Meaningful Urbanism

A human-centered approach to placemaking using form-based zoning codes

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Introduction

      As contemporary cities and towns grow larger and faster, the ways that we imagine how they should look, function, and change have evolved. As a result, urban planning is a vastly interdisciplinary field that is as complex as the places envisioned by its practitioners become. However, as urban environments grow more complicated and questions of sustainability, density, traffic, and surveillance demand more attention, it has become increasingly easy for planning professionals and municipal leaders to overlook the experiences of those with arguably the most at stake: the people that live there.

      This thesis examines the ways that urban planning and design function, both as professions and academic areas of study, and how they intersect with other disciplines that are necessary to the policies, construction, and market forces that ensure visions and plans are actually able to be built. It also outlines the ways that the professional perspectives on urban places are often vastly different from the lived experiences and realities of the everyday person who lives, works, and plays there. The arguments presented here look at the need for planning methods that not only accommodate people's experiences, but center them in the process of designing the urban landscape. One way of doing so that has been suggested in prior research but not fully explored is the idea that form-based zoning codes offer a mechanism for regulating the built environment that considers the human experiences that give cities their vibrancy and codifies that value in a legal framework. In the following chapters, form-based codes are analyzed through the lens of perception mechanisms and meaning-making behaviors of everyday people. They are presented as a tool that can potentially better take into account people's engagement with space than conventional use-based zoning, and that can contribute to a larger shift in perspective on urban places as they become more widely used.

This research draws on scholarship that has framed a century of urban theory as well as planning and design in practice. It examines how the creation and conception of the built environment are central to people's experiences and asks if there are practical ways that we can change these methods for the better. The proposed solutions and tools require planning professionals to shift their perspectives as well, calling for a better understanding of the ways that people interact with and derive meaning from their surroundings. The following chapters will examine the evolution of urban planning as a profession, the emergence of zoning as a way of exerting control over space, and the literature on perception of urban space and the built environment, before analyzing the components of form-based zoning and examples of its implementation in Texas. The intent is to highlight the fact that the way cities grow and change is not monolithic or inevitable, but is instead the result of conflicting priorities and choices that are made within an existing system. This thesis offers one possible way to alter that system so that the places that are made as a result reflect what we truly value.

Historical Foundations of Planning and Zoning

As fundamental to the function of contemporary society as planning is, it is important to understanding how underlying ideas of the past have informed current best practices and caused them to evolve in response to changing norms. The planning and urban design disciplines face an oxymoronic challenge, operating under procedures and processes that are inextricable from current events and present-day ideas while charged with the creation of long-lasting places that will represent ever-changing values of society.

The 'Professionalization' of Planning

Boyer has chronicled the emergence of a "planning mentality" as a part of a larger "quest for order" within the growing American urban environments of the late 19th century, which led to established "institutional procedures" that helped formalize planning as a profession.[1] She refers to urban cities that became chaotic amid unregulated, rapid growth that occurred in late 19th century society, before city planning principles were widely needed or considered. As planning ideas developed, they sought to solve new problems, addressing both economic as well as cultural "barriers to progress." Infrastructural investments in sewers, water, electricity, transit became necessities.[2] As the physical conditions of cities demanded more attention and required coordinated investments of public resources, the idea that the local government had a responsibility to the individual, particularly when it came to urban society, was normalized.[3] Urban planning and policymaking grew out of the uncertainty that came with the culture shift

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[1] Boyer, M. Christine. *Dreaming the Rational City; The Myth of American City Planning.* (Cambridge, MA: MIT Press, 1983), ix.
[2] Boyer 7.
[3] Boyer 4.

experienced by American society as urbanization and industrialization increased, and a new understanding of the relationship between governments and citizens emerged.

