HOLISTIC BOTTOM-UP DENSIFICATION OF SUBURBIA

Research in Practice Grant Proposal
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ANALYSIS & SIMULATION:

MULTI-AGENT ORGANIZATION OF BASECO INFORMAL SETTLEMENT IN MANILA, PHILIPPINES

BASED ON HOUSING MODEL BY Augustijn-Beckers, Flacke, Retsios
§ REINTERPRETED Regulations

§ 1. DENSITY
The ratio of built floor space per property area

§ 2. SHADOW
Area of shadows cast on non-property land

§ 3. VIEW
The cross-sectional area above the mean building height is considered blocked view

§ 4. PARKING
Parking spaces per built volume

§ 5. GREEN SPACE
Percentage of property that is permeable for infiltration and open for recreation

§ NEW RELATIONAL Regulations

§ 6. VENTED ENERGY
Wasted heat per property is limited to encourage recovery between neighbours

§ Regulation Characteristics

Motivation
- Bulk Management
- Rights of Light
- View Management
- Street Character
- Environmental Health
- Public Infrastructure Limits

Exchanges
- Transfer
- Joint Ownership
- Shared Use

Domain
- Density regulation
- Form regulator
- Systems regulator

Property Characteristics
- Physical Land rights
- Physical Air rights
- Shared Use/Access
- Regulatory Assets

Relative Measure
- Property Area
- Built Density
PROPERTY PARAMETERS =
WEIGHTED AVERAGE OF
SURROUNDING CONTEXT
NEIGHBOURHOOD SIMULATION:
ARBUTUS & BROADWAY HUB
1200m RADIUS

BLOCK DENSITY (FSR) &
REGULATORY TOPOGRAPHY
2020-2030
EXCHANGES + MORPHOLOGY

FSR: 0.67
UNITS: 656
POPULATION: 1005

3 BLOCKS, KITSILANO, VANCOUVER
2020

2020-2050
EXCHANGES + MORPHOLOGY

FSR: 1.19
UNITS: 1470
POPULATION: 2207

3 BLOCKS, KITSILANO, VANCOUVER
2050
EVOLUTION OF COLLECTIVE GREENSPACE + DISTRICT ENERGY MICRO-GRIDS
FORM-BASED PLANNING

METRIC BASED PLANNING
  ENVIRONMENTAL
  ECONOMIC
  SOCIAL
  CULTURAL
  POLITICAL

SIMULATED OPTIMIZATION
  MULTI-AGENT SIMULATION
METRIC BASED PLANNING

§ PROPOSED Regulations

§ 1  NATURAL CAPITAL
    Measured natural capital based on AutoCASE

§ 2  SOLAR ACCESS
    Solar access to PV panels

§ 3  LOCAL SERVICES
    Archetypes determined by proximity

§ 4  PUBLIC SPACE
    Local public space governed by locals

§ 5  DIVERSE HOUSING
    Density bonuses for diverse housing types
HOLISTIC METRICS
MEASURE SUCCESS

NEW FRAMEWORK
BOTTOM-UP DECISION MAKING

SIMULATE
OPTIMIZE FRAMEWORK