Form-Based Codes Rethinking Zoning for Vibrant Urban Places

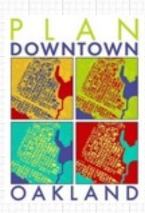




Daniel Parolek

Principal, Opticos Design





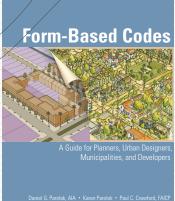
With Dover, Kohl & Partners

August 30, 2016 Oakland, CA









Presentation Overview

- I. Typical Issues with Zoning Codes
- 2. Components of a Form-Based Code

3. Overview of the Typical 3-Step Process

4. Conclusion

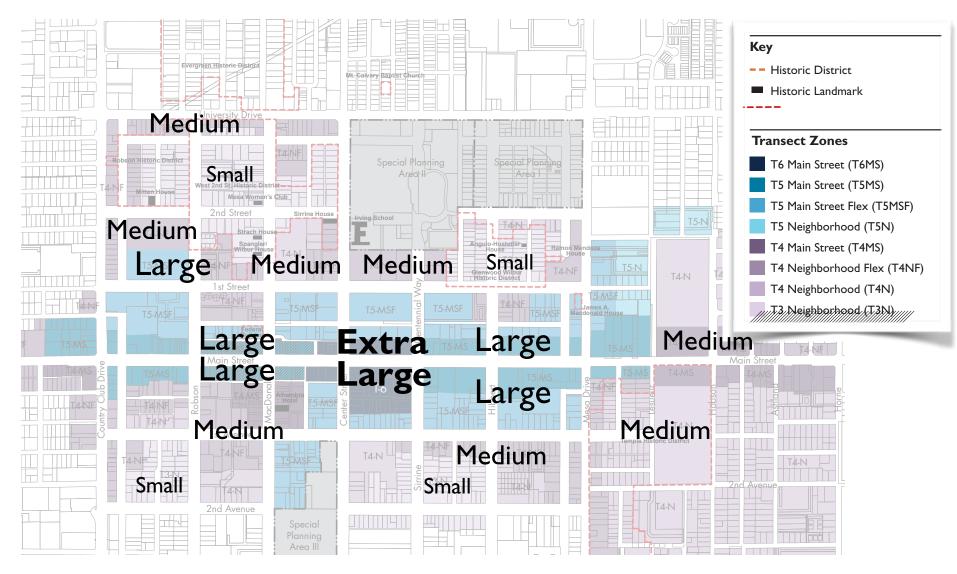


Euclidean Zoning is an Out-of-Date Operating System



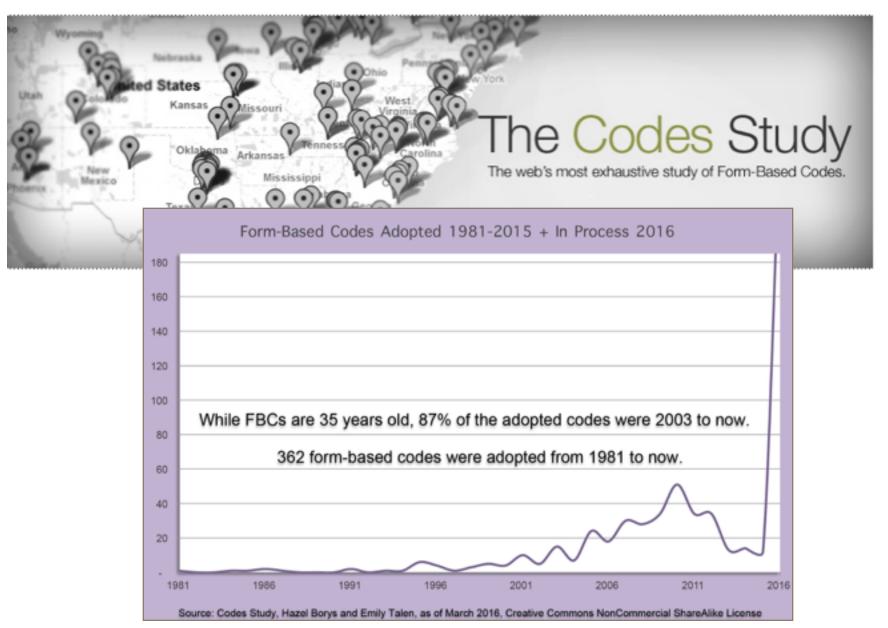
FBC Goal: Provide Easy to Use System that Delivers Predictable Results and Process

At Most Basic Level: Establishing a Hierarchy of Scale



What We Heard: Some Want Bigger. Some Want Smaller.

Spreading Across the Country: 362 Adopted and Growing



1

Typical Issues/Challenges with Zoning Codes

What Form-Based Coding is Addressing

Many Complex Layers Added to Code as Attempted "Fixes"

Makes Code Very Hard to Understand and Use

CODENEXT SHAPING THE AUSTIN WE IMAGINE



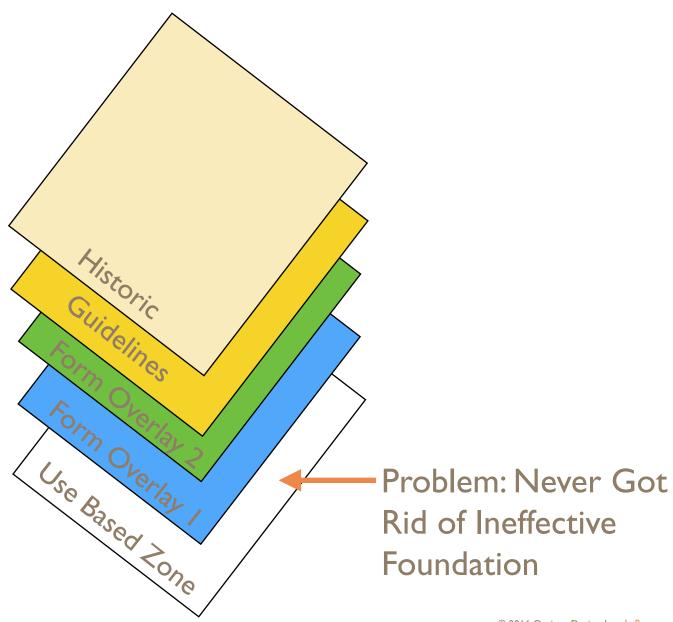
Compact & **Connected**

Sustainable Water

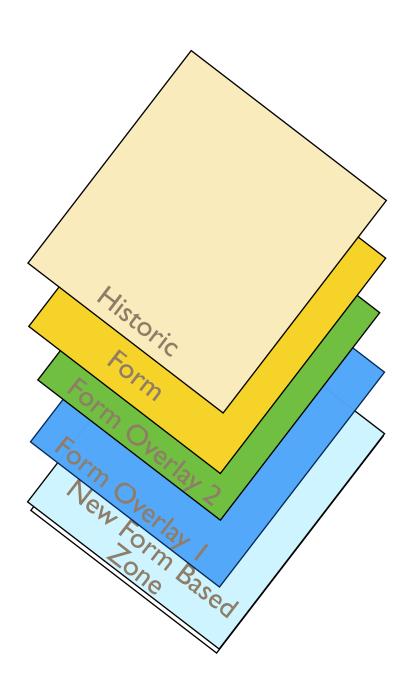
Household **Affordability**

Development Regulations

Base Zoning Standards Ineffective (Use Based) The Response: Add Layers of Form Regulations



A More Direct and Effective System Based on Form



Over-Regulating Use

At Some Point It Stops Making Sense

At Some Point You Cannot Possibly List **Every Allowed Use**

An Existing Land Use Table Prior to Rewrite

Allowed Uses

- 19. Baths, Turkish
- 25. Boxing arena
- 28. Chinchillas, retail sales
- 41. Eleemosynar institutions
- 42. Embalming business
- 116. Turkish Baths

Form-Based Use Tables: Size of Use Matters as Well

Transect Zones 15.05.120.090 T4 Main Street (T4MS). T4 Main Street (T4MS) 15.05.120.090 T4 Main Street (T4MS). T4 Main Street-Open (T4MS-O) To provide a vibrant main-street Attached commercial environment that Simple Wall Plane along Street The open sub-zone provides the serves as the focal point for the same building form but allows for a Small-to-Large Footprint surrounding neighborhood and provides access to day-to-day Buildings at ROW amenities within walking distance Small-to-No Side Setback Up to 3 Stories Flush Ground Floor Primarily with Shopfronts General note: The drawing above is intended to provide a brief overview of **Richmond Livable Corridors** Final Draft: June 2014 .120-19

Land Use ¹	T4MS	T4MS-O
Retail		
Eating or Drinking Establishment, except	Р	Р
with any of the following features:		
Tenant floor area:		
>5,000 sf	MUP	MUP
>10,000 sf	CUP	_
General Retail, except with any	P	P
of the following features: Tenant floor area:	•	'
>5,000 sf	MUP	MUP
>10,000 sf	CUP	_
>25,000 sf	_	_

Numeric Parameters are Blunt and Unpredictable

Is FAR and Density the Right Tool?

