

A • TYPES

ATYPICAL PROTOTYPES FOR RESILIENT NEIGHBOURHOODS

Neighbourhoods are not simply a cluster of homes and businesses, but are a living fabric of interconnected relationships whose whole is greater than the sum of its parts. They are the human-scale at which we experience our sense of place in society and are capable of having far reaching impacts beyond their boundaries.

Neighbourhoods as local systems are nestled within global systems, and as such are susceptible to sudden shifts in paradigms and the biosphere. Our urban fabric requires the ability to adapt to changes quickly in order to withstand unknown future shocks and pressures.

01 INTENTIONS

This proposal intends to introduce prototypes to be used as 'leverage points' within residential zones to foster neighbourhood-level resilience. These prototypes are represented as mid-block cohousing or non-profit buildings (A), mixed-use laneway buildings (B), commercial districts (C), and community-use agreements for private amenities (D). These 'leverage points' give the neighbourhood the ability to change, evolve, and self-organize during shifts in the local and/or global systems.

POLICY PROTOTYPES



Allow mid-block **Cohousing and Non-Profit** projects in low density residential neighbourhoods

Cohousing and non-profit societies are currently not distinguished from for-profit developments in the development process. Typically, they bring tangible and intangible benefits to neighbourhoods through outreach services and affordable housing. Allowing mid-block rezonings for these projects reduces the barriers to their development.



Permit **laneway buildings** to be mixed-use or contain non-residential uses

Laneway homes are currently restricted to residential uses only. The pandemic has illustrated the substantial need for dwellings and work spaces to be more flexible. Allowing mixed-use laneway buildings reduces the barriers to economic activity, encourages entrepreneurs, and facilitates new ways to work from home.



Permit non-residential uses of residential buildings in designated areas (**commercial districts**)

Ground level living spaces-turned-cafe are staples in vibrant neighbourhoods of cities like Montreal, allowing the neighbourhood the ability to keep their historic character or unique charms while adding vibrancy, activity, and commercial activity to the streetscape. Creating commercial districts limits the impact to the neighbourhood, and maintains the "feel" of the community.



Require new projects to negotiate **community use agreements** for public use of their amenity spaces

Amenities in multifamily buildings are typically furnished rooms with loose programming elements. These spaces are often underutilized by building inhabitants and could achieve a higher purpose as a community facing public resource. Selective placement in neighbourhoods as resource or emergency gathering hubs in times of need could be achieved without impacting the utility of the building inhabitants overall. Security and time management is paramount to the success of this concept.

[**Leverage points** are] "places within a complex system where a small shift in one thing can produce big changes in everything"¹

PLANNING PRINCIPLES

This proposal has been guided by the **following principles**:

- 1 Resilient neighbourhoods are safe, inclusive, diverse, and vibrant
- 2 Housing quantity or quality cannot not be compromised or negatively impacted
- 3 Private building amenities can benefit the community by hosting managed public uses
- 4 Integrate eco-centric management of resources and infrastructure
- 5 Local production + local transportation + local transactions = local resiliency

WHAT IS RESILIENCE?

"Resilience refers to the amount of change or disturbance that can be absorbed by a system before it is reconstituted into a different set of processes and structures. Resilient systems have the capacity to buffer against minor changes and respond to major perturbations. When change occurs, resilience allows a system to either renew itself or undergo reorganization so that essential components are maintained"²

1. Meadows, D. 1999. *Leverage Points. Places to Intervene in a System*. The Sustainability Institute. Hartland, VT.

2. Gunderson, L.H., and Holling, C.S. 2002. *Panarchy. Understanding Transformations in Human and Natural Systems*. Island Press. Washington, DC.



NATURAL ENVIRONMENT

Located within the Pacific flyway, Vancouver's green spaces serve as both temporary and permanent residence to a diverse range of birds and pollinators. Maximizing and connecting green space serves to improve biodiversity and provides a variety of ecosystem services (e.g. reduced pressure on stormwater infrastructure, improved community health).



STORMWATER

Introducing green rainwater infrastructure such as raingardens and bioswales along pathways and roads allows stormwater to be filtered and detained on site, reducing pressures on downstream watercourses and municipal infrastructure.



