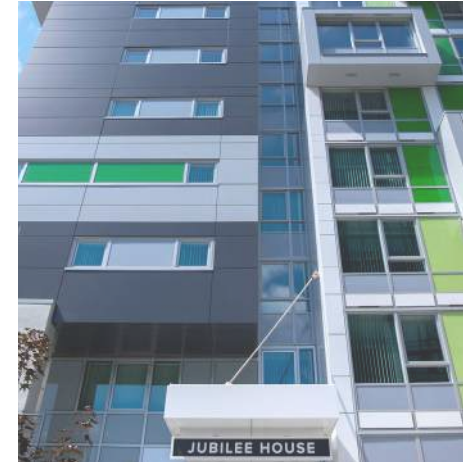
The image above provides an artistic illustration of what the 9-storey modular on this site could look like.

S.2.1.1 Land Provision

In the base case, it is assumed that the developer will need to purchase the land to create a swing site. However, it is unlikely that the current land residual will support the acquisition of a suitably sized site. One solution to this cost problem is if the land is provided through a partnership, such as from governments, non-profits, or others, in exchange for providing purpose built rental that addresses a social need. Such a partnership would nullify the need for the developer to purchase land, thereby making the project feasible given the positive operating cashflow of the development.

S.2.1.2 DCC Waiver

In the base case, the developers proposal in its current form allows for a low land residual. Another toolset that can be used to improve the cost viability of projects like this is government relaxations. One such relaxation could be to waive DCC for the project, thereby saving the developer \$650,000. If the developer was also able to source an additional \$10 Million in funding from different federal, provincial, and local sources, for making the rental project affordable, then the project suddenly becomes more feasible.



The story of the Jubilee House land-exchange demonstrates how innovative partnerships between municipal government and the private sector can produce important social goods.

PARTNERSHIP

S.2.2.1 Operation Non-Profit

In the base case, it is assumed that there exists a public-private partnership whereby a developer would build the building, and the municipality would operate the site. However, it could be the case that a non-profit could operate the site instead. A non-profit may be better equipped to run a facility with a specific population. For example, a non-profit may have experience with ageing populations and have programming and services available to them. These kinds of partnerships can be beneficial to the tenants living in the building.

S.2.2.2 Development Non-Profit

In the base case, it is assumed that a for-profit developer would develop the site. However, it could be the case that a non-profit developer may be responsible for the development. A non-profit developer might have greater connections and availability to secure land and fund projects in a more flexible way than a traditional developer. Furthermore, a non-profit developer could reinvest any surplus to the existing building, or other sites in their portfolio.



Chair Yoga.

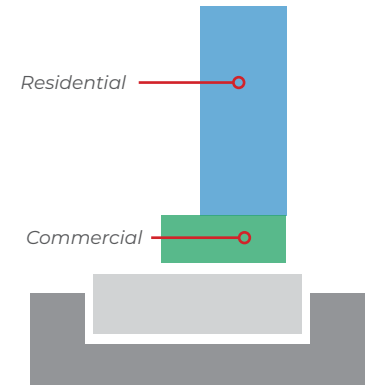
Programming that may be provided by non-profit operators can be beneficial to tenants.

S.2.3.1 Accessibility

Given the hypothetical demographics and specific needs of the community in this neighborhood, several important considerations must be made in the planning phase of the development. One important consideration may be the number of health services accessible nearby. Another may be proximity to region-wide transit - an especially important need for older people whose ability to drive, cycle, or walk to destinations may be less than for other age demographics. At a building scale, other planning considerations are equally important. For example, do the units contain accessible features such as wide doorways and entrances for older people who have special mobility needs? Is there a social amenity area (either inside or outdoors) that neighbours can enjoy and interact with one another in? However, these increased accessibility requirements can increase costs.

S.2.3.2 Mixed-Use

In the base case, the developers proposal is for a residential building. One way to improve the cost effectiveness of this project would be to include an additional 20,000 sq ft of retail at the base of the building. If inclusion of said retail was deemed appropriate in the context of the wider neighbourhood and rented out long-term to retail businesses at market rates, then this could significantly improve the NOI and financial feasibility of the development.



A mixed-use building typology is one way to improve the cost effectiveness of this project.

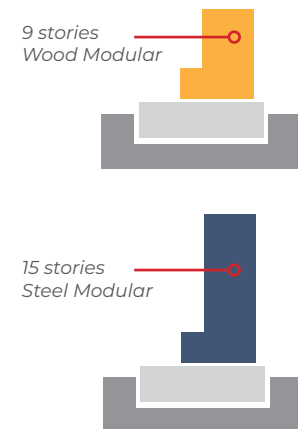
S.2.4.1 Steel Modular

In the base case, wood modular is used in construction. However, steel modular has inherit benefits such as height, structural safety, and quality compared to wood modular, but is more expensive to construct.