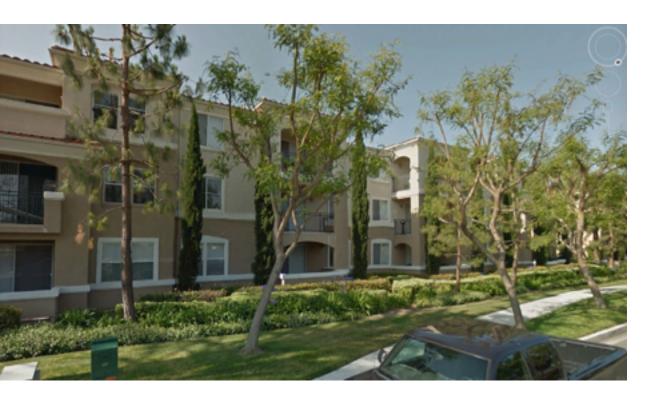
Conventional zoning says they're the same



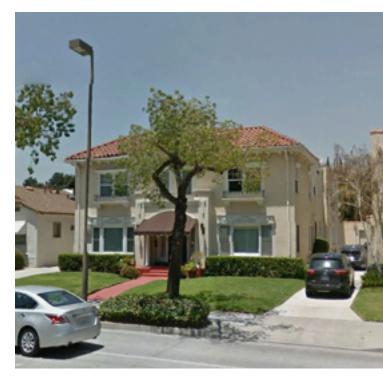


FAR = 1.2

Conventional zoning says they're the same



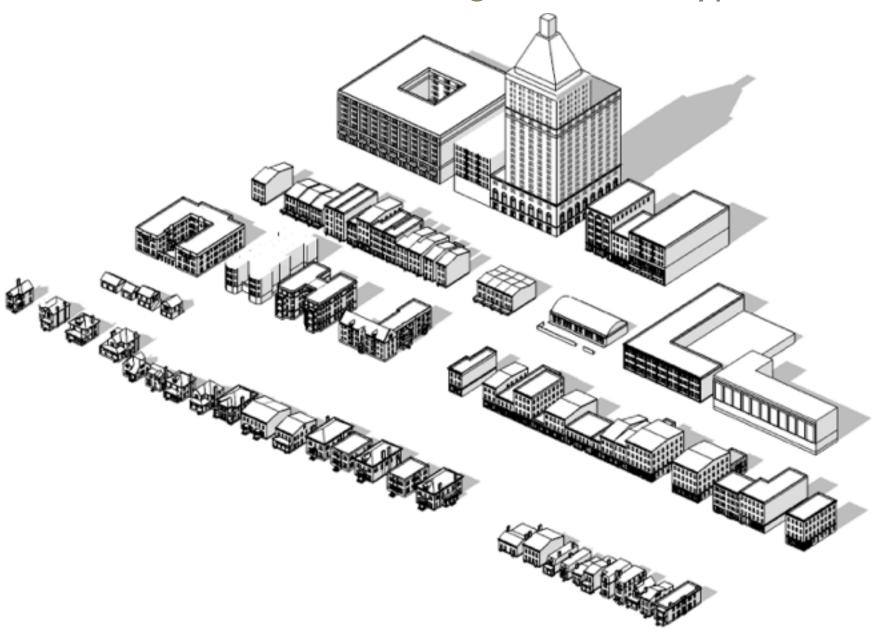
60 units



5 units

Density = 30 per acre

Each Zone District Has a Range of Allowed Types/Forms



Regulations Spread Across Many Different Locations, Documents, Maps

Easy to use and Understand?

Regulations Spread Across Many Documents and Maps

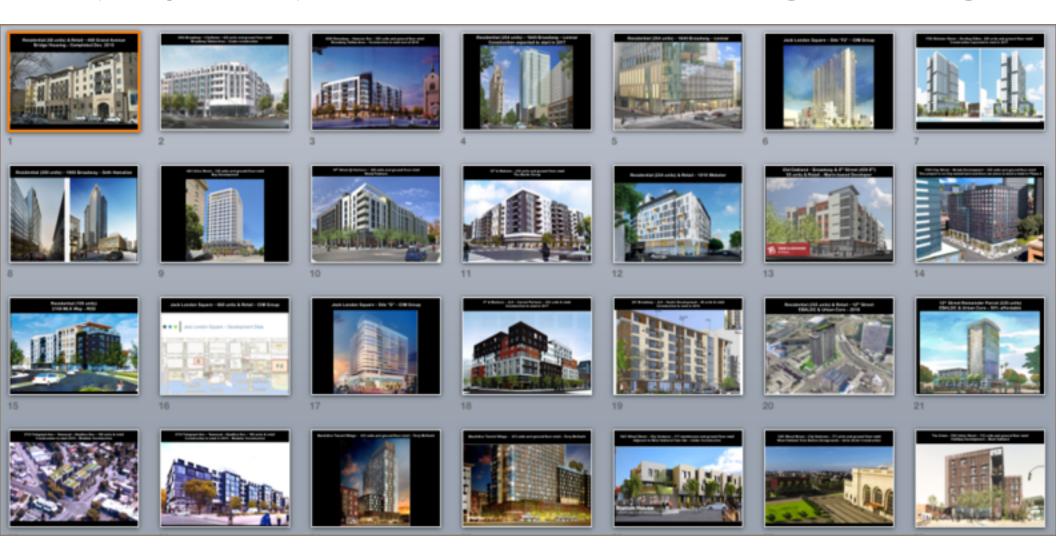


Zoning Code

Guidelines, Overlays, Area Plans or Specific Plans, etc.

Too Difficult to Do Small Projects

Majority of Projects "On the Boards" Are Large & X-Large



Lack of Predictability in Process and Results

Majority of Projects Negotiated

Lack of Predictability for Community and Developer

Development Review Models

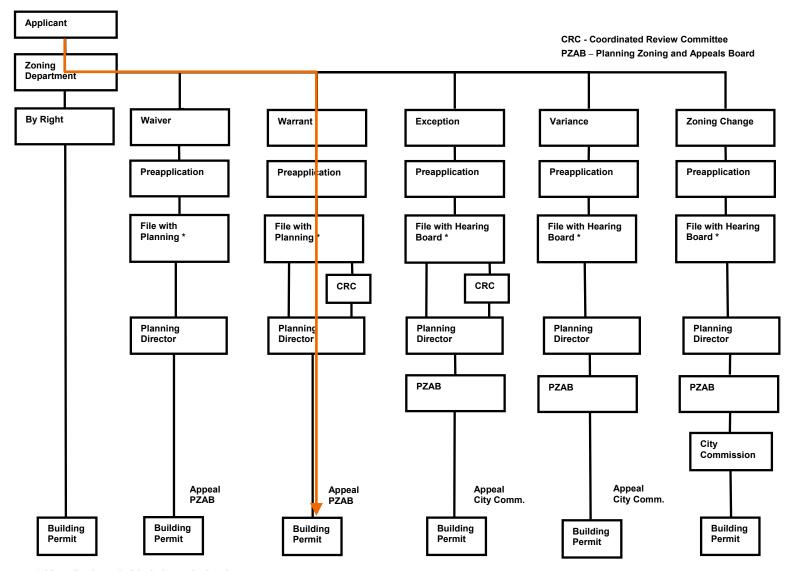
Models	Effectiveness	Clarity	Consistency	Predictability	Simplicity	Ease of Implementation & Administration
1 BY-RIGHT (STANDARDS-BASED)	•					
2 I DISCRETIONARY OR DESIGN REVIEW			\circ	\circ	\circ	
3 I CUSTOMIZED ZONING	\circ	\bigcirc	\bigcirc	\bigcirc	\bigcirc	\bigcirc

Key: ● High Level of ○ Medium Level of ○ Low Level of

In a discretionary or design review system, a permit is issued at the "discretion" of the review authority (e.g. staff or Planning Commission). In this system, standards are generally less specific and leaves more need for interpretation, thus requiring a more extensive, and sometimes subjective review process to ensure the intent is met. Projects often undergo multiple review loops to obtain approval.

Interpretation Often Depends on Which Staff Member and Which Day You Go In

Predictable, Clear Process is the Goal



^{*} All applications shall include required notice

Miami 21: (DPZ)

Is the Process Predictable for Community and Developer?



Triggered CUP Due to Size Threshold of 25,000 SF

Build Upon Lessons Learned form Latest Zoning Efforts



Broadway Valdez Specific Plan

2 Components

Important How They Come Together: Recipe and Preparation

FBC Components are Like Ingredients of a Proven Recipe

- I. Form-Based Zones
- 2. Frontage Types
- 3. Thoroughfare Types
- 4. Civic Space Types
- 5. Building Types
- 6. Regulating Plan: The Map



Zucchini Muffins Recipe

Print

Prep time: 25 minutes Cook time: 30 minutes

Yield: Makes 12-14 muffins

For those of you who prefer to use oil over butter, be my guest (use 1 cup vegetable oil instead of the butter) but I have to tell you, I've made these both ways, and the butter version tastes better.

If you are including both walnuts and dried fruit, you will likely have more batter than is needed for 12 muffins. I got about 14 muffins from this batch, and that included filling the muffin cups up as far as they could possibly go (above the surface of the muffin tin).

INGREDIENTS

- 3 cups grated fresh zucchini
- 2/3 cup melted unsalted butter
- 1 1/3 cup sugar
- 2 eggs, beaten
- 2 teaspoons vanilla
- 2 teaspoons baking soda
- ☐ Pinch salt
- 3 cups all-purpose flour
- 2 teaspoons cinnamon
- 1/2 teaspoon nutmeg
- 1 cup walnuts (optional)
- 1 cup raisins or dried cranberries (optiona

METHOD

You don't need a mixer for this recipe.

