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FORM-BASED CODE -TECHNIQUES FOR ENCODING URBAN ENVIRONMENTS

Thursday, March 15, 12

Lecture 3 | New Methods In Urban Simulation and Modeling | FS12 ETH Value Lab | 12-03-2012

ETH



MISSION?

Cities have to move to a new system. They should look at the streets they like and the public spaces they like and then write the rules to get more of what they like and less of what they don't. Conventional zoning doesn't do that. It just gives a use and a density and then you hope for the best.

- Peter Katz -





FORM-BASED CODES

Hierarchy in Urban Planning and Urban Design Development Strategies Masterplan Design Briefs Development Framework Regulating Plan What is a Form-Based Code? Principles of FBCs

Components

Example Codes

Benefits and Drawbacks

Relevance of FBCs for Urban Modeling



Chair for Information

HIERARCHY IN URBAN PLANNING AND URBAN DESIGN

Larger Spatial Scale

Development Strategies	•	Principa Concep Limited
Development Frameworks		Propose Key infr Two dim
Regulating Plan		Fixes ur Identifie Establis Two dim
Masterplans		Three d Specifie building landsca
Design Briefs	•	Very site Specifie Iand use

Smaller Spatial Scale

Adapted from: Public Places - Urban Spaces, Carmona et. al, Elsevier Ltd., 2010

bal motives and intentions ptual, two dimensional diagrams d control

sed urban structure frastructure, land parcels, uses and open spaces imensional illustrations

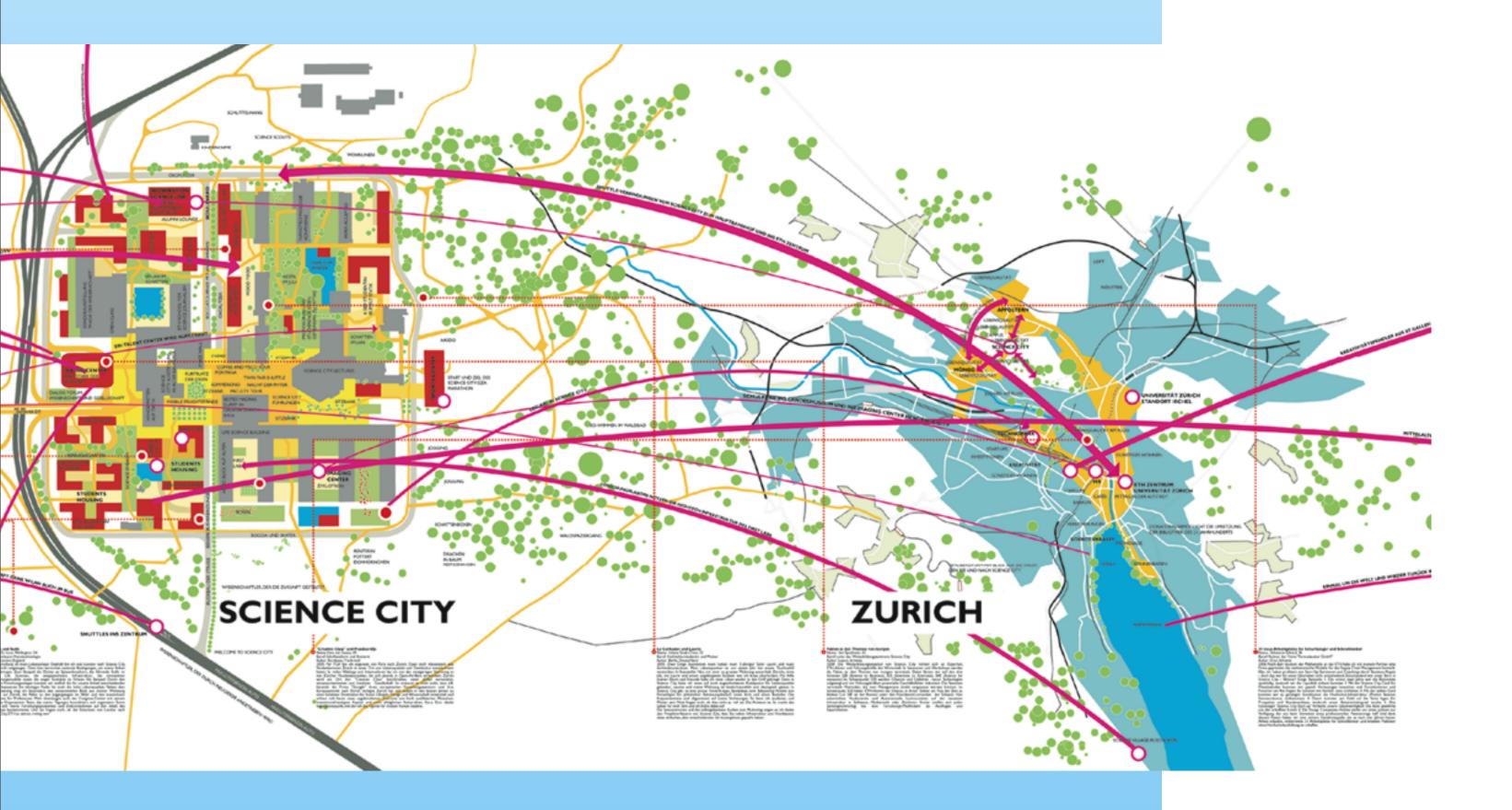
urban structure fies zones and parcels lishes how codes or other regulations apply imensional

dimensions fies infrastructure, public and open space, street lines and ng footprints, heights, architectural character, materials, cape

ite specific, comprehensive written document ies street lines and building footprints, massing, volume, floor space, ses, parking and arrangements







Burkhard, R.A.: Visualize Desires, not Cities. In: Thierstein, A., Förster, A. (eds.) The image and the region, Lars Müller Publishers, Baden, pp. 169--180 (2008)

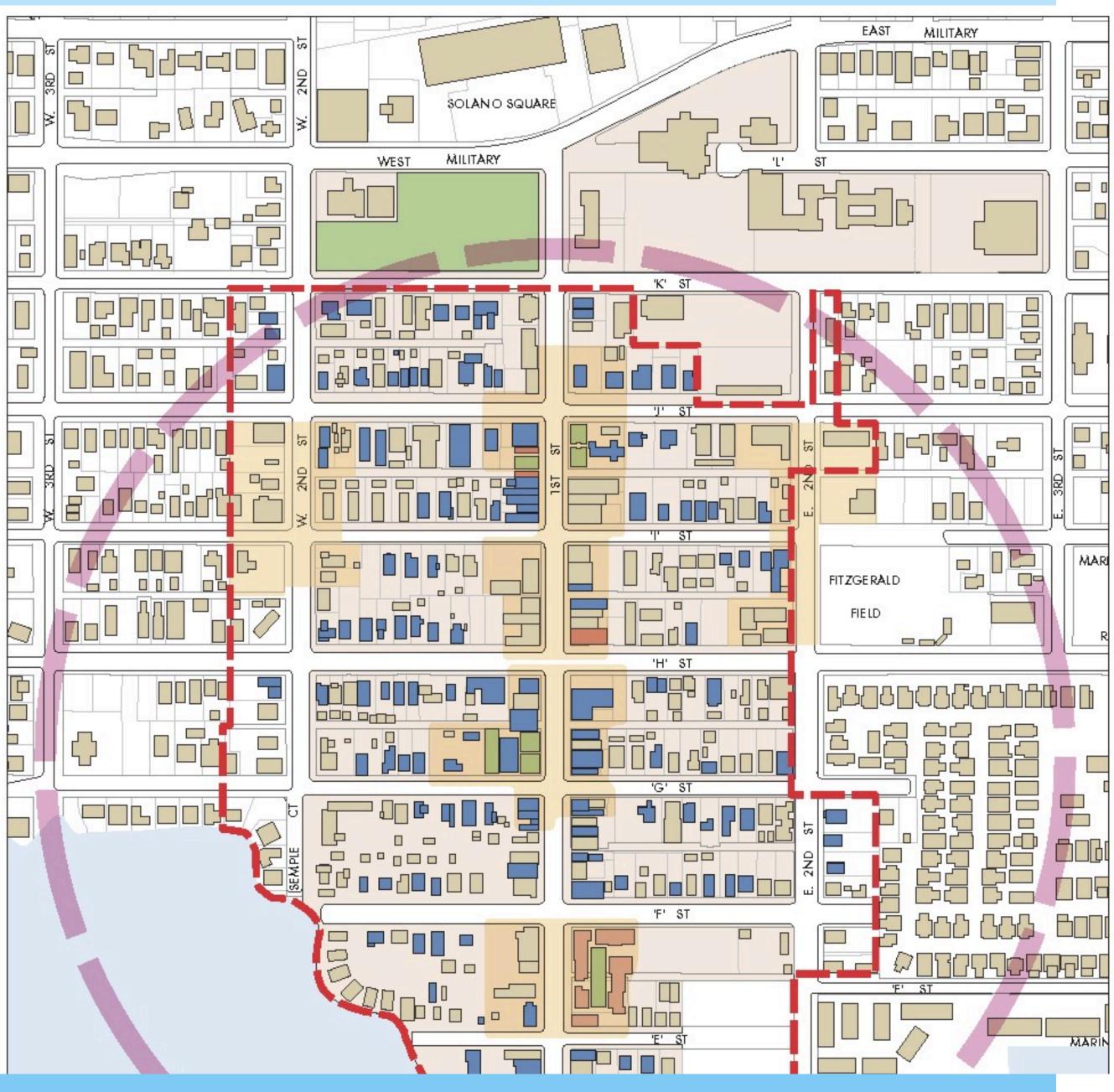
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DEVELOPMENT STRATEGIES

Static strategy maps help to create a mutual understanding between stakeholders by creating a "big picture" visually capturing the relationships between them.







