Form-Based Zoning: What Place is this Code?

by

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Abstract
Form-based zoning is a relatively recent innovation in zoning reform. Many cities in the U.S. have adopted form-based codes in lieu of or as a supplement to conventional zoning and many more are in the process of studying and legislating this alternative. Form-based codes focus on the physical form of the built environment by prescribing parameters for physical form representing a specific intent for the public realm. Typically, form-based codes consist of regulating plan(s), urban standards (building envelope standards and streetscape/thoroughfare standards), and architectural standards.
This thesis questions if the 'product' of form-based codes, i.e. the place imagined as a consequence of form-based codes, is differentiable based on place character. Place character refers to certain physical qualities based on location (loci) as well as certain perceptual qualities based on the life in these spaces (genius). This thesis hypothesizes that form-based could certainly result in quality urban spaces but the essential character of these spaces could be singular and indistinguishable from place to place. In order to examine this proposition, this thesis follows the terrain of a representative sample of form-based codes, which are studied as a proxy for the places that are intended as a consequence of implementation. The narrative for each code, which could be described as a specific interaction between the conceptual framework of the code and the contextual framework of a place, is dissected along specific cross-sections, such as geography, chronology, scale/structure, intent, typology, and fit. In addition, qualitative correlations across cross-sections were used to explain patterns observed in the cross-sections. A secondary question posed by this thesis examines the impact of factors peripheral to the code, such as the place itself, the process, the people involved, and the policy framework, on this lack of differentiation based on place character. This thesis concludes that form-based codes, as a conceptual framework, possess the structure and flexibility to be responsive to a place-based contextual framework. The lack of place character is a consequence of the limited narratives that define the intent of the code with respect to place and classify the code typologically. This is partially influenced by the current association of form-based codes with New Urbanism. In addition, this lack of differentiation based on place character is not necessarily endemic to the code itself but a consequence of factors peripheral to the code, i.e. processes that precede the code and/or processes that follow the code.
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To the love of my life
All this would mean nothing, if I couldn’t share it with you.

Shilpa.
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Form-Based Zoning: What Place is this Code?

"Would you tell me which way I ought to go from here?" asked Alice.

"That depends a good deal on where you want to get," said the Cat.

"I really don't care where" replied Alice.

"Then it doesn't much matter which way you go," said the Cat.

Lewis Carroll, Alice's Adventures in Wonderland (1865)
Many cities, across the globe and in North America, find themselves at a crossroad regarding the future of development in their urban and suburban areas. Faced with uncontrolled sprawl and continued disinvestment in urban areas, citizens and public officials alike are questioning the adequacy of conventional zoning in addressing these issues. In the ensuing debate, the reflex to address the underlying issues ('where you want to get') is the dominated by the impulse to simply reform zoning ('really don't care where'). Form-based zoning is a relatively recent innovation in zoning reform. Many cities in the U.S. have adopted form-based codes and many more are in the process of studying and legislating this alternative to traditional zoning.

Conventional zoning practices, based in segregating land uses, controlling density, and regulating bulk/massing instead of form, are considered the anathema to 'good' urbanism and blamed for the prevalent 'placelessness' of urban/suburban development. Form-based codes focus on formal aspects of the built environment by prescribing parameters for building form based on specific intentions for the public realm, which is central to the form-based prescription. While form-based codes are best classified under the rubric of zoning reform, this alternative to conventional zoning does attempt to restructure urban/suburban development (Robbins, 2004) in a particular direction based on an integral visioning process. At present, form-based zoning is probably the most visible and controversial regulation mechanism in urban design and planning. Proponents of form-based codes extol the place-making potential inherent in the form-based focus and critics question if these codes actually represent a 'new' approach to urban place-making that is substantially different from conventional zoning.

This thesis questions if the product of form-based codes is differentiable based on place character. The product of form-based codes is the place imagined as a consequence of the form-based codes. The essential premise of this thesis is as follows: While form-based codes could certainly result in quality urban places, the essential character of these places, the 'genius loci' or 'spirit of place', could be singular and indistinguishable from place to place. In order to answer this question, certain terms of reference, such as 'place' and 'placelessness', require clarification. A 'place' is a 'space' that has a distinct character. Whereas space denotes the three dimensional organization of the elements which make up place, 'character' denotes the general
atmosphere, which is the most comprehensive property of any place. In the true sense of the word, spaces where life occurs are places (Norberg-Schulz, 1980). In that sense, ‘place-character’ refers to certain qualities based on physical location, ‘loci’, and other perceptual qualities based on life in spaces, ‘genius’. ‘Placelessness’ refers not only to the lack of place-character (genius) but also to a lack of differentiation between places based on locational distinction (loci).

Therefore, it follows that ‘place-making’ is not limited to the physical design of spaces but includes all the events and activities that occur in the space. With this concept comes the notion of urban design as the design and management of the ‘public realm’ – defined as the public face of buildings, the spaces between frontages, the activities taking place in and between these spaces, and the managing of these activities, all of which are affected by the uses of the buildings themselves, i.e. the ‘private realm’ (Carmona et al, 2003). This approach entails a different scope for regulation of urban design and planning.

**Methodology and Structure**

The prevalent definitions of form-based codes encompass many aspects of place-making. In order to address the primary question of this thesis, it is important to understand the breadth of these definitions and clarify the role of form-based codes as a regulatory mechanism in the place-making tradition. The following chapter locates form-based codes in the context of zoning and defines form-based codes in the context of place-making. This chapter also explains the structure of form-based codes, which establishes the framework for interpreting the case studies.

Chapter Three focuses on the ‘product of form-based codes’. This thesis follows the ‘terrain’ of a representative sample of form-based codes. These case studies are a proxy for the places that the codes represent, the product of form-based codes, and hold clues about the intended ‘genius loci’ (Norberg-Schulz, 1980). Each case study represents a customized interaction between a ‘code’ (conceptual framework) and a ‘place’ (contextual framework), which could be described as a ‘narrative’. Individually dissecting these narratives along specific cross-sections, such as geography/location, chronology, typology, scale/structure, intent, and fit, could reveal patterns of similarities and differences (Fig. 1-1). Each of these cross-sections impact specific aspects of place-character and place-making. In addition, qualitative correlations across
Methodology - Narratives and Cross-sections
codes and cross-sections, could explain certain patterns observed in the codes along specific cross-sections. This process of layering information and inferences from codes across different cross-sections illustrates the complexity of place-making and demonstrates the malleability of form-based codes.

A secondary question that follows is if this lack of differentiation based on place-character is a result of the code itself or of issues peripheral to the code, i.e. the place itself, the people involved, or the policy framework. Chapter Four addresses the breadth of this question using inferences from the cases studied, supported by literature related to the economics, sociology and, politics of post-modern urbanism and New Urbanism. Recognizing the shear breadth of the influence of form-based codes and the factors that shape these codes is an important step towards making these codes and other regulatory mechanisms more responsive to place.

The concluding chapter addresses this issue of responsiveness to place, questions the role of regulation and codes in shaping place, and reiterates the complexity of place-making as a multi-disciplinary endeavor. It is important to remember that a single instrument or tool is only part of a larger ensemble and this recognition could reveal possible interventions and directions for change.

Related Literature

Form-based codes are deeply rooted in New Urbanism, a postmodern urban design movement, and are frequently referred to as New Urbanist Codes. Most literature on form-based codes is embedded in literature related to postmodern urbanism and/or New Urbanism. Form-based codes used as case studies and articles/commentary specifically related to the case studies are the primary source of information for this thesis.

In addition, this thesis references two previous academic works on form-based codes. The first is a major paper titled "Form-Based codes: A Cure for the Cancer called Euclidean Zoning?" submitted by Jason Burdette in 2004. This paper examines whether form-based codes are a viable solution to the ills associated with Euclidean zoning and concludes that form-based codes are not a panacea to the ills of Euclidean zoning but could successfully trigger progressive thinking about land regulation, community building and public participation, conditional to adjustments in the current regulatory framework (Burdette, 2004).
The second is a master’s thesis titled ‘From Form to Function: An evaluation of the Effectiveness and Potential of Form Based Zoning Codes’ submitted by Todd Kohr. This thesis focuses on three research questions: (1) Are form-based codes a fundamentally different alternative to Euclidean zoning, or are they simply a re-packaged version of design guidelines? (2) Do form-based codes spur better development (in New Urbanist terms) than traditional zoning ordinances? (3) Are form-based codes appropriate for use across the entire range of development environments (i.e. urban, suburban, and rural areas)?

This thesis concludes that form-based codes are fundamentally distinct from Euclidean zoning and urban design guidelines, appear to yield more consistent, democratic, contextual, and community-friendly development, and the success of form-based codes seems to be tied less to the scale of development within which it is applied than to the levels of political and economic support that accompany it (Kohr, 2004).

This thesis titled ‘Form-Based Codes: What Place is this Code?’ locates form-based codes in a place-based context in order to elaborate on the contextual response (physical, social, cultural, and political) issue raised by the previous works. In both cases, the authors appear to laud form-based codes conditional to substantive contextual grounding. This thesis hypothesizes that while form-based codes have the requisite definition and structural malleability to be contextually responsive, the perceived lack of differentiation based on place could be a condition of issues peripheral to the codes.
Chapter 2  

Understanding Form-Based Codes

This chapter is an introduction to form-based codes; the context, prevalent definitions and structure of form-based codes. Form-based codes, as with conventional zoning, were a result of evolving trends in urban planning and design. In order to understand the role of form-based codes in shaping urban/suburban places, it is important to place form-based codes in the context of prevalent zoning practices and urban design traditions of the last century.

In the Context of Zoning

Zoning, in the U.S., is based on the power to police land development on the pretext of advancing a community’s health, safety, general welfare, and, some argue, morals. The origins of modern zoning were in New York City in 1916 as a land use regulation instrument, but the zoning practices prevalent in most states today were enabled by the federal government in the early 1920s, through the Standard Zoning Enabling Act. A Supreme Court ruling, Village of Euclid, Ohio versus Ambler Realty Company, in 1926 proved to be a legitimization of zoning as an effective method of protecting public safety and welfare as well as a constitutional enforcement of police power (Burdette, 2004). These practices are commonly referred to as conventional zoning, traditional zoning, or Euclidean zoning.

Unfortunately, conventional zoning, as enabled by the Standard Zoning Enabling Act, does not address the needs of physical design beyond rudimentary dimensional requirements, which weakens the already poor connection between land-use regulation systems and physical design (Ben-Joseph, 2005). Zoning, basically, segregates uses (use-based zones with prohibited uses), controls land development intensity (minimum lot sizes, number of units per acre, floor-area ratios, and parking requirements, and manages building bulk (building setbacks, lot coverage, and building height). Typically, these standards are applied uniformly for a particular zone with no consideration for the location of a parcel within a zone. Over time, conventional zoning has become scapegoat for sprawl (low density, single use developments with poor accessibility) as well as social and economic exclusionary land development practices.

Meanwhile, urban design traditions have traveled along a diametric trajectory. In the late 1800s and early
1900s, urban design was predominantly product oriented in the architectural sense and focused on the visual qualities and aesthetic experience of urban spaces, i.e. the visual-artistic tradition. This tradition was dominated by the works of Sitte, Unwin, Olmstead, and Howard. In the middle of the 20th century, the focus shifted to a social, cultural, and perceptual emphasis. This social usage tradition was focused on the use and colonization of space by people, and dominated by the works of Lynch, Jacobs, Alexander, and Cullen. Over the past two decades or more, the dominant concept of urban design is one of making places for people. The place-making tradition is simultaneously involved with urban space as an aesthetic entity and as a behavioral setting (Carmona et al, 2003).

Form-based zoning came into being at a time when the disenchantment with conventional zoning practices was high and the place-making tradition of urban design was gaining recognition. These codes originated with the New Urbanism movement, which posited specific place-making ideas about the design of neighborhoods, such as mixed uses, walkability, legibility, hierarchy in building and street types, and environmental sensitivity, as a cure for issues related to sprawl. The proponents of New Urbanism claim that true urbanism is diverse, compact, pedestrian and celebratory of the public realm. Conventional zoning gives us only a disaggregated version of urbanism, commonly known as sprawl, which doesn’t constitute a viable human habitat (Duany and Talen, 2002).

Furthermore, these ideas were associated with broader concepts like traditional neighborhood developments that promoted traditional patterns of urbanism (Duany and Platter-Zyberk), or transit oriented developments that supported densities and development patterns viable for public transportation (Calthorpe). Conventional zoning could not support this kind of land development and the proponents of New Urbanism proposed form-based codes as an alternative regulatory instrument. While the origins of form-based codes are rooted in new community design on greenfield sites (for example, Seaside in Florida), today form-based codes are being applied to urban infill and redevelopment projects, some claim with equal or greater success (Ford, 1999). Several cities are adopting form-based zoning as a replacement of traditional zoning in order to guide future development.
Defining Form-Based Codes

Proponents of form-based codes define these codes using several claims about the intent of the codes with respect to place, process, people and policy, but with a common understanding about the central role of physical form in this construct. Another implicit discourse within the definitions involves clarifying the distinction between form-based codes and conventional zoning codes, both normatively and philosophically. The following sampling of definitions represents a diverse range of ideas about form-based codes and their role in place-making:

“As its name suggests, form-based coding seeks to regulate the form of the built environment. The new approach builds on the idea that physical form is a community’s most intrinsic and enduring characteristic. It seeks to codify that form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality.” - Peter Katz, Form First, 2004

“A form-based code is one that envisions and encourages a certain physical outcome - the form of the region, community, block, and/or building. The code may or may not include illustrations as part of its technical format. Form-based codes are a different type from conventional codes that are based primarily on use, process, performance or statistics - none of which envision or require any particular physical outcome.” - Placemakers on the SmartCode Listserv

“A code based primarily on ‘form’ – urban form, including the relationship of buildings to each other, to streets and to open spaces – rather than based primarily on land use.” - City of Palo Alto, CA Context Based Design Document.