TRANSPORTATION

In alignment with City of Vancouver Climate Emergency Action Plan objectives, priority of local transportation modes is reordered to favour pedestrian and microtransportation modes so daily trips can be made by foot, cycle, scooter, or mobility-aid. Microtransportation hubs (e.g. bike share) are scattered at convenient points in the neighbourhood to facilitate short local trips.

NEIGHBOURHOOD CONTEXT 02

INTERCONNECTED AND ADAPTIVE RESPONSE

This proposal imagines the neighbourhood as a bustling hub of community, commercial, and recreational activity built to withstand small changes or adapt to large events. Laneways are reconceptualized from vehicular-centric to vegetated pedestrian corridors and gathering spaces. Maximizing green space and implementing green rainwater infrastructure where possible is integral in buffering against changes in the biosphere and in improving overall community health.

Non-residential uses in the laneways and in residential buildings serves to activate these corridors by offering low-risk economic opportunities for entrepreneurs and work-from-home employees. Paired with public-facing amenity hubs in community-oriented developments such as cohousing, these potentially public spaces facilitate the adaptability of the urban environment and thereby increases the resiliency of the neighbourhoods social fabric.

(RE) CONNECT THE STREET GRID

Dead ends and cul-de-sacs are opened up to encourage maximum pedestrian walkability within the neighbourhood. Lands purchased to complete the street grid can contribute to the creation of new park and public spaces.



STREET LAYOUT

Streets and lanes are reconfigured to put walking and other active modes of transportation on the top of the street hierarchy. Street parking is optimized, while the lanes become green boulevards of activity and nature. Loading and truck movements are centralized, encouraging smaller loads and localized production of goods. Streets are one-way traffic only.



E. 32nd Avenue looking northwest

STREETSCAPE



A

COHOUSING / NON-PROFIT HOUSING

Mid-block apartment and stacked townhouse typology for non-profit societies with max 1.5 FSR. Height is considerate of neighbourhood context, but pushes the vernacular higher.

*

4-STOREY OFF ARTERIAL

Policy allowing four storey apartments consisting of 100% rental density off arterial streets was approved by Vancouver City Council in December of 2021.

C

COMMERCIAL DISTRICTS

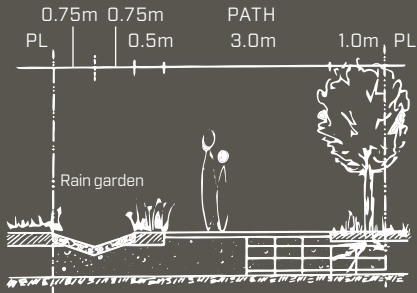
Many Canadian Cities such as (Ottawa and Montreal) have found great success integrating retail or lifestyle uses in residential structures. While housing should not be replaced with other uses, commercial activity can often complement residential buildings while inviting investment and restoring life to aging character homes. Kensington Village in Toronto

is an excellent example of this. These structures may see their ground floors converted into restaurants, quaint shops, or art galleries which allows the neighbourhood to maintain its original character and charm, while re-invigorating the structures and re-imagining streetscape.

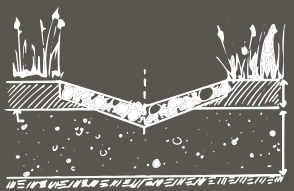
SUBJECT BLOCK 03

RE-INVENTING THE LANESCAPE

Laneways in the Lower Mainland typically serve as utility and vehicular corridors. While this pragmatic existence has served its function over the past century, we need to ask more of these spaces in the future. This proposal imagines a pedestrian and active transportation corridor weaving between pockets of green space and rainwater infrastructure. Native vegetation and soils are reintroduced, encouraging pollinators and other fauna to permeate deeper within the urban fabric. Tangible infrastructure benefits of this laneway proposal include a more substantial tree canopy which dampens heat island effects, and substantially increases stormwater detention and filtration.