Benicia, CA Downtown Mixed Use Master Plan, http://www.formbasedcodes.org/files/BeniciaCA_DMU_FBC(2).pdf

DEVELOPMENT FRAMEWORK

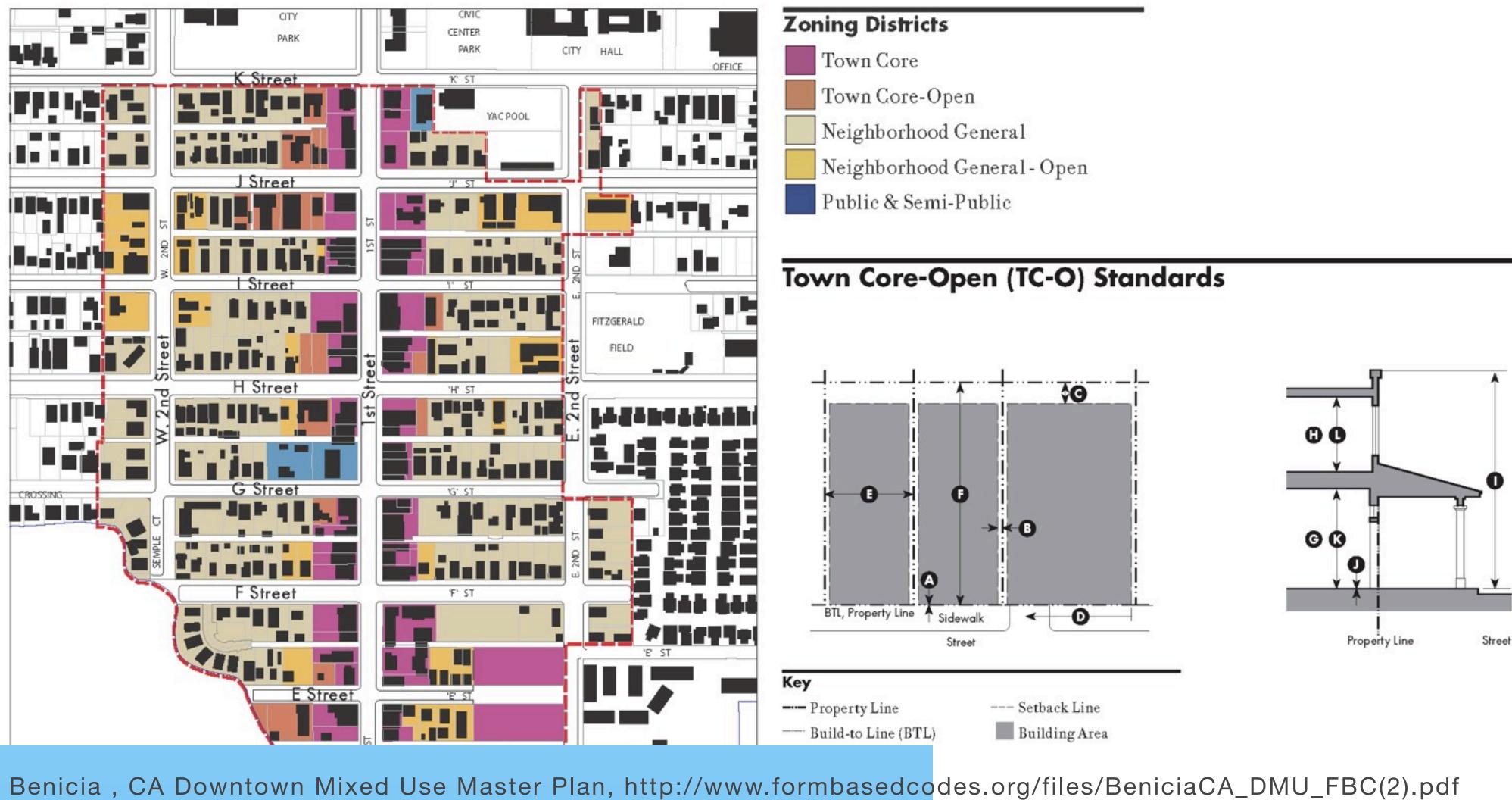


- Plan Initiative Areas
- Proposed Buildings
- Public Open Spaces
- Proposed Improvement Areas
- Existing Building Fabric
- Five Minute walking radius
- ----- Plan Area









REGULATING PLAN







http://archiv.ethlife.ethz.ch/articles/campuslife/scmasterpraes.html, model of Prof. Kees Christiaanse

MASTERPLAN

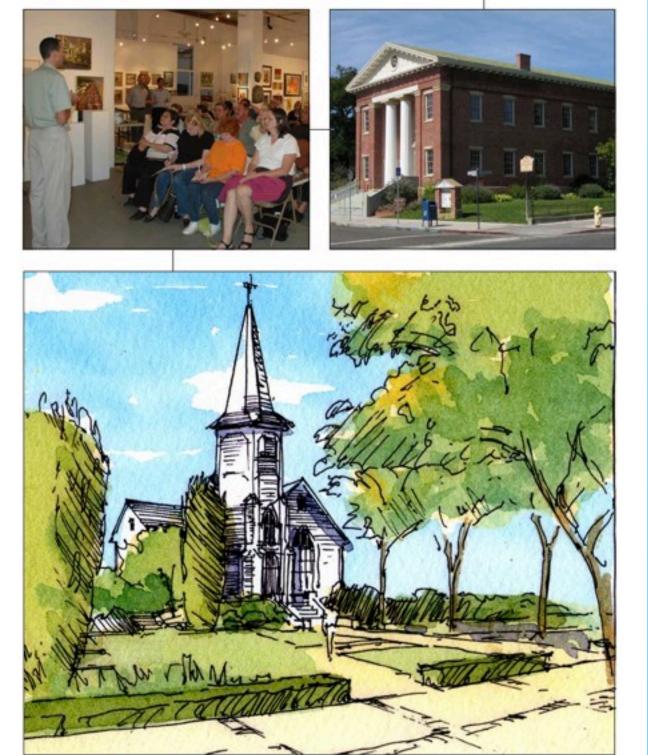
ETH Science City Masterplan







CITY OF BENICIA **Downtown Mixed Use Master Plan** September 2007



Chapter 1: Introduction	
Vision for the First Street District	1-1
Location and Overview	1-2
Summary of Process	1-3
Plan Organization	1-5

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Historical Analysis	2-2
Primary Challenges	2-3
Key Opportunities	2-5

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Mixed-Use Strategies for Historic Neighborhoods	3-10
Circulation and Transportation	3-11
Implementation Strategies	3-16

Benicia, CA Downtown Mixed Use Master Plan, http://www.formbasedcodes.org/files/BeniciaCA_DMU_FBC(2).pdf

DESIGN BRIEFS

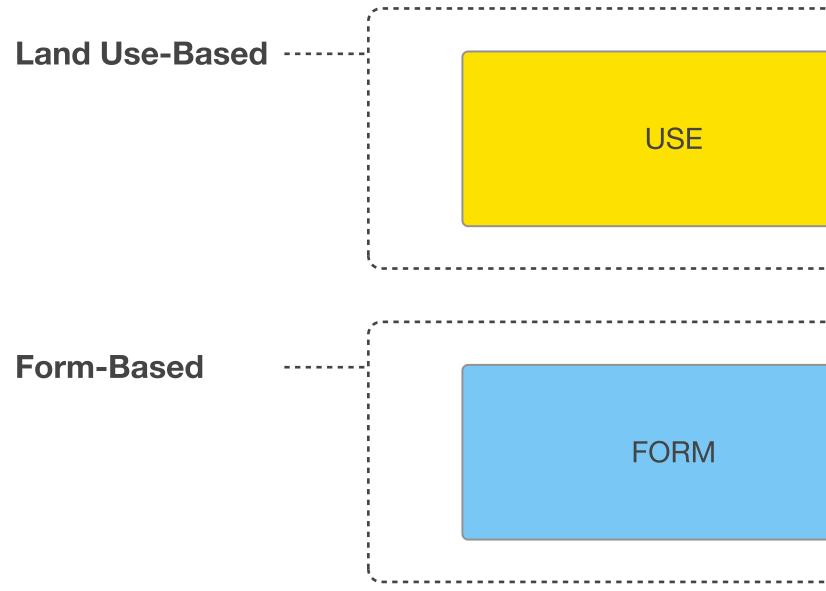
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Chapter 5: Appendix

Appendix A: Market Conditions and Recommendations 5-1







After: Chris Brewster, Dan Jarrell, Scott Allen (MARC Roundable, March 5, 2009)

FORM-BASED CODES

A method of regulating urban development to achieve a specific form.