“A form-based code is a land development regulatory tool that places primary emphasis on the physical form of the built environment with the end goal of producing a specific type of ‘place’.” - Definition from the City of Farmers Branch, TX

“The new codes, (Peter Katz) says, focus less on what’s forbidden and more on what’s desired - the kind of town or city that people indicate they want.” - Neal Pierce, Zoning: Ready to be Reformed?, Washington Post Writers Group.
"Paul Crawford, FAICP, of Crawford Multari & Clark presented the following principles for form-based codes:

- Work from a defining spatial pattern, such as the Transect or a system of neighborhoods, districts, and corridors
- De-emphasize land use in favor of building form and typology
- Emphasize mixed uses and mixed use housing
- Focus on the streetscape and the public realm
- Conduct a design-focused public participation process"

- Megan Lewis, AICP Form-Based Zoning report from 2004 APA conference.

(Source: Charette Center Website http://www.charrettecenter.net/charrettecenter.asp?spf=spf&pk=7&gk=374)

"Design is more important than use" embodies the underlying philosophy behind the Form-Based Code (Ferrell & Madden, 2002). Form-Based Codes represent multi-disciplinary codes that connect the design of circulation and public space networks to the design of building form (Altman, et al, 2003). A community’s physical form—namely, its buildings, streets, and public spaces—signifies its most defining characteristic (Dover, 2003) as they shape the public realm (Katz & Ferrell, 2003). Asserting more control over a community’s form could lead to improvements in the way the community functions (Ferrell & Madden, 2002). This increased control includes the fostering of pedestrian-friendly mixed-use developments, and a range of housing types.” - Jason T. Burdette, Form-Based Codes: A Cure for the Cancer Called Euclidean Zoning?

"Form-based codes represent a fundamentally different way of regulating land use with a focus on physical form and a community’s design vision rather than simply buffering incompatible uses.” – Todd Kohr, From Form to function: An Evaluation of the Effectiveness and Potential of Form-Based Zoning Codes.

While most definitions of form-based codes agree on the role of physical form as central to any community and its identity, the definitions seem to differ on whether this physical form is intrinsic to the place, or representative of a certain desired physical outcome. This distinction becomes essential in the context of the prescriptive nature of form-based codes. Unlike conventional zoning, form-based codes are based on forward projections of the built environment, which makes the contextual reference to place critical to the definition of the codes. The notion of a desired physical outcome eliminates the place-specific limitations to the context of the code and makes it possible to transpose place-characteristics across geographic
boundaries, i.e. Columbia Pike in Virginia could be transformed into a Parisian boulevard. This is not to imply that such transformations would negatively impact the place itself, but to create cognizance for the possibility of this disconnect between place and desired sense of place.

In addition, form-based codes are not explicit about uses. In fact, based on the definitions, they could be characterized as 'function follows form' (Kohr, 2003). However, form-based codes make implicit and intentional references to uses, specifically with mixed-use developments. Intentions such as fostering pedestrian-friendly mixed-use environments could not be realized without specific controls related to land use. Also, certain special uses, mostly event-based, defy spatial definition in terms of land use classification and are not easily codified. These uses represent civic engagement and appropriation of the public realm.

The SmartCode template, which has evolved from form-based codes, include building functions as a code element in order to apply some control over land-use (SmartCode v8.0, 2006). SmartCodes also represent a scalar expansion in the scope of form-based codes from neighborhood/site-specific applications to citywide and regional scale interventions using transect planning principles. In transect planning, human habitats are located on an urban-rural continuum based on their level and intensity of urban character, which is the basis for organizing the components of the built environment: building, lot, land-use, street, etc. Transect planning seeks to create immersive environments to preserve the integrity of each location along the rural-urban continuum (Duany and Talen, 2002). This requires a well-organized and integrated public participation process in order to arrive at the shared vision of place, which is central to the definition of form-based codes.

Form-based codes focus on the public realm, primarily streets and public spaces, in order to shape physical form. So, the intended character of the streets and public spaces is codified to create rules for the building envelopes, which are part of the private realm. Since regulations applied to building form are perceived as an imposition on private property rights, the vision for the public realm has to be compelling and persuasive to generate collective support. Conventional zoning, which is based on principles of health, safety and welfare, addresses basic physiological needs of people but assumes little responsibility for perceptual and psychological qualities of place. Form-based codes, by definition, assume this duality and are structured, as product and process, to address this intention.
Structure of Form-based Codes

Form-based codes seek to codify physical form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality (Peter Katz, 2004). In order to serve this dual purpose, as a vision plan and implementation document, form-based codes lean heavily on well-illustrated diagrams, charts and graphics (Swope, 2003). The regulatory function of the code requires a certain level of standardization and predictability, which is a preference of all stakeholders involved. In order to withstand legal scrutiny, form-based codes need to be structured in a logical and comprehensible framework of standards. Moreover, these codes need to function as informational/promotional documents.

While form-based codes exist at many scales of development (community to region), it is important to note that critical unit of design continues to be the self contained neighborhood (Robbins, 2004). Form-based codes evolve from a largely standardized structure derived from the community/neighborhood scale and include the following elements: Regulating Plan(s), Urban Standards (Building Envelope Standards and Thoroughfare/Streetscape Standards), and Architectural Standards. So, a citywide code would demarcate several neighborhoods, special districts and corridors, which would then be described in detail using the standardized structure of form-based codes.

A regulating plan is a core graphic to form-based codes and is, by definition, place/site-specific (Steuteville and Langdon, 2003). In New Urbanist codes, i.e. form-based codes supported and facilitated by the proponents of New Urbanism, the regulating plan is typically generated through a community based charrette process and represents the community’s design vision. As part of form-based codes, regulating plans demarcate every street type as they relate to the building frontages and/or streetscape standards. These plans also establish frontage requirements, both public and private, for buildings and sidewalks. Public frontage elements include sidewalks, curbs, other walkways, etc., whereas private frontages describe the area between the building and the lot lines. This line between public and private frontage is carefully defined in the regulating plan and the type, based on street type. The regulating plan also defines the parking setback line, locates open space and civic uses, and identifies any special considerations, such as historic buildings.
In codes based on the SmartCode template, the regulating plan is more akin to a zoning map and identifies planning areas based on transect classifications (urban core, urban center, urban general, suburban, rural, natural, and special districts).

Urban standards include building envelope standards and thoroughfare/streetscape standards. These standards create spatial definition for the public realm based on the regulating plan (street type, building frontage type, or transect classification). The distance between buildings, the height of buildings, the placement of parking and size of open space (Stuetzville and Langdon, 2003) are four main elements that determine this spatial envelope. There is a range of dimensions within each element and different codes assemble their own palette in order to address the code project. At times, streetscape elements like planting and lighting are included in the architectural standards. Codes based on the SmartCode template make no distinction between building envelope standards and streetscape standards. The representation of these standards in the code document ranges from text and tables to graphic illustrations. These variations and distinctions are detailed in the case studies.

Architectural standards are commonly referred to as the ‘dress code’ for the code project and are considered optional to form-based codes. These standards could be highly prescriptive in terms of materials and composition for building façade elements, like roof edges, cornices, doors, windows, etc., and streetscape elements like lighting and planting. At times, this section is used to describe existing styles and patterns that the code seeks to foster. This puts the onus of interpretation on architectural design review procedures. Mostly architectural standards are used to address the issue of style and exert control over the ‘character of place’.

Another critical element of form-based codes is civic engagement through community-based charrettes and design review requirements. Charrettes are considered central to the visioning role of the codes. While this is essentially a New Urbanist tradition, the influence of community consensus and collective vision on the successful implementation of the code cannot be denied. Also, form-based codes lean heavily on design review to ensure quality in implementation and resolve any code interpretation issues. On the other hand, the proponents of form-based codes contend that the prescriptive nature of these codes ensures quality
and suggest incentives, such as fast track permitting, traffic study waivers, etc., for compliance with the code.

**Summary**

Form-based codes are a mix of elements that require place-based definition and other elements that are generalized across different places. Architectural standards, more so than regulating plans or urban standards, are place-neutral, i.e., the issue of aesthetics is more subjective and open to interpretation than classification of street types or building frontage types. Although, it is important to recognize that each of these representations of place-character through standards is relative to the place-character inherent in the existing context. Therefore, in a place defined by its architectural style, the dominance of architectural standards is unavoidable.

The product of form-based codes represents a specific interaction between a conceptual framework represented by the code and a contextual framework represented by the place. The following chapter follows the 'terrain' of a representative sample of form-based codes in order to understand this interaction based on specific cross-sections through the codes.
Chapter 3: Product of Form-Based Codes

Form-based codes are being adopted by many cities/towns across the U.S. in conjunction with or as a replacement for conventional zoning codes. This chapter includes a representative sampling of these codes with each case study describing a unique response to a specific set of contextual conditions. The place as imagined by the code represents the ‘product’ of the form-based code. The form-based code itself serves as a proxy for the product. This chapter addresses the primary question of this thesis: Is the product of form-based codes differentiable in terms of place-character?, i.e. are the places represented in the case studies essentially similar places in terms of place-character? This question requires defining the ‘product of form-based codes’, following the ‘terrain’ of the narratives embedded in the case studies, and inferring responsiveness to place from cross-sections across these narratives.

Defining the Product

Since form-based codes are a relatively recent phenomenon, there is minimal physical evidence to evaluate as product. Also, the process of development and change in the built environment is characterized by long time spans and unexpected shifts in direction. The product of form-based codes, under the circumstances, is the place as imagined by the codes and related documents, assuming full compliance. The code itself is considered a proxy for the place in the future, conditional to social, economic and political shifts in the context around the codes. The reference to product and place, in this case, is urbanistic and not based in individual building projects. Form-based codes are urban planning and design instruments and must be evaluated for their overall impact on the urban environment.

As noted earlier, form-based codes serve a dual purpose – as a planning instrument and as a regulatory instrument. The prescriptive nature of form-based codes makes this duality possible, but raises recurring questions regarding the correspondence of the physical product and its representation in the codes, as illustrated in the following dialogue: Question - How closely will the actual station resemble what is pictured and described in the brochure? Response - There are three reasons why the end result will resemble the publicly endorsed Chorrette design presented here: (1) There is strong political support for the design, (2) Detailed urban design Codes,
when written into law, must be followed when developing the site, and (3) The project makes economic sense as shown. (Pleasant Hill BART Station Community Plan Newsletter, 2001)

The detailed images produced through the charrette process and included in the codes, as illustration for stipulations in the code, often raise doubts about the how analogous the final product will be to this shared vision. Public officials usually respond by claiming that the representation is a collective vision for the place and that the code is insurance for faithful implementation. Professionals involved in disciplines like city planning, urban design and architecture are often struggle with the level of abstraction in the representation of the final product, especially in a constantly shifting context. As the scale of the code project increases from community scale plans to city or regional scale plans, the abstraction in representation is elevated.

Another issue, related to representation, is the variations in the codes themselves. At times, several form-based codes have identical structure and graphic quality. In other cases, two form-based codes are not comparable as a single typology of codes. Several factors influence this variation including chronological order, identity of code writer/facilitating consultant (planner/architect), and proposed fit within existing policy framework. These and other nuances of form-based codes will be detailed in the following section through a representative sampling of form-based codes. The primary question: Is the product of form-based codes differentiable based on place-characteristics?

Case Studies

As demonstrated by the definitions of form-based codes and the product of form-based codes, the universe of case studies for this thesis was large and, at times, incomprehensible. Form-based codes can be public, adopted as laws or ordinances. Or, they can be private — introduced by a developer to regulate a single development (Stueveville and Langdon, 2003). Form-based codes could be applied to new community plans, usually greenfield developments, or infill projects within existing neighborhood, district, city or region. Form-based codes could be ordinances for traditional neighborhood developments (TND), transit oriented developments (TOD), pedestrian pockets (PP), etc. They could be urban design guidelines. Alternatively, they could be pattern books for residential development. Form-based codes could be based in transect planning
principles, i.e. the SmartCode template. Form-based codes could be New Urbanist codes. And, form-based codes could be referred to as regulating codes, land development codes, community development codes, land use codes, urban design standards, overlay district ordinances, unified development ordinances, town zoning ordinances, traditional neighborhood district ordinances, and planning ordinance overlays.

In order to address the primary question of this thesis, the criteria for selecting representative case studies needed to involve ‘place’. This study does not include any private development codes/guidelines. While sense of place is a major issue in these developments, this particular context for form-based codes is complicated by the fact that these codes are mostly covenants on private property. Within the realm of public codes, community scale plans for infill sites within existing cities, towns and, counties, such as Pleasant Hill BART Station Property Code, Farmer’s Branch Station Area Form Based Code, and Columbia Pike Special District Revitalization Code, represent similar conditions in an established urban/suburban context. Another criterion was to select codes at various scales of influence. District scale plans such as Central Petaluma Specific Plan SmartCode, Downtown Kendall Urban Center District Ordinance, and Leander TOD SmartCode are included in the case studies. Also included are city scale plans such as City of Azusa and City of Sonoma, as well as regional plans such as the New Urban code for Woodford County and the Grand Valley Metropolitan Council Form Based Code Study.

The following section includes a brief description of the case studies including location, year published/adapted, consultants (code writer, planner, architect, urban designer, etc.), site context, fit within policy framework, stated intent, and structure of the code. These form-based codes represent a sampling across scales, time, geographic locations, code structure and fit within existing policy framework. It is difficult to establish a ‘goodness’ quotient for the sampling since the ‘universe’ for form-based codes is not easily defined. Most importantly, this sample represents codes commissioned by public agencies for various scales of development, which are distinctly recognizable in structure and content as ‘form-based’. 
Downtown Kendall Urban Center District Ordinance

Downtown Kendall, Dade County, Florida
Dover, Kohl and Partners / Duany Plater-Zyberk and Company

This ordinance is proposed to guide development on a 250 acre site central to Kendall, which is an unincorporated suburban community in Miami-Dade County. Today this area is embedded in suburban growth centered on the Dadeland Mall. Its proximity to metropolitan Miami and the location of two Miami-Dade Transit Authority Metrorail stations within the site, set the tone for a high density urban center in Downtown Kendall. The planning area contains transportation corridors and intersections of four heavily traveled, regional roadways that crisscross a high intensity of retail, office, hotels, and nearby residential neighborhoods (CNU Florida Website, Kendall Downtown).