Steel modular is used in buildings that require a more robust structural system such as taller or more seismically sensitive buildings. Therefore, steel modules are more popular on the West Coast. Modules are finished in the factory with insulation, infill framing, wiring, ducting, finished, appliances, and millwork so they are as complete as possible before shipping. Higher quality construction helps mitigate the negative market perception of modular as cheap.

S.2.4.2 Flexibility

Another important consideration in the design of a modular building regarding its flexibility. As population and economic conditions change, it is important that these buildings be built in a way that can change over time. For example, as the existing population ages out of the building, there may be a younger demographic including families taking their place. Units and combinations of units to form a module, should be built in a way that can change.



CASE STUDY

Tomo House on Main

Location: Vancouver, Canada
Structure : 3-storey, mixed materials
Building Type: Residential; cohousing.
Completion: 2017-present (in progress)
Total Floor Area: 14,327 sf.
Number of units: 12
Developer: Tomo Spaces Inc.

Notable Features

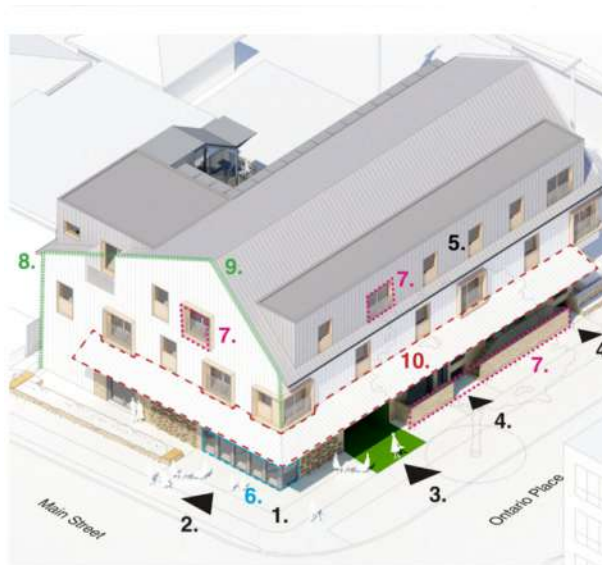
- » Unique building typology that addresses a core housing need (missing middle)
- » Integrated with wider streetscape through intentional design to encourage sociability
- » External building corridors surrounding shared interior courtyard used to increase interaction amongst cohousing inhabitants.
- » Gentle increase in density that retains pedestrian scale at street level
- » Limited parking space + located near transit to enhance affordability
- » South facing balconies and courtyard maximize solar gains in amenity spaces
- » Building massing which responds to wider neighbourhood context.

Whilst still in its planning phase with the City of Vancouver, the Tomo House on Main provides an example of how intentional urban design can foster sociability and integrate a building seamlessly with an existing neighborhood, whilst gently increasing density in order to meet the housing needs of residents.

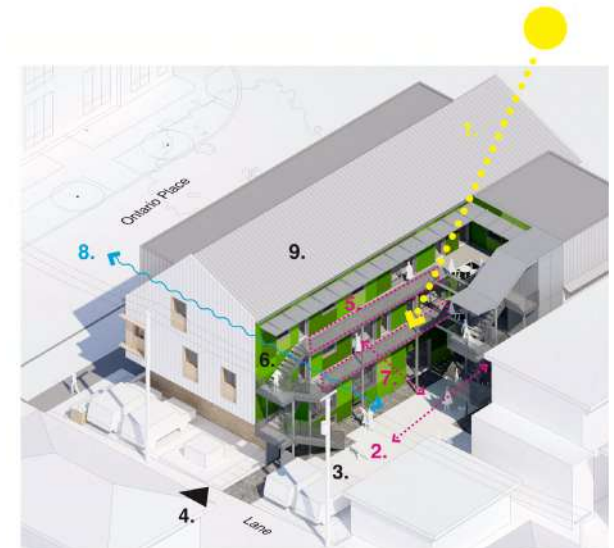
One of the most impressive features of the Tomo House is the way it integrates with the adjacent streetscape to encourage sociability between residents and passers-by. Design elements contributing to this include street facing windows, a front yard immediately bordering the Main Street footpath, a building entrance which fronts directly onto Ontario street, and generous windows which

create a social transparency between residents and the street. A similar focus on community occurs on the rear side of the building, where a south-facing outdoor amenity courtyard is enclosed by external accessways and balconies, all of which increase the likelihood of change social encounters between residents.

Whilst a very different typology from the temporary housing models explored in this ideas book, the case study of Tomo House illustrates how thoughtful building design can be used to encourage sociability and contribute to community building, both amongst residents and with the wider neighborhood.