TYPICAL SECTION AT LANE



TYPICAL RAIN GARDEN SECTION

Native vegetation
Cobble substrate
Growing medium
Filter media
Native subsoils



30th Avenue looking north west



LEGEND

- Laneway house
- Laneway retail
- Cohousing / Non-profit housing
- 4-storey off-arterial rental apartment
- Microtransportation hub

SCALE: 1" = 60'-0"

HUMAN SCALE LOADING AND TRANSPORTATION

Public loading curb cuts are located at the periphery of the blockface, reducing the need for vehicular access to retail uses in the lane. Goods are loaded using hand carts on the permeable pavement pathway in the lane.

INTERDEPENDENT AND CONNECTED LAND USES

Allowing a mix of uses in residential neighbourhoods establishes an interdependency which encourages residents to shop and live locally. Addressing the needs of residents within a short walking radius is a core component of sustainability.

OPTIMIZED STREET NETWORK AND VEHICLE PARKING

Street parking is optimized to allow for 90 degree parking on one side of the one-way street, resulting in a higher parking yield than typical street parking arrangements and incorporated green space.

STORMWATER TREATMENT AND DETENTION

Naturally landscaped bioswales are proposed mid-block of each street to capture and treat road runoff and seepage from permeable pavement. When paired with additional green rainwater infrastructure, they work to achieve the City of Vancouver's Rain City Strategy 2022 and 2050 objectives and targets and help to buffer against deleterious substances (e.g. 6-PPD-quinone) from reaching downstream fish-bearing watercourses.

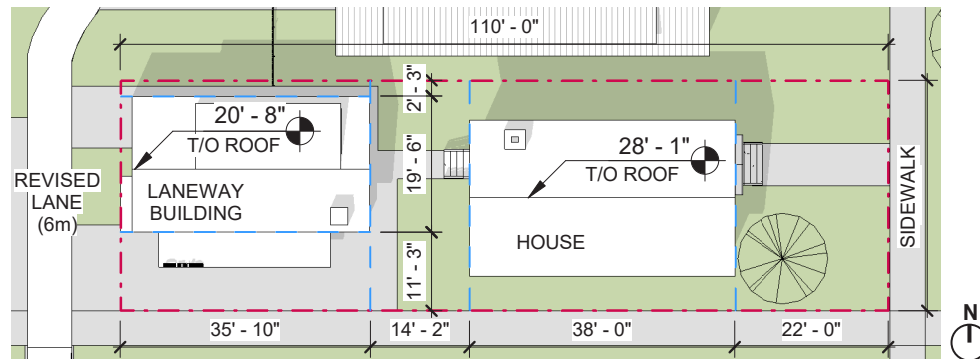


Sophia Street looking north



B

PROTOTYPE "B" - LANEWAY RETAIL / OFFICE



PROTOTYPE LANEWAY BUILDING - SITE PLAN 1:300

MODEL ZONE: RS-1
SITE AREA: 3,630 SF
MAX HEIGHT: 9.5m [31'-0"]

Setbacks (house):
Front: 20% of lot
Sides: Min. 10% of lot
Rear: Min. 45% of lot

Setbacks (laneway):
Front: 10'-0" min.
Sides: Parking stall (9'-0" min.) + 3'-7" for firefighting access
Rear: 3'-0"

Blue text denotes variance from existing schedule

Laneway homes in Vancouver are currently considered a conditional use, and are restricted to residential uses only. Retail and office space is currently prohibitively expensive within the City, which deters individuals from embarking on innovative commercial ventures. Allowing mixed-use laneway buildings reduces the barriers and risk to economic activity and encourages entrepreneurial activity within neighbourhoods.