- Form Based Code Institute -

ADMIN	FORM	
ADMIN	USE	

Chair for Information Architecture



Traditional Zoning Emphasis on use

Maps are of zone districts

Emphasis on individual uses of property, rigid use of lot size, and building placement

Segregation of land uses

Uniformity in neighborhoods

Limited ability to effect change

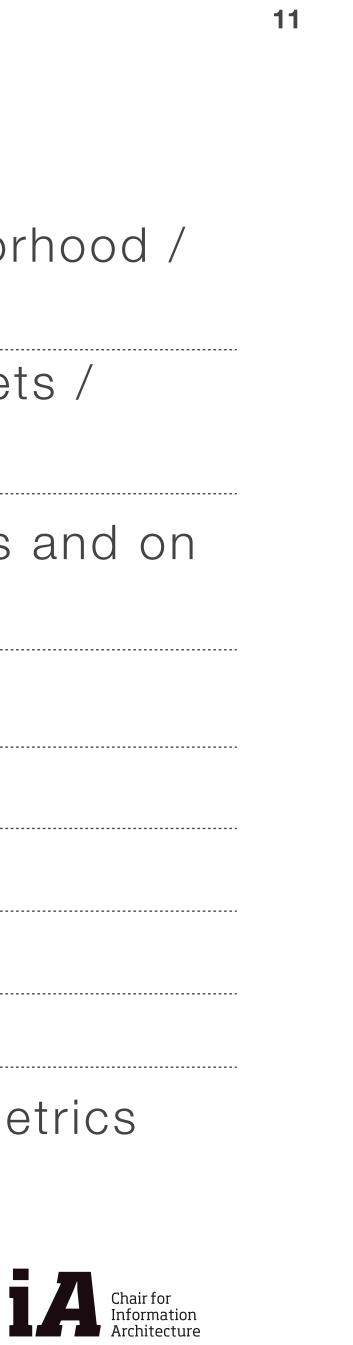
Design standards are add-ons

Setbacks

Often hard to understand, legal texts

Adapted from: Form Based Codes, a Practical Guide, LSL Planning, Inc.

	KEY DIFFERENCES
	Form-based Codes Emphasis on community / neighborhood / social life in quarter
	Maps are of neighborhoods / streets / blocks
٦t	Emphasis on building relationships and on fitting building to its surroundings
	Mixed uses
	Diversity in neighborhoods
	Ability to transform or preserve
	Design standards are fundamental
	Build-to lines
	Simple diagrams explaining parametrics



EUCLIDEAN ZONING

Problems with Euclidean Zoning

Traditional zoning are describing primarily minimum requirements, which may limit creativity and adaptability...

Primary regulates use

Not user friendly/complex

Not flexible

Leads to mediocrity & conformity

Minimum requirements instead of desire

Isolates different uses





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Photograph: Matthew Trump, Prospect New Town, new urbanist development in Longmont, Colorado.

AWARENESS I

The New Urbanism Debate

FCBs and Smart Code are specifically applied for New Urbanism (NU) projects.

NU is credited to have developed frameworks against urban sprawl.

However NU concepts highly focus on traditionalists' architectural or urban development schemes.

In Switzerland and Germany NU is being criticized for being backward oriented.

Further NU sees the cottage village as nucleus for urban (re-)development.





Adapted from: Form-Based Codes, Parolek et al, 2008

PRINCIPLES OF FBCS

- 1. Vision-Centered
- 2. Priority-Driven
- 3. Place-Based
- 4. Regionally Diverse
- 5. Consequential
- 6. Precise
- 7. Integrated
- 8. Predictable
- 9. Comprehensible
- 10. Adjustable





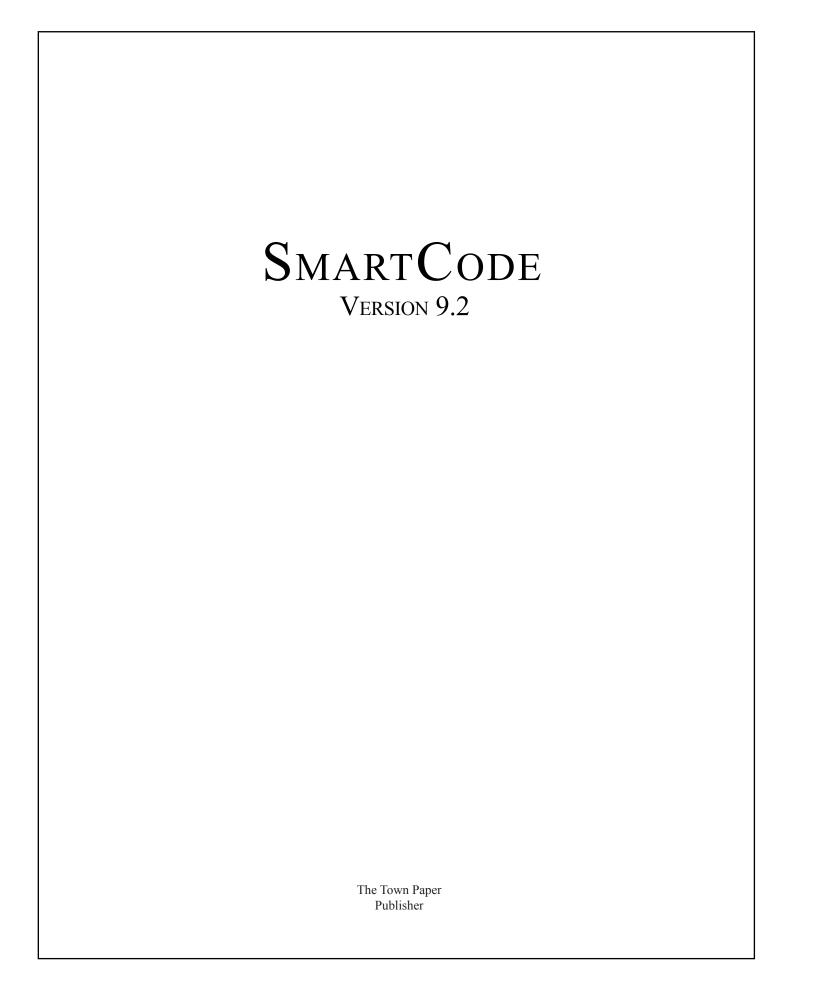
COMPONENTS OF FBC

The Regulating Plan Public Space Standards Building Form Standards Frontage Type Standards Block Standards Building Type Standards



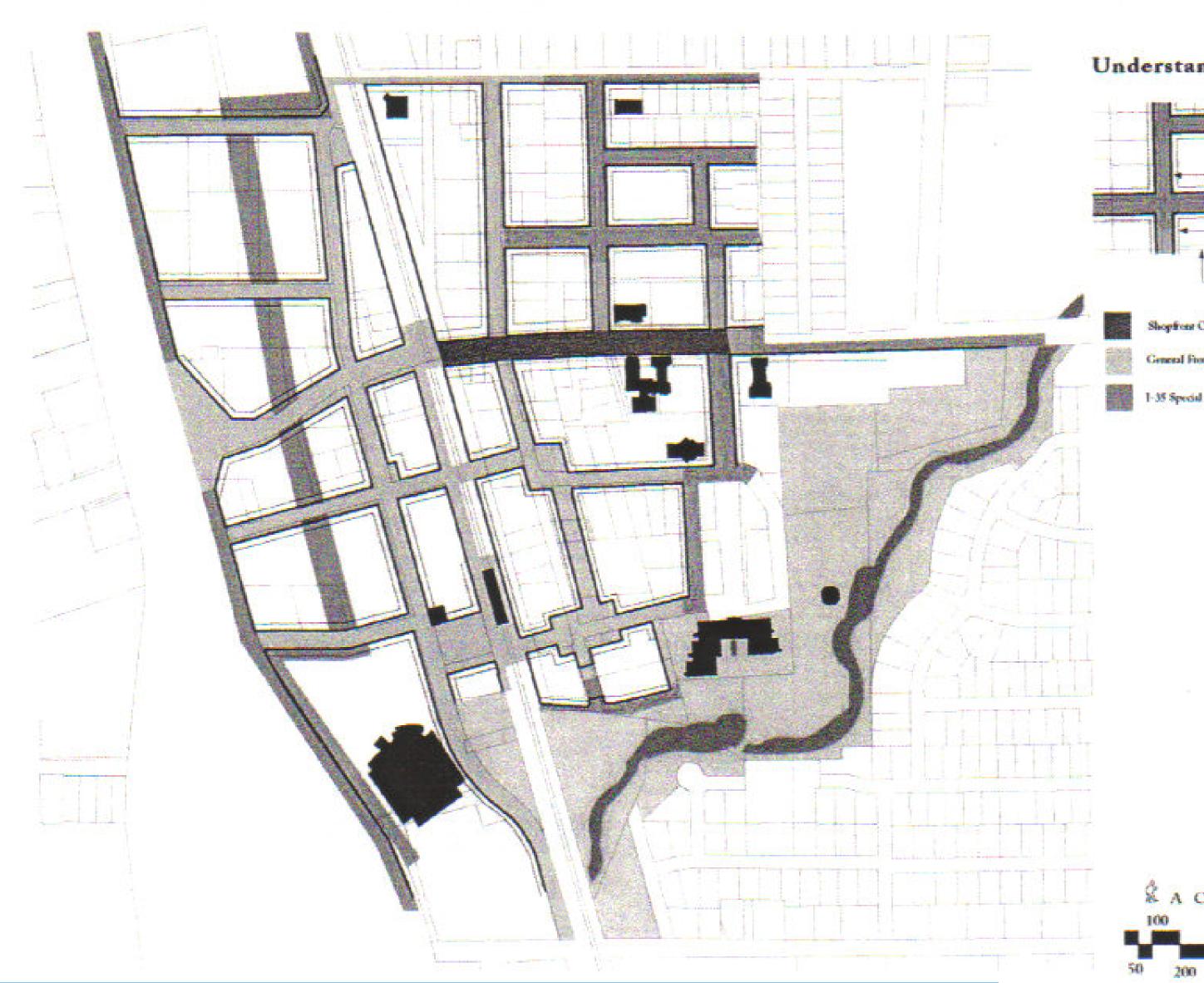


FBC EXAMPLE: SMART CODE FRAMEWORK



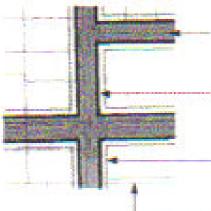






STREET-BASED

Understanding the Regulating Plan



BUILDING ENVELOPE STANDARD This indicates the relevant Building Envelope Standard (BES) rules governing the site

REQUIRED BUILDING LINE The red line indicates the RBL for the site. The building deal be built to the RBL.