The Downtown Kendall Urban Center District Ordinance is adopted as an article in the existing zoning code for Miami-Dade County. This article establishes the boundaries for the proposed district and specifies development guidelines as amendments or additions to existing zoning articles that are relevant to the district. This proposed district is concurrent with the goals of the Miami-Dade County's Comprehensive Master Plan.

The objective was to establish order among the physical chaos, facilitating development in a sustainable pattern and creating a lasting identity for the area (CNU Florida Website, Kendall Downtown). This proposal attempts to reinvigorate this area by reinforcing its transit orientation and allowing for the realization of the real estate potential for the district. The master plan includes a variety of mixed-use buildings and roadway improvements intended to create a pedestrian-friendly, thriving downtown in the heart of sprawl. The Downtown Kendall Plan addresses the high-rise building scale of metropolitan centers (CNU Florida Website, Kendall Downtown).

This ordinance consists of regulating plans, development parameters and additional parameters. The regulating plans allocate sub-districts (core sub-district, center sub-district, and edge sub-district) based on proposed intensity of development, street frontages (A, B, C, D, and E streets) based on the sub-district definitions, and designate open spaces (squares, plazas, and colonnades). The designated open
space regulating plan specifically notes the anchor point for each open space. The development parameters specify dimensional requirements for building envelopes (minimum and maximum building heights, minimum build-to line/setback, minimum interior side and rear setbacks, percent building frontages, minimum depth, driveway access) for each street frontage based on the sub-district that street is located in. For example, a building on "B" street in the core or center sub-district is required to be built to the lot line, whereas a building on the same street type in the edge sub-district is allowed a 10 feet setback. The development parameters are presented in tabular and graphic format, which is accompanied by textual clarification noting deletions and amendments from existing zoning regulations.

Allowable uses are specified as general requirements based on sub-district classifications. The general requirements also cover requirements for building placement priority (i.e. placement priority to street with higher pedestrian quality), minimum lot sizes and frontage requirements including architectural standards for building facades, glazing, storefronts, cantilevers, mouldings, etc., streetscape standards for all street types (streets, alleys, and paseos), and dimensional requirements for courtyard gardens, street and garden walls, and fences and hedges. Special requirements for open spaces, based on designated open space plan, and parking are specified in this section too. Additional parameters ensure quality of landscaping and signage.

Since this ordinance is an amendment to the existing zoning code for Miami-Dade County, the administrative structure and review requirements are maintained per the original ordinance. This article carefully specifies the exhibits that are required for application review and permitting.

Figures 3-1 and 3-2 represent sample illustrations from the code.
Fig. 3-1
Downtown Kendall Urban Center District
Ordinance
a  Proposed Plan
b  Regulating Plan - Districts
c  Regulating Plan - Street Types
d  Regulating Plan - Open Spaces
e  Proposed Development

Sources:
Downtown Kendall Urban Center District
Ordinance
CNU Florida Website, Kendall Downtown
Fig. 3-2
Downtown Kendall Urban Center District Ordinance
a  Existing & Proposed Streetscapes
b  Development Parameters - Plan
c  Development Parameters - Center Sub-District Street Section
d  Development Parameters - Core Sub-District Street Section
e  Development Parameters - Table
f  Proposed Development
Sources:
Downtown Kendall Urban Center District Ordinance
CNU Florida Website, Kendall Downtown
Pleasant Hill BART Station Property Code

Pleasant Hill, Contra Costa County, California
Lennertz Coyle and Associates / Geoffrey Ferrell Associates

This code is proposed for the 18 acre Pleasant Hill BART Station site. At present, this site is primarily a transit hub with a BART station, transit transfer facilities, and parking, and is surrounded by heavily trafficked, wide access roads on all sides. This BART station serves several surrounding residential neighborhoods and is an important component of Contra Costa County's regional transportation strategy.

This code supplements the Pleasant Hill BART Station Specific Plan, which mandates land use, development program, circulation, and public space requirements for a larger 140-acre redevelopment area, and the County Zoning Ordinance. The Pleasant Hill BART Station Specific Plan calls for 'transit-oriented development' around the station – a development pattern of workplaces, housing and shops surrounding the transit hub (Pleasant Hill BART Station Area Summary Report, 2001).

The Pleasant Hill BART Station Property Plan is designed to foster a vital public life through its squares and tree-lined streets overlooked by upper storey residential balconies (Pleasant Hill BART Station Property Code, 2001). A possible narrative for the place is as follows: Liberate your mind and imagine a wonderfully vibrant, colorful, accessible community surrounding the Pleasant Hill BART Station. Think about having a bakery, some park benches and trees, and a small bookstore just a short walk from the station, or from the new nearby townhomes and apartments. As you stroll to the station, perhaps you drop off dry cleaning, fill a prescription, or enjoy a cup of coffee and a bagel before getting on the train. Coming home, they may choose to take a bike ride on the Iron Horse Trail and then meet some friends at a restaurant overlooking a grove of large oak trees (Pleasant Hill BART Station Community Plan Newsletter, 2001). The operative terms are 'coherent' street and open space structure, and 'pleasing' architectural character that is consistent with local traditions.

The Pleasant Hill BART Station Property Code consists of a regulating plan, building envelope standards, landscape standards, and architectural standards. The regulating plan classifies streets (including public open spaces like parks and squares) based on building frontages – shopfront buildings, workplace buildings,
residential flats, and townhouse sites. The building envelope standards specify building height, sitting, element, and use requirements for each building type based on the street frontages. Landscape standards and architectural standards are applicable across all building types and street frontages. The landscape standards are mostly limited to planting specification for building facades and public frontages including street trees. The architectural standards favor an aesthetic that is traditional in a broad sense. They specify an architectural language of load-bearing walls, pitched roofs, and regional materials reminiscent of northern California’s Spanish Colonial Revival structures (Pleasant Hill BART Station Property Code, 2001). The architectural standards ensure simplicity (aesthetic and compositional) and quality of all building facades visible from the streets and public spaces but carefully elaborate standards for building walls, roofs, windows and doors, street walls, lighting and mechanical equipment and colors.

The code also establishes an architectural review procedure to address compliance issues under the authority of a Town Architect, who will be responsible for interpreting and enforcing the property code under the direction of the Contra Costa Community Development Department.

Figure 3-3 represents sample illustrations from the code.
Fig. 3-3
Pleasant Hill BART Station Property Code
a  Existing Condition
b  Proposed Development
c  Regulating Plan
d  Proposed Streetscape
e  Architectural Standards
f  Architectural Standards
g  Building Envelope Standards

Sources:
Pleasant Hill BART Station Property Code
Pleasant Hill BART Station Area Summary Report
Pleasant Hill BART Station Community Plan Newsletter
The Columbia Pike Special Revitalization District Form Based Code

Columbia Pike, Arlington County, Virginia
Ferrell, Madden and Associates / Dover, Kohl and Partners

This code is proposed for a three and half mile mixed commercial and residential corridor on the outskirts of Washington, D.C. Once a thriving streetcar suburb, Columbia Pike today is an aging, auto-oriented, suburban, commercial strip coming under increasing development pressure due to its location. Columbia Pike consists of almost 1.5 million square feet of commercial floor area and other non-residential uses such as offices, hotels/motels, restaurants, gas stations, auto dealerships, and churches. The surrounding residential component includes single family and semi-detached homes, townhouses, apartments, and condominiums (Columbia Pike Initiative, 2004). The district includes several structures considered historic by the County's Historic Preservation Office. The growing development interest in the area is primarily focused on residential uses.

The Columbia Pike Form Based Code is written in conjunction with the Columbia Pike Revitalization Plan in order to better articulate the plan proposals. While the Revitalization plan proposed the inclusion of design guidelines to manage future development along the corridor, the county and community favored the form-based codes approach. The Columbia Pike Special Revitalization District Form Based Code is an appendix to the County Zoning Ordinance (Section 20, Appendix A, CP-FBC: Columbia Pike Form Based Code District).

The underlying vision for Columbia Pike is its transformation from an aging, auto-oriented, suburban, commercial strip back into the more vibrant, pedestrian-friendly, “Main Street” destination that it originally was and could be yet again. The end goal is an improved, enhanced, and walkable Main Street for South Arlington. A place where people can live, work and play – a place that is the center of the community’s social and economic life. The basic premise of the vision is to create a vital “Main Street” for adjacent neighborhoods through a lively mix of uses with shopfronts, sidewalk cafes, and other commercial uses at street level, overlooked by canopy shade trees, upper story residences and/or offices. The corridor-wide concept revolves around an enhanced and improved “Main Street” linked by a future bus rapid transit or streetcar system and consisting of four, major, mixed-use development nodes linked together by existing apartment and townhouse residential communities (Columbia Pike Initiative, 2004).
The Columbia Pike Form Based Code consists of regulating plans, building envelope standards, streetscape standards, and architectural standards. The regulating plans detail street frontage types (main street, avenue, local and neighborhood) for the following nodes: the Town Center, the Village Center, the Neighborhood Center, and the Western Gateway. The regulating plans also identify locations of historic and civic buildings. The building envelope standards describe building height, sitting, element and use specifications for individual sites based on the street frontages; main street sites, avenue sites, local sites and, neighborhood sites. These standards are applicable across the different nodes, as are streetscape standards and architectural standards. The streetscape standards include sidewalk paving, street trees, street furniture, turf and groundcover, and on-street parking requirements for streets and public open spaces (squares and civic greens). The architectural standards, as with the Pleasant Hill BART Station Property Code, favor an aesthetic that is traditional in a broad sense, but are not specific about a stylistic reference. Instead, they include illustrative references from the district in order to foster a coherent Columbia Pike aesthetic (Columbia Pike Form Based Code, 2003). The Columbia Pike Form Based code architectural standards are exhaustive and include specific configuration and material requirements for building walls, roofs and parapets, street walls, windows and doors, lighting and mechanical equipment, and signage.

The Columbia Pike Form Based Code assigns administration of the code to an Administrative Review Team, comprised of staff from the Department of Community Planning, Housing and Development, Historic Preservation, Environmental Services, and Economic Development. The level of review for any given project depends on the size of the development and the requirement for special exceptions. Figures 3-4 and 3-5 represent sample illustrations from the code.
Fig. 3-4
Columbia Pike Special Revitalization District
Form Based Code
a Historic Photo
b Existing Conditions
c Proposed Plan - Corridor & Nodes
d Regulating Plan
Sources:
Columbia Pike Special Revitalization District
Form Based Code
Columbia Pike Initiative Report
Farmers Branch Station Area Form Based Code

City of Farmers Branch, Dallas County, Texas
Ferrell, Madden and Associates

This code is proposed for an approximately 143-acre site around a future DART light rail station serving Farmers Branch. The station is scheduled to be in operation by 2008. At present, the Farmers Branch Station Area supports a variety of low density land uses, including single and multi-family residential, retail and commercial density (Farmers Branch Station Area Master Plan, 2004). An existing rail line, owned by DART, runs through the site and the new light rail service is proposed on this corridor. DART operates a bus transit Park-N-Ride at this location. Farmers Branch Historical Park is located south of the station area and includes an old train depot built in the late 19th century. Several large corporations are acquiring frontage along interstate highway corridors in the Dallas area, which includes I-35, the western edge of the Farmers Branch Station Area.

In anticipation of the developmental pressure in the area around the station, the City of Farmers Branch undertook a master planning effort for the station area and consequently amended existing zoning to include the Farmers Branch Station Area Form Based Code as the development standard for Planned Development No. 86. This new district classification replaced an older Planned Development classification.

The vision for the station area is one of a unique, mixed-use urban-style neighborhood that blends retail uses, restaurants, personal and professional services, offices and housing in an environment that emphasizes walkable public spaces and creates a memorable experience for those living, working, shopping and visiting the neighborhood. Buildings and site design will create safe, pleasant, and enjoyable walking environments. An interconnected network of streets minimizes walking and cycling distances and distributes traffic to minimize volumes on local streets. The streets are pedestrian-friendly – sidewalks, street trees, building entries, and parallel parking shelter and enhance the walking environment (Farmers Branch Station Area Master Plan, 2004). Essentially the focus is on the creation of a town center following Transit Oriented Development principles.

The Farmers Branch Station Area Form Based Code consists of regulating plans, street type specification,
building envelope standards, streetscape standards, and architectural standards. This code includes an alternate regulating plan with minor differences in street pattern and location of public spaces. The regulating plan classifies streets based on frontage types – Shopfront Colonnade Frontage, General Frontage, Local Frontage and a special I-35 Frontage specifically for sites along the interstate. This regulating plan also identifies locations of historic and civic buildings. Another regulating plan classifies street types based on right of way and streetscape standards. The building envelope standards describe building height, sitting, element and use specifications for individual sites based on the street frontages; Shopfront Colonnade Sites, General Sites, Local Sites and Special I-35 Sites. In addition, street types are illustrated using plans and street cross-sections, which specify the street right of way, number of lanes (travel and parking), and sidewalk and median conditions (width and planting). The streetscape standards include street trees, turf and groundcover, and on-street parking requirements for streets and public open spaces (squares and civic greens). The architectural standards, as with the Pleasant Hill BART Station Property Code and the Columbia Pike Form Based Code, favor an aesthetic that is traditional in a broad sense and foster a coherent and regionally appropriate Station Area (Farmers Branch Station Area Form Based Code, 2005). The Farmers Branch Station Area Form Based Code architectural standards are exhaustive and include specific configuration and material requirements for building walls, roofs and parapets, street walls and garden walls, windows and doors, lighting and mechanical equipment, and signage.

Administration of the code is assigned to the Development Review Committee, which is appointed by the City Manager and comprised of personnel from different City departments. The Farmers Branch Station Area Form Based code contains very detailed information regarding operational procedures; plan approval process, code amendments and waivers, and special exceptions.