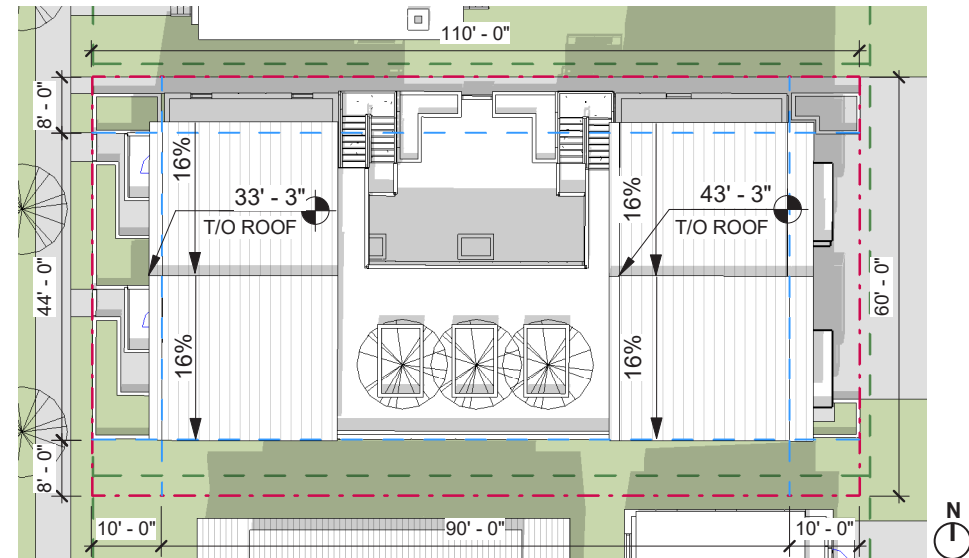
POLICY SUGGESTIONS

1. Add "Laneway House" to Outright Approval Use within applicable district schedules. Remove conditional approval and design review for Laneway Buildings.
2. Add office, retail, food / service, counseling services, package storage, transportation rental uses to Outright Approval Use within Laneway Buildings.
3. Remove density penalty for flat roofed Laneway Buildings.
4. Remove mandatory parking minimums for Laneway Buildings.
5. Allow subdivision of parcels to allow for sale and ownership of Laneway Buildings.



A

PROTOTYPE "A" - MIDBLOCK COHOUSING / NON-PROFIT



PROTOTYPE MID-BLOCK COHOUSING / NON-PROFIT BUILDING - SITE PLAN 1:300

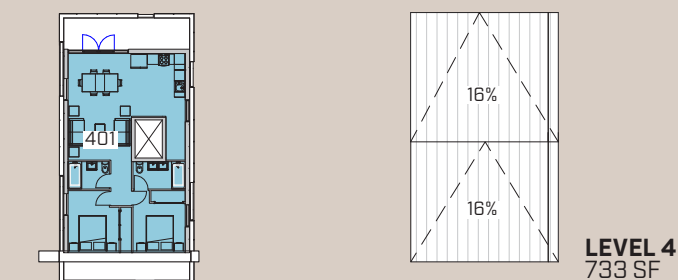
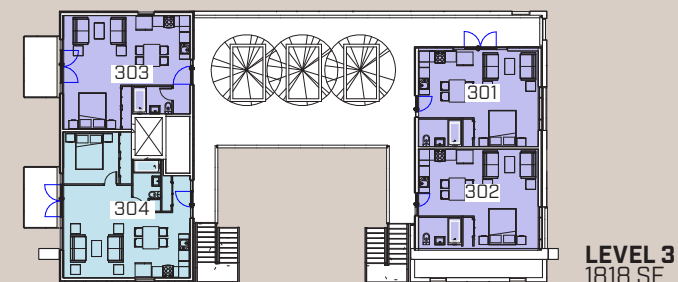
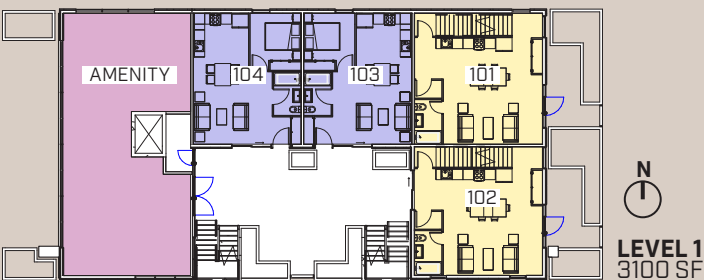
MODEL ZONE: CD-1
SITE AREA: 6,600 SF
MAX HEIGHT: 4 storeys (as defined by the building code)

Setbacks:
Front: 10'-0"
Sides: 8'-0"
Rear: 10'-0"

The need for increased density in residential neighbourhoods and a creative, inclusive approach to affordable housing in Vancouver is apparent. To achieve the above, we propose that grassroots and citizen-led developments be given favourable zoning conditions to encourage their undertaking and relaxations commensurate with their future contributions to the neighbourhood.