- 1 Preheat the oven to 350°F (175°C). In a large sugar, eggs, and vanilla. Stir in the grated zucci melted butter.
- 2 In a separate bowl, mix together the flour, backinnamon, and salt. Stir these dry ingredients is mixture. Stir in walnuts, raisins or cranberries
- 3 Coat each muffin cup in your muffin pan with vegetable oil spray. Use a spoon to distribute t equally among the cups, filling the cups up cor
- 4 Bake on the middle rack until muffins are gol

All Elements Coordinated and in One Location

Easy to Use and Administer: Clarity and Predictability

Effective Form-Based Zoning Districts

These are The Key Components

Operating System Based on Form: Think Simple





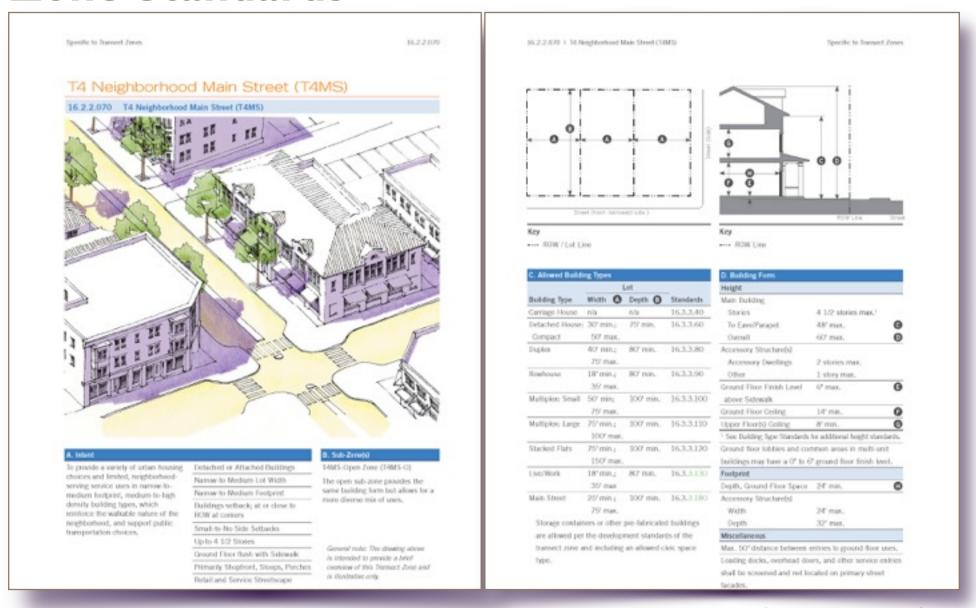




Overall Scale Setbacks Size of Uses

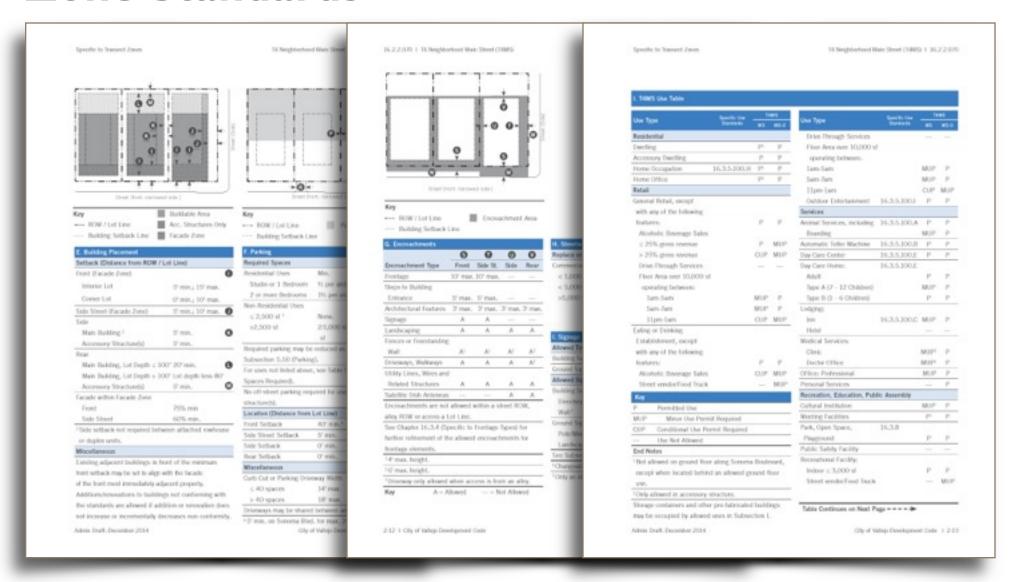
Clarity and Usability: Not Just About Adding Graphics

Zone Standards

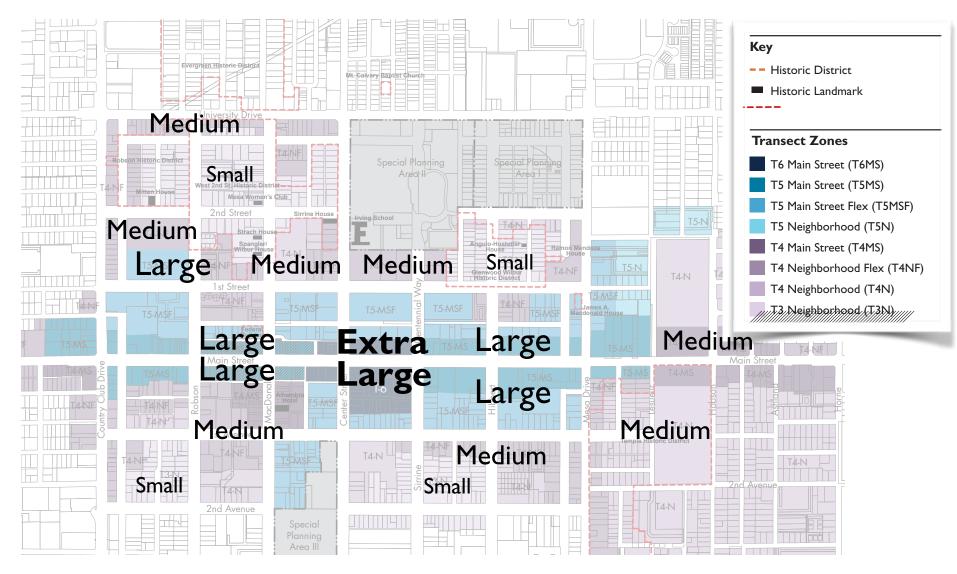


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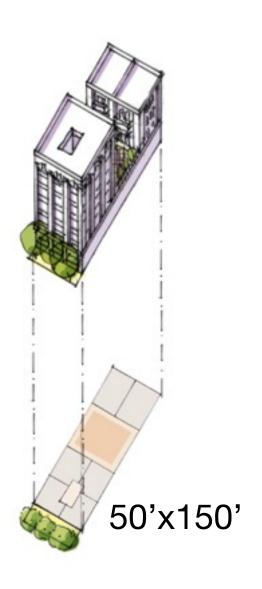


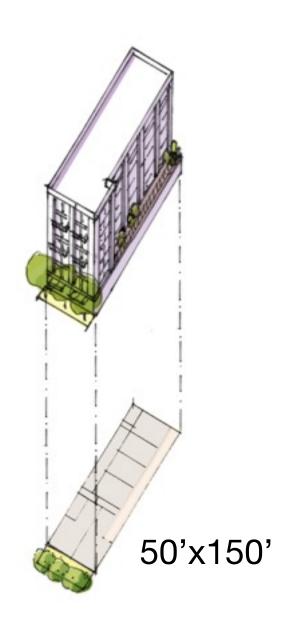
At Most Basic Level: Establishing a Hierarchy of Scale



What We Heard: Some Want Bigger. Some Want Smaller.

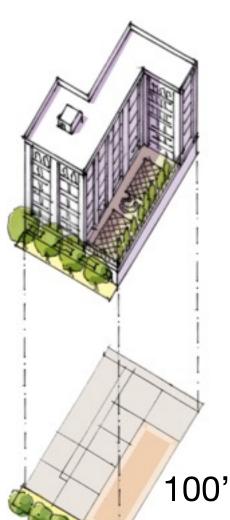
Building Types as "Ingredients of Place"

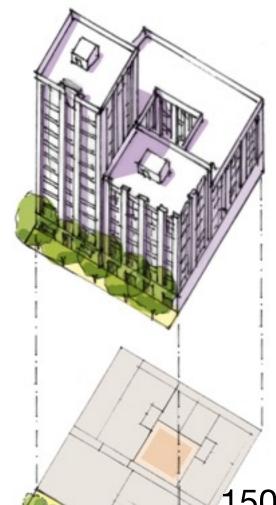






Building Types as "Ingredients of Place"







100'x150'

150'x150'

Standards

range of expectations

Specific to Transport Zonion 14 Neighberhood Main Street (18MS) 1 16-2 2 0/00 Buildable Area. III Acc. Structures Only +++ ROW / Lot Line Debing Associated - Building Setback Line | Facade Zone Building Setback Live E. Building Placement Setback (Distance from ROW / Lot Line) Required Spaces Front (Facade Jone) Residential Uses. Studio or 1 Bedroom - Ni per unit Interior Lat 9 min.; 19 max. Tri per unit 2 or more Bedrooms Corner Lot 0" min.; 10" max. Non-Residential Uses Side Street (Facade Zone) 5'min; 10'max. @ < 2.500 ut 1 52,500 st 211,000 st above first 2,500 Main Building 1 57 min. Accessory Structure(c) Required parking may be reduced as set forth in Subsection 5.50 (Parking). Main Building, Lot Dopth s 100° 20' min. For uses not listed above, see Table 5.50.A (Parking Main Suiting, Lot Dopth > 100" Lot dopth loss 80" Accessory Structurebil No off-sheet parking required for uses will've accessory. Facade within Facade Ziese Location (Distance from Let Line) Front Sorback Side settack not required between attached markuse. Side Street Settack 0 O' resid or duplex units Sate Sethack O'me. Miscellaneous Boar Setback O' min. Existing adjacent buildings in bord of the minimum Miscellaneous front setback may be set to align with the facade. Corb Cut or Parking Driveway Wells of the best most immediately adjacent properly. 14" max. is 40 spaces. Additions/renovations to buildings not conforming with > 40 spaces. 18' max. the standards are allowed if addition or removation does. Driveways may be shared between adjacent parcels. not increase or incrementally decreases non-conformity. 45' min, on Sonoma Blvd, for max, 25% of site. Adrie Draft December 2014 Obj. of Baltip Development Code: 1,2-11.

Medium Lot: Mixed-Uses

A mix of uses promote walkability, with retail or



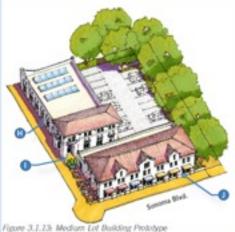
Figure 3.1.12: Medium Lot Building Prototype

- Tuck-under rowhouses and stacked flats are arranged to create. a private courtyard and shared green space for residents; a low wall holds the street edge.
- Retail use anchors the comer.
- Rowhouses face Sonoma Blvd. with dooryards and rooftop terraces.