PARKING SETBACK LINE Vehicle parking (above ground) not allowed forward of this line.

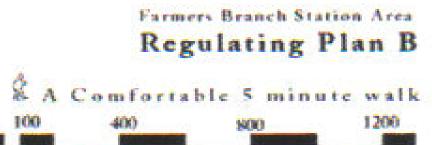
Property lines



Powerline Easement

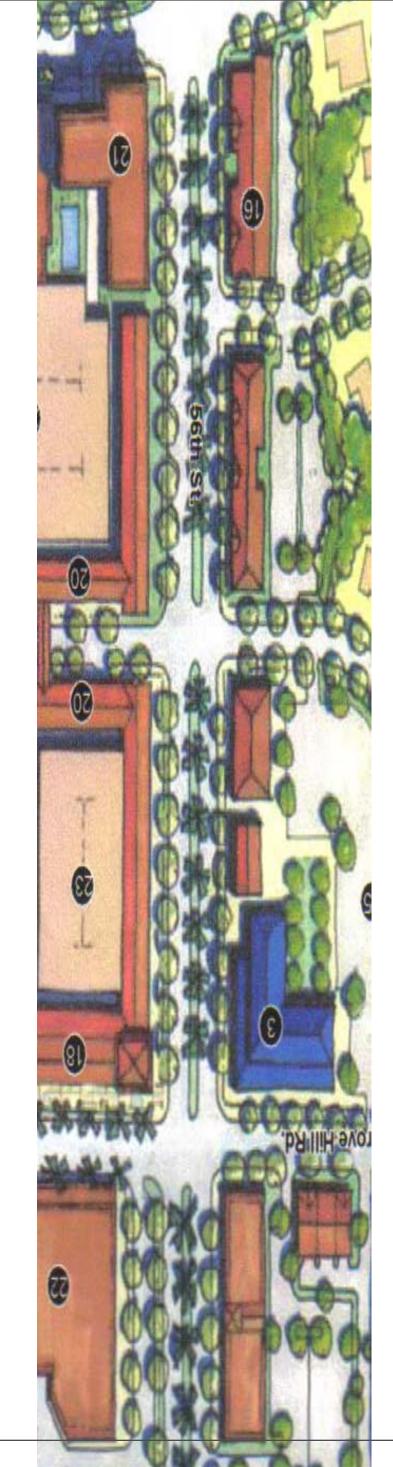
35 Special Frontage

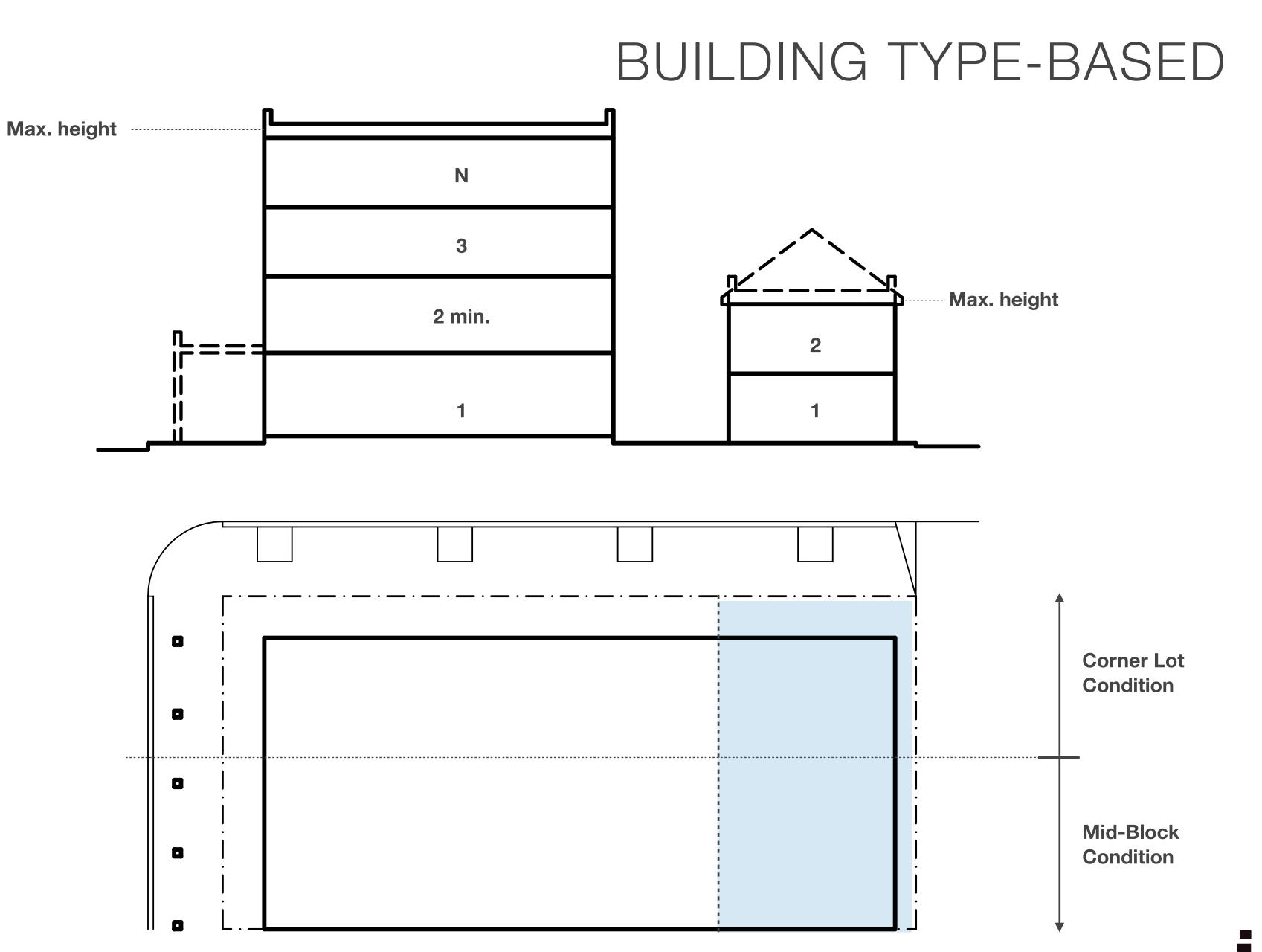




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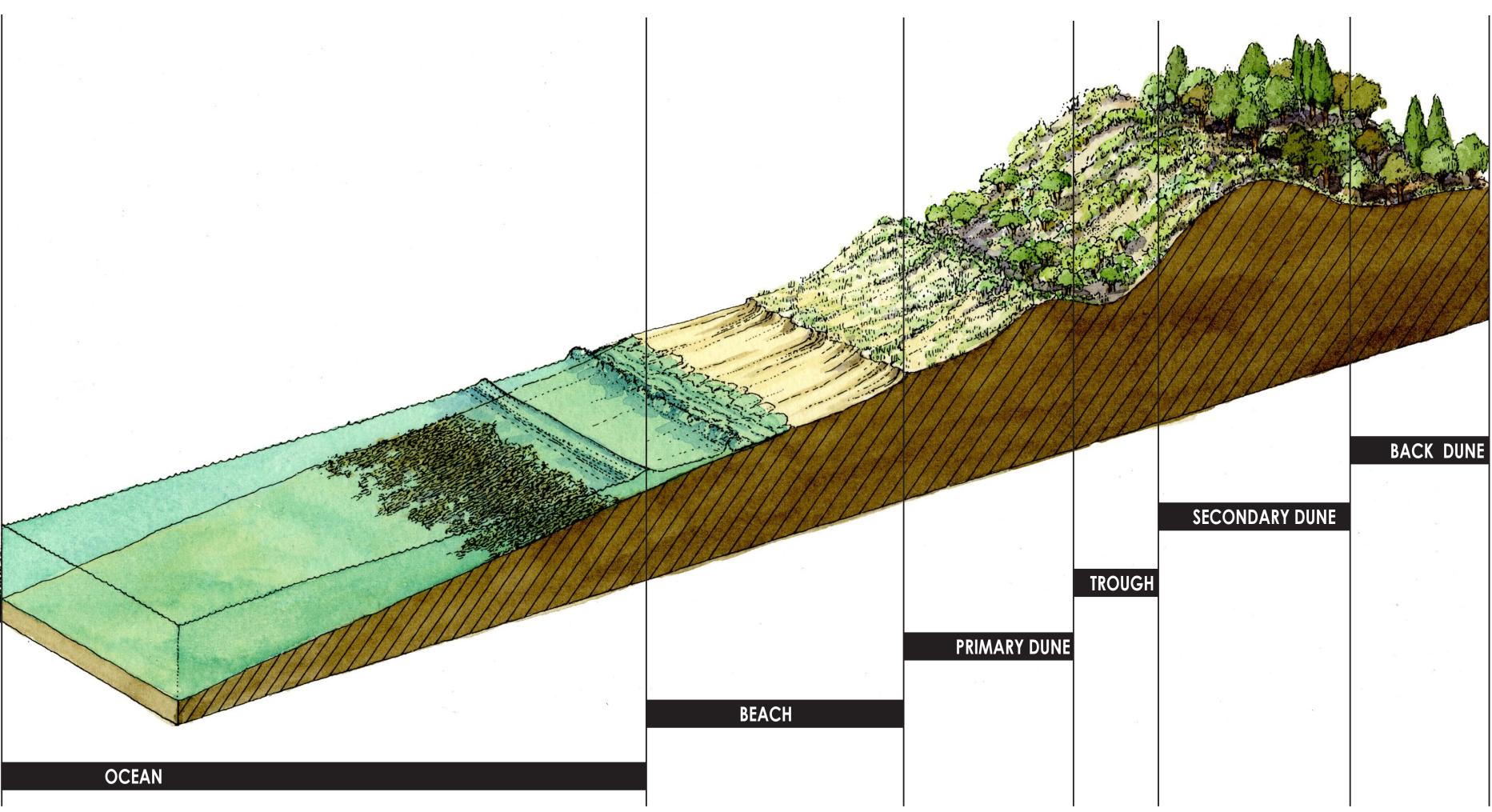