POLICY SUGGESTIONS

1. Allow mid-block rezonings of one or two lot proposals for Non-Profit housing or Cohousing projects.
2. Allow increased height and density for cohousing and non-profit projects in residential neighbourhoods.
3. Waive DCL's and other requirements which add undue costs to cohousing and non-profit projects.



LEGEND

Studio 1 Bed 2 Bed 3 Bed Amenity

BUSINESS CASE(S)

The economic reality of the cost of land in Vancouver and the Lower Mainland excludes many from home ownership or from entrepreneurs starting a business. The economic potential of these policy prototypes to overcome this economic reality is substantial.

Cohousing allows households to participate in innovative approaches to home ownership. Amenity rentals and laneway business have the potential to generate funds for homeowners to cover repairs and upgrades. Allowing small-scale non-residential uses in laneways creates opportunity and reduces risk for those starting a business. Lastly, locating small businesses in residential neighbourhoods establishes a dependable market with supportive foot traffic.

Presented below is a business case for renting the amenity room on a monthly basis for a public facing neighbourhood use 25% of the time.

INCOME		
	RATE	VALUE
Rent	0	0
Strata fee	\$350/mo	\$50,400/yr
Parking	0	0
Amenity Rental	\$1000/mo	\$12,000/yr
GROSS OPERATING INCOME		\$62,400/yr

EXPENSES		
	RATE	VALUE
Operating expenses	\$278/mo	\$40,032/yr
Property taxes***	0	0
Replacement reserve	\$72/mo	\$10,368
GROSS OPERATING COSTS		\$50,400/yr
NET OPERATING INCOME		\$12,000/yr

DEVELOPMENT PROFORMA

CAPITAL COSTS		
	RATE	VALUE
Land*	MARKET	\$2,721,968.00
Construction hard costs	\$290/SF	\$2,570,850.00
Soft costs	20.2%	\$1,849,572.00
Escalation contingency	4%	\$394,967.00
Project contingency	7%	\$610,971.00
GST	0%	\$0.00
TOTAL CAPITAL COST		\$9,154,266.00
TOTAL COST PER UNIT		\$762,855.50

FINANCING		
	RATE	VALUE
Land equity		\$2,721,968.00
Municipal fee reduction		\$96,012.00
Municipal DCL waiver		\$66,563.00
TOTAL FINANCING REQUIRED		\$6,269,723.00
Net sales revenue		\$6,407,986.20
Less marketing costs	3.5%	\$320,399.31
Less profit	0%	\$0.00
AHOP contribution**	26.5%	\$2,425,880.49
Surplus (shortfall)		\$0.00

ASSUMPTIONS

1. Land reflects approved use value
2. Includes administration fee for BC Housing Housing Hub
3. FFE budget not included
4. GST passed through to purchasers at time of unit sale
5. Construction costs for wood frame apartment < 6 storeys = \$290/ sf
6. No underground parking proposed
7. *Market rate of land based of off ZOLO realty average sale price for Vancouver in January 2022
8. **BC Housing Housing Hub's Affordable Home Ownership Program (AHOP) contribution, in return for equity on individual units as per program details

AREA SCHEDULE

BUILDING AREAS		VALUE
Average unit area		621 SF
Net saleable area		7456 SF
Circulation + service		386 SF
Amenity		1023 SF
Gross building area		8865 SF
Efficiency		84%
FSR		1.32

UNIT NO.	TYPE	AREA
101	3 BED	1128 SF
102	3 BED	1128 SF
103	STUDIO	474 SF
104	STUDIO	474 SF
AMENITY	---	1023 SF
201	2 BED	690 SF
202	STUDIO	454 SF
203	1 BED	557 SF
301	STUDIO	401 SF
302	STUDIO	401 SF
303	STUDIO	459 SF
304	1 BED	557 SF
401	2 BED	733 SF
TOTAL		7456 SF