It is clear that centralizing the regulation of public spaces and infrastructure had social motivations from the beginning. Efforts to build playgrounds in order to curb juvenile misbehavior and crime were started by advocacy groups and church officials, and then taken on by municipal authorities. Metropolitan park systems and neighborhood green spaces were proposed to "improve the health and morals of the people" and to provide places for rejuvenation and appeasement of urban workers. Landlords and business owners were not going to be incentivized to self-regulate or make these investments on their own, so the need for the protection of collective interests gave rise to the involvement of authoritative public entities in urban spaces and communities.[4]

The question of how urban planning emerged as a discipline that is intertwined with, yet distinct from architecture also arises. Though the architectural qualities of buildings and other structures are an integral part of a place, the architect's focus on distinct and at times disjointed parts of the environment was not sufficient to create meaningful, cohesive spaces in the growing city. A more comprehensive way of thinking at a larger scale was needed in order to ensure its functionality as a whole. The architectural object and overall urban form function in tandem, a fact that became more prevalent as cities grew in early stages of American industrialization. Thus, the need for planners arose as separate from yet closely related to architecture.[5] This distinction underscores the interdisciplinary perspective that is essential to planning; even highly successful architectural design, engineering and construction standards, or municipal policy

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[4] Boyer 22-23, 28.
[5] Boyer 51.

alone "could not develop a total perspective on the American city," and so comprehensive city planning filled an area of need.[6]

In conjunction with this, a hierarchy emerged between the citizen and the 'expert' urban planner. What Boyer refers to as the "apparatus of planning" began to consist of professional discourse, governmental regulations, procedural responsibilities, laws, morals, and other social rules.[7] The increasingly complex "thought about the boundaries and qualities of urban experience" required a new class of experts that could guide and oversee the implementation.[8]

The urban planning profession arose out of a necessity but has at times resulted in a "tension between an expert language of city planning and the demotics of everyday design." The various stakeholders involved in urban decision-making go "well beyond the experts, the technicians, and the power brokers," not limited to the most obviously involved professionals in "spatial planning, physical design, and construction." Rather, urban life is made and remade by a diverse group of people through processes both formal and informal, even seemingly non-spatial concepts like social norms. Citizens exert influence on their cities every day and are extremely powerful, often unknowingly. The "everyday tasks of making, stabilizing, and running the city" are performed and enacted through a complex system of interactions and calculations, which can be inaccessible to those unfamiliar with them.[9] Considering this brings up the need for, as Tonkiss describes, the "*un-disciplining*" of design. There is currently a "division of labor," and therefore a division of power, between "'qualified' urbanists and those outside the field" that collaborate and clash in their influence over urban places;[10] however, urban design,

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[6] Boyer 63.
[7] Boyer xi.
[8] Boyer 7.
[9] Fran Tonkiss, *Cities By Design; The Social Life of Urban Form* (Polity Press, 2013), 10-11.
[10] Tonkiss 12, emphasis added.

development, and planning are not just issues of aesthetics, physics, or the environment. All these qualities are housed within a place-specific social, economic, political context unique to any place, urban or otherwise.

Describing these and other principles that influence urban space and form is difficult because they are simultaneously abstract and ideological, yet unquestionably concrete, physical, and tangible. This often leads urban planning practices and theory to be inaccessible to the untrained, 'everyday' stakeholders mentioned above. The scope of urban policy and design is far-reaching, both spatially and temporally, and today it is largely undertaken by diverse group of professionals that engage in technical activities like "policies, programs, guidelines, specifications, reviews, incentives, institutions, prototypes, regulations, spatial allotments, and the like."[11] These are the complex and multifaceted levels of bureaucracy that planners and designers have to work within, processes that are slow and difficult to change. Because of this, some urbanist scholars have suggested that rather than work to de-professionalize planning, it would be more effective to develop and promote planning best practices that make efforts to bridge the learning gap and engage a more diverse group of stakeholders.

This idea has popularized new ways of thinking about how we define and control urban space and how it is experienced by people. There are growing conversations on how to implement planning strategies that are more human-centered than those of the past and how experts can account for the plurality of experiences people have while they are in urban places. Cities are not monolithic, and the needs of small towns, large central business districts, suburban developments, and everything in between are all different. Approaches to planning need to be

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[11] Tonkiss 13.

interdisciplinary and considerate of local economic forces as well as political mechanisms,[12] but they also need to accommodate the experience of the citizen.