Medium Lot: Mixed-Use Metr	ics
Building Type(s)	Main street; Stacked Flats with courtyard; Live/Work
Lot Size	129' x 196"
Lot Square Feet	25,160 sf
Lot Acreage	.58 ac
Number of Units	14
Resultant Density	24.1 dula
Square Feet per Floor	7,400 sf (MU)
Total Square Footage	22,200 sf (MU)
Average Unit Size	25' x 30' x 3 floors = 2,250 sf (TH 1,000 sf (apartment)
Open Space Square Footage	1,000 sf

2 of the tested outcomes

Medium Lot: Commercial



- (3) Single-story commercial building on side street with lobby and
- Pedestrian passage provides access to a shared parking lot.
- Commercial main-street building with ground-level retail along Sonoma Boulevard and offices above; outdoor seating activates the comer.

Building Type(s)	Main street buildings (2)
ot Size	129' x 199'
ot Square Feet	25,160 st
Lot Acreage	.58 ac
Number of Units	
Tesultant Density	+1
Square Feet per Floor	6,000 sf
Total Square Footage	17,500 sf
Average Unit Size	
Open Space Square Footage	1,500 sf
Parking Count	22 on site / 13 on street

Within Zones Hierarchy of Form and Scale Should be Clear Less Urban More Urban

T3 T4 T5 T5 Neighborhood I (T5N.I) T4 Neighborhood I (T4N.I) T3 Estate (T3E) T3 Neighborhood (T3N) T4 Neighborhood 2 (T4N.2) T5 Neighborhood 2 (T5N.2)

Form Hierarchy Should be Obvious: Cincinnati, OH

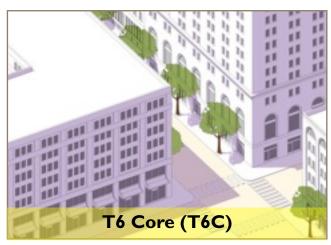
Less Urban More Urban

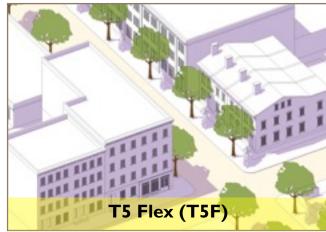


T5 (continued)

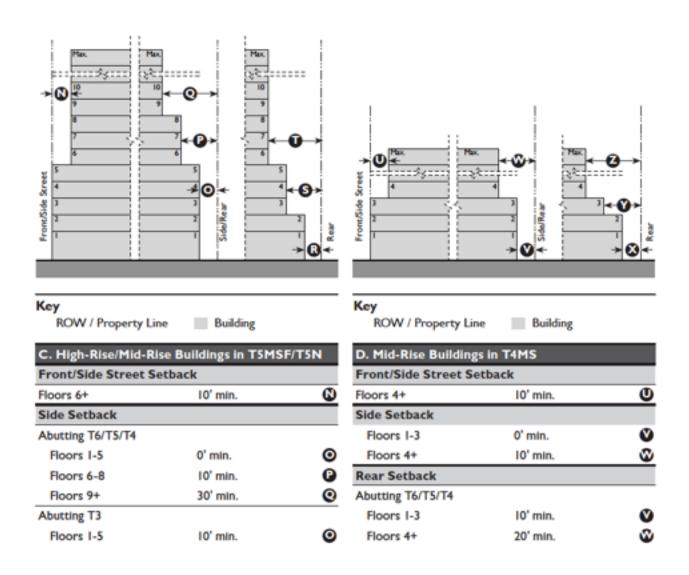


T6



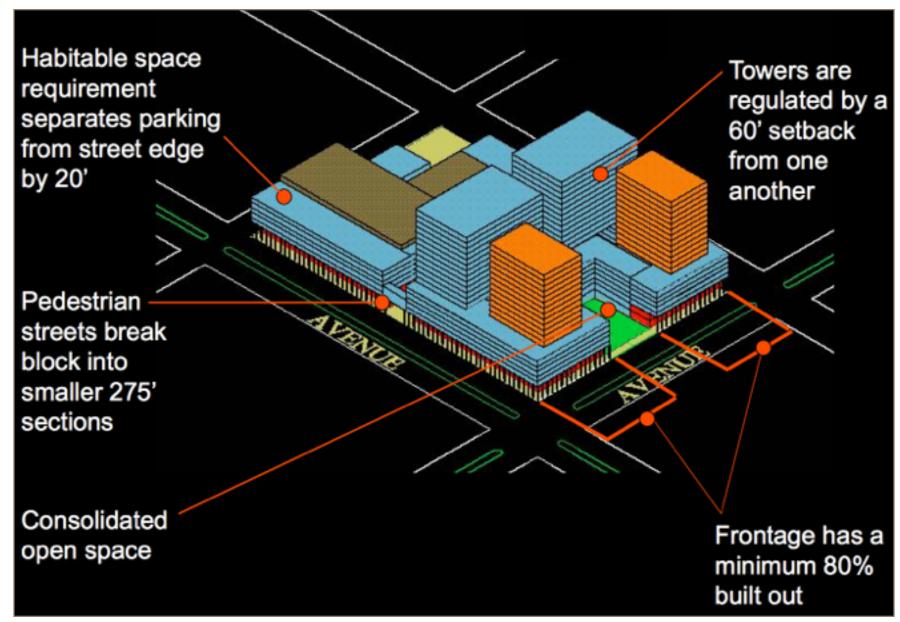


Transitions Between Scales Directly Regulated within Zoning District Standards



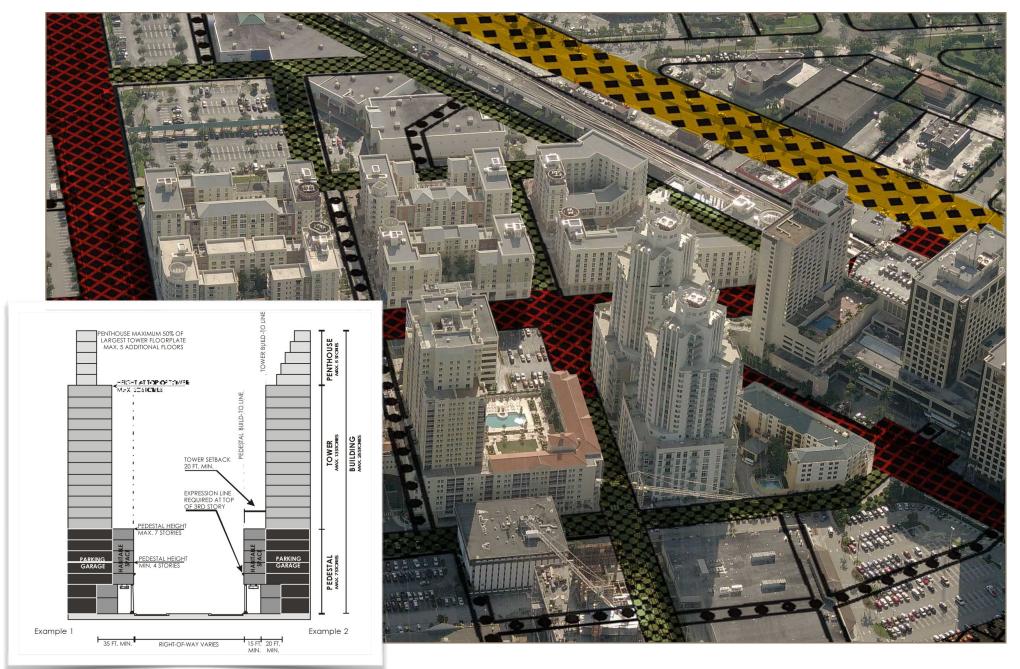
Predictable Outcome: Vs Difference Btwn 2.5 and 3.0 FAR

Regulating the Specific Desired Form of Urban Buildings



Miami-Dade County, FL Dover, Kohl & Partners

Varied Urban Scales and a Vibrant Public Realm



Some Thoughts on Projects "On the Boards"

