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Relational Urbanism

Protocol for agent-based neighborhood transformation, Vancouver, Canada

Main author

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Project data

Project group: Landscape, urban design, transportation infrastructure and public utilities
Client: Graduation Project
Project background: Research project

Summary and appraisal of the project by the jury

Based on democratic principles of governance, communication, and participation, the project identifies a set of rules for establishing a sustainable urban neighborhood in the city of Vancouver in Canada. Instead of relying on a pre-established urban pattern, the strategy foregrounds a number of important criteria – such as the density of the urban fabric, the effect of shadow on neighboring buildings, views from each lot, parking needs, and green spaces – that are to be collectively negotiated by stakeholders in order to define the neighborhood's future development. The approach establishes minimally-invasive interventions, which will develop in time according to the needs of both individuals and group collectives.

The jury especially commended the focus on questions of procedures, i.e. the design of processes, including stakeholder participation and its effects on physical form. Particularly interesting is the changing relationship between built and un-built areas that is constantly negotiated and re-negotiated in a process that engages a range of relevant parties. The proposal offers a method for a step-by-step urban densification, combining bottom-up and top-down as well as formal and informal practices – to create an urban commons. Of specific interest is the use of parametric design and digital technology as methods in order to anticipate the potential transformation of the neighborhood and its formal architectural expression in the future, testing aspects of Bruno Latour's Actor Network Theory in practice.

Image 1: Evolution of three blocks was computer simulated using the Relational Urbanism rule set over 30 years. Negotiations between agents were modeled and recorded. The open framework resulted in sustained growth through incremental development. Negotiations enabled private yards to become shared spaces to meet green space requirements and micro energy systems developed organically due to energy recovery regulations.

Statements on the sustainability of the project by the author

Holistic urban growth begins with cooperative negotiation between all agents

Regeneration and development in our cities requires a holistic approach and a cultural shift that includes the many actors that constitute and build our cities. Master planning is a remnant of a mechanistic worldview that attempts to prescribe sustainability, but cities are complex systems built on relationships. How could a city rule set foster cooperation and negotiation between the many inhabitants of a city? Relational Urbanism proposes a framework for development where local action and context dictate growth patterns based upon local negotiation and mutual benefit between parties. It does not assume all parties will make sustainable choices, but signifies a shift to a holistic system of city making based on a democratic, collective intelligence and culture of its people.

Sustainability requires interdependence between buildings, infrastructure, and people

Zoning codes and city bylaws prescribe relationships to prevent conflict between properties and buildings, such as setbacks, height and density, resulting in isolated buildings. Sustainability requires the city to become an ecology: a complex system of interdependent buildings, infrastructure, and nature. Relational Urbanism flips the typical prescriptive rules and encourages

negotiation between building owners and unique local typologies. Growth occurs only when neighbors can negotiate the issues of livability (views, height, density, green space), energy (rejected heat, solar exposure), and natural capital. The goal is to increase the interdependency between buildings as a means to organically build complex mutually beneficial relationships for a sustainable city ecology.

Sustainable cities require local decision-making and block-centric planning

Centralized master planning is slow to adapt to changing demographics and technology. It does not account for local natural ecology or local needs. Relational Urbanism is based upon block scale economies for negotiation of unused regulatory assets. Excess assets can be traded or mutual agreements to share resources can be made between neighbors within a block. This localized economy exists on a centrally controlled platform, thus the city's mandate is not to prescribe development, but manage the framework for it to occur. Decision making over public land such as laneways and street frontages are also given to block residents. This enables locals to find creative solutions to their specific needs. Without stringent land use policies, cities are free to evolve from the bottom-up.
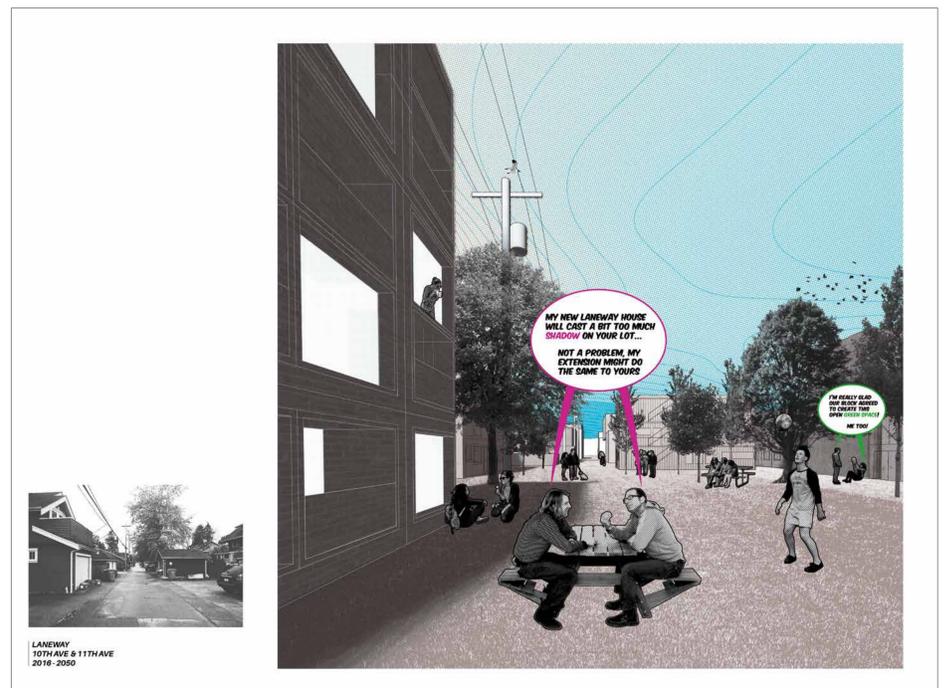