Source: SmartCode Handbook v. 9.2



Chair for Information Architecture



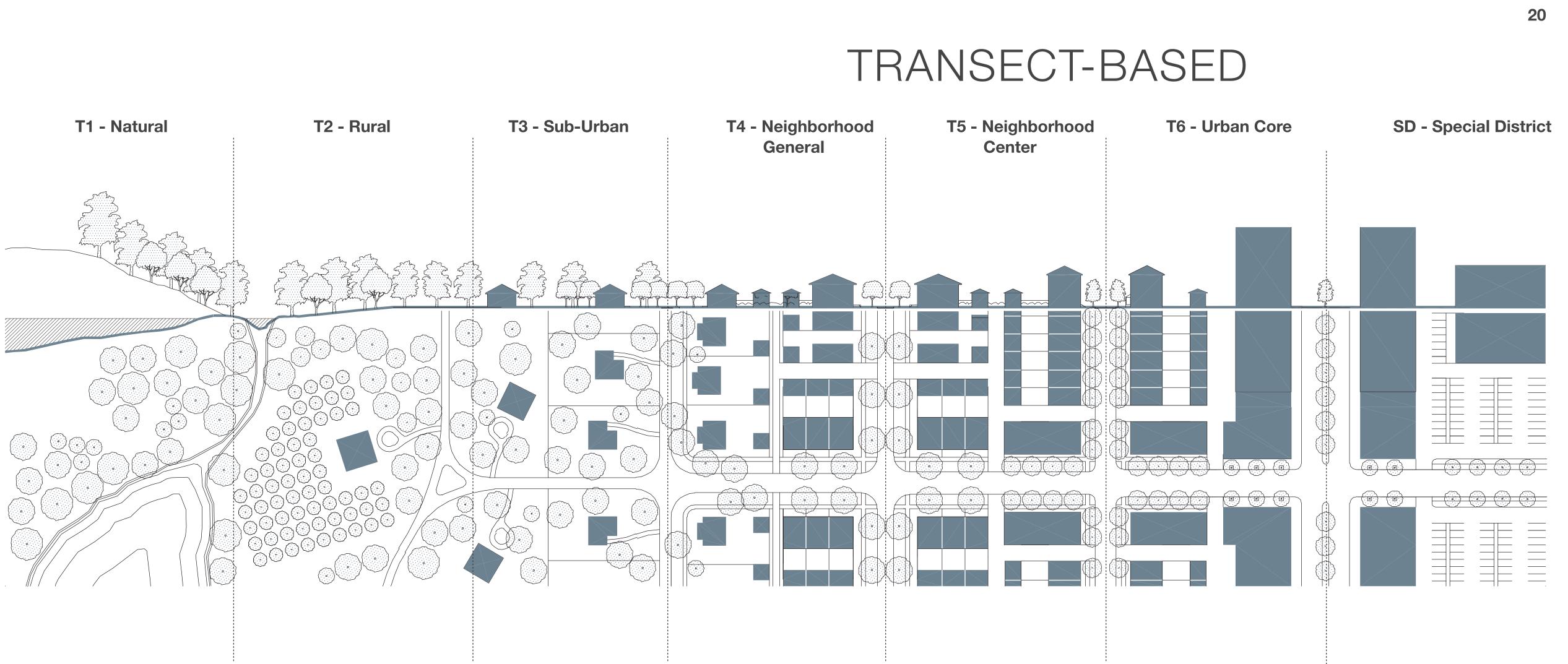
Source: SmartCode Handbook v. 9.2

TRANSECT-BASED



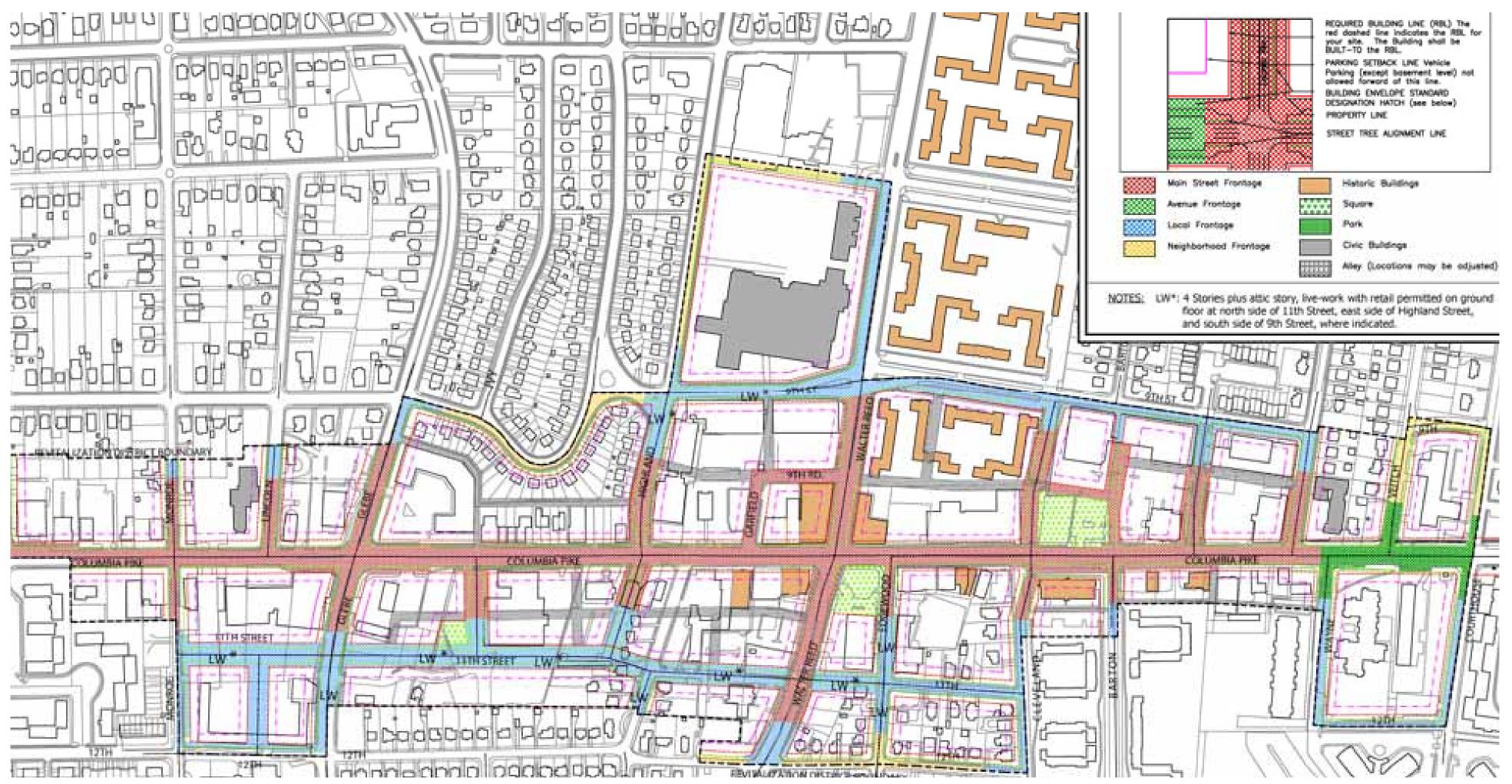






Source: SmartCode Handbook v. 9.2



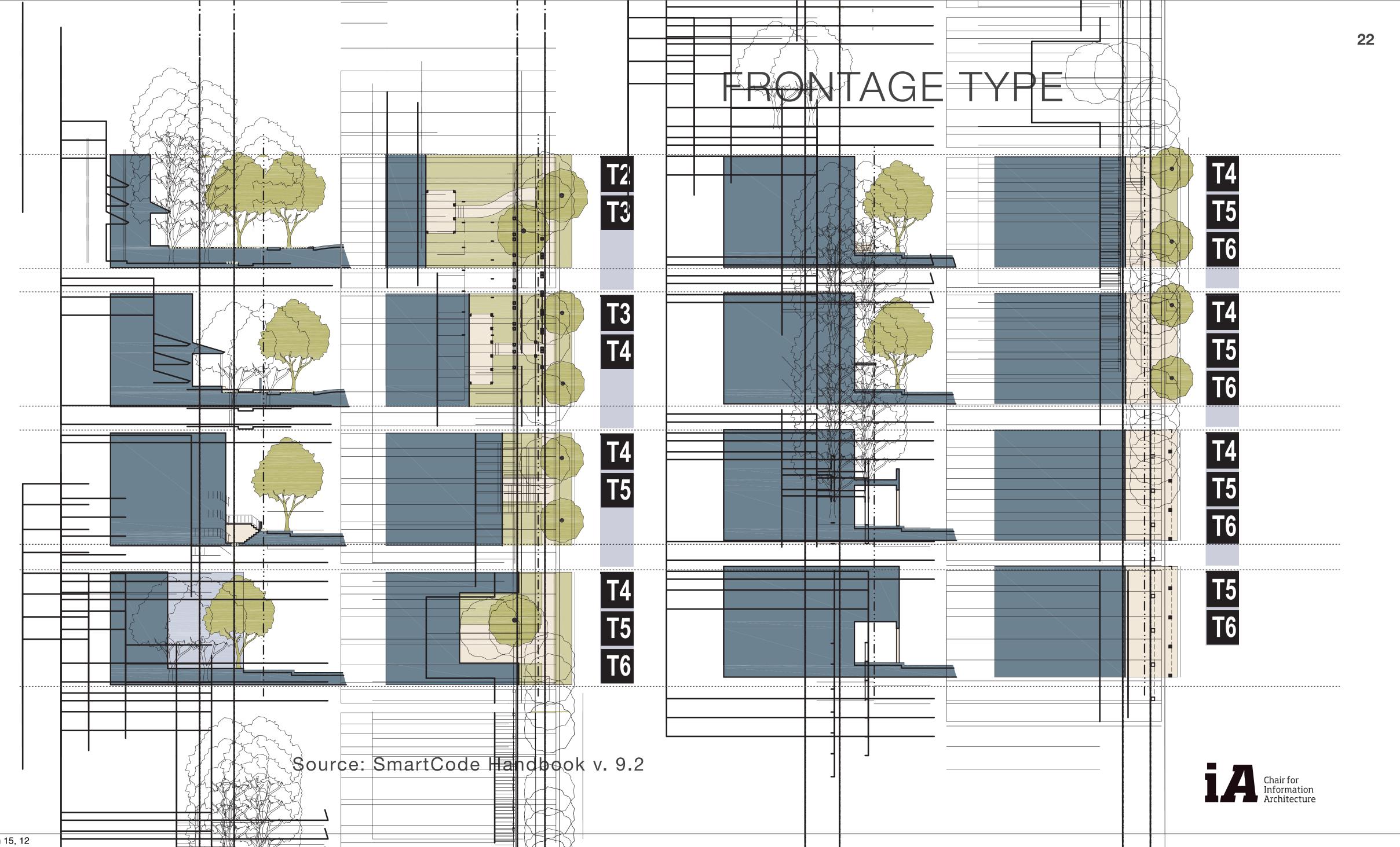


Source: Columbia Pike Code, Arlington County, VA

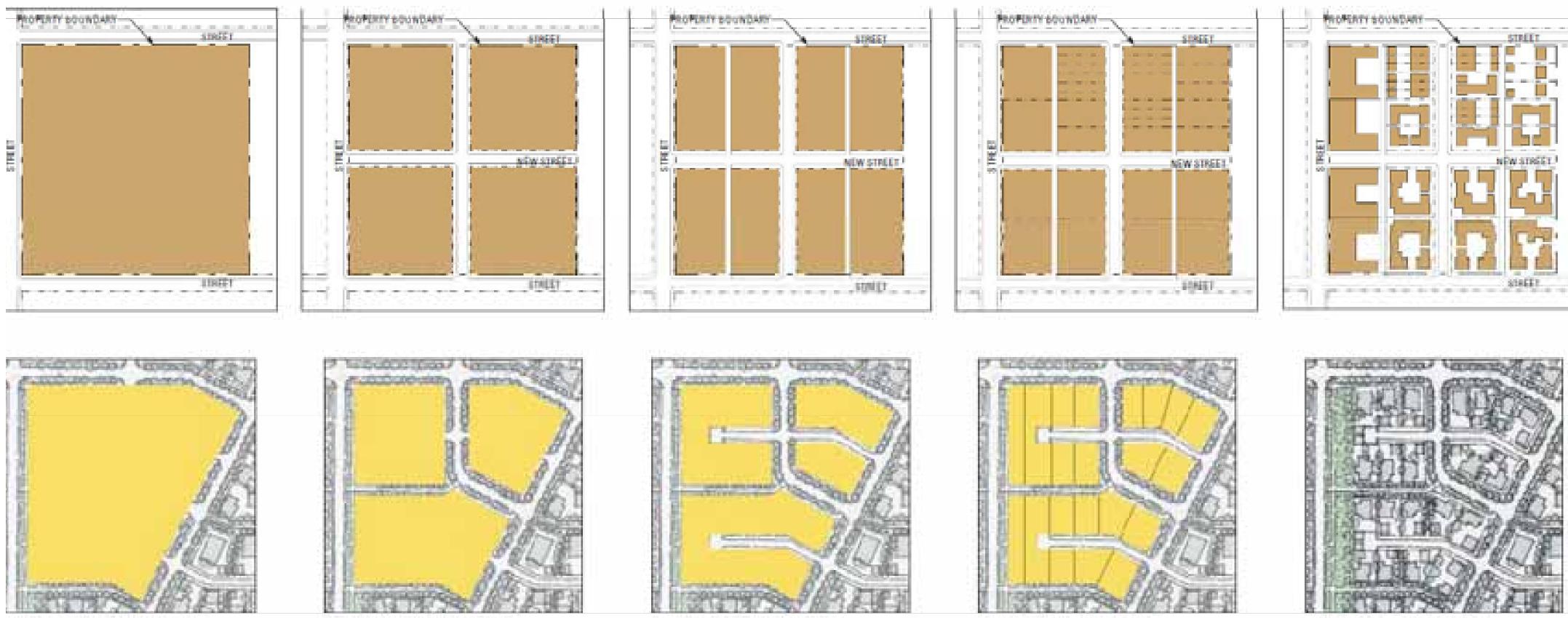
FRONTAGE-BASED