Carefully Considering Tower Bulk - Not Just Height

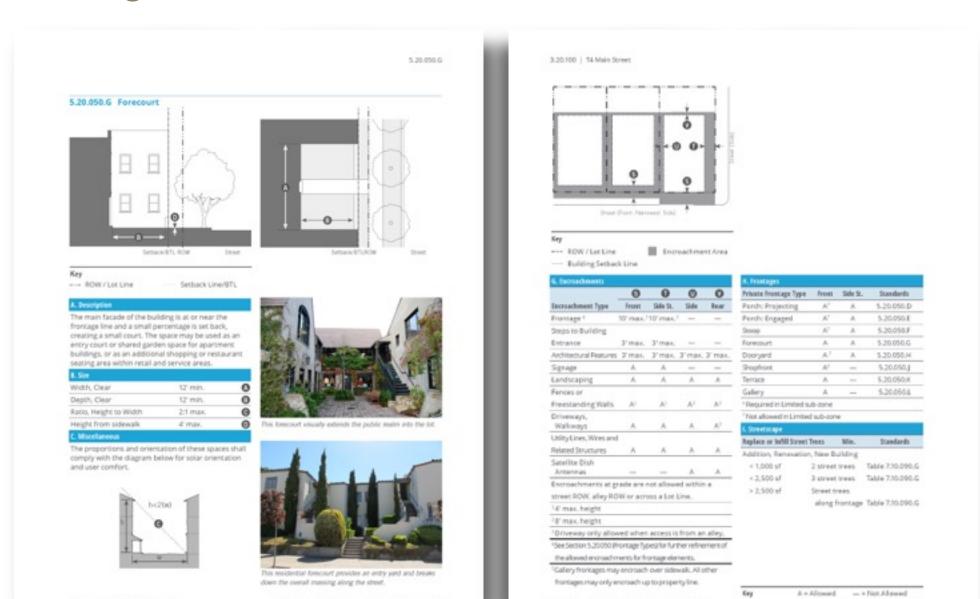


Carefully Considering Tower Bulk and Context - Not Just Height

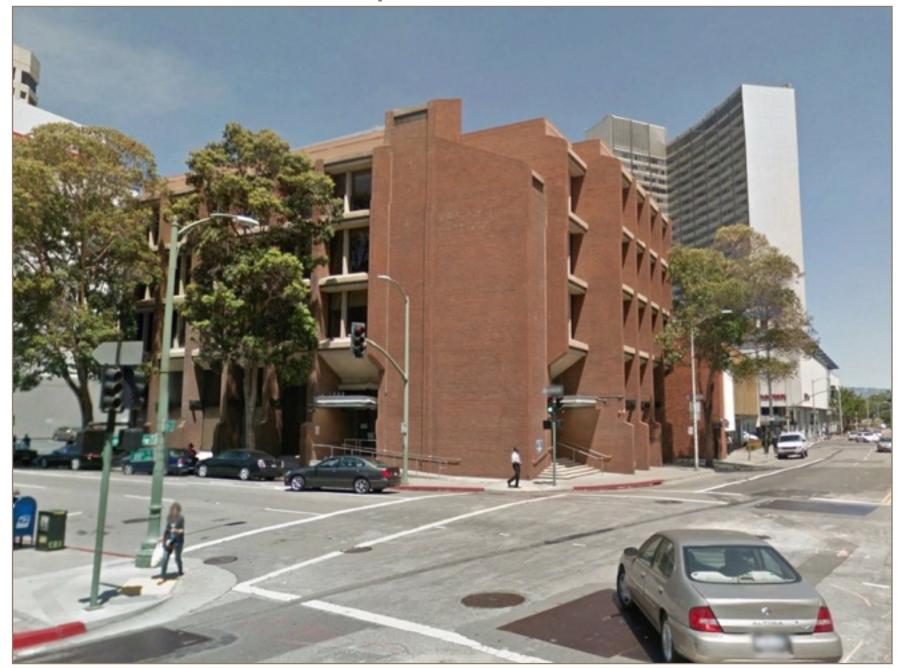




Frontage Standards



You Have Some Examples of What to Avoid



This Transition is Very Important to Regulate!



Good Shopfronts are In Demand by Businesses

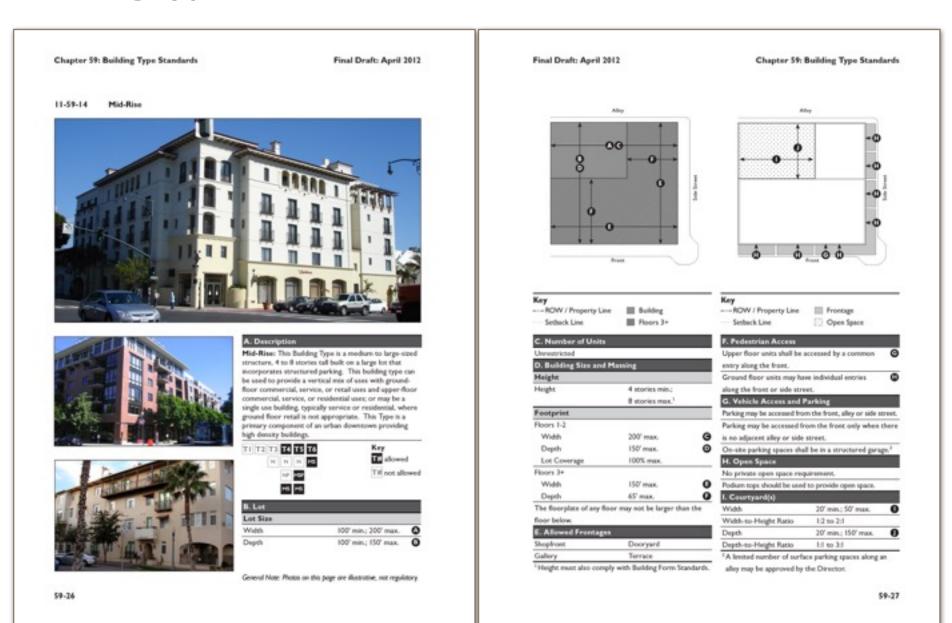


Residential Frontages are Important



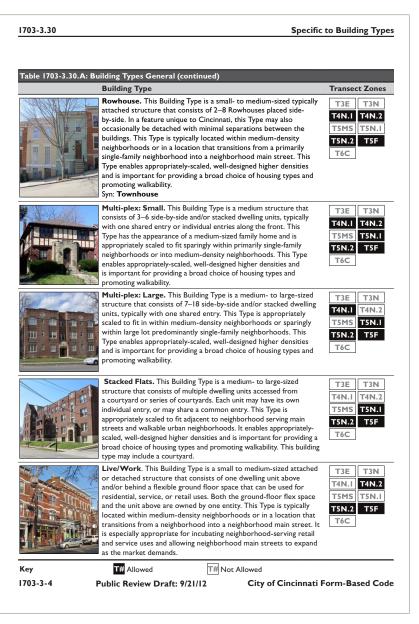
Buildings and their lots shape the streetscape through a variety of ways or "types"

Building Type Standards

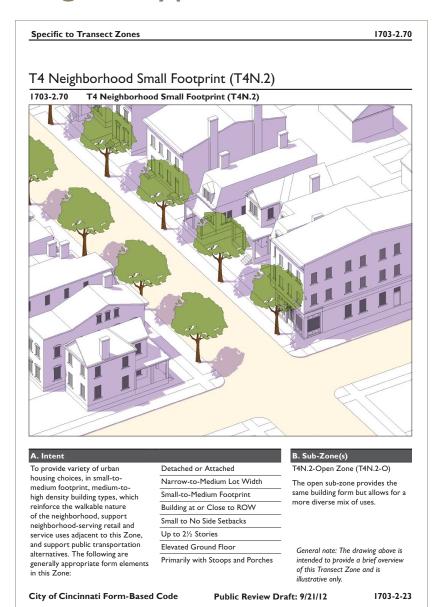


Group of Building Types Calibrated for the City

Specific to Building Types 1703-3.30 Table 1703-3.30.A: Building Types General **Building Type** Transect Zones Carriage House. This Building Type is an accessory structure T3E T3N typically located at the rear of a lot. It typically provides either a T4N.I T4N.2 small residential unit, home office space, or other small commercial or service use that may be above a garage or at ground level. This T5MS T5N.I Type is important for providing affordable housing opportunities T5F T5N.2 and incubating small businesses within walkable neighborhoods. T6C Detached House: Medium. This Building Type is a medium-sized T3E T3N detached structure on a medium-sized lot that incorporates one T4N.2 unit. It is typically located within a primarily single-family residential T5N.I neighborhood in a walkable urban setting, potentially near a T5MS neighborhood main street. T5N.2 T5F T6C Detached House: Compact. This Building Type is a small T3N detached structure on a small lot that incorporates one unit. T4N.2 T4N.I It is typically located within a primarily single-family residential neighborhood in a walkable urban setting, potentially near a T5N.I neighborhood main street. This Type enables appropriately-scaled, T5N.2 T5F well-designed higher densities and is important for providing a T6C broad choice of housing types and promoting walkability. Cottage Court. This Building Type consists of a series of small, T3N T3E detached structures, providing multiple units arranged to define T4N.I T4N.2 a shared court that is typically perpendicular to the street. The shared court takes the place of a private rear yard and becomes an T5N.I important community-enhancing element of this Type. This Type is T5N.2 T5F appropriately-scaled to fit within primarily single-family or medium-T6C density neighborhoods. It enables appropriately-scaled, well-designed higher densities and is important for providing a broad choice of housing types and promoting walkability. Duplex. This Building Type is a small- to medium-sized structure T3N that consists of two side-by-side or stacked dwelling units, both T4N.1 T4N.2 facing the street and within a single building massing. This Type T5N.I T5MS has the appearance of a medium to large single-family home and is appropriately scaled to fit within primarily single-family T5N.2 T5F neighborhoods or medium-density neighborhoods. It enables appropriately-scaled, well-designed higher densities and is important for providing a broad choice of housing types and promoting T# Allowed T# Not Allowed City of Cincinnati Form-Based Code Public Review Draft: 9/21/12 1703-3-3