Image 2: Negotiation is critical to cooperation, interdependence and democracy. The laneway is vestigial of a car oriented city. Authority is given back to the inhabitants to collectively decide the future of their city and enabling local transformation of blocks like the conversion of the laneway to a public park, a creative solution to maintaining public green space while development occurs. Public space foster negotiations, such as two neighbors discussing shadows and solar rights.
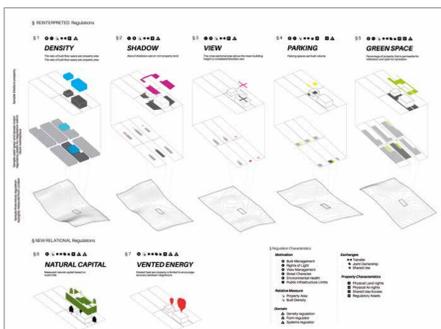

Image 3: The rule set consists of five typical urban rules and two novel rules for sustainable growth.
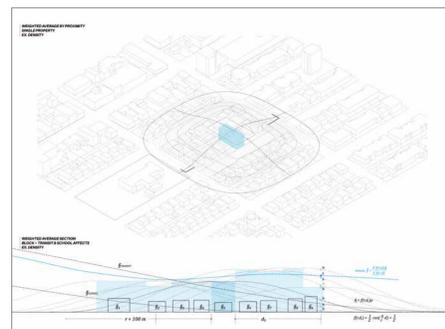

Image 4: Rules are applied to each property based on a proximity weighted average of its local context.
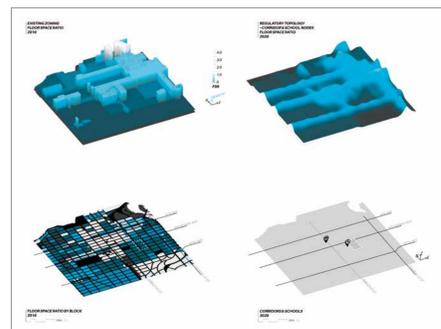

Image 5: The left shows existing zoning and density. The allowable contextual density is shown on the right.
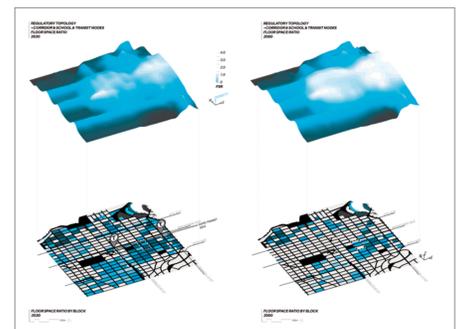

Image 6: A neighborhood simulation resulted in linear growth rates and a smoothing of urban fabric density.
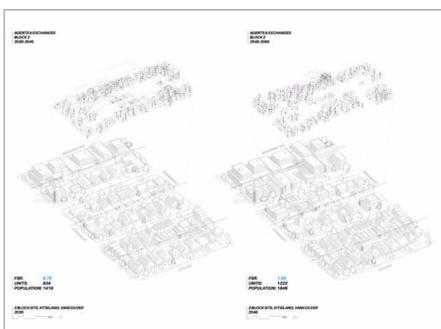

Image 7: Blocks during year 2030 and 2040 of simulation with negotiations shown for the middle block.

Image 8: Plans show the incremental growth, collective shared space and emergence of district energy systems.
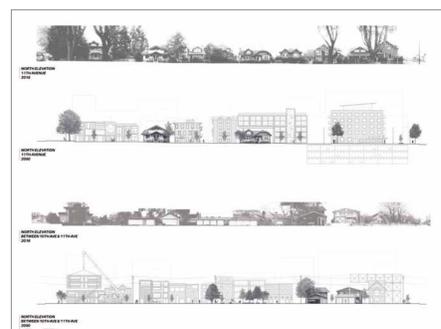

Image 9: Elevations of before and after demonstrate unique typologies and aesthetics possible.

Image 10: Another laneway underwent a different transformation to a pedestrian street.