1 Community interface in front of Common House: The front yard creates a soft zone between public and private realms, where Tomo residents, neighbours and passers-by intermingle. **2** The entry at Common House activates a animates the northeast corner of Main Street and Ontario Place. **3** The main residential entrance on Ontario Place marks the arrival from busy Main Street into a residential scale environment. **4** Entrances to the townhouses along Ontario Place activate the street and give a residential scale while still allowing for privacy. **5** A residential scale facade along Ontario Place and Main Street provides a soft and approachable edge. **6** Generous glazing create social transparency in and out of the Common House. **7** Public/private interface at neighbour stoops and Juliette balconies: These semi-private spaces encourage residents to linger where they can cast eyes on the street, but still at home. **8** The southeast roof line is scaled to two stories to respect the context and mediate the streetscape along Main Street. **9** The profile of the building along Main Street is shaped by the familiar 'gable' form that maintains its residential character and scale of the neighbourhood. **10** Pedestrian scale: The street canopy creates greater care for residents as well as other pedestrians.



1 The south-facing courtyard provides a sun-lit social space for all residents. **2** Common House connection to courtyard and Main Street: By providing a space for shared meals, creation and recreation, the common house is a powerful enabler of daily, meaningful social encounters. **3** Flexible parking spaces allow courtyard to expand to lane: Like people in single-family dwellings, Tomo residents may occasionally use parking areas for extra social space. In a future of autonomous and shared vehicles, these parking spaces may be converted back to social use. **4** Lane entry. **5** Generous walkways, social stairs and patios off the walkways increase the likelihood of more frequent, casual interaction between neighbours. **6** A vibrant interior cladding scheme contrasts the more modest exterior. **7** Multi-level spaces encourage socialization. **8** Through units allow for cross ventilation. **9** Robust materials ensure longevity and low maintenance over time.

Tomo House; MA + HG Architects.



CASE STUDY

Gifu Kitagata Apartment Building

Location: Gifu, Japan
 Structure : Reinforced Concrete
 Building Type: 10-Story Public Housing Reconstruction
 Completion: March 1998 (1994-1998)
 Building Footprint Area: 6,286 sf.
 Total Floor Area: 50,655 sf.
 Architect: Kazuyo Sejima & Associates and Yamasei Sekkei

Notable Features

- » Standardization of modules which replicate modular buildings
- » Customization of spaces
- » Uses a 'room' as a basic building block
- » Building designed to run a perimeter of a site
- » Double height spaces
- » Unique rhythmic pattern
- » Construction waste minimization



Gifu Kitagata Apartment Building; Gifu Prefecture.

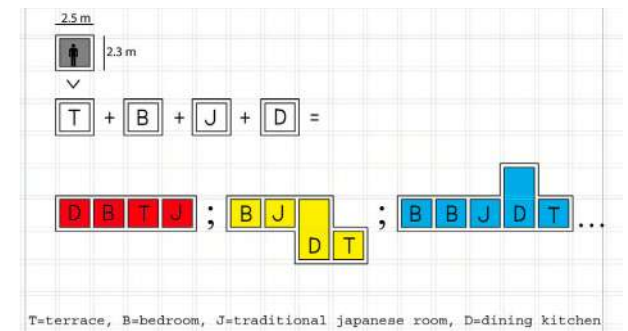
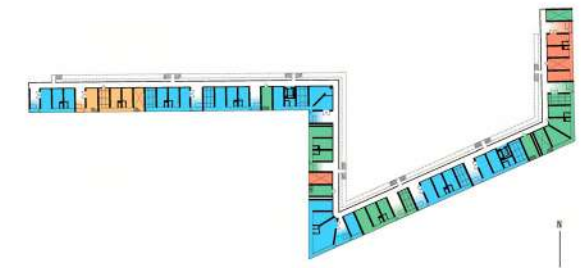
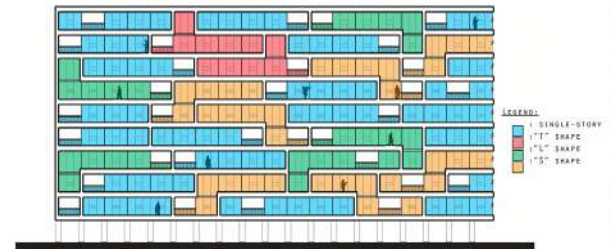
The apartment building is part of a large scale public housing reconstruction project. This L-shaped Wing designed by architect Kazuyo Sejima sits on the south-east part of the site where the idea for the overall layout of the development was to run the buildings around the perimeter.