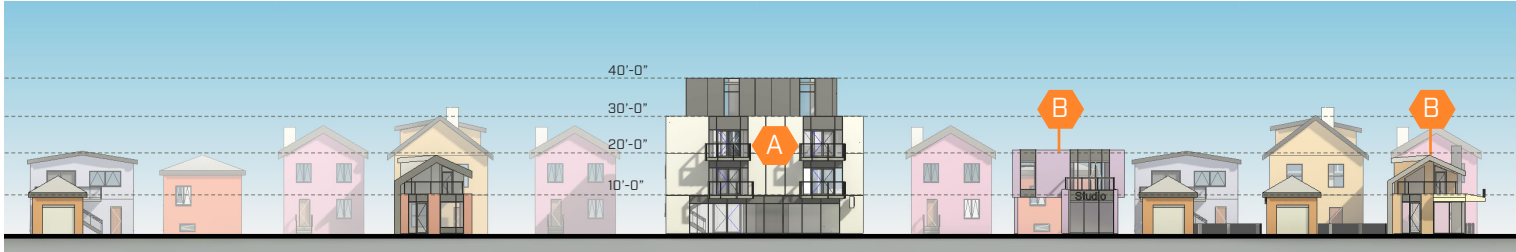
UNIT MIX

UNIT TYPE	%	NO.
STUDIO	50	6
1 BEDROOM	16.6	2
2 BEDROOM	16.6	2
3 BEDROOM	16.6	2
TOTAL	100%	12 UNITS

View from Prototype A rooftop



PROTOTYPE "A" 05



WHAT IS COHOUSING?

Cohousing a resilient model of living realized. It is an intentional community, built by a group of individuals who take to developing a building of private homes with a central amenity where they can gather and participate in sharing knowledge, resources, responsibilities, and communal living. People attracted to Cohousing typically value inclusivity, a sense of community, and the environment.



SOCIAL RESILIENCY

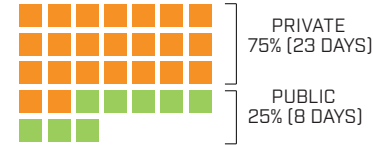
COHOUSING ON THE NEIGHBOURHOOD SCALE

In a community where people know their neighbours, there is considerable opportunity for natural connections and support that reduce the need for external resources and infrastructure, thereby providing a rich social life and promoting neighbourhood resiliency.

The cohousing built form intentionally fosters an intergenerational and diverse group of people, where neighbours can collaboratively plan and participate in community activities. This two-lot design encourages social interaction of inhabitants by creating opportunities for spontaneous encounters, and allows existing residents to participate.

Cohousing on a neighbourhood level creates micro-hubs of community stewards who are receptive to providing public-facing amenities and are motivated to participate in neighbourhood planning. As building amenities in new developments are often only used to host annual or seasonal events (e.g. Christmas parties), the general anecdote is that they are unused the majority of the time. By designing amenities to be public facing 25% of the time or during critical times (i.e. cooling centre during a heatwave), there is a benefit to inhabitants to potentially generate a small amount of income while simultaneously providing substantial benefits to greater community.

PROPOSED AMENITY PUBLIC / PRIVATE USE AVAILABILITY



PROPOSED USE MATRIX

	PERMITTED USE	LANEWAY RETAIL	RETAIL DISTRICT	MIDBLOCK NON-PROFIT	APARTMENT OFF ARTERIAL
RES.	One-family dwelling	●	●		
	Two-family dwelling				
	Multi-family dwelling			●	●
COMMERCIAL	Office	●	●		
	General retail	●	●		
	Cafe / restaurant	●	●		
	Digital production	●	●		
	Light manufacturing	●	●		
	Pop-up retail / food service	●	●	●	●
	Pop-up manufacturing	●	●	●	●
PUBLIC	Disaster / crisis centre			●	●
	Public washrooms			●	●
	Cooling centre			●	●
	Mental health drop-in	●	●	●	●
	Rotating library			●	●
	Public bike lockers			●	●
	Micro transportation	●	●	●	●
	Public parking			●	●
	Central delivery	●	●	●	●
	Central storage	●	●	●	●
	Daycare	●	●	●	●

PROTOTYPE "A" 06