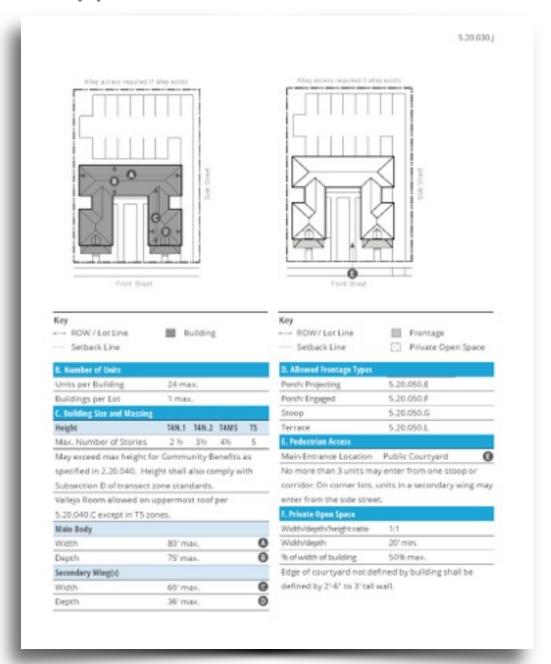


A Range of Types are Allowed Within Each Zone

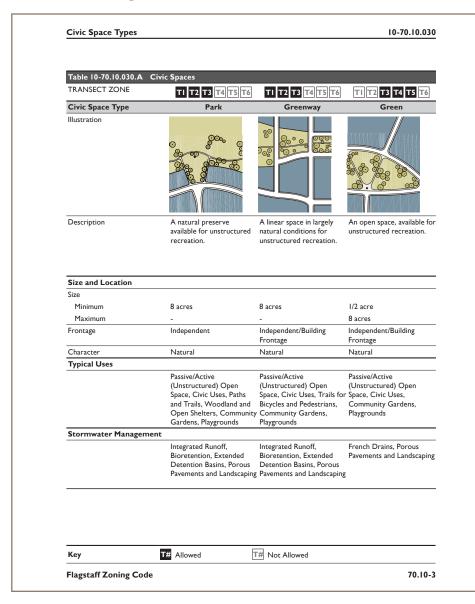


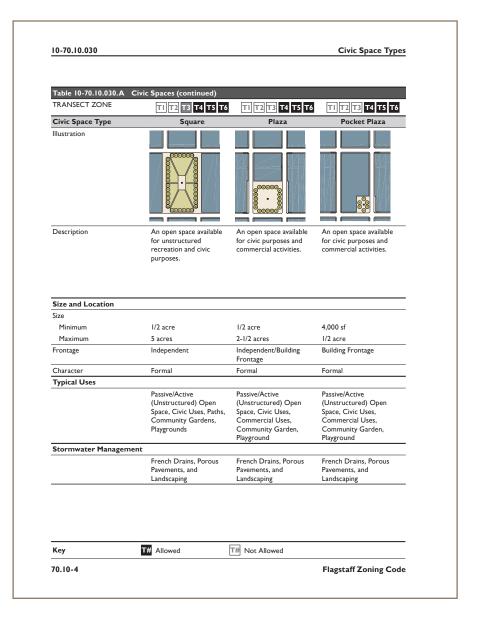
Duilding Type	Lot		· Standards
Building Type	Width A	Depth B	· Standards
Carriage House	n/a	n/a	1703-3.40
Detached House:	30' min.;	75' min.	1703-3.60
Compact	50' max.		
Cottage Court	75' min.;	100' min.	1703-3.70
	100' max.		
Duplex	40' min.;	100' min.	1703-3.80
	75' max.		
Rowhouse	18' min.;	80' min.	1703-3.90
	35' max.		
Multi-Plex: Small	50' min.;	100' min.	1703-3.100
	100' max.		
Live/Work	18' min.;	80' min.	1703-3.130
	35' max.		

Each Type Has Supplemental Form Standards

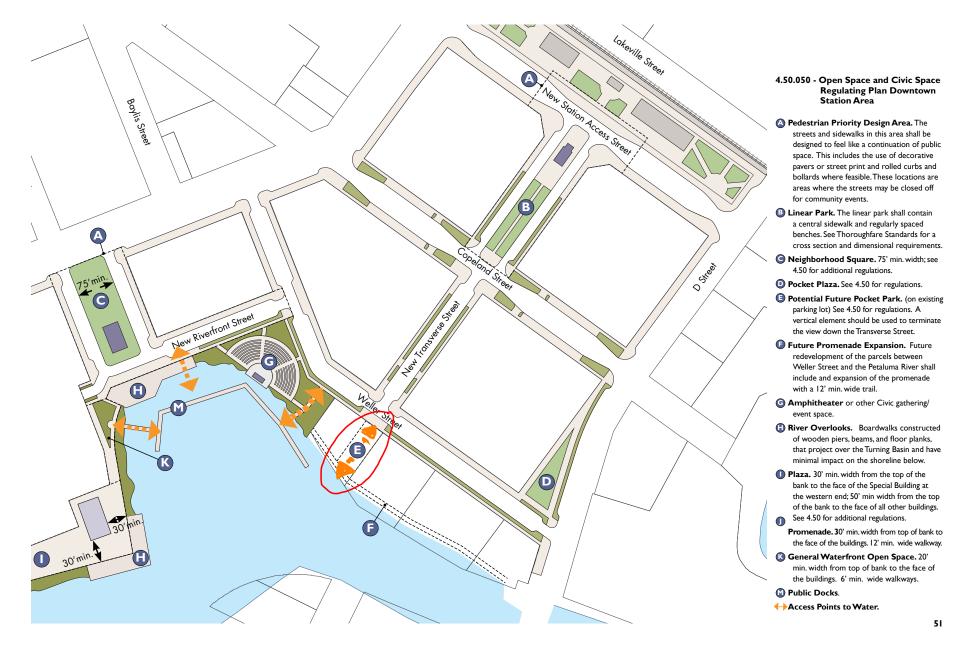


Civic Space Standards

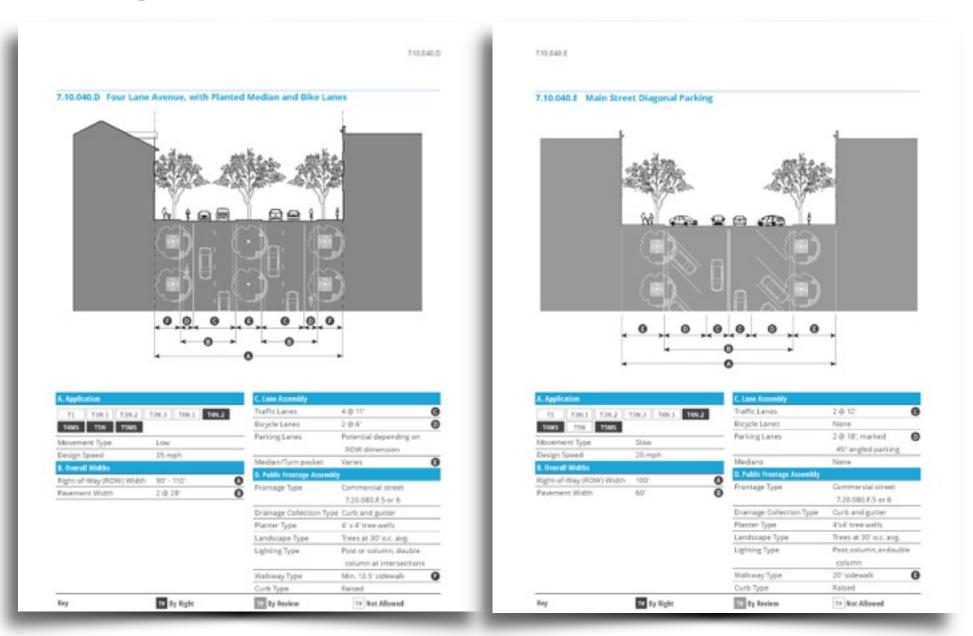




Defining a Network of High-Quality Public Spaces



Thoroughfare Standards



Public Spaces for People Rather than Cars

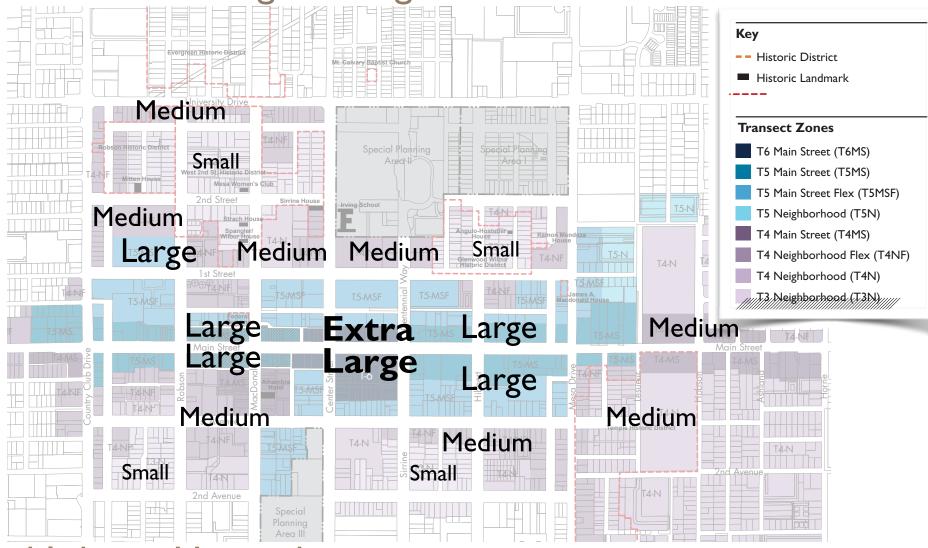


Oakland, CA Downtown Oakland Specific Plan

Zoning Map/Regulating Plan: Utilizing a More Detailed Assessment of Existing Conditions to Inform the Mapping

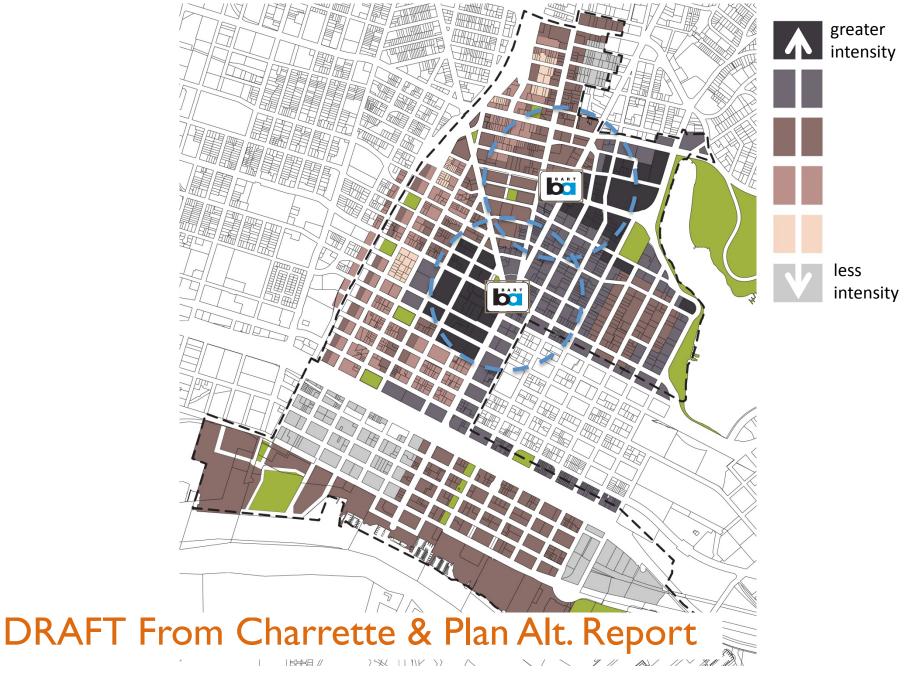
Sharpening the Tool

Mapping New Zoning: More Detailed Assessment of Existing Conditions: Existing Buildings, Lots Sizes, Etc.