Careful manipulation of spaces results in a variety of internal spatial configurations. Monotonous character has been mitigated and varieties generated while allowing the use of standardized components. All in all, it is the building form, internal spatial configurations and facade treatment that determine the resultant appearance of a modular standardized building.

The generated complex spatial configurations and elevations result in more complicated design and construction process. Each floor and each room thus require additional efforts and attentions from the initial design stages to the management of construction works. Although repetitious design

of units and buildings has often been argued as a sound practice in terms of efficiency and economy while generating less construction waste, it shall not limit the possibilities of how we design the environment for ourselves the construction possibilities. Mass customization of spaces and building forms in the context of standardization and waste management become a new challenge. New challenges however demand and encourage the industry's innovation and ability to move forward.




This case study illustrates how creative design can be used to develop projects that responds to changing tenant needs.



Gifu Kitagata Apartments; Kazuyo Sejima.



SCENARIO TESTING | EVALUATION

-  Indicates a positive impact
-  Indicates a negative impact
-  Indicates a neutral or N/A impact



Approach	Theme	Principle	Lever	Cost	Partnership	Community	Design
1.0 On-site	1.1 Cost	1.1.1 Financing	Increasing Rent Levels	✓	—	✗	—
		1.1.2 Municipal Incentive	Density Bonusing	✓	—	—	—
	1.2 Partnership	1.2.1 Funding	Innovation Fund	✓	✓	✓	✓
		1.2.2 Development	Temporary Use Permit	✓	✓	—	—
	1.3 Community	1.3.1 Neighbourhood	Staying in Neighbourhood	—	—	✓	—
		1.3.2 Building	Amenity Space	✗	—	✓	✓
	1.4 Design	1.4.1 Structure	Recycled Shipping Container	✓	—	—	✗
		1.4.2 Function	Portability	✓	—	—	✓
2.0 Swing site	2.1 Cost	2.1.1 Financing	Land Provision	✓	✓	—	—
		2.1.2 Municipal Incentives	DCC Waivers	✓	✓	✓	—
	2.2 Partnership	2.2.1 Development	Non-profit	✓	✓	—	—
		2.2.2 Operations	Non-profit	✓	✓	✓	—
	2.3 Community	2.3.1 Neighbourhood	Accessibility	✗	—	✓	✓
		2.3.2 Building	Typology	✓	✓	✓	✓
	2.4 Design	2.4.1 Structure	Steel	✗	—	—	✓
		2.4.2 Function	Flexibility	—	—	✓	✓

SCENARIO TESTING | EVALUATION

Most Impactful

- » Funding | Innovation Fund
- » Municipal Incentives | DCC/Density Bonusing
- » Typology | Mixed-use Buildings

Least Impactful

- » Structure | Recycled Shipping Containers
- » Structure | Steel Modular
- » Financing | Increasing Rent Levels

Tradeoffs

- » Costs | Increasing Rent Levels
- » Building | Amenity Space

Most Impactful: levers that have the greatest positive impact across all four key themes.

Least Impactful: levers that have a significant negative impact on the project for at least one of the four key themes.

Tradeoffs: levers that are worth considering because of their positive impact but which have an associated negative impact on one of the four key themes.



The Stack; Gluck + DeLux Building

LOOKING AHEAD

The next section represents the final chapter of the Ideas Book. It aims to draw together some of the recurrent themes and learnings from research, scenario planning, and engagement, and to summarize and package these into a set of recommended next steps. Given the exploratory style of this Ideas Book, these recommendations are not intended to be comprehensive, but rather to provide some general direction for the reader on how featured ideas may be implemented across Metro Vancouver in the future, and to highlight some of the key considerations for doing so.

WHAT WE'VE HEARD...

Over the past six months we have reviewed relevant policies, literature, and best practice research. We have also engaged with individuals from a diverse range of private, public, and third sector organizations. In addition to what has been explored and illustrated throughout our guiding principles, these are some of the common things we have heard:

Providing adequate protection and housing for tenants at risk of displacement will be an increasingly important social need over the coming decades

As growth pressures in Metro Vancouver continue to increase, the rental market will likely continue to tighten over the coming decades if the supply of new rental cannot meet demand. In 2016, Metro Vancouver estimated that by 2026 the region would need to provide an additional 54,000 purpose built rental units, of which a significant proportion are catered at those with low or very low incomes. Based on current trends, it is unlikely this demand will be met. What this means is that vacancy rates will likely remain low, and the existing rental stock will continue to age and come under pressure for redevelopment - especially in areas along key transit corridors. Consequently, providing adequate protection and identifying innovative solutions to rehouse tenants at risk of displacement will be an increasingly important social need over the coming decades.