Figures 3-6 and 3-7 represent sample illustrations from the code.
Fig. 3-6
Farmers Branch Station Area Form Based Code
a Existing Conditions
b Proposed Plan
c Regulating Plan - Building Types
d Regulating Plan - Street Types
Sources:
Farmers Branch Station Area Form Based Code
Farmers Branch Station Area Master Plan
The New Urban Code for Woodford County

City of Versailles and City of Midway, Woodford County, Kentucky
Ferrell Rutherford Associates / Dover, Kohl and Partners

This code is proposed for the City of Versailles and the City of Midway in Woodford County, located in the heart of Bluegrass Thoroughbred Country. Woodford County is a fabric of small towns, villages and rolling hills and a place with exceptional character and history (New Urban Code for Woodford County, 2001). The City of Versailles is the largest town in this mostly rural county, followed by the City of Midway. Facing increasing development pressure and caught in the crossfire between anti-growth and pro-growth sentiments, the county proposed exploring options that supported 'good growth' (Preserving Town and Country in the Woodford County Bluegrass, 2000).

The 'Preserving Town and Country in the Woodford County Bluegrass' report was adopted by the county as part of the Comprehensive Plan. The New Urban Code for Woodford County was written as a guidance document for a full-fledged code. It demonstrates the use of form-based codes as smart growth regulations using the Versailles Center as an illustration. The extent of inclusion of this urban code as part of the Woodford County Zoning Ordinance is unclear.

This Code prescribes encouraging an interdependent community through the deliberate strengthening of neighborhoods and public spaces, while providing for a desirable private life for each County resident and property owner. The Code also attempts to reduce the level of uncertainty in the current land use regulations by recommending more objective criteria for the essential elements of design, while allowing greater flexibility in building styles and uses. Overall, it advocates that future growth follow a traditional “town and country” pattern and that it foster healthy public dialogue about that growth. Specific goals include compact land development patterns, historic preservation, conservation of natural landscape and rural character, and protect existing communities.

This code consists of regulating plans, building placement standards, architectural standards, and streetscape standards. Regulating plans classify streets by building types (Avenue House, Neighborhood house, Town House, Row House, Small Apartment House, Shopfront Building, and Workplace Building) and street
types (Major Street, Main Street, Neighborhood Street, Neighborhood Minor Street, Neighborhood Alley/Common Drive, and Country Road). Building placement standards establish building height, sitting, elements, and use requirements for each lot based on building type classification in the regulating plan. This part of the urban code references existing building traditions in the area as illustration of intent. Architectural standards are generalized for all building types and guide the overall aesthetic towards the tradition of the Woodford County Bluegrass Region. These standards include specific configuration and material requirements for building walls, roofs and gutters, and windows and doors. In this code, several architectural standards are included in the building placement standards as specific to building types. Streetscape standards suggest minimum standards for existing buildings as well as new subdivisions, and establish tree, turf and groundcover requirements for streets, front yards and back yards. This is consistent with the rural character of the county.

For code administrative purposes, the New Urban Code for Woodford County recommends a new position for a Town Planner. Based on the scale of the project and location, projects require review by the Town Planner, the Planning Commission, and/or the Board of Architecture Review. Both the Planning Commission and the Board of Architectural Review are established at the county level and include representatives from the City of Versailles and City of Midway.

Figures 3-8 and 3-9 represent sample illustrations from the code.
Fig. 3-8
New Urban Code for Woodford County
a  Existing Conditions - Rural
b  Existing Conditions - Urban
c  Proposed Development
d  Sample Regulating Plan - Versailles
d  Sample Regulating Plan - Midway
Sources:
New Urban Code for Woodford County
Preserving Town & Country in the Woodford County Bluegrass
Building Placement Standards

Avenue Houses

**Height**

- The building shall be no more than 20 feet in height.
- No new building shall exceed 20 feet in height.
- No new building shall exceed 20 feet in height.
- The new building shall be at least 20 feet in height.
- The new building shall be at least 20 feet in height.

**Siting**

- The building shall be setback from the street.
- The building shall be setback from the street.
- The building shall be setback from the street.
- The building shall be setback from the street.
- The building shall be setback from the street.

**Elements**

- A porch or patio shall be provided.
- A porch or patio shall be provided.
- A porch or patio shall be provided.
- A porch or patio shall be provided.
- A porch or patio shall be provided.

**Uses**

- Residential use is permitted.
- Residential use is permitted.
- Residential use is permitted.
- Residential use is permitted.
- Residential use is permitted.

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AVENUE HOUSES

ILLUSTRATIONS AND STATEMENT OF INTENT

Note: These are provided as illustrations of style. The illustrations and statements on this page are preliminary and subject to review. Refer to the忤 (Ontario) for the specific provisions and restrictions of this building placement standards.

**Town Houses**

ILLUSTRATIONS AND STATEMENT OF INTENT

Note: These are provided as illustrations of style. The illustrations and statements on this page are preliminary and subject to review. Refer to the忤 (Ontario) for the specific provisions and restrictions of this building placement standards.

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Fig. 3-9

New Urban Code for Woodford County

- a Proposed Development
- b Building Placement Standards
- c Architectural Standards
- d Architectural Standards
- e Thoroughfare Standards

Sources:

New Urban Code for Woodford County
Preserving Town & Country in the Woodford County Bluegrass
City of Azusa Development Code
City of Azusa, Los Angeles County, California
Crawford, Multari, and Clark Associates / Moule and Polyzoides

This code is a citywide development code for the City of Azusa, an approximately 9 square mile conurbation in San Gabriel Valley, southeast Los Angeles County. While Azusa has deep Indian roots, including its name, today the city blends with little distinction from the tract homes, apartments and commercial strips of the thirty other cities that two million San Gabriel Valley suburbanites call home (Cole, 2003). The fabled ‘Route 66’ forms a major east-west axis through the city. In addition, the city is dissected by interstate I-210.

In fact, the real impetus for change in the city originated from opposition to a casino proposal, which resulted in a political makeover for the city and adoption of the City of Azusa General Plan. The City of Azusa Development Code is based on the recommendations of the General Plan, but was developed in parallel to the General Plan and was adopted by the City as a supplement to the Municipal Code. This Development Code is adopted to protect and to promote the public health, safety, comfort, convenience, prosperity, and general welfare of residents, and businesses in the City (City of Azusa Development Code, 2004). The specific goals of this Development Code are to a) provide standards for the continuing orderly growth and development of the City that will assist in enhancing and maintaining distinct community identity, and contribute to the health and well being of residents; b) create a comprehensive and stable pattern of development and land uses upon which to plan transportation, water supply, sewerage, energy, and other public facilities and utilities; c) ensure that proposed development is of human scale, pedestrian-oriented, energy conserving, and is designed to create attractive streetscapes and pedestrian spaces; d) minimize automobile congestion through pedestrian-oriented development, compact community form, safe and effective traffic circulation, and adequate parking facilities; and e) ensure compatibility between different types of development and land uses (City of Azusa Development Code, 2004). Essentially, the development code supports sustainable growth patterns associated with smart growth principles.

The City of Azusa Development Code consists of Regulating Plans, Urban Standards, and Architectural Standards. A citywide regulating plan identifies different geographic areas in the city as neighborhoods.
(Southwest, Southeast, Central, Central East, North, and Foothill), districts (Downtown, University, Edgewood, and West End Industrial) and corridors (Foothill Boulevard, Azusa / San Gabriel Avenue, South Azusa Avenue, and Arrow Highway). In the urban standards, each planning area is described in terms of location and existing conditions (streets, landscape, civic and commercial features, and building fabric) and a detailed regulating plan further classifies specific features within the planning area. For example, each neighborhood is subdivided into neighborhood center, tract, transitional, and traditional types, which are then detailed in the neighborhood site planning and building design section of urban standards. The neighborhood site planning and building design standards specify building placement, parking placement, building height and profile, allowable frontage types, and residential density standards (minimum parcel size and maximum units/acre). In addition, urban standards include detailed allowable land use and permit requirements by neighborhood type (center, tract, transitional, and traditional) and density (low, medium, and high). Districts and corridors are similarly detailed in terms of allowable land uses and permit requirements, and site planning and building design standards with the exception that districts and corridors are further classified as specific recommendations/projects, which are then used as the basis for site planning and building design standards. Special thoroughfare conditions are described using cross-sections with specifications for right of way, number of lanes (parking and driving), and sidewalk/median condition. Architectural standards are limited to illustrating allowable frontage types.

Figures 3-10 and 3-11 represent sample illustrations from the code.
Fig. 3-10
City of Azusa Development Code
a Existing Conditions
b Regulating Plan - Planning Areas
Sources:
City of Azusa Development Code
City of Azusa General Plan
This code is a city-wide development code for the City of Sonoma, specifically the approximately 2.2 square mile incorporated city area. Sonoma is a historically significant city with a Spanish Colonial past and the center of the wine industry for the Sonoma Valley appellation. Most of the land in the city, within the urban growth boundary, is used for residential purposes. Only 125 acres of land in the city is vacant, but some parcels have the potential for redevelopment with uses of higher density or intensity. The Development Code is intended to ensure that future development emulates the desirable scale and character of the City’s distinctive neighborhoods and commercial districts (City of Sonoma General Plan Update Background Report, 2004).

This Development Code carries out the policies of the City of Sonoma General Plan and now the city is updating the General plan based on the recommendation of the Development Code. This Development Code is adopted to protect and to promote the public health, safety, comfort, convenience, prosperity, and general welfare of residents, and businesses in the City.

More specifically, the purposes of this Development Code are to a) implement the General Plan by encouraging the uses of land designated by the General Plan; b) provide standards for the orderly growth and development of the City that will assist in protecting the unique character of the community and its neighborhoods; c) conserve and protect the City’s natural beauty including, scenic views, hillside open space, and historic and environmental resources; d) create a comprehensive and stable pattern of land uses upon which to plan transportation, water supply, sewerage and other public facilities and utilities; e) minimize automobile use and congestion by promoting pedestrian and bicycle-oriented development, safe and effective traffic circulation, and adequate off-street parking facilities; and f) ensure compatibility between residential and non-residential development and land uses through careful site planning and building design.

This development code is a hybrid between conventional zoning and form-based codes. Like the City of...
Azusa Development Code, this code consists of regulating plans and urban standards but is introduced by a zoning map and allowable uses. An overall regulating plan identifies planning area boundaries as residential areas (Northeast, Northwest, Central-East, Central West, Southeast, Southwest), commercial districts (Downtown, Gateway), commercial corridors (Broadway, West Napa/Sonoma) and open space districts (Maxwell, Vallejo, Cemetery). Zoning district boundaries and definitions are adjusted in conjunction with the planning area (neighborhoods, corridors, districts) boundaries and requirements. Detailed regulating plans of each planning area describe the applicable zoning districts within the planning area. The Community Design article details allowable uses for each zoning type including overlay districts. This article also details streetscape standards based on street types – specific (Broadway) and generic (commercial collector, commercial center, residential street, rural lane, alley, private street, bike path). Streetscape standards specify requirements such as fire safety, tree canopy, parking, number of lanes (traffic and parking), right of way width, curb conditions (type and radius), sidewalk width and landscape/planting. Block structure standards establish lot area and dimensional requirements based on zoning type, and clarify definitions for terminology specific to block design. The objective of the community design article is to identify street and block patterns specific to the city and community.

The Project Design chapter describes the existing conditions in each planning area and details requirements for potential changes/future development (infill or new subdivision) based on the zoning types. Zoning is used as the underlying determinant of density (number of dwellings per parcel and minimum lot size), site coverage, setbacks, open space, driveways, parking, building height and profile, and building types. Specific recommendations for improvements in the planning are summarized in this section in order to direct future development proposals. Also, general site planning and development standards applicable across different planning areas are included in the project design article. These standards specify requirements (sitting, grading, landscaping, incentives/bonuses, etc.) for special land development conditions such as creekside development, hillside development, multi-family residential projects, affordable housing projects, historic preservation projects, and commercial mixed-use projects. Fences, hedges, walls, loading docks, parking structures, and other special uses structures (agricultural structures, bed and breakfast inns, live/
work units, service stations, outdoor dining, vacation rentals, etc.) are described in detail in order to ensure compliance with overall character. Architectural standards are not included in this development code but any aesthetic requirements are included in the design standards (community and project).

The City of Sonoma Development Code is not a highly illustrative document graphically, but is comprehensive in verbally describing all aspects of the code including administration. The responsibility for administering the code is split between the City Planning Office, Planning Commission and Design Review Commission. Based on project location, type and size, each project requires review and approval by the Planning Commission and/or the Design Review Commission.

Figures 3-12 and 3-13 represent sample illustrations from the code.
Fig. 3-12
City of Sonoma Development Code
a Existing Conditions
b Regulating Plan - Planning Areas
c Sample Regulating Plan - Neighborhood

Sources:
City of Sonoma Development Code
City of Sonoma General Plan Update
Background Report
Fig. 3-13
City of Sonoma Development Code
a  Regulating plan/Zoning - Downtown
b  Proposed Improvements
c  General Lot Sizes
d  Urban Standards - Table
e  Building Placement Requirements
f  Thoroughfare Standards
g  Parking Requirements - Table
h  Parking Placement
Sources:
City of Sonoma Development Code
City of Sonoma General Plan Update
Background report
Central Petaluma Specific Plan SmartCode

City of Petaluma, Sonoma County, California
Fisher and Hall Urban Design / Crawford, Multari and Clark Associates

This code is proposed for a 400-acre redevelopment site in the heart of Petaluma, adjacent to the city's downtown. This underutilized urban site is a remnant of Petaluma's industrial past, which was dependent on the Petaluma River for transportation. Over the years, the industrial uses have declined and Petaluma has transformed into a bedroom community for the San Francisco Bay Area, with US Highway 101 as the primary corridor within the community (Central Petaluma Specific Plan, 2003). Some industries, which are still located along the river, tend to be small (less than 100 employees) and are increasingly less dependent on the river. The surrounding uses are largely residential and mostly single family housing.

The Central Petaluma Specific Plan SmartCode is based on the specific recommendations of the Central Petaluma Specific Plan, which was a result of community workshops and committee discussions. The Specific Plan was adopted in 2003 and the SmartCode is included as Appendix “A” of the Specific Plan. Appendix “B” of the specific plan are Architectural Guidelines for the redevelopment. This code supercedes the City of Petaluma Zoning Ordinance with respect to development on this specific site.