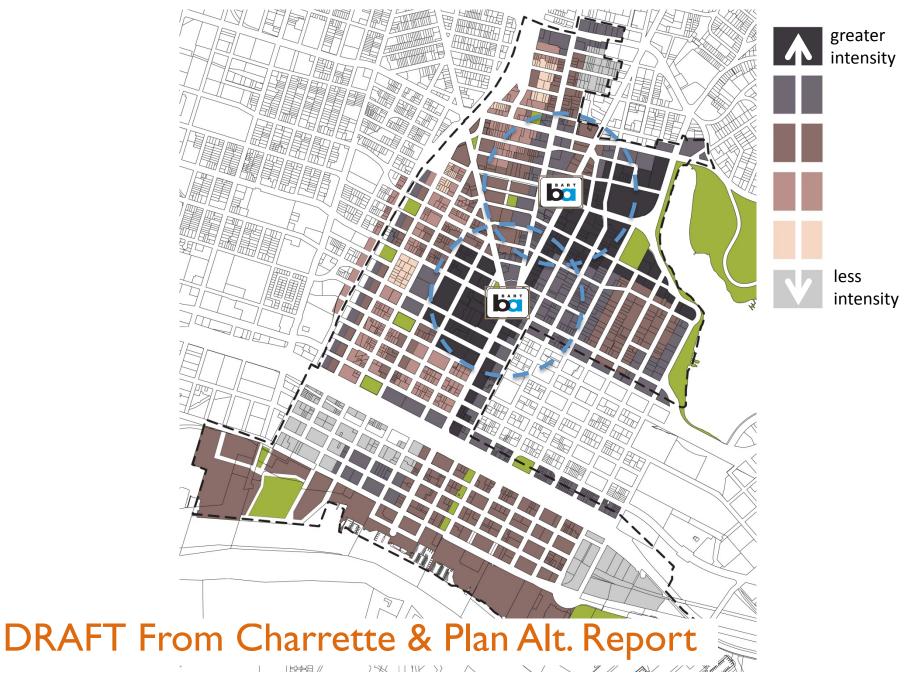


Establishes a Hierarchy
Transitions Between Scales More Effective and Direct

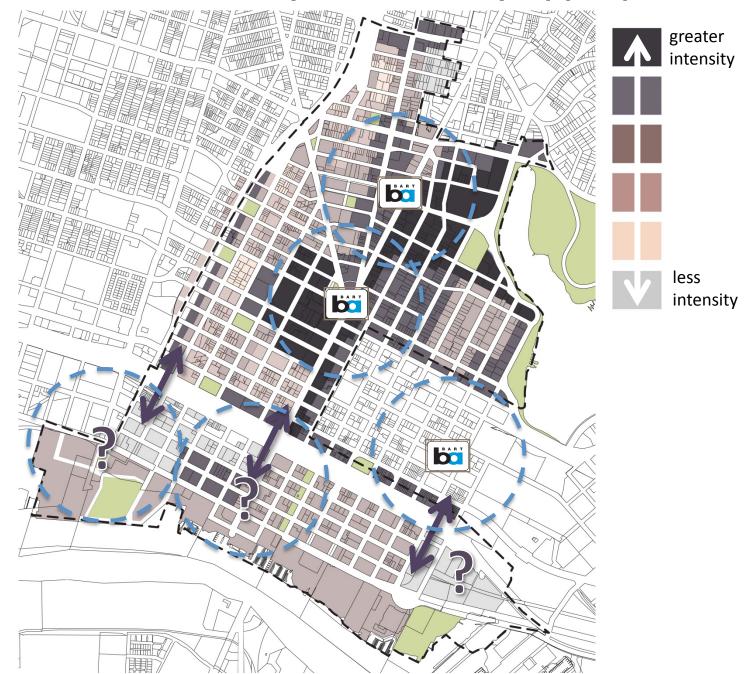
Charrette Intensity Diagram: Preserve exist. neighborhoods



Greater intensity where contextually appropriate...



Where is additional intensity contextually appropriate?



Form-Based Code Components: Optional

- 1. Sustainability Standards
- 2. Green Building Standards
- 3. Architecture & Landscape **Architecture Guidelines**
- 4. Stormwater Management
- 5. Etc.



Form-Based Code **Defines This**



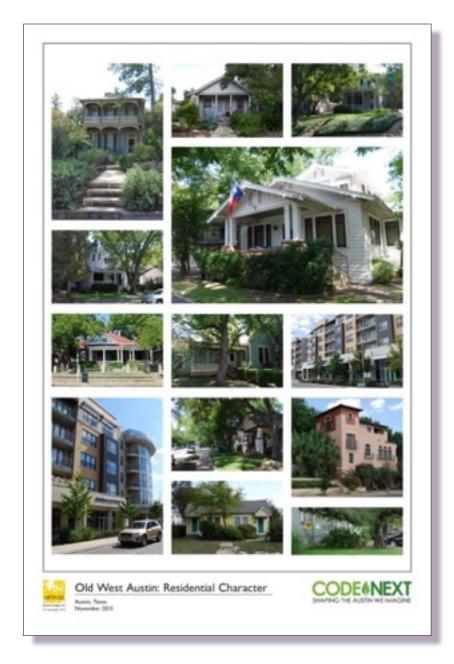
This is The Architecture

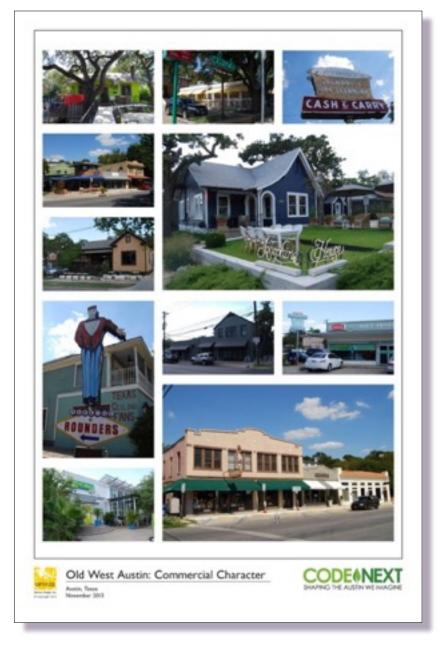
3 The Three-Step Process

Step 1: Documentation and Analysis

Extracting the DNA of a Place

Starts with Extensive Photo Documentation





No Other Zoning Approach Is as Rooted in Places

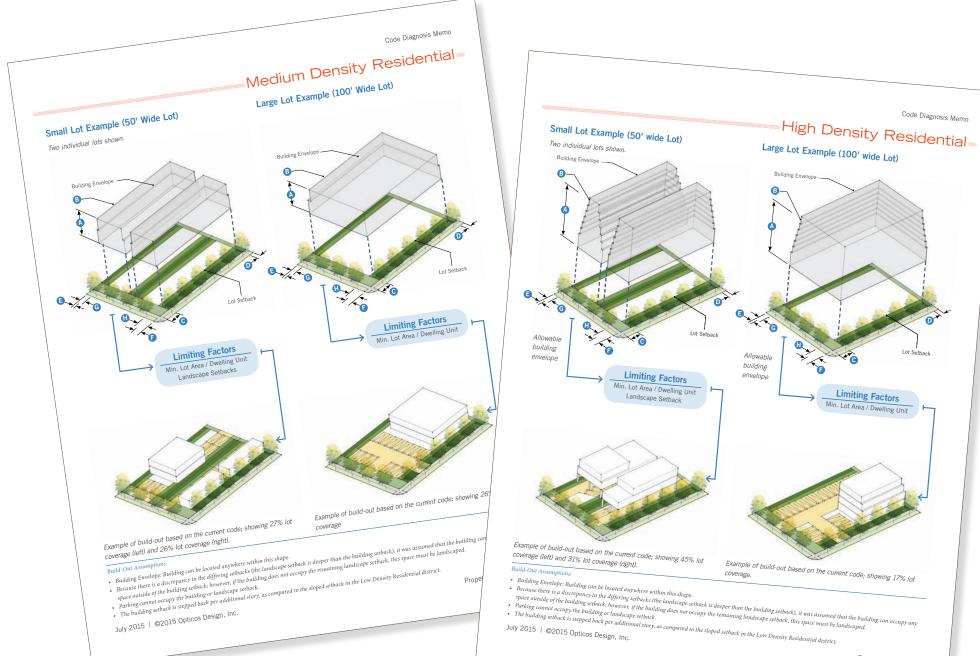
Both parcels zoned CBD-R.







Start with Graphic Diagnosis of Existing Zoning Districts



Code Diagnosis Memo

Step 2: Creating a Detailed Visioning

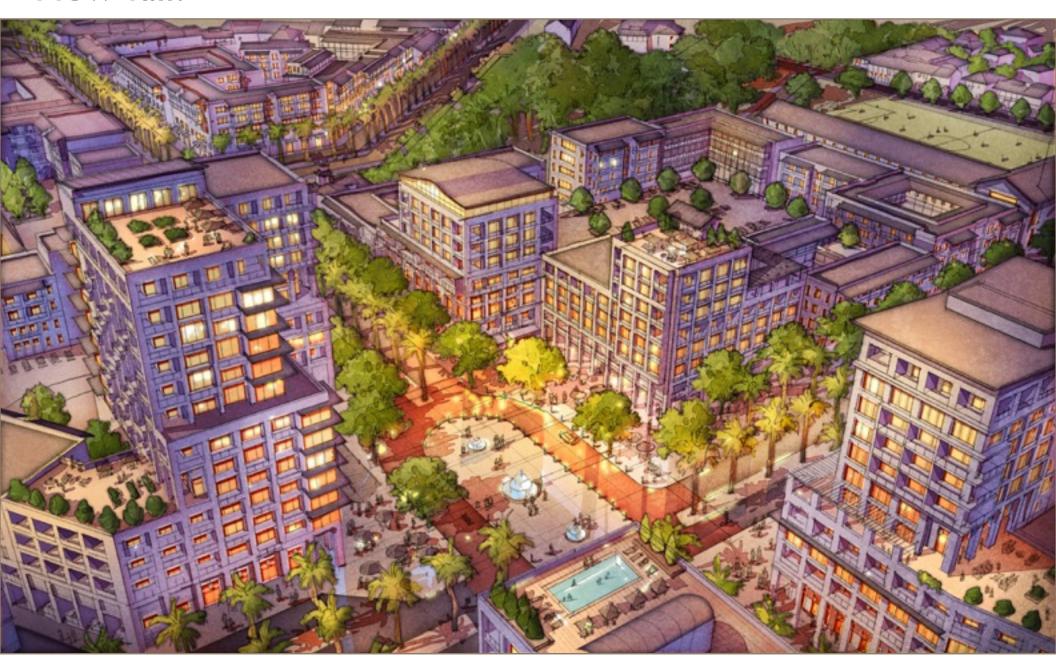
Need a Vision First: Code Then Implements the Vision

How Tall?