There is considerable interest in innovating solutions to improve re-housing displaced tenants, but several barriers to turning potential solutions into reality

Almost all of the people we have engaged with on this project believe that new and innovative solutions for rehousing displaced tenants are needed if the current tenant relocation process is to be improved. However, there are several barriers preventing different actors from making this happen. From the private sector, we heard that a key barrier was uncertainty about municipal policy and decision making. Partly this may be caused by the rapidly evolving tenant protection policies in the region, and the fact that this is an emergent policy issue with little precedent. Another closely related barrier is the risk involved with developing innovative solutions, and the fiscal cost of these. Barriers to municipal and non-profit engagement with such collaborations may originate from the belief that it is up to the market to devise solutions to rehouse the tenants that they are displacing, alongside a unwillingness to provide already sparse municipal and non-profit resources that could be directed towards other important social needs, such as housing the chronically homeless.

Innovative development and design solutions are only part of the solution

Whilst most people we talked to saw value in innovating new development and design solutions to improve the tenant relocation process, there was a general acknowledgment that such measures address just one element of this problem, and would need to be accompanied by other actions if they are to be successful. For example, several people highlighted that an easy way to minimize the impacts of tenant displacement was to keep tenants in their homes as long as possible prior to redevelopment, rather than clearing the rental building early on in the redevelopment process as is current practice. Another example is that the very need to develop new solutions to rehouse tenants is itself a consequence of low vacancy rates in the current rental market. If the supply of new rental was to increase substantially, then rehousing tenants within their existing neighborhood would be more straightforward, and there would be less need for new development and design solutions. Succinctly, increasing rental supply is a crucial systemic issue that is needed both to improve housing affordability and to minimize the negative effects of tenant displacement.



Increasing growth pressures in Metro Vancouver and a dwindling rental stock are a major issue in the region over the coming decades. Given the potential negative effects of displacement, innovative development and design solutions to improve the tenant relocation process should do so with enhancing tenant protection and housing.

A successful neighbourhood swing site will likely require input from all three sectors

No single sector showed a willingness to take on the entire risk of initiating a shared neighborhood swing site on their own. Furthermore, there was considerable debate over whose responsibility it would be to lead such a process. One way to overcome this barrier is to distribute risk, thereby diminishing the risk accepted by any one actor. Although there was no unanimous consensus about what a successful partnership model would look like, many of the people we talked to said that a situation where municipal government provided the land, private developers financed and constructed the building, and a non-profit looked after the day-to-day operations and management of the swing site could be a promising collaboration.



lock mean that the issue of tenant relocation will continue to a central effects this can have on existing residents, and solutions which aim to experience as a primary goal.

Modular technology isn't necessarily cheaper, but provides significant construction time savings and design benefits

Early on in our research, it became clear that modular construction technologies held significant promise for what we were exploring. From 2017 onwards, the City of Vancouver has demonstrated that temporary modular housing can be an effective way to rapidly address crucial housing needs through their construction of over 600 modular units to combat homelessness. Whilst the price for wooden modular in the current market is comparable to that for conventional timber construction methods, it does provide considerable construction time savings and has the added bonus of being portable. As modular technologies continue to improve over the coming decades, it is likely that cost savings associated with this construction method will also increase.

New solutions must be centred on the tenant experience

Given that the central aim of tenant protection policies is to reduce the potential harmful effects of neighborhood growth on existing residents, any new solutions to improve the tenant relocation process must be centered on improving the tenant experience. Considerations around cost, partnership, and design are very important for assessing the feasibility of possible solutions, but it is considerations about community impact that should be of greatest salience moving forward. Part of this will mean ensuring that new design and development solutions are not homogeneous, but rather are tailored to address the specific needs of the tenants and community in question.

People we have engaged with on this project:

PERSON	ORGANIZATION
Brian Clifford	BC Non-Profit Housing Association
Emme Lee	BC Housing
James Forsyth	BC Housing
Francesca Leonzio	Brightside Homes
Parveen Khtaria	City of Burnaby
Wendy Tse	City of Burnaby
Liza Jimenez	City of Vancouver
Jessie Singer	City of Vancouver
Mary Ellen Glover	City of Vancouver
Tristan Johnson	City of New Westminister
Emilie Adin	City of New Westminister
Noha Sedky	City Spaces Consulting Ltd.
Jay Wollenberg	Coriolis Consulting Corp.
Geoffrey Sugar	Darwin Construction Ltd.
Rebecca Chaster	Darwin Construction Ltd.
Nathan Shuttleworth	Darwin Construction Ltd.
Joe Kiss	Horizon North
David Hutniak	LandlordBC
Michael Mortensen	Livable City Planning
Kasel Yamashita	McElhanney
Laurel Cowan	Metro Vancouver Housing
Ulryke Weissgerber	Metro Vancouver Housing
Marrissa Chan-Kent	Urban Dev. Institute
Brad Jones	Wesgroup Properties



RECOMMENDATIONS

1

Municipal governments should use their regulatory powers to incentivize innovative solutions for rehousing tenants

This Ideas Book has highlighted several municipal regulatory tools that can effectively be used to make projects such as a neighborhood swing site more feasible. These include density bonusing, DCC waivers, and expedited permitting. So far, most municipal government action to improve the tenant relocation process has taken the form of more stringent tenant protection policies. In addition to these, municipal governments should also seek to use inducements that motivate the private sector to innovate in ways which benefit tenants, thereby using both the proverbial regulatory carrot and the stick.