The vision is for this redevelopment is one of pedestrian-oriented public streets, plazas, squares and riverfront walks, lined with mixed-use, pedestrian-oriented buildings focused around the Petaluma River. The scale and general character of new development is based in many ways on the best elements of Petaluma’s heritage – the multi-story mixed-use shopfront buildings of the historic Downtown, the iconic agricultural buildings, and the rich variety of streets, riverfront wharves, plazas and parks of Petaluma’s historic center (Central Petaluma Specific Plan SmartCode, 2003). Unlike any of the previous codes, the introduction to this code is eloquent about 'sense of place' and the specific qualities of the public and private realm in ensuring this experience. The specific goals of the plan are to a) redirect growth into Central Petaluma, b) reconnect the city to and along the river, c) encourage diversity in transportation modes, d) reinforce the working character of Petaluma’s waterfront, e) enhance physical structure and identity, and f) promote sustainable development.
The Central Petaluma Specific Plan SmartCode consists of regulating plans, building function standards, urban standards, thoroughfare standards and parking standards. Since this code is based on the SmartCode template, the regulating plan is akin to a zoning map. In this case, the zoning map delineates districts based on transect designations (Urban General T4, Urban center T5, and Urban Core T6) and special districts (Historic Agricultural Services D1, Railroad D2, River-Dependent Industrial D3, and Thoroughfare D4). Building function standards list allowable uses (permitted, conditional use permit, or not permitted) per the district designations. The urban standards table specifies block and lot design requirements (block perimeter, lot area, lot coverage), building placement and setback, frontage types and percent required, density (units per acre), building height, parking location and requirements, and permitted civic space types for the transect designated districts. The special districts are assigned a transect designation equivalency for most urban standards conditional to design review or special permitting requirements. For example, river-dependent industrial district D3 is required to comply with transect designation T6 with certain exceptions and special requirements. Different building placement options (edge yard, side yard, rear yard, court yard, and specialized), frontage types (common yard, porch and fence, terrace or light court, forecourt, stoop, shopfront and awning, gallery, and arcade), and civic space types (park, green, square, plaza, playground, and public open space) are defined and graphically illustrated in the urban standards. This section also includes landscape standards for street tree planting, utility standards and special uses (live/work, mixed-use, historic agricultural industrial, and river-dependent industrial). Thoroughfare standards are based on the street type regulating plan. The thoroughfare standards map designates each street with a named street classification (existing and/or recommended) or a general street classification (existing and/or recommended). Each thoroughfare type is detailed, graphically and verbally, to clarify requirements for right of way width, number of lanes (parking and traffic), bike paths, sidewalk width, curb type and radius, and lighting spacing.

The inclusion of architectural guidelines is considered optional in the SmartCode template but the Central Petaluma Specific Plan includes a separate section (Appendix “B”) to guide architectural character in the specific plan area. Another regulating plan classifies various districts as architectural character districts.
These architectural character areas and guidelines recognize the strengths of existing patterns in the area and suggest a design approach based on form, façade articulation, proportions, colors, etc. building on these existing patterns. The architectural guidelines are focused on preserving and strengthening existing town and neighborhood character, but clarify that historical reproduction of any architectural style or building type is not the intent of the specific plan (City of Petaluma Specific Plan Architectural Guidelines, 2003).

The Central Petaluma Specific Plan SmartCode is administered per the City of Petaluma Municipal Code and Zoning Ordinance. Any special review or permit requirements are specified in the SmartCode and directed to the Director of Planning, the Planning Commission and/or the Site Plan and Architectural Review Committee.

Figures 3-14 and 3-15 represent sample illustrations from the code.
Fig. 3-14
Central Petaluma Specific Plan SmartCode
a  Existing Conditions
b  Regulating Plan - Districts
c  Regulating Plan - Street Types
Sources:
Central Petaluma Specific Plan SmartCode
Central Petaluma Specific Plan
Table 3.1: Allowed Building Functions and Permit Requirements

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<th>T2</th>
<th>T3</th>
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<td>CUP</td>
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<tr>
<td>Commercial recreation facility - Outdoor</td>
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<td>Theater, fine performance</td>
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</tr>
</tbody>
</table>

LOGIC:
- Retail and service-oriented
- Office or office-oriented

Fig. 3-15

Central Petaluma Specific Plan SmartCode
- Allowable Building Functions
- Proposed Development
- Transect Development Standards
- Building Placement Options
- Streetscape Standards

Sources:
- Central Petaluma Specific Plan SmartCode
- Central Petaluma Specific Plan
Leander TOD Unified Development Code / SmartCode

City of Leander, Williamson County, Texas

Gateway Planning

This code is proposed for a 2300-acre transit oriented development (TOD) in the northeast quadrant of the City of Leander. Its location at the northwestern edge of the central Texas growth corridor has made Leander one of the fastest growing cities in the state (Leander TOD Unified Development Code Initiative Report, 2004). Also fuelling this growth is Leander’s proximity to Austin, which is easily accessible from Leander via U.S. Highway 183. At present, Leander is primarily a bedroom community for the region with almost 70% of its existing landuse dedicated to residential uses. The proposed TOD site represents almost all the vacant land in the city and is surrounded by residential uses, mostly single family. The proposed Capital Metro Commuter Rail connection between Austin and Leander combined with the proposed realignment of U.S. 183 makes this site ideal for integration of transportation with land use.

The Leander SmartCode is applicable only within the boundaries of the proposed TOD and is adopted as an instrument of implementation of the objectives of the city’s comprehensive plan. This code supercedes the City of Leander Zoning Ordinance for development on this site.

The intent of this code is rooted strongly in the Charter of New Urbanism with specific objectives for the area, the community, and the block and building, which support livability through improving the public realm and sustainability through promoting infill development, transit oriented development, resource conservation, preservation, etc. This code is an implementation strategy based on the recognition of growth as an inevitable and desirable condition and the possibility of leveraging transportation facilities to achieve sustainable, pedestrian-friendly, mixed-use neighborhoods (Leander TOD Unified Development Code Initiative Report, 2004).

The Leander SmartCode consists of a transect map, general instructions for community scale plans (new and existing) and building scale plans, and urban standards including a transect zone summary and definitions/illustrations for the standards included in the summary. The transect map for the Leander TOD
includes transect zones T3 (Suburban), T4 (Neighborhood General), T5 (Neighborhood Center), and T6 (Urban Core). The transect map also locates specific sites for civic uses. The transect map included in this code is only suggestive in nature and the general instructions for community scale and building scale plans clarify the street and block framework for the transect map. The intent is that individual projects will produce detailed plans based on the rules. Based on transect zone designations, the transect zone summary includes the following standards: base residential density (by right and for other functions); block size (maximums for perimeter and face); permitted public and private frontage types; civic space types; lot occupation (average area and maximum percent coverage); building setback (minimum and/or maximum for front, side and rear); permitted building disposition (edge yard, side yard and rear yard); building height (maximum and/or minimum for principal building and out building); and permitted building functions.

Several tables define and illustrate the standards included in the transect zone summary, including transect descriptions, private frontages, public frontages, public frontage assemblies, building disposition, civic space types, and building heights. Other tables are included to specify transect zone based requirements for vehicular lanes, vehicular lane assemblies, lane and frontage roster, parking standards, street lighting, street tree planting, and architectural standards. Architectural standards specify material and configurations for walls and massing, doors and windows, roofs and eaves, and attachments. These standards also establish basic rules for the appropriate use and detailing of the various form elements.

The administration of the Leander SmartCode is assigned to an Urban Design Officer appointed by the City Manager with the advice of the Consolidated Review Committee and majority of the landowners (Leander SmartCode, 2005). All development on the TOD site is considered for approval as a PUD and must be presented before the Planning Commission in a public hearing. Depending on scale and type of project, the project may require review by the Consolidated Review Committee. Final approval is granted by the City Council based on the recommendations of the Planning Commission and/or the Consolidated Review Committee.

Figures 3-16 and 3-17 represent sample illustrations from the code.
Fig. 3-16
Leander TOD SmartCode
a Existing Conditions
b Proposed Plan
c Regulating Plan - Transects
d Proposed Development
Sources:
Leander TOD SmartCode
Leander TOD Charrette Book
**Grand Valley Area of Michigan Form Based Code Study**

Grand Rapid Metropolitan Region, Michigan

Farr Associates / Meyer, Mohaddes Associates

This SmartCode template is proposed for three counties and twenty six towns/cities in Grand Rapids Metropolitan Area that are represented by the Grand Valley Metropolitan Council. Not unlike major metropolitan areas in the U.S., the Grand Rapids metropolitan area is faced with uncontrolled growth and issues related to sprawl, including transportation and environmental degradation. Also, continued disinvestment in older neighborhoods and the Grand Rapid downtown is further aggravating these regional issues. The mission of the Grand Valley Metropolitan Council is to advance the current and future well-being of the metropolitan area by bringing together public and private sectors to cooperatively advocate, plan for, and coordinate the provision of services and investments which have environmental, economic and social impact (GVMC Website).

This form-based code study is commissioned by the Grand Valley Metropolitan Council in conjunction with a regional transportation plan proposed by the Metropolitan Transit Authority. This study identifies 40 sites, residential and commercial, across the metropolitan region and proposes a template for a transect-based code based on the site survey findings. This template will be detailed based on transect zoning designations. This code template is designed to be used by municipalities within Grand Valley to create their own form-based code to regulate development within their community (GVMC Form Based Code Study, 2005).

The purpose of the Grand Valley Form-Based Code Study is to examine, measure, and describe the development standards in the Grand Valley metropolitan area along a continuum of rural to urban development, known as the transect. The standards within this template are based upon the types of development found in each segment or zone of the transect, from rural to urban, in the Grand Valley metropolitan area. The code template is based upon the best examples of development in the Grand Valley metropolitan area. A list of best places was compiled by volunteers working with GVMC, included students, municipal staff, architects, consultants, and local residents (GVMC Form Based Code Study, 2005).
The entire region is organized as six transect-based context zones (CZ1 – Preserve, CZ2 - Rural, CZ3 – Urban Edge, CZ4 – General Urban, CZ5 – Urban Center, and CZ6 – Urban Core). Based on the site and street surveys, the study summarizes the neighborhood scale measurements, such as block and lot width, street characteristics, building height, building siting, building coverage, frontage, and use. Site measurements, such as front setback, side setback, site coverage, building height, transparency, base type, and cap type, are also summarized based on building types in specific context zones. The sample regulating plans illustrate building types, street types, and distribution of public spaces for context zones CZ3, CZ4, CZ5 and CZ6. This study identifies eleven building types (downtown, storefront, main street, cottage shop, courtyard, rowhouse, apartment building, cottage house, manor house, estate, and rural cottage) and illustrates standards for each building type, including building siting requirements (street frontage, buildable area, interior side yard setback, rear yard setback), off-street parking requirements (location, driveways and access, and screening and landscaping), height requirements (building height, floor heights, parking garage height, cap type height), uses (ground floor and upper floors), façade requirements (transparency, building entrance), and façade elements (allowable base types, allowable cap types, and façade proportions). This study identifies three basic urban street types (boulevard, avenue, and street) and five supporting street types (multi-way boulevard, connector, yield, mews, and alley). The sample street type standards illustrate the various components of the right of way including travel lanes, medians, parking lanes, bicycle lanes, edge zones, bus stops, furnishings/planting zones, pedestrian zones, and frontage zones. These components are dimensioned based on context zones and location in residential, commercial, and/or mixed use areas.

This study is not specific about administrative and implementation details, which will be legislated through the codes designed by the individual municipalities based on the template.

Figures 3-18 and 3-19 represent sample illustrations from the code.
Fig. 3-18
Grand Valley Form Based Code Study
a  Regional Plan
b  Existing Conditions - Context Zones
c  Sample Regulating Plan - CZ 3
d  Sample Regulating Plan - CZ 4
e  Sample Regulating Plan - CZ 5
f  Sample Regulating Plan - CZ 6
Sources:
Grand Valley of Michigan Form Based Code Study
Fig. 3-19
Grand Valley Form Based Code Study
a  Summary Table of Neighborhood Scale Measurements
b  Summary Table of Neighborhood Configurations
c  Sample Thoroughfare Standards
d  Sample Building Type Standards - Downtown Site
e  Sample Building Type Standards - Rowhouse Site
Sources:
Grand Valley of Michigan Form Based Code Study
Understanding the Product of Form-Based Codes

In order to understand and explain patterns of similarity and dissimilarity within the case studies described in the previous section, this section categorizes and compares the case studies based on cross-sections such as geography, chronology, scale/structure, intent, typology, and fit. These cross-sections are based on the form-based code as a product but also reference the place imagined as a product of the form-based codes. This section also correlates codes across different cross-sections, such as scale and intent or chronology and intent. These correlations help explain certain patterns observed in the cross-sections.

Geography refers to the physical location of the product in terms of state boundaries. Chronology refers to the year that the code was adopted or legislated by the city, county or municipality. Scale and structure are essentially correlated cross-sections. Scale refers mostly to the physical scope of the project (neighborhood/community, district, city, or regional) but at times could reference a perceptual or identifiable scale, especially in the description of community scale plans. Structure (form-based, neighborhood/corridor/district) is a translation of scale into the organization of the code, which is almost always adjusted along a continuum based on context of the codes. Intent is an interpretive cross-section, which classifies the place-making intention (shape place or preserve place) of the code. Typology refers to the dominant character of the urban intervention (transit oriented development, traditional neighborhood development, urban revitalization, and regional plan) and is a discrete value. Fit is the placement of the form-based code within the legislative framework of the city, county or municipality.