its to be sudivided: Illustrative Diagram

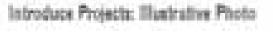
Introduce Streets: Illustrative Diagram

Introduce Alleys: Illustrative Diagram

Uptown Whittier, CA

BLOCK

Introduce Lots: Illustrative Diagram

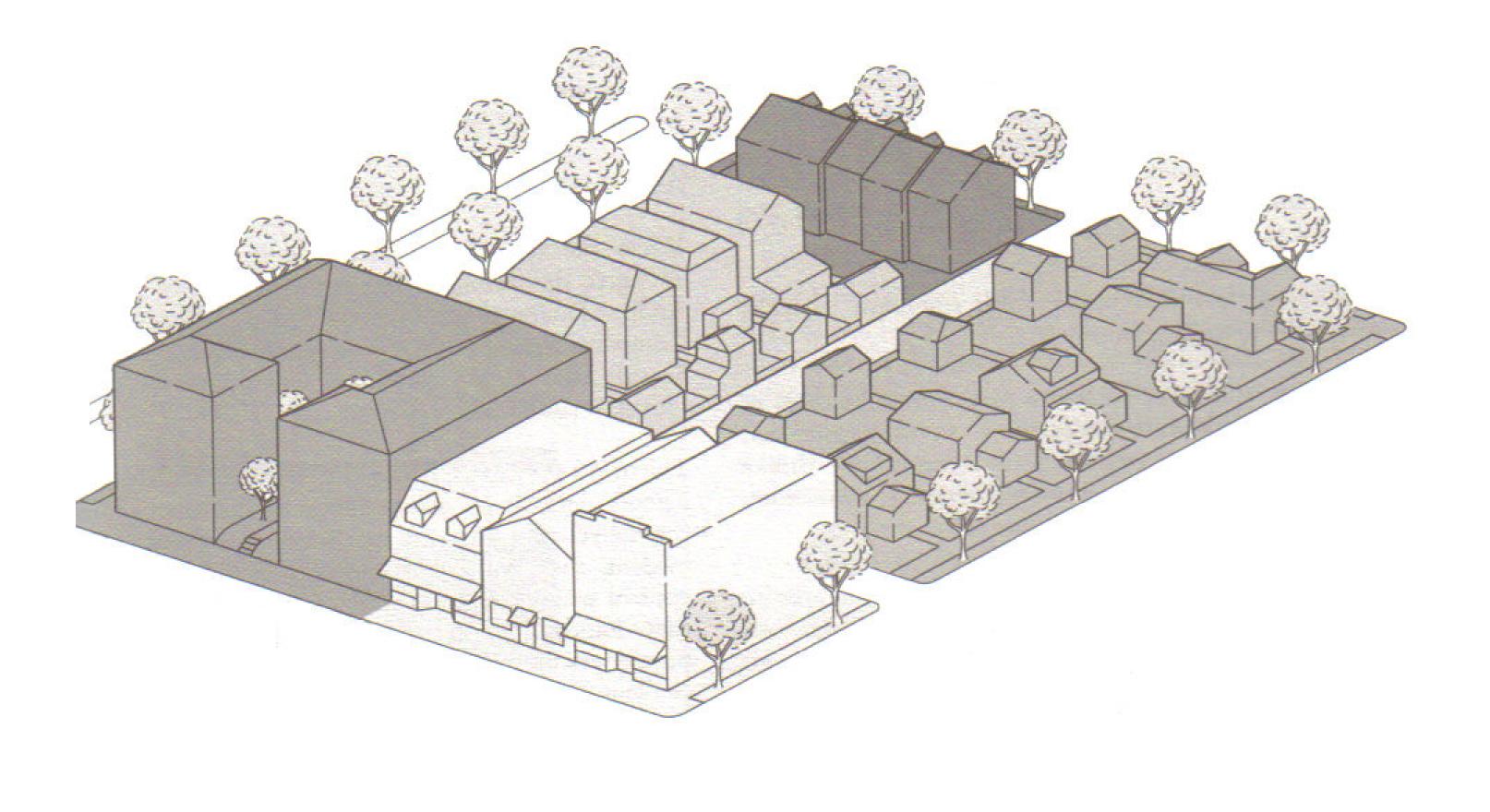










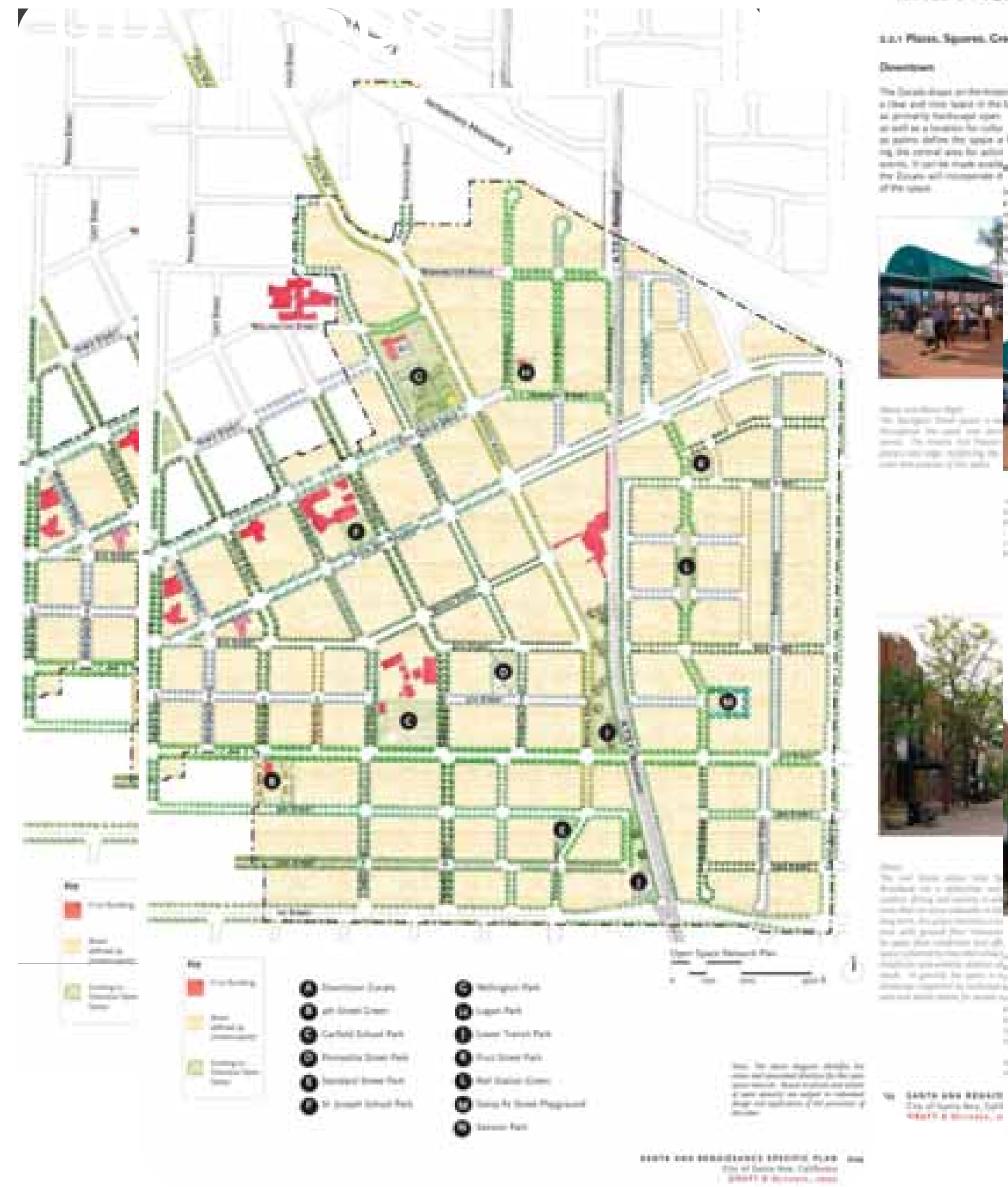


Source: A Guidebook to New Urbanism in Florida, 2005

BLOCK STANDARDS







Standardsorce: Santa Ana Renaissance, CA StandardS