2

Further research should be conducted on the tenant experience, and on how policy changes could accommodate the design and development solutions explored in this book

As mandated by Metro Vancouver, our research has focused strictly on development and design solutions for rehousing tenants. Although policy considerations and the tenant experience have been peripheral considerations, giving these two issues the full attention they deserve has largely been out of scope. Therefore, it is recommended that further research be undertaken on what policy changes could occur to accommodate the design and development solutions explored in this book, and to engage with real tenants to investigate the suitability of these options from a tenant's perspective.

3

Move away from the language of 'modular' and 'temporary'

In our conversations with different industry experts, we have discovered that the language around 'modular' and 'temporary' housing can have negative connotations that contribute to the stigmatization of these phenomena as 'transient', 'cheap', and 'lower quality'. Furthermore in our case, the term 'temporary housing' is misleading. The majority of the development and design solutions explored within this book are likely to be permanent buildings (due to the high cost of relocating modular currently), even if they serve as temporary homes for different tenants. Consequently, we recommend adopting a new lexicon to describe these design and development solutions. For example, modular could be replaced by 'pre-fab' and temporary by 'interim' or simply 'housing'.

4

Consider how emerging professional roles can provide increased capacity to improve the tenant relocation process

Due to increasing growth pressures and the current tight rental market in Metro Vancouver, it is likely that issues relating to tenant relocation will continue to increase in prevalence and importance over the coming decades. One way to adapt to this emergent issue is to consider how new professional roles can increase the metropolitan wide capacity to improve the tenant relocation process. Specific roles include tenant relocation coordinators, tenant group advocates, tenant relocation consultants, municipal tenant relocation liaisons and officials, and tenant relocation task forces (see recommendation 6).

5

Explore strategies to minimize tenant displacement by maximizing the length of time tenants can stay in a building prior to redevelopment

We have heard that current standard practice for tenant relocation typically involves moving tenants out of older rental buildings early on in the redevelopment process, in order to allow sufficient time to find tenants new homes. Whilst the rationale for this approach is reasonable, an undesirable ramification is that many rental buildings awaiting redevelopment are left empty for an unnecessary amount of time and tenants are forced to leave their homes sooner than they may actually need to. Exploring strategies to change this standard practice and to maximize the length of time tenants can stay in their homes prior to redevelopment will likely mitigate the overall negative impacts of redevelopment on tenants.

As a tangible example of this, the City of Burnaby has recently adopted a shelter rate top-up approach to compensating displaced tenants in their tenant protection policy, whereby developers will need to top up the difference in rents between what tenants used to pay in their old building, and what they are expected to pay in their new temporary homes. The implication of this policy is that developers will need to compensate tenants for the duration of their temporary relocation (rather than simply paying them out a lump sum), which in turn provides an economic disincentive to displace tenants earlier than is strictly necessary.

6

Create an inter-municipal task force to further investigate how the development and design ideas discussed could be implemented, with the goal of carrying out a neighbourhood swing site pilot

Throughout our research, it has become evident that all municipalities within Metro Vancouver are facing many similar challenges relating to growth, and the need to protect existing residents who may be displaced as a consequence of this growth. Furthermore, some municipalities (such as the City of Vancouver) have significant resources and staff to deal with these issues, whereas other smaller municipalities do not. As such, sharing collective resources, knowledge, staff, and expertise on how best to improve tenant relocation processes in the region makes sense. Inspired by our working group and the insights that emerged from our first workshop, one way in which this could be achieved is for Metro Vancouver to establish an inter-municipal task force comprised of representatives from different local government, private sector, and third sector groups. The aim of this task force would be to explore how different innovative design and development ideas (including the ones discussed in this book) could be applied. One potential goal of this task force could be to implement a pilot neighborhood swing site funded by the several organizations from the private sector and higher levels of government (such as CMHC or BC Housing), but operated by a municipal government or non-profit.

7

Continue to explore ways in which design can improve the efficiency, suitability, and quality of potential tenant relocation solutions

Our work has highlighted the pivotal and oft-overlooked role design can play in creating cost-efficient, community-focused and high quality temporary housing solutions. As new and innovative development models evolve to address the temporary housing needs of displaced tenants, we recommend continuing to explore how the physical design of buildings, spaces, and units can be leveraged to improve the quality of these high-level tenant relocation approaches.