Many traditional planning ideologies also struggle where adaptability is concerned. Big thinkers of the 20th century that proposed planning theories based on grand ideologies viewed the city as a blank slate, or at least something that could be made into one. However, this view does not take into account the preexisting political frameworks and, equally important, if harder to quantify, the social norms that govern places, that result in the inability to start fresh. In contrast, new approaches seek to work within the existing city and identify ways to make incremental changes in places that were either in decline or rapidly growing.[13]

Regardless of the scale at which changes in urban policy and design are made, there is the potential for a disconnect between decision-makers and the people they impact. When people witness that their environments are subject to changes made by invisible policymakers and heavy handed developers, unaware of who owns what or why things are where they are; when, in cities, "things happen without warning and without participation;" when 'experts' plan or design for people that they don't know or places they don't understand – this causes a sense of placelessness, because people are alienated and disconnected from their communities.[14] Some contemporary planning trends have attempted to address this resulting lack of spatial and community ownership as one of their main priorities. The motivation for this is the belief that urban planning methods benefit from frameworks that consider and engage all the different

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[12] Emily Talen, *New Urbanism and American Planning: The Conflict of Cultures* (New York: Routledge, 2005), 17.
[13] Talen 17.
[14] Tonkiss, *Cities By Design; The Social Life of Urban Form,* 16.

entities (public, private, nonprofit, activist, unknowing citizen) that cooperate and produce what we conceive of as a 'city.'[15]

The urbanist perspective is one of these popular frameworks. 'Urbanism' has become an umbrella term meaning many things, all place- and time-specific, but it generally centers on promoting the values of diversity (both spatial and social), geographic connectivity, equity for all, and the importance of public space. Traditionally, urbanist ideals pertain to physical form, aesthetics, and materiality, while acknowledging that design also functions socially in the environment as a "bearer of the cultural value system of a community."[16] The work referred to in this research largely follows the best practices and ideals set forth by a generation of scholars and professionals that uphold urbanist values.

The history of professional urban planning is more complex than can be completely covered here, but it is important to understand the above background because it helps explain the tendency within American society to leave choices made about the form of a city and its people to technical experts. The power to make decisions for the spatial and social vision of the city is concentrated among planners, architects, engineers, developers, politicians, and other professionals. This power is exerted both on the scale of comprehensive city-wide master plans as well as on a building-by-block-by-development basis.[17] In many aspects, this works; there are trained professionals in every industry for good reasons. The purpose of this research is not to argue that expert city builders are an inherently inaccessible elite, but rather to point out that the perspectives, needs, and wants of the average user, the 'layman' of the city, should hold equal

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[15] Tonkiss, *Cities By Design; The Social Life of Urban Form,* 15.
[16] Talen, *New Urbanism and American Planning: The Conflict of Cultures,* 37-39.
[17] Fran P. Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities*, 2nd ed. (Schenkman Publishing Company, 1972), 7.

weight. It is essential to the vibrancy that makes an urban environment livable that contemporary planners understand and cater to that which makes people want to be there.

Twentieth Century Planning

By far the most direct way that policy and design intersect to inform the urban fabric is through legal zoning policy. Conventional, use-based zoning was invented as a political tool in response to rapid industrialization and the resulting desire to systematically plan for new development. In the late 19th and early 20th centuries, regulatory zoning was largely useful in approaching urbanization on a brand-new scale.