Geography

In terms of geographic location, the case studies include codes from California, Texas, Florida, Kentucky, Virginia, and Michigan (see fig. 3-20). In 2004, California Governor Arnold Schwarzenegger signed a bill that places “form-based zoning” into state statutes that regulate how California develops. Assembly Bill 1268 institutionalizes form-based zoning for the first time in California history (Hall and Crawford, 2004). This legislation is explained by the higher frequency of form-based codes from the state of California, including the Pleasant Hill BART Station Property Code, the City of Azusa Development Code, the City of Sonoma Development Code, and the Central Petaluma Specific Plan SmartCode.
However, this geographical affinity for California in the case studies does not translate into other similarities in the codes. The codes differ in structure, scale, typology, and fit within the existing policy framework. While this is illustrative of the malleability of form-based codes to adjust to different contexts, the lack of similarity due geographical affinity, especially in addressing place-specific issues, could be a concern. Cities and counties in California face similar issue relating to sprawl and uncontrolled growth around major metropolitan areas. The Pleasant Hill BART Station Property Code emphasizes the transit orientation for future development in the area, but the City of Azusa Development Code, the City of Sonoma Development Code, and the Central Petaluma Specific Plan SmartCode lack this commitment to transit oriented development patterns. Lack of similarities and patterns in responses could be indicative of a lack of coordination. A coordinated approach between cities, counties and metropolitan regions, especially on issues like transit oriented development or smart growth, could be valuable. The state of California has the required legislative and policy framework to support such coordinated efforts.
Another issue related to geography is stylistic. Considering the variety in regions represented in the case studies, the overall preference for a neo-traditional or revivalist aesthetic could be a concern. While some codes referenced specific regional styles, like the preference for the Woodford County Bluegrass region aesthetic in the New Urban Code for Woodford County, most codes favored an aesthetic that is traditional in a broad sense. A possible explanation for this preference is the strong association of form-based codes with New Urbanism, which advocates that urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice (Charter of New Urbanism) but also suggests that there is inherent value in traditional neighborhood development patterns, including historical and vernacular stylistic references. The Pleasant Hill BART Station Property Code requires a Spanish Colonial Revival style, which is broad regional stylistic reference but lacks local contextual references. This represents a different perspective on the argument for a regional stylistic reference, i.e. the reinforcement of regional clichés related to aesthetic and style.

**Chronological**

Since the case studies are located within a relatively short time frame, no discernable chronological patterns are observed in the codes (see fig. 3-21). There is certainly evidence of clarification and correction over time, which is expected. As more form-based codes are written, there is a larger knowledge base and expertise in the field. Through sharing experiences with code projects in forums, like the New Urbanism...
Council, consultants and public officials involved with form-based codes find it possible to calibrate codes to better suit the needs of their code projects. Limited experience with implementation is a consequence of this relatively short time frame, but this issue will recede as more codes begin implementation. However, it is possible that examples of failed implementation could discourage cities and counties from adopting form-based codes. It is important to note that failed implementation is not necessarily a consequence of shortcoming in the code but a sum total of the social, economic, and political context of the application.

An important evolutionary pattern in form-based codes is the transition to transect planning principles and the SmartCode template. While it is possible that the structural evolution was a consequence of scalar requirements, this structural shift made it possible to write codes for larger scales (see fig. 3-22 and fig. 3-23). The New Urban Code for Woodford County is an exception since it was written prior to transect planning. This code is a regional plan structured as a district scale plan for two cities. On the other hand, some community and district scale plans, such as the Leander TOD SmartCode and the Central Petaluma Specific Plan SmartCode are opting to use the structure of transect-based codes.
Scale/Structure

The versatile structure of form-based codes is applicable at diverse scales. The case studies could be classified into four main scales: Community/Neighborhood scale (Farmers Branch Station Area Form Based Code, Pleasant Hill BART Station Property Code), District scale (Columbia Pike Special Revitalization District Form Based Code, Central Petaluma Specific Plan SmartCode, Downtown Kendall Urban Center District Ordinance, Leander TOD SmartCode), City/Town scale (City of Azusa Development Code, City of Sonoma Development Code), and Metropolitan/Regional scale (New Urban Code for Woodford County, Grand Valley Area Form Based Code Study) (see fig. 3-24).

Consequently, scale determines the structure of form-based codes (see fig. 3-25 and fig. 3-26). But the basic unit of design continues to be community or neighborhood, which substantially influences sense of place by aligning sense of community and sense of place. The community/neighborhood scale plans are structured as basic form based codes with regulating plan(s), building envelope standards, streetscape/thoroughfare standards, and architectural standards, allowing for minor diversions to accommodate existing conditions.

For example, the Columbia Pike Special Revitalization District Form Based Code is proposed for a 3-1/2 mile corridor, which is perceived as a single community. This plan is subdivided into four neighborhood scale regulating plans based on critical nodes along the corridor. District or city scale plans are typically subdivided into planning areas based on certain urban characteristics as neighborhoods, corridors, or...
special districts. These planning areas are further structured like basic form-based codes, except for the inclusion of detailed land-use allowances. The Downtown Kendall Urban Center District Code is a district scale code but is structured like a basic form-based code with no further subdivision into planning areas. Increasingly, district and city scale plans are adopting transect planning concepts (SmartCode), which delineate planning areas based on transect zones. The Leander TOD SmartCode and Central Petaluma Specific Plan SmartCode are examples of district scale codes based on the SmartCode template. The SmartCode template is more suited to metropolitan/regional scale plans. Transect zones are located on a rural-urban continuum and the metropolitan/regional scale is appropriate for exploring the entire spectrum of this continuum. The New Urban Code for Woodford County predates transect zoning and is structured as community scale codes for the two cities included in the code.

Scale and structure of form-based codes also show a strong correlation with intent towards place, i.e. 'shaping place' or 'preserving place'. The 'shaping place' intent appears to be better suited to community or district scale codes, such as the Pleasant Hill BART Station Property Code, the Farmers Branch Station Area Form Based Code, the Downtown Kendall Urban Center Ordinance, and the Leander TOD SmartCode. Possibly, the intensity and energy required from the code to meet this intent makes it a difficult proposition for city or regional scale codes. On the other hand, a city or regional plan offers a larger palette of place-based characteristics to build a code on. The City of Sonoma Development Code, the New Urban Code for Woodford County, and the Grand Valley Area Form Based Code Study exploit the richness and uniqueness of character offered by these place, which begins to gain momentum with scale.
Intent

In most cases, an article stating the intent/purpose of the code introduces form-based codes. The objective of stating the intent of the code is to set the tone for future development and establish the rules for interpretation. The prescription of the code could be meaningless without this intentional statement of purpose. The Pleasant Hill BART Station Property Code intends to foster a vital public life through its squares and tree-lined streets overlooked by upper story residential balconies. The New Urban Code for Woodford County advocates that future growth follow a traditional 'town and country' pattern and that it foster healthy public dialogue about that growth. These intentions are akin to vision statements, which are interpreted in the code as formal specifications for the public and private realm.

In some cases, such as the City of Azusa Development Code and the City of Sonoma Development Code, the intent is to promote the public health, safety, comfort, convenience, prosperity, and general welfare of residents, and businesses in the city. In reality, these codes are attempting to formalize two distinctly different narratives. The City of Azusa is attempting to distinguish itself from the many San Gabriel Valley suburban conurbations, while the City of Sonoma is seeking to preserve and protect the city's distinctive character and desirable scale. Yet the specific development goals for both cities address synchronous issues like orderly growth, sustainable land-use and infrastructure patterns, natural conservation including viewsheds, pedestrian-friendliness, and reducing automobile dependence.

Broadly, the cases studied could be classified into two distinct categories based on the stated intent of the code – those that seek to 'shape place' and those that seek to 'preserve place' (see fig. 3-27). It is important to recognize the two categories as two ends of a continuum and not as discrete values. The 'shaping place' category includes places like Pleasant Hill and the City of Azusa, where the existing references to place and place-character are limited and the place seeks to reinvent itself. The 'preserving place' category includes places like Woodford County and the City of Sonoma, where the uniqueness and distinctiveness of place dominate the narrative and the focus is on protecting this place-character. Columbia Pike and Central Petaluma represent in between places with some unique place characteristics but not enough synergy to create value. These places struggle to find a balance between 'shaping place' and 'preserving place'.
Over time, there appears to be a discernable shift in intent from merely 'shaping place' to 'preserving place' (see fig. 3-28). Although, the broader issues being addressed in all cases continue to be sustainability and livability, the most pressing issues facing urbanism in the U.S. and the umbrella agenda of New Urbanism. As noted earlier, most cases studied could be classified under the rubric of New Urbanist codes, which could explain the fact that the intent expressed in the case studies reads like the Charter of New Urbanism. Nonetheless, this represents a slippery path, since singularity of intent creates places with essentially similar characteristics. Stylistic and typological differences could be over-shadowed by singular intentions.

### Typological

Most of the case studies are easily classified as urban typologies, i.e. the motivation for undertaking a code project and the representation of place in terms of character is recognizable as a specific type of urban intervention (fig. 3-29). The Pleasant Hill BART Station Property Code, the Farmers Branch Station Area Form Based Code, the City of Azusa Development Code, and the City of Sonoma Development Code, among others, are examples of this typological approach.
Form Based Code, and the Leander SmartCode are transit oriented developments (TOD). The New Urban Code for Woodford County and the City of Sonoma Development Code are traditional neighborhood developments (TND). The Columbia Pike Special Revitalization District Form Based Code, the City of Azusa Development Code, and the Central Petaluma Specific Plan SmartCode display characteristics of urban revitalization projects. Other urban typologies like urban villages and pedestrian pockets are applicable to many case studies as additional layers. So, Pleasant Hill BART Station Property Code has characteristics of an urban village while it is classified as a TOD. It is important to note that typologies are not scalar values, although certain scalar associations may be evident in the case studies.

Each of these urban intervention typologies is associated with specific place characteristics, which in conjunction with other contextual constraints, such as scale and structure (as a consequence of scale), constitute ‘sense of place’ (see fig. 3-30 and fig. 3-31). But it is important to note that ‘sense of place’ is more than a physical construct. Urban typologies like TOD or TND suggest specific implications for physical form, which are fairly generic and transferable. In reality, places are constructed of many alternative narratives. The specific plan for the 400 acre site at the heart of Petaluma follows the trend of urban revitalization by proposing a fine-grained mix of uses, residential, commercial, and small-scale industrial, knit together by a public realm (streets and open spaces) focused around the Petaluma River. Alternative narratives for this space could include an eco-friendly industrial park, which would allow the river to continue as a working waterfront, or a natural reserve, which returns the river to its unmanaged ‘wild’ state.
### Fit

The case studies display a wide range of fit between the form-based code and the legislative/policy framework within which the code operates. This nexus plays a determining role in the impact of form-based codes as place-making regulations. This could be related to the regulatory impact of the codes with respect to zoning, permitting procedures and review structure.

Fit is usually a direct consequence of scale. City scale codes are best suited to complete replacement of existing conventional zoning codes, as in the City of Azusa and Sonoma. At times, the city continues to adjudicate both codes until the form-based code is tested. In areas of conflict between the two codes, the form-based code supersedes the existing code. At the other end of the spectrum are form-based codes that supplement existing zoning codes as property codes for specific parcels, such as the Pleasant Hill BART Station Property Code and the Columbia Pike Special Revitalization District. At times, the form-based code is included as Planned Unit Development Guidelines within an existing zoning code, such as the Farmers Branch Station Area Form Based Code. A myriad of permutation and combinations exist, based on the scale and structure of the codes.

Permitting procedures and design review could both enhance and impede the impact of a code on place. Most cases studied subjected projects and proposals of a certain size and in specific locations to special permitting and design review. If a similar organization is non-existent in a particular city or county, the form-based code suggested the composition of this organization to best represent the place and the

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<td>Central Petaluma</td>
<td>Columbia Pike</td>
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<tr>
<td>Farmers Branch</td>
<td>Pleasant Hill</td>
<td>Leander TOD</td>
<td>Woodford County</td>
</tr>
</tbody>
</table>

### Diagram

**Fig. 3-30 (left)**
Scale-Typology Correlation

**Fig. 3-31 (right)**
Structure-Typology Correlation
community. In some cases, like the Pleasant Hill BART Station Property Code, the New Urban Code for Woodford County and the Leander TOD SmartCode, the code suggests the creation of a new position, Town Architect, Town Planner, or Urban Design Officer, as a liaison between the community and the municipality. Both these conditions require careful selection, since place-making starts where the code stops.

**Summary**

The diversity of typology, scale, structure and fit within the cases studied, even within a relatively short time period, is evidence of the flexibility of form-based codes. No two codes are similar in their classification based on these criteria, effectively demonstrating the malleability of form-based codes (see fig. 3-32).
However, the window of opportunity gets narrower as the intent of the code comes into play. While the case studies displayed distinct preferences about ‘shaping place’ and ‘preserving place’, the inherent intent of the codes in terms of the product, i.e. the places they represented, was limited to a very specific narrative. A place that is relatively compact/dense with mixed-uses, is walkable and pedestrian friendly, is ecologically sensitive and conservative, and is aesthetically reminiscent of historical and vernacular traditions. This is the narrative of a place for recreation or leisure, mostly for residents and, at time, visitors. This choice precludes other intentions like affordability or a working city. Almost every code formalizes this intention through the structuring of blocks and streets in the regulating plan, the specifications in the urban standards regarding block dimensions, street widths, etc., the choices about streetscape standards like parking, planting, lighting, etc., and the traditional design requirements in the architectural standards. While this may be a short-lived limitation due to the nexus between form-based codes and New Urbanism, it is important to be cognizant and vigilant towards alternative narratives and intentions present in different places.

Form-based zoning, as an instrument, displays the required flexibility to absorb this multiplicity of characters. In order to capture both a typological intent and sense of place, the proposed ‘vision’ requires careful calibration and meticulous translation into intent. More importantly, form is only one aspect of place-making. The significance of the physicality of places is often overstated: (patterns of) activities and (layers of) meanings may be as, or more, important in creating sense of place (Carmona et al, 2003). Places are made vital by the people that inhabit these places, by the processes that constantly change places and allow people to participate in the making of the physical environment, and by the policies that create the framework for this civic act. Form-based codes are a single cog in the wheel, but an essential ingredient for place-making. These codes do not exist in a contextual vacuum and are shaped in many ways by the vagaries of place, the quirks of the process, the actions of people (the community, public officials and consultants) and the limitations of the policy framework. The following chapter understands the impact of this periphery on form-based codes and the choice of form-based codes as a regulatory instrument.
Chapter 4  

In the previous chapter, the primary focus was on identifying place-differentiation within the case studies based on geography, chronology, stated intent/purpose, structure/schema, typology and fit (within the regulatory framework). While it was assumed that geographical location and cultural heritage were critical factors in shaping place characteristics, it appears that the underlying intent/purpose of the code dominates the projected sense of place. The case studies are easier classified as specific ‘urban typologies’, such as transit-oriented development, traditional neighborhood developments, urban villages, etc., identified by a core set of values/guiding principles addressing issues such as sustainability, walkability, ecological sensitivity, civility and sociability, affordability, economic feasibility, etc. Individually these principles are sound and represent pressing issues facing urbanism in the U.S., but collectively they read like a manifesto, specifically the Charter of New Urbanism. The implication is that the form-based codes studied represent places with essentially similar place characteristics and a little differentiation based on unique geographic locations and cultural differences.