AFTER & FORM AND CHARACTER

2.2.1 Plazas, Squares, Greens and Parks

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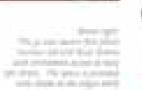
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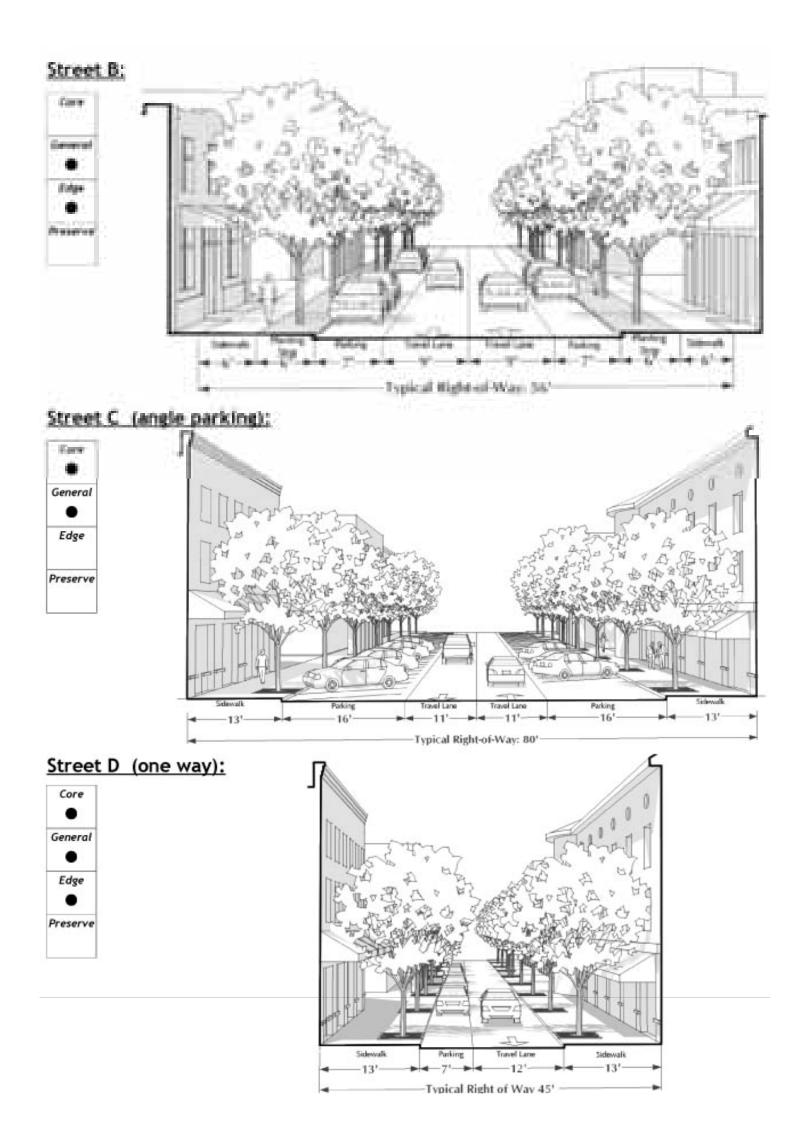










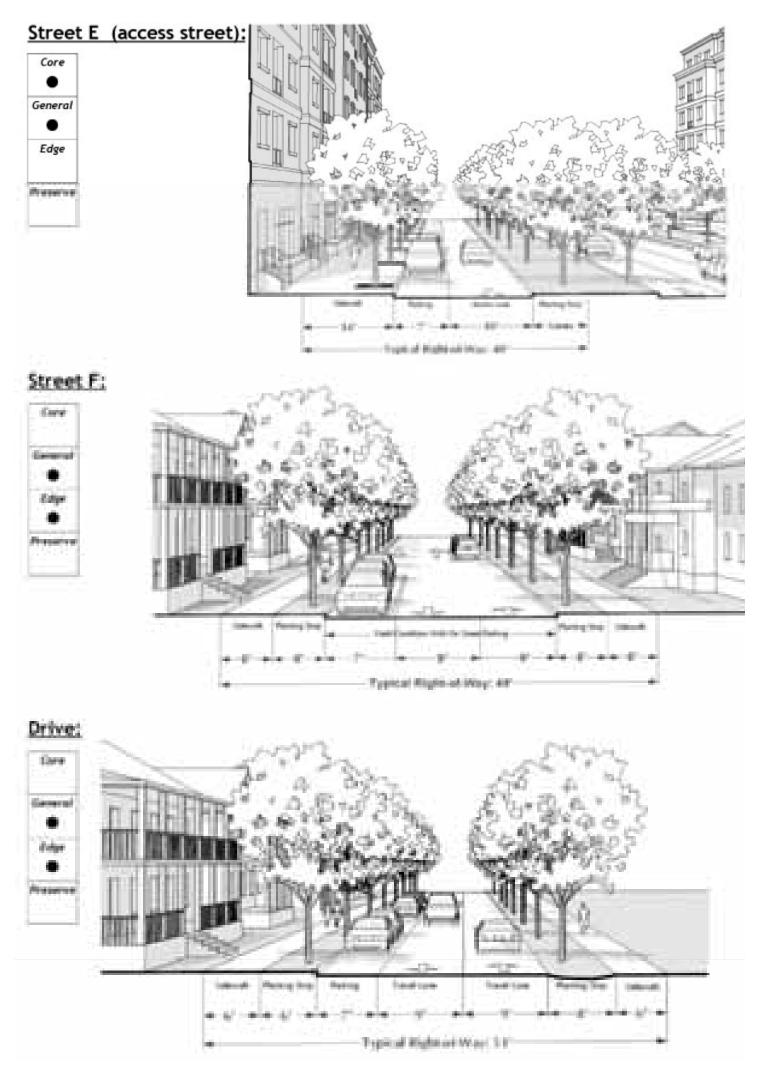


Source: Sarasota County FBC, FL, for Mixed-use Infill Development, by Kohl & Partners and Spikowski Planning Assoc.