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GLOSSARY OF TERMS

Term	Definition
Community Amenity Contributions (CAC)	In-kind or cash contributions provided by property developers when City Council grants development rights through rezoning. CAC's can help build affordable housing, parks and open spaces, childcare facilities, community centers or transportation and public realm.
Development Cost Charges (DCC)	Municipalities and regional districts levy development cost charges on new development to pay for new or expanded infrastructure such as sewer, water, drainage, parks and roads necessary to adequately service the demands of that new development.
Demoviction	The eviction of tenants due to the demolition of a building.
Density Bonusing	Density bonusing is used as a zoning tool that permits developers to build more floor space than normally allowed, in exchange for amenities and affordable housing needed by the community.
Equity	Equity is usually defined as the amount of cash required to get the project up and running, and until it begins to cash flow positively on its own.
Gross Floor Area (GFA)	The sum of all the areas of a building when measured from the exterior faces of exterior walls.
Housing Income Limits (HIL)	Represents the maximum gross household income for eligibility in many affordable housing programs. The HIL's are based on figures established by CMHC, and are intended to reflect the minimum income required to afford appropriate accommodation in the private market.
Land residual	The value of land that developers are willing to pay after revenue, costs, and developer profit are taken into account.
Modular	Something that is based on a module, with standardized units or dimensions for flexibility and variety in use.
Net Operating Income (NOI)	Net operating income is a calculation used to analyze the profitability of income-generating real estate investments. NOI equals all revenue from the property, minus all reasonably necessary operating expenses.
Primary Rental Stock	Refers to purpose-built market rental housing, rental units above commercial spaces, and multiple conversion dwellings with five or more units.
Proforma	The standard set of calculations involved in analyzing the estimated costs and financial viability of a proposed real estate development.
Renoviction	The eviction of tenants due to the renovation or repair of a building unit.
Right of First Refusal	A tenant can move back to a unit in the completed development. Upon return, the renter will enter into a new tenancy agreement with the landlord.
Scenario planning	Scenario planning is a disciplined method for imagining possible futures with the possibility of generating or capturing a whole range of possibilities.
Secondary Rental Stock	Refers to rented houses, suites, laneway houses, and condos where there is a proposal for a new multiple dwelling of five or more units involving the consolidation of two or more property lots.
Swing site	Off-site temporary or permanent housing at a neighbourhood scale, where tenants from different redevelopment or renovation-sites can be housed.
Tenant Relocation Protection Policy	Municipal with provisions to ensure tenants in rental buildings that are impacted by demolition and redevelopment are notified, compensated, and assisted in finding new suitable housing.
Vacancy rate	Vacancy rate is the percentage of all available units in a rental property. For purpose-built rental apartments, the vacancy rate in 2019 in Metro Vancouver was 1.1%



APPENDIX

CONSTRUCTION

Assumptions

Notes:

# units	45		
Demographics	Young families; singles		
Site area	140,000	sf	
Sub-site area	23,500	sf	modular construction can be built in
FSR	2.23		Based on sub-site area
Construction cost	300	per sq ft	
Total Unit Area	44500		
GFA	52,353		
Height	5.00		
Building footprint	10,471		
Loan required	\$15,495,841		70% of overall costs
Equity	\$6,641,075		30% of overall costs
Parking area	0		
Maintenance + operation costs	\$6,000	per unit	annually

Revenue

Vacancy rate	0%
Cap rate	4%
Total possible annual rent	\$863,250
Rent income less vacancy	\$863,250
Maintenance + operation costs	\$270,000
NOI	\$593,250
Value	\$14,831,250

APPENDIX A

PROFORMA

On-site

CONSTRUCTION CONT'D

Cost

Hard Costs:		
Construction	\$15,705,882	\$300 per sf
Construction Contingency	\$1,570,588	1% of construction
Construction Management	\$628,235	4% of construction
Total Hard Costs	\$17,904,706	
Soft Costs:		
Demolition	100,000	
Net Servicing	\$471,176	3% of construction
DCC	\$225,000	\$5,000.00 per unit
City- Development permit	\$4,025	890.8 per sq ft
City- Building permit (including occupancy)	\$7,853	0.5% of construction
Design	\$1,099,412	7% of construction
Insurance	\$7,853	0.50% of construction
Total Soft Costs	1,915,319	
Additional soft costs	\$537,141	3% of hard costs
Total Costs	\$20,357,166	
Developer Profit	\$1,779,750	12% of building value
OVERALL TOTAL COSTS	\$22,136,916	Including profit