This chapter attempts to explain this lack of place-differentiation through examining the influence of the following factors in shaping the product of form-based codes: a) the place itself, b) the process (including the participants i.e. the community, policy-makers and professional facilitators), and c) the policy framework. These are factors that shape the stated intent of the codes and direct development in a specific direction through the prescribed code.

Place

The built environment can be measured on multiple dimensions. Broadly these measures represent the intersection of physical form, function/activity, and perception and include several aspects of the built environment such as character, continuity, quality, accessibility, legibility, adaptability and diversity (Carmona et al, 2003). It includes the way places work… as well as how they look. It concerns the connections between people and places, movement and urban form, nature and built fabric, and the processes for ensuring successful villages, towns and cities (DETR/CABE, 2000 in Carmona et al, 2003). This, in essence, describes the urban design tradition
of ‘place-making’, i.e. making places for people, and illustrates the inherent complexity of intervening in the built environment in order to create unique places.

Form-based codes, in terms of product, focus on formal aspects of the built environment, i.e. function follows form (Kohr, 2003). This is not to imply that form-based codes do not address functional aspects of the built environment at all. In fact, the stated intention of creating mixed-use environments is an indirect application of function to form. While this method of guiding development through implicit rules is supportive of existing uses in certain places, it does not guarantee the creation of compatible uses or address the existence of incompatible uses. In some cases, it may result in the generation of a narrative, which is not native to a certain place, i.e. form follows fiction (Ellin, 1999). This implies that form-based codes require careful calibration to the place itself and a formulaic approach may not be the best approach.

Another issue related to sense of place is the lack of it, i.e. placelessness. In the specific case of American urbanism, many years of uncontrolled growth have resulted in dysfunctional urban/suburban landscapes with little place-character; morphologically, perceptually, socially or visually. Under the circumstances, the place itself becomes an impediment to responsive place-making and form follows fiction (Ellin, 1999) appears to be a acceptable axiom. While form-based codes attempt to create opportunity from this constraint, the lack of diversity in possible narratives results in the creation of similar and repetitive places lacking unique character. An often repeated vision is as follows: A unique, mixed-use urban-style neighborhood that blends retail uses, restaurants, personal and professional services, offices and housing in an environment that emphasizes walkable public spaces and creates a memorable experience for those living, working, shopping and visiting the neighborhood (Farmer’s Branch Station Area Code, 2004).

On the flip side, cities and towns with unique place-characters and recognition of the strength of their neighborhoods often write extremely conservative and highly prescriptive codes. The attempt here is to protect the unique character of the community and its neighborhoods and conserve the city’s natural beauty including, scenic views, hillside open space, and historic and environmental resources (City of Sonoma Development Code, 2004). Often this results in places ‘frozen’ in time, a common argument in preservation regulation, and precludes other desirable dimensions of urban places such as alternative housing typologies, relocation of...
specific functions, etc. However, the core argument continues to be denial of an evolving context – physical, social, economic, cultural and political. Also, the dominant narrative in most cases involves history and/or tourism, which limits the potential of the place itself.

Scale of proposed intervention is a critical consideration in this discussion about place. Larger scale proposals, such as the City of Sonoma Development Code or the Woodford County Urban Code, build upon a wider palette of street types and public/private frontage options. Compared to site-specific codes, such as Pleasant Hill BART Station Property Code, these city scale codes extend beyond neighborhoods into special districts and corridors in order to achieve the intended urban environment. A specific site or a particular neighborhood is not used as a proxy for an entire city. This results in a more realistic representation of a place through the code.

**Process (and People involved)**

While the lack of diversity in possible narratives in place-making could result in similar and repetitive places, the responsibility for this narrow window of opportunity could lie in the process itself. More precisely, the process of generating form-based codes involves civic participation, which includes the community/communities, policy-makers and professional facilitators. At present, tremendous value is associated with inclusive processes, especially in long term planning and regulatory propositions, but participatory processes could also be abused in the service of preserving neighborhood and business property values (Ellin, 1999).

The stated intent/purpose, which anchors most form-based codes, is crucial to understanding the psyche of the community, the political agenda of the local government and the manifesto of the professional facilitator. As observed in the case studies chapter, the studied form-based codes could be classified into two categories; 'shaping place' (facilitating desired place characteristics) and 'preserving place' (protecting and preserving existing place characteristics). In both cases, the community and policy-makers are involved in the process of underwriting property values through their implicit association with specific best practices in urbanism, i.e. *form follows finance* (Ellin, 1999). This intent is rarely expressed in these terms but couched in terms of other normative values like sustainability and sociability.
At present, the New Urbanism or neo-traditional urbanism is finding increasing favor with communities as the anathema to present day suburban/sprawl issues and form-based codes are fairly exclusively associated with neo-traditional urbanism. Several studies have established that homes in New Urbanist neighborhoods command an aggregate premium. Most of the premium stems from increased internal connectivity and decreased external connectivity and more than compensates for the severe price discount associated with increased density and mixed land-uses (Knaap & Song, 2003). The question here is if communities are supportive of New Urbanism purely for the economic bottomline, or are they actually cognizant of the social implications ('sense of community') of neighborhood characteristics like increased internal connectivity and decreased external connectivity? New Urbanism is a cleverly packaged marketing strategy based on the axiom that 'community sells' (Duany and Plater-Zyberk, 1992).

While the drive behind this support for form-based codes, a regulatory framework based in neo-traditional urbanism, may appear to be simply rooted in the perception of higher property values, it is important to consider the sense of community dimension of this argument. Sense of community as a measure of neighborhood social life extends beyond shared emotional connections (based on interaction) and place attachment (physical rootedness) to include several more nuanced affective dimensions such as membership (personal investment), influence (group conformity) and reinforcement (mutual support) (Talen, 1999). It is possible that several communities are ascribing to neo-traditional urbanism as a means of connecting to these dimensions of 'sense of community', which extend beyond the boundaries of their neighborhoods and cities. They are seeking to be members of either an 'exclusive club' or a 'support group', depending on the circumstances. Nonetheless, any form of membership comes with requirements of conformity and homogeneity.

Also, this process empowers communities through information in the form of a simple, well-illustrated code, which attempts to demystify urbanism for the masses and provide clear direction for future development. A potential spill-out of this situation could be characterized as 'informed NIMBYism' on the part of communities. Advocates of form-based codes believe they should be too, because they're protecting something really important (Katz at CNU Council, 2002). Exclusivity has been one of the loudest complaints against New Urbanism but self-preservation combined with a property values manifests itself as a profound
Commodity or Public Good

Concern with status quo (Rowe, 1991), which has been successfully channelled by New Urbanism. Also, the markets adherence to maximizing profits contradicts any intention of inclusivity (Clarke, 2005) and diversity/heterogeneity. Maybe homogeneity within a neighborhood and across different neighborhoods is a positive societal value. Housing as a commodity (differentiated by features) or as public good (singular in appearance and iconic representation of individual property rights (Rowe, 1991).

Local governments and policy-makers are key to setting the tone for future growth and establishing the rules for equitable development. Pressing issues like declining centers and explosive regional growth are demanding attention and popular trends addressing these issues are finding favor with government. In theory each city/town or region is a consequence of unique circumstances, but most local authorities lack the resources (personnel or finances) to explore place specific options. Form-based codes and SmartCodes (trademarked by Duany Platter-Zyberk) offer a new approach builds on the idea that physical form is a community’s most intrinsic and enduring characteristic. It seeks to codify that form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality (Katz, 2004). Many years of adjudicating archaic zoning regulations have left many city/local authorities open to alternatives, especially an understandable and predictable version. Form-based codes are based on a shared vision of place and provide developers with unambiguous directions about what can and can’t be built in a particular neighborhood, corridor and district.

The local political structure/policy-makers are vested in facilitating change and serve as mediators between perceived problems and possible solutions. The issue here is not the explicit choice of form-based codes as a possible solution but an implicit endorsement of neo-traditional urbanism through retaining specific firms/consultants. While the New Urbanists have raised many critical issues facing our cities, publically and successfully (Robbins, 2004), their claims about positive effects on quality of life/opportunity are far from substantiated, especially in infill development projects. Compared to new greenfield developments, infill developments (site-specific, city-wide or regional) are constrained by existing conditions. The same holds for regional planning/development issues, where the scope of problems resulting from uncontrolled growth including employment, transportation and affordable housing, is beyond the purview of New Urbanism.
Good governance attempts to internalize all externalities. So, each place (as defined by governance boundaries) is everything onto itself, irrespective of its limitations or uniqueness. Under the circumstances the onus to maintain ‘context’ around the codes is on local government and policy-makers.

A third component in this mix is the ‘facilitator’ or the firm(s)/consultant(s) commissioned to prepare the form-based code. As discussed in the previous section, this group of architects, planners, urban designers, engineers and lawyers is mostly associated with a specific ideology, specifically neo-traditional urbanism. But, it is important to acknowledge that the association between form-based codes and New Urbanism is not automatic, i.e. form-based codes continue to be working proposition independent of the ideological connection to neo-traditional urbanism, and that the quality of the code itself is not diminished or enhanced by this association. The conflict is when a specific design manifesto, albeit an evolving one, is repeatedly applied to varied contexts with equal competence. The result is usually lacking variety even though the process is purportedly participatory. As the experts in the process, the professionals facilitating the process must be responsible for managing the ‘context’ around the codes, i.e. putting place specific solutions ahead of ideological intentions and principles.

In the meanwhile, there is a lack of singular voice, to a large extent, between what communities envision for the future, what local governments claim as development objectives and how the facilitators of form-based codes define the role of these codes within the regulatory framework. This results in a regulatory document, which is ‘everything to everybody and nothing to nobody’. The following is an excerpt from the Pleasant Hill BART Station Community Plan: Liberate your mind and imagine a wonderfully vibrant, colorful, accessible community surrounding the Pleasant Hill BART Station. Think about having a bakery, some park benches and trees, and a small bookstore just a short walk from the station, or from the new nearby townhomes and apartments. As you stroll to the station, perhaps you drop off dry cleaning, fill a prescription, or enjoy a cup of coffee and a bagel before getting on the train. Coming home, they may choose to take a bike ride on the Iron Horse Trail and then meet some friends at a restaurant overlooking a grove of large oak trees. Contra Costa County lists the following reasons for public investment in the Pleasant Hill BART Station Area Development process:

1. It (the future station area development) will create more jobs.
2. It will encourage “smart growth.”
3. It will increase the area’s...
The Pleasant Hill BART Station Property Code is introduced by the following abstraction: The Pleasant Hill BART Station Property plan is designed to foster a vital public life through its squares and tree-lined streets overlooked by upper storey residential balconies. And if all this seems to be too good to be true, think again. Thanks to the efforts of many civic leaders, their hardworking staff, and hundreds of citizens, your BART station community may become just that—a real community (Pleasant Hill BART Station Newsletter, 2000).

A variation of the Pleasant Hill BART Station Property Code introductory statement introduces the Columbia Pike Form Based Code. The intents are similar, which happily coincide with the principles of New Urbanism, and the prescribed solutions/codes are comparable with the exception of the Regulating Plan, which is centered on a main street in Columbia Pike instead of the BART station in Pleasant Hill. However, Columbia Pike is in Arlington, VA. The common denominator in both projects was Ferrell Madden Associates, a planning and urban design firm and member of the Congress of New Urbanism. No doubt that this multiplicity of expression is typical of planning and design processes involving many stakeholders and participants, but the issue at hand is if this end product truly represents Pleasant Hill, CA.

Policy

A final consideration in this discussion is the policy framework within which form-based codes are located and how this framework could limit the place-making potential of the codes and vice-versa. The objective of this discourse is not to compare form-based codes to conventional zoning but to extend the understanding of form-based codes as a regulatory mechanism/instrument. Any place, community or city, is located within a policy framework, a hierarchical structure for decision making. Generally, this would include federal, state and local (city/town) levels, and an intermediate metropolitan/regional level for agglomerations around major cities. While certain developmental sectors, such as transportation, are planned at the state level, the state mostly establishes legislative requirements to guide development at the local or regional level. Planning, which is specific to neighborhoods or cities/towns, is performed mostly by local governments with input from regional planning agencies, such as
Metropolitan Area Planning Commissions. In California, for example, issues related to growth, both physical and economic, are addressed through a general plan, which is prepared/revised in five year cycles by each city/town. Most cities/towns regulate future development through zoning ordinances and building codes. At present, form-based codes, site-specific or city-wide, are mostly applied as an amendment to zoning ordinances. Increasingly, form-based codes, derived from the SmartCode template, are being proposed as an alternative to existing zoning ordinances.

The SmartCode template is conceptually based on transect planning, which locates each element of the built environment along a urban-rural continuum in order to generate a more dynamic response to guiding development (Duany & Talen, 2002). While transect planning is formally more akin to development processes in urban/suburban areas, the SmartCode template continues to lack the structure to address developmental issues beyond physical form. Since form-based codes focus on physical form, i.e. form first (Katz, 2004) or function follows form (Kohr, 2004), these codes are more akin to urban design guidelines, which are meant as specific ‘prescriptions’ for the built environment. To borrow a parallel definition from linguistics, these codes are based on establishing norms or rules indicating how a language should or should not be used rather than describing the ways in which a language is used. With prescription comes a certain heavy handedness about implementation and mandating adherence to the regulation. So there is little room to add expressions to the communication beyond the scope of the prescribed language. An important reference for the language of form-based codes is the Lexicon of New Urbanism, which is very attractive for its simplicity but is deeply rooted in principles of neo-traditional urbanism. As policy, form-based codes are attempting to step away from the performance-based aspects of zoning but getting mired in limitations of a prescribed vocabulary and lack of flexibility to innovatively interpret this vocabulary.