Gabon, Libreville

How Tall?



Gabon, Libreville

Public Engagement is Key Including Multi-Day Charrettes





"I was originally concerned that the multi-day charrette process would not be effective with our challenging community. Opticos adjusted the process to meet our needs, and in the end the charrettes were a huge success in terms of building public support and excitement about the project."

~Scott Duiven, City of Petaluma's City Manager's Office

Designing In Public: Illustrating Specific Alternatives

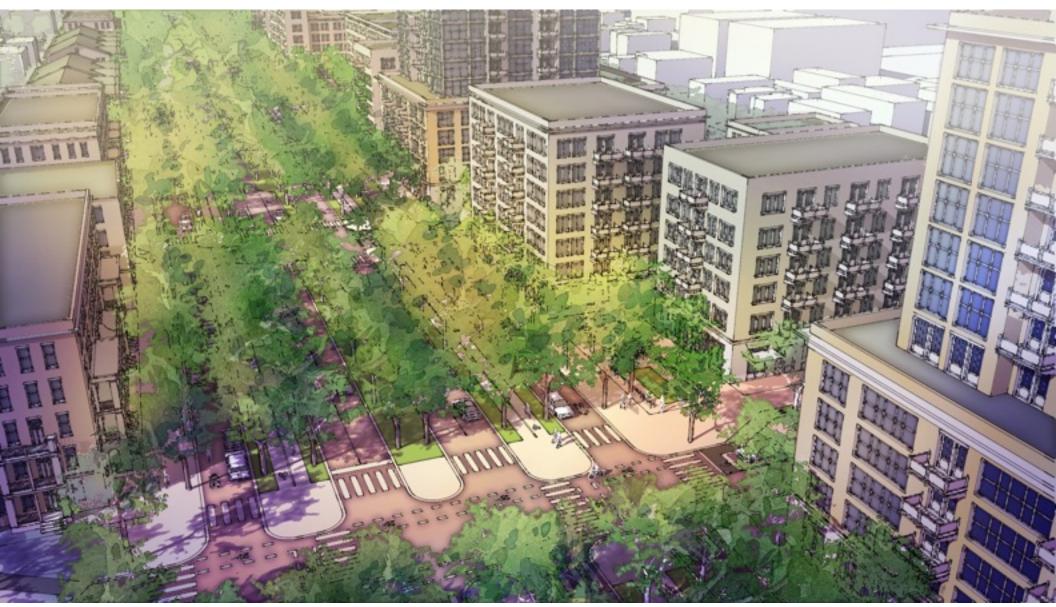








Weaving the Downtown into Adjacent Neighborhoods



Downtown Oakland Specific Plan

Conclusion

A Few Closing Thoughts

Considering Sustainability and Urban Agriculture



T3: Single Family and Carriage House

Strategic Shading.

Glazing. Design glazing to heat the structure from the south, and cool through cross-ventilation.

Water Infiltration. Allow water to percolate in sub-surface conditions.

Greenway. Use the greenway as a stormwater capture, conveyance and treatment feature.

South-Side Planting. Consider solar access on the south side of buildings when planting landscape.

Public/Private Portal.

Compost Bins. Require compost bins with instructions for homeowners.

Urban Farming. Encourage small-scall cultivation.

No Hose Bibs. Exclude external hose bibs from home design, thereby irrigating only by rain barrel or reuse water.

Rain Garden. Provide lot treatment rain gardens.

Flow-Through Stormwater Treatment Planter.



T4: Live/Work Building

Active Space. Allow some portion of outdoor space to be used for public open-space, potentially active space.

Retractable Awnings. Encourage the use of retractable awnings in storefront design, to protect from the summer sun.

Outdoor Seating. Encourage establishments to provide outdoor seating and outdoor spaces.

Car Charging Stations. Provide electric charging stations to promote the use of alternate-fuel

Recycling and Compost Bins. Encourage establishments to have an area for compost and recycling bins, in addition to trash bins..

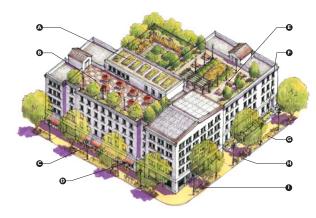
Vegetated Roofs. Promote vegetated roofs, skylights or directed sunlight to improve the quality of life in interior apartments.

Residential Access. Provide residential access to flat rooftops, creating usable open space.

Private Driveway. Require minimal curbcuts and curb return radii.

Roof Materials. Use high SRI roof materials where PV or vegetated roofs are not practical.

Covered bicycle storage.



T5: Mid-Rise Building Type

Urban Rooftop Farming/Gardening.

Roof Access. Encourage rooftop access to maximize value of views and open space.

Outdoor Seating. Activating sidewalk space in front of mixed-use development encourages community vitality..

Awnings. Awnings provide street-level shading and rain shelter.

Diverse Rooftop Usage. Encourage both commercial and residential use of roof space.

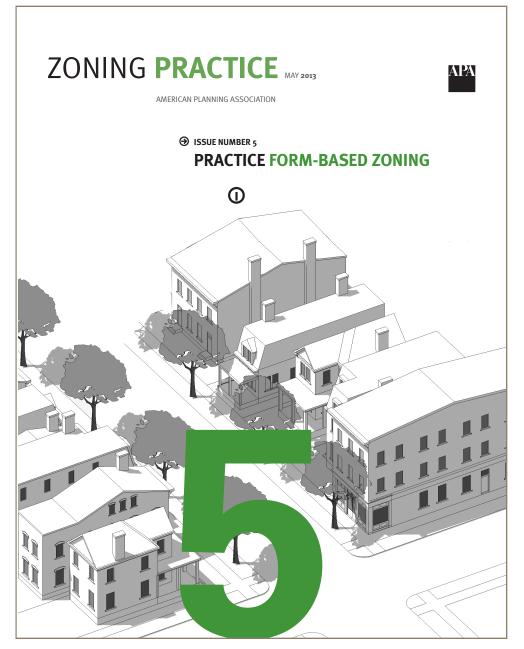
Urban Gardening. Garden space available for residential tenants..

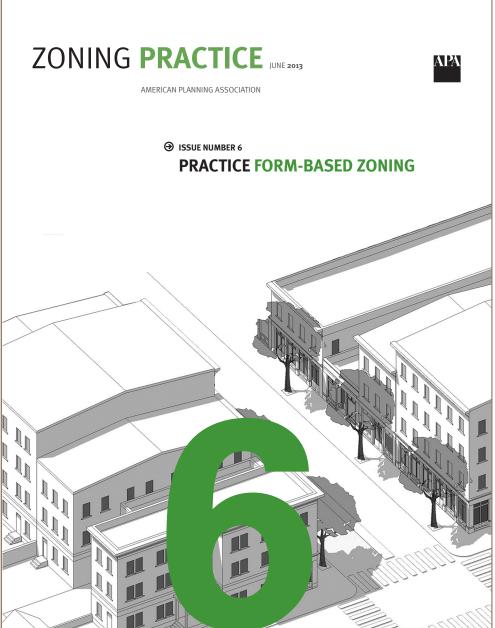
Bioswales. Bioswales improve stormwater quality, mitigate urban flooding, and give opportunity for infiltration where subsurface conditions allow..

Bike Racks. Encourage tenants and patrons to cycle by providing regular amenities for bike parking.

Street Trees. Tree boxes/wells improve thermal comfort and street character..

A Good Resource:

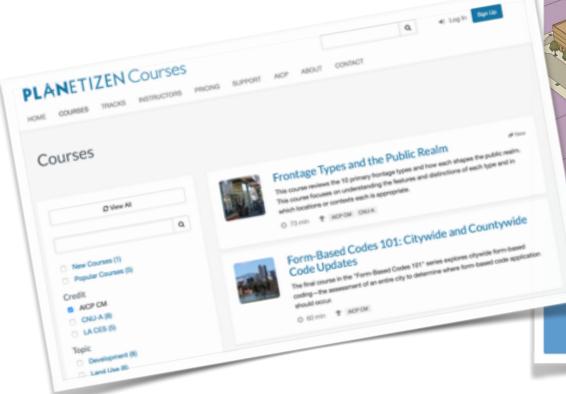




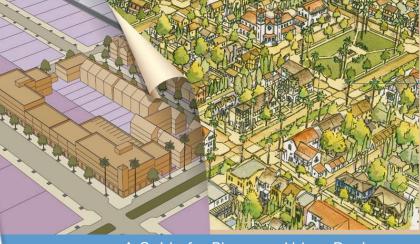
Good Resources for Form-Based Codes:



www.form-basedcodes.org



Form-Based Codes



A Guide for Planners, Urban Designers, Municipalities, and Developers

Daniel G. Parolek, AIA • Karen Parolek • Paul C. Crawford, FAICP Forewords by Elizabeth Plater-Zyberk and Stefanos Polyzoides

Operating System Based on Form: Think Simple









Overall Scale Setbacks Size of Uses END