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STREET TYPES







Mixed-Use Building Lot (MU):

Apartment Building Lot (AB):

Character Examples:





Character Examples:



Source: Sarasota County FBC, FL, for Mixed-use Infill Development, by Kohl & Partners and Spikowski Planning Assoc.



Core

٠

Genera

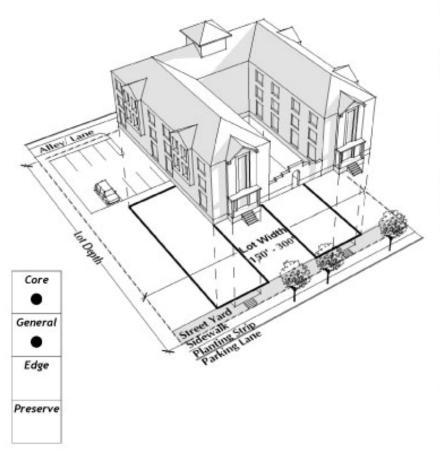
• Edge

Preserve

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BUILDING TYPES

Courtyard Building Lot (CO):



Character Examples:





Live-Work Building Lot (LW): Character Examples:









DEVELOPMENT EXAMPLES USING FBC









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Urban Code Catalog

Diagnostics and goals

Community Education

Zoning Law Evaluation

Evaluation of Development Options





Urban Code Catalog

Creation of a repository of all prominent urban forms in a structured manner.

Re-evaluation of zone definitions.

Evaluation of urban qualities (architectural and functional)

Input for parametric urban model





Diagnostics and goals

Creation of a rule base and parametric typology patterns from the FBC repository.

Rule-based 3D city model for evaluation.

Evaluation of urban potentials for passive design.

Report on potentials for investment strategies.

Identifying architectural development goals to overcome shortcomings.





Community Education

Visualization of abstract building and zoning laws.

Creation of a visual language for changes in building and zoning laws as well as empowering architectural qualities per definition.







Zoning Law Evaluation

Creation of digital urban models.

Evaluation of sustainability criteria for urban growths.





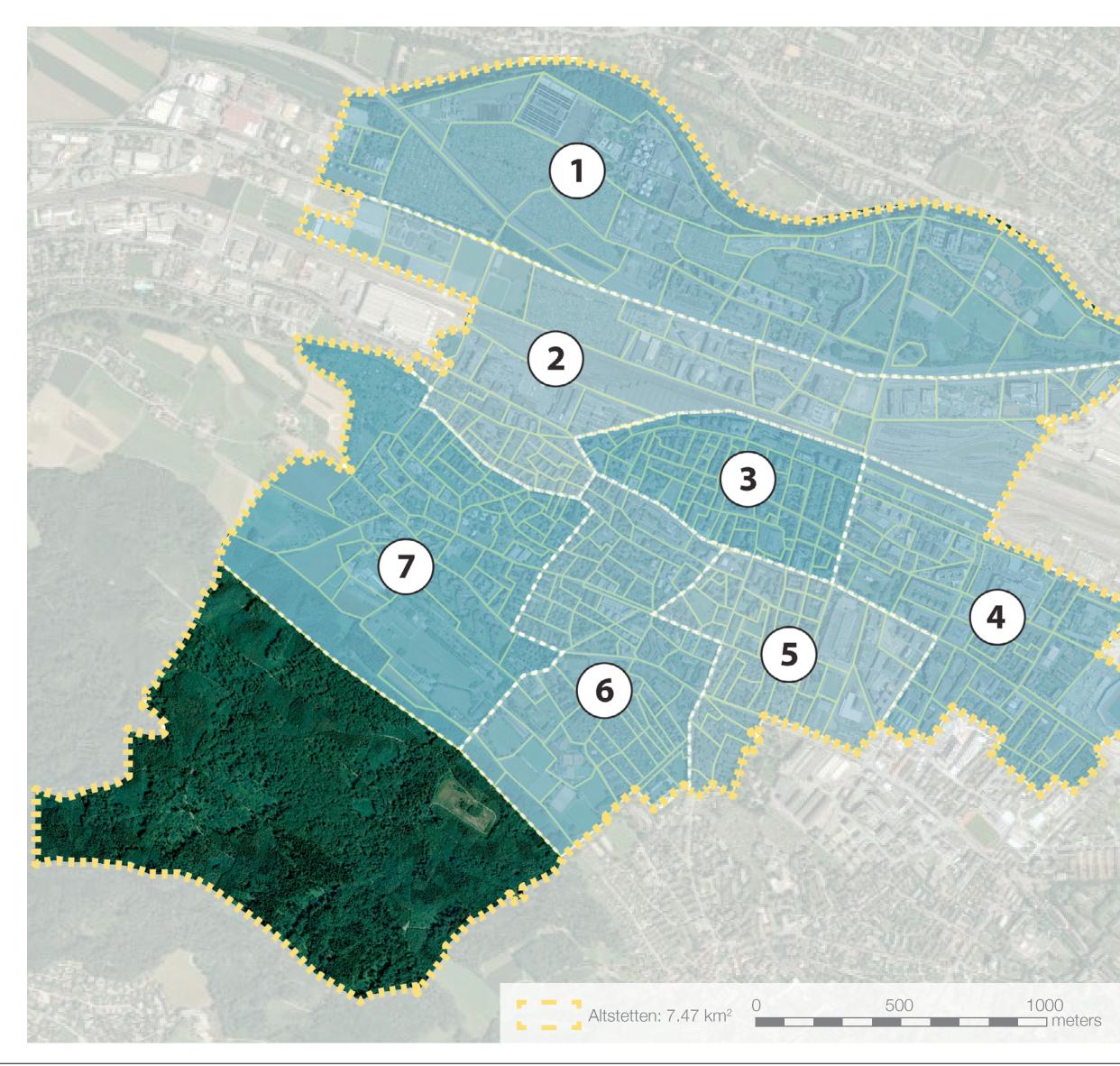
Evaluation of Development Options

Design proposals and development proposals may be structured and may be better comparable.

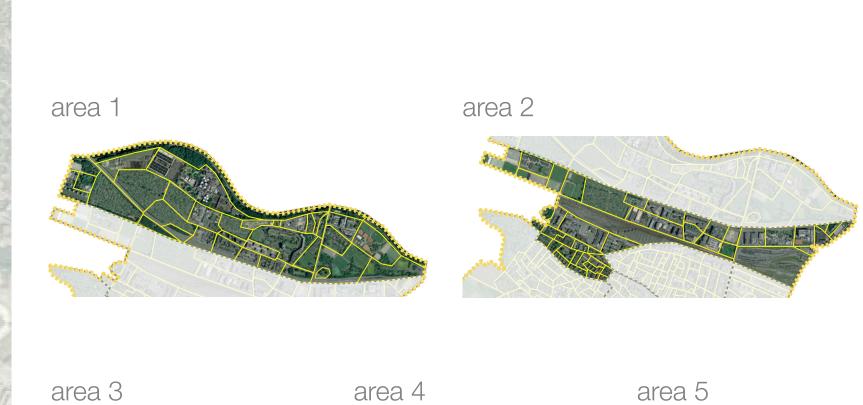








CASE STUDY AREA ZH ALTSTETTEN









area 6

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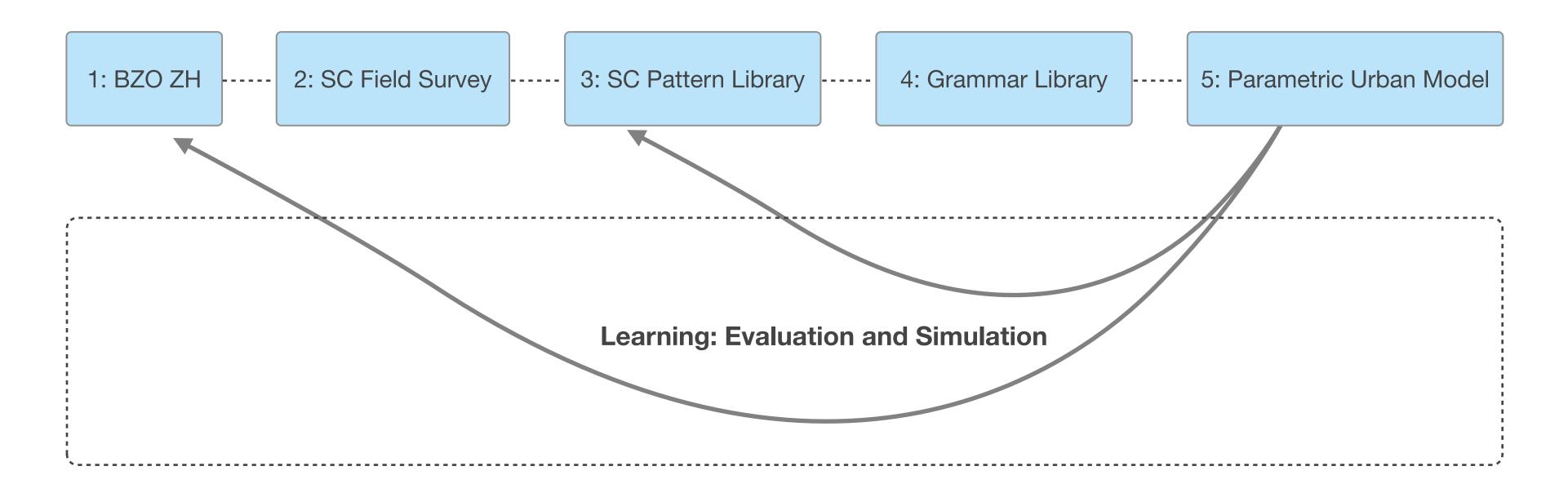
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SMART CODE TO 3D

Process for classification and 3D modell derivation and regulation evaluation







THANK YOU!