To extend this discussion of limited vocabulary further, form-based codes lack the linguistic range to address developmental issues like employment, transportation, affordability, etc. While these issues could be addressed indirectly as unintended consequences of site-specific/city-wide codes or are implicit in the intent/guiding principles, the code itself lacks the framework to explicitly address specific development issues. Proponents of form-based codes are divided in their responses to this disconnect, i.e. the
Establishing Performance Criteria

At the New Urbanism Council in 2002, many participants expressed concerns regarding the limited regional planning impact of form-based codes but the recommendations ranged from integrating these issues within form-based codes at the cost of losing clarity, to lobbying for state legislation to address these issues as peripheral to the code itself. In the latter suggestion, which appeared to be the favored option, state legislation would be used as performance criteria for the prescription in site-specific or city-wide code. Again the limiting factor is the strong association of form-based codes with New Urbanism, affordable housing being a case in point. The architectural standards imposed by this association with neo-traditional urbanism are acknowledged as a cost imposition but touted as creation of value and quality (Ferrell Madden website).

As conceived, form-based codes were attempting to regulate physical form using urban design standards (streetscapes, public spaces and densities) and architectural standards (aesthetic style). Increasingly, these codes are prescribing land use but only to a limited extent. As the codes get more complex, i.e. transition from purely architectural guidelines to include urban design guidelines and, as a next step, land use policies, implementation of the codes becomes harder and, as a consequence, their utility as regulation is compromised. Compared to urban standards and land use policies, architectural standards are favored in terms of use and implementation (Sohmer & Lang, 2000). While form-based codes allow architectural standards as an optional element of the code, most cases studied opted to include architectural standards in order to capture visibility and ease of implementation. The result is a sense of unity based on repetition and similarity but establishes a certain sense of control on the built environment.

An essential component of form-based codes, as regulatory mechanisms, are design review procedures. Most cases studied, stipulated requirements for design review, which is important to reconnect the codes to context. Design review functions as a tempering mechanism and, if structured properly, it could ensure quality of product in conjunction with meeting regulatory requirements. It could be capitalized on as a means of infusing place-based details into particular projects within the larger purview of the code. But design review is almost always advisory in nature and lacks regulatory clout. Nevertheless, it can be valued as an means of dispersing information and establishing higher standards for development. It is largely
dependent on the civic engagement/culture of the local government and citizens. Market and development economics also compromise the potential impact of design review procedures. At times, the pressure to ensure development in an area is much greater than the notion of ensuring quality and appropriateness. In this context, form-based codes do eliminate some uncertainty about the product by strongly prescribing the solution. But in order to provide some incentive for development, these codes also suggest incentives such as fast track processing and waiver from traffic impact studies and environmental mitigation requirements. Though these waivers are conditional to compliance with the code itself.

**Summary**

Form-based codes exist within the constraints of a context, which includes place, process, people, and policy. Adressing place requires a fine-grained approach. Communities demand increasing value while maintaining status quo. Community participation could result in an unpredictable product, yet administrators and policy makers require predictability. Code facilitators are promoting an ideology in an extremely rigid policy framework. The process of place-making could be lost in the melee. While form-based codes appear to be extremely malleable and reflexive, this complex condition could prove burdensome for any code or regulatory instrument without compromising its place-making potential.
The central question of this thesis about form-based codes is about 'genius loci', i.e. the spirit of place (Norberg-Schulz, 1980). This terminology espouses perceptual qualities (spirit) in location-specific physical space (place) and frames the working definition of 'place-character'. The initial hypothesis postulated by this thesis was that the places imagined as a product of form-based codes are not differentiable in terms of place-character. The case studies substantiate this instinct about form-based codes. While form-based codes, as a product, prove to be extremely reflexive to contextual differences, the places imagined as a product of the codes represent a narrow intentional range in terms of place-character. It is possible that form-based codes promote uniform development not unlike the product of conventional zoning, albeit of higher quality. The efficacy of form-based codes over conventional zoning as a means of producing desired development is not the focus of this thesis but was assumed as a given based on prior work on this topic.

While the highly prescriptive nature of form-based codes ensures consistent quality in the resulting development, this prescription also imposes a specific regimen on the character of the resulting place. The application of form-based codes as an implementation vehicle for the desired outcome in terms of place elevates the persistence of this prescription. Predictability of outcome is critical, but could result in homogeneity of place as an unintended consequence. In order to ensure diversity in place character, this prescription requires adjustment based on the context of the form-based code application. The case studies prove that the genetic structure of form-based codes is not lacking in robustness or flexibility to adapt to place-based application. Possibly, we have created a genetic bank that promotes cloning rather than mutation. The process of producing multiple sets of standards, all practically identical in terms of a single ancestor, and applying them with disregard to place and locale, has more often than not created ubiquitous, unsympathetic spaces (Ben-Joseph, 2005).

Initial applications of form-based codes were limited to creating new communities in greenfield developments (shape place). Over time, the potential inherent within the structure of the codes to address issues endemic to existing urban places (preserve place), including infill and preservation, was exploited.
present range of applications covers both ends of the spectrum. However, the implicit character of these places, as represented by the codes, continues to reference a limited narrative. While this narrative of walkability, mixed uses, and sociability under the rubric of sustainability and livability is current to urbanism in the U.S., its problem solving potential is far from validated. Application of this essentially generic and transferable narrative across different locations and contexts without place-based calibration results in places that lack differentiation in terms of place character. Thus, form-based codes become the vehicle for the propagation of this specific agenda regarding urbanism. In the United States, this approach is associated with New Urbanism and aggressively promoted by members of the Congress of New Urbanism.

Yet, form-based codes, specifically New Urbanist codes, are being adopted by many cities/towns, counties, and metropolitan regions across the United States. It is possible that this much favored approach is being underwritten by conditions peripheral to form-based codes, i.e. the vagaries of place, the quirks in the process, the actions of people and the limitations of policy. This is an important reminder of the fact that places are not limited to forms and physical qualities. Physical form is only a vessel for social, economic, cultural, and political processes that define places and give them character. While form-based codes and codes/regulations in general, lack the capabilities to directly address issues beyond physical form, the unintended consequences of these processes play a role in directing the intent of the codes.

This distinction between issues directly associated with form-based codes and issues peripheral to the codes is important in addressing the future of form-based codes. On one hand, changes to the codes might be implied, while on the other hand, systemic changes might be required in order to improve place-based reflexivity in the codes. However, these suggestions are not mutually exclusive, i.e. code specific changes and systemic changes could influence a wider sphere. For example, place-based calibration of form-based codes would require a larger attitude adjustment in order to ensure accurate readings about the place itself. At times, the systemic change is endemic to codes and regulatory processes in general and not specific to form-based zoning. Another distinction is the location of this correction with respect to the code, i.e. effecting processes preceding the code or influencing the application and administration of the code.
It is important to note that this thesis is based on limited implementation experience with form-based codes. Future studies could focus on studying the realized product of form-based codes, as opposed to the imagined product, for sense of place and/or community as well as spirit of place. This thesis was a broad approach to the phenomenon of form-based codes and attempted to normatively address the issue of place and place-character. This does not preclude in-depth studies into any of the issues raised in this thesis, such as community participation, implementation, administration, etc.

Considering the scope of the issue at hand and the limitations of this thesis, it would not be prudent to make specific recommendations/propositions about form-based codes. The following musings about codes and regulations in general contain suggestions for revisiting form-based zoning, both substantively and normatively:

The first, I think, is that codes need to be place-based. That is, they need to consider existing development. As we’re talking about coding for existing developed communities—some entirely built out, some partly built out—codes need to acknowledge the character of communities: their heritage and the differences between areas within communities (Crawford, 2002).

Standards must be place-base-tested. There must be a willingness to test standards in relation to their impact on the form of communities and place making. Standards must be allowed to evolve. And to evolve standards we must allow for experimentation and discretion (Ben-Joseph, 2005).

Architectural codes severely limit choices to a prejudged market and product, while design management expands choices and viewpoints to fit local conditions. Architectural codes use rigid rules to achieve sameness precise roof structures, finishes and cladding, door and window types, fence details, while design management targets contextual principles of scale, variety, and good neighborliness-reached by consensus. An architectural code is suitable for homogeneous communities; design management embraces a variety of options. Architectural codes seek one-step efficiency; design management, clearly more demanding, involves collaboration throughout the design process—in the belief that there is discernible good and bad, but no absolute right and wrong, in design. Finally, architectural codes yield stylistic conformity that is soon dated.

Design management does not aim to create a definitive architectural code. Such codes dwell on predetermined notions of the visual setting-focused on “looks” and details. Design management aims to encourage the creative
application of design principles to specific sites and existing communities in a "patchwork quilt" manner. Design management values creativity in the service of a lasting diversity (Thompson, 1998).

Good urban design is not the result of standards derived from mathematical formulas, but rather from experience gained from use. We must adhere to notions of 'goodness' as a test for regulations and forming standards and at the same time ensure that adequate flexibility is provided for ever-changing markets, lifestyle demands and personal values (Ben-Joseph, 2005).

Early approach to New Urbanism was formulaic but new movements require single minded approach. Gradual reformation is sometimes more difficult to bring about than quick or cataclysmic revolution. However, incremental change is often more lasting than radical or revolutionary change (Kelbaugh, 1997).

There are a few guiding principles that have to do with making good urban places - some of them have to do with form, some have to do with intensity and some have to do with diversity....There are certain things that you want to control by regulation and certain things that you want to control by influence. (Jacobs in Seaside Debates, 2002)

But I think that having a code project is too narrowly focused. I think we're talking about the land planning and development process. Having a code project kind of assumes a disconnect between planning and regulation, which I think is one of the big problems that we have in the United States (Anonymous at CNU Council, 2002).

Going forward, there are opportunities to challenge existing regulatory practices based on their poor performance, to provide place-based criteria that are responsive to the local and not the universal, to streamline an exhaustive process, and to present a clear vision that a community can grasp, rather than relying on and settling for a "same-based" place obscured by inappropriate rules.

- Reinforce the idea that design matters.
- Advance the role of planners and designers in clarifying codes.
- Consult with professionals outside the paradigm.
- Adopt local suitability criteria.
- Expand and demand more from local self-determination.
- Base standards and codes on the level of local physical impact.
- Develop and endorse a local vision plan.
- Envision place-making. (Ben-Joseph, 2005)
While these musings cover a lot of ground between less regulation and better regulation, they are consistently wary of over-indulgence in codes and regulations as a means of place-making. Suggestions such as local self determination and design management imply reduced dependence on codes and standards as a regulation tool and increased reliance on codes and standards as an information tool. Regulation offers certainty – something must happen - whereas information only provides a suggestion of what could or should happen (Schuster in Regulating Place, 2005). This duality of purpose is inherent in form-based codes, which are tools for implementation as well as illustrations of ideas about place. The potential of place-making contained in this combination is severely limited by the dominance of regulation over information.

Possibly, place-based codes, another consistent thread in these reflections about codes and regulations, are the means to empower the information dimension of form-based codes. While form-based codes include information-based processes preceding (such as charrettes and surveys) and succeeding (such as design reviews and public hearings) the codes, which intend to root the codes in their context, the association of these codes with a specific trend in urbanism, i.e. neo-traditional urbanism or New Urbanism, redirects the resulting product towards a singular narrative. As noted earlier in the thesis, this association is not automatic and form-based codes could be proposed for alternative narratives and urban conditions. Possibly, what is needed is more typological consistency, which, in turn, will bring more architectural consistency (Kelbaugh, 1997).

Nonetheless, the heated debate and discussion about urbanism raised by the single-minded approach of New Urbanism could be used as an inroad into place-based alternatives.

Another related issue is the scale of application. While the unit of design for form-based codes is the neighborhood, the resulting development and its connections to the larger planning and design context are shaped at the city, metropolitan or regional scale. In order to capture place character, a code project, at community scale or district scale, should be approached as a city scale or regional scale code. This vastly expands the vocabulary of the code and allows for diversity of urban narratives. The codes, in this case, facilitate the continuity between the local and universal.

The suggestions implicit in these reflections apply to both the codes and issues peripheral to the codes. However, the dominant theme is negotiation between the codes and the context within which the codes
are rooted. The case studies offer an almost unique response to each condition and negotiation in terms of the form-based codes generated. The diversity of code titles illustrates this reflexive quality of form-based codes. Yet, the negotiation between code and context is susceptible to peripheral issues like place, people, process, and policy. While most codes describe procedures for code administration and implementation as a means to clarify future negotiations, few codes address this issue preceding the code. Clarifying procedures related to understanding place and sensing place character could enhance the responsiveness of the form-based code by establishing local suitability criteria for testing the standards.

It is also critical to test the realized product of these codes against established paradigms for "goodness". Essentially, built environments could be measured in terms of form, activity, and meaning. Lynch’s criteria for measuring good city form – Vitality, Sense, Fit, Access and Control (Lynch, 1984) – could be evaluated through place-based testing of specific qualitative inputs, such as morphology (land uses, street and public space networks, plot patterns, and building types), perception (identity, structure, and meaning), visual (aesthetics and kinesthetics), functional (uses, environmental response, and economics), temporal (time and change management), and social (diversity and equity) (Carmona et al, 2003). The key is in recognizing the diversity of narratives embedded in places and adjusting the inputs to achieve a reflexive output.

In establishing responsiveness to context, the negotiation is between traditions and aspirations, which could be divergent concepts. Yet there is almost always a paradigm that successfully mediates this condition. It is critical not to create more homogenization in the way we are doing what we are doing (Byrd in Seaside Debates, 2002). While form-based codes present a 'simple' response to a complex set of urban issues, it is important to maintain place-specific context around the application of this approach. Another consideration in this mediation could be eliminating zoning but it is never possible to replace a system of rules with the absence of rules (Duany in Seaside Debates, 2002). Under the circumstances, form-based zoning presents an alternative, which is responsive and capable of producing the desired results conditional to proper calibration of the code itself and clarification of processes preceding as well as following the code.
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