Total

Revenue	\$14,831,250
Costs	\$22,136,916
LAND RESIDUAL	-\$7,305,666

APPENDIX A

PROFORMA

On-site

APPENDIX A

PROFORMA

On-site

OPERATION

Income

	Monthly	Annually
Total possible rent	\$71,938	\$863,250
Rent less vacancy	\$71,938	\$863,250
Maintenance + operation costs	\$22,500	\$270,000
NOI	\$49,438	\$593,250
Debt service	\$74,720	\$896,645
NOI less debt service	-\$25,283	-\$303,395
CASHFLOW	-\$25,283	-\$303,395

Possible Rent

Unit Mix	# units	Area per unit (sf)	Total Net Floor Area	Rent per unit type (monthly)*	Total rent (monthly)	Rent (annual)
Studio	5	400	2,000	\$1,288	\$6,438	\$77,250
1-BR	5	750	3,750	\$1,288	\$6,438	\$77,250
2-BR	20	1000	20,000	\$1,575	\$31,500	\$378,000
3-BR	15	1250	18,750	\$1,838	\$27,563	\$330,750
Total	45		44,500		\$71,938	\$863,250

*Monthly rent calculated based on 2019 BC HILs rates. See table below.

Rental Rate

Unit Mix	BC Housing HILs** 2019	Rental rates, annual (30% HILs)	Monthly rent
Studio	\$51,500	\$15,450	\$1,288
1-BR	\$51,500	\$15,450	\$1,288
2-BR	\$63,000	\$18,900	\$1,575
3-BR	\$73,500	\$22,050	\$1,838
Total	\$239,500	\$71,850	\$5,988

**Housing Income Limits

CONSTRUCTION

Assumptions

Notes:

# units	130		
Demographics	seniors/immigrants		
Site area	34,000	sq ft	
FSR	3.3		
Construction cost	300	per sq ft	
GFA	112,941		
Height	6	storeys	
Building footprint	18,824		
Loan required	\$35,631,420		70% of overall costs
Equity	\$15,270,608		30% of overall costs
Parking area	0		
Operation costs	\$6,000	per unit	annually

Revenue

Notes

Vacancy rate	2%	
Cap rate	4%	
Total possible annual rent	\$3,165,480	
Rent income less vacancy	\$3,102,170	
Maintenance and operation costs	-\$780,000	30% of expected income
NOI	\$2,171,519	
Value	\$54,287,982	NOI / cap rate

APPENDIX B

PROFORMA

Swing Site

CONSTRUCTION CONT'D

Cost

Hard Costs:		
Construction	\$33,882,353	
Construction Contingency	\$3,388,235	10% of construction
Construction Management	\$1,355,294	4% of construction
Total Hard Costs	\$38,625,882	
Soft Costs:		
Demolition	\$100,000	
Net Servicing	\$1,016,471	3% of construction
DCC	\$650,000	\$5,000 per unit
City- Development permit	\$125,753	\$1,410 per 100m2
City- Building permit (including occupancy	\$169,412	0.5% of construction
Design	\$2,371,765	7% of construction
Insurance	\$169,412	0.50% of construction
Total Soft Costs	\$4,602,811	
Additional soft costs	\$1,158,776	3% of hard costs
Total Costs	\$44,387,470	
Developer Profit	\$6,514,558	12% of building Value
Overall total costs	\$50,902,028	Including developer profit

Total

Revenue	\$54,287,982
Costs	\$50,902,028
LAND RESIDUAL	\$3,385,954

APPENDIX B

PROFORMA

Swing Site

OPERATION

Income

	Monthly	Annually
Total possible rent	\$263,790	\$3,165,480
Rent less vacancy	\$258,514	\$3,102,170
Maintenance + operation costs	-\$65,000	-\$780,000
NOI	\$180,960	\$2,171,519
Debt service	-\$171,813	-\$2,061,762
NOI less debt service	\$352,773	\$4,233,281
CASHFLOW	\$352,773	\$4,233,281

Possible Rent

	# units	Area per unit (sf)	Total Net Floor Area	Rent per unit type (monthly) *	Total rent (monthly)	Rent (annual)
Studio	40	400	16,000	\$1,607	\$64,280	\$771,360
1-BR	50	750	37,500	\$1,869	\$93,450	\$1,121,400
2-BR	30	1,000	30,000	\$2,457	\$73,710	\$884,520
3-BR	10	1,250	12,500	\$3,235	\$32,350	\$388,200
Total	130		96,000			\$3,165,480

* Rents used are the maximum average rental rates (for East Vancouver) that the City of Vancouver will consider for a DCL waiver in new rental projects.

APPENDIX B

PROFORMA

Swing Site

IDEAS BOOK