However, changes in the years following World War II brought an unforeseen growth in both the demand for and supply of single-family homes, which exacerbated the negative impacts of use-based zoning laws.[18] Suburban growth became favored after WWII, "[ignoring] historical precedent" of long-successful planning and placemaking within dense urban centers. Opponents claim it was an "idealized artificial system" that was created intentionally and subsequently encouraged by subsidized building, real estate, infrastructure projects, and zoning regulation.[19] It has been argued that the "inherent lack of a narrative quality in many of the post-war American suburbs" is what "gives these areas their feelings of placelessness."[20] Early foundations for designing communities in America encouraged these patterns and later, when they no longer worked, fostered the need for alternatives through codes and plans that would promote "rather

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[18] Stefanos Polyzoides, "The Time Is Now," in *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers*, by Daniel G. Parolek, Karen Parolek, and Paul C. Crawford (Hoboekn, NJ: John Wiley & Sons, 2008), xiv.
[19] Andres Duany, Elizabeth Plater-Zyberk, and Jeff Speck, *Suburban Nation; The Rise of Sprawl and the Decline of the American Dream* (New York: North Point Press, 2000)., 4.
[20] Amy Sussman and Justin B. Hollander, *Cognitive Architecture; Designing for How We Respond to the Built Environment* (New York: Routledge, 2015), 135.

than stifle diversity" and center around the need to plan in a way that accounts for the "interconnectedness" of different elements of urban life.[21]

Accompanying the post-war suburban boom, Modernist planning is one of the most notorious approaches that attempted to address 20th century urban problems. The International Congress of Modern Architecture CIAM and prominent names such as Le Corbusier put forward the idea that architecture and urban design serve the social good, an idea articulated in a manifesto which "spelled out the ills of industrial cities as they existed in the 1930s and laid down physical requirements necessary to establish healthy, humane, and beautiful urban environments for people." The Modernist response to crowded cities aimed to create order and beauty, but it is now widely acknowledged that this was done heavy-handedly, with little to no public input and without considering what was already socially or physically good about these places. Instead of considering the way existing neighborhoods reflected "values that were likely to be meaningful to people individually and collectively, such as publicness and community," the Modernist approach was focused on imposing large-scale, comprehensive utopian plans.[22] The focus was on buildings that happen to be present in space, and what goes on within them, rather than on their connection to the wider landscape, the public life, and how these influence each other. In huge public housing projects and redevelopments, "design (as a formal and figurative conception of space) seemed, at times, to be devoid of quality," resulting in large blocks that were repetitive and alienating and producing buildings and public spaces that were of low

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[21] Talen, *New Urbanism and American Planning; A Conflict of Cultures,* 284.
[22] Allan Jacobs and Donald Appleyard, "Toward an Urban Design Manifesto," *Journal of the American Planning Association* 53, no. 1 (1987), 113.

meaningful quality. As a result, this "architectonic typology with no links to the local context had brought about the loss of meaningful relationships" to the landscape.[23]

The history of 20th century urban planning saw vast changes in design trends as well as sociopolitical thought; especially in America, the needs of a rapidly growing capitalist society shaped a lot about how cities developed. Productivity depended on infrastructure that allowed workers to be able to get to their jobs, power that was consistent and reliable, uncongested transportation routes for products, waste services, and space itself. Population growth and housing needs compounded. Planning documents became mediators between the competing yet complimentary interests of an increasing number of people, and were "written at an abstracted level of discourse, never speaking of the motives and conflicts behind their production."[24] However, these unique circumstances prompted the emergence of a 21st century mindset and new methodologies that increasingly strive to prioritize the citizens of urban places in response to methods that did not succeed in doing so.

In reaction to these attempts to remake the urban city, sentiments about what a city should be have evolved into something more user oriented. Many experts and activists felt that urban governance had lost its connection with the goal of the public good, instead emphasizing individual profit of developers, landlords, and others who benefitted from the status quo. Growing popularity of the sentiment that "the quality of urban life depends on people" as the "generators of new ideas and the creators of a new environment for living" requires that new places be built to a higher standard of not only aesthetics, but also community.[25] The recognition

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[23] Anna Paula Silva Gouveia, Priscila Lena Farias, Patrícia Souza Gatto, "Letters and Cities: Reading the Urban Environment with the Help of Perception Theories," *Visual Communication* 8, no. 3 (August 2009), 340-341.
[24] Boyer, *Dreaming the Rational City; The Myth of American City Planning,* 64, 68.
[25] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 3.

that people should be at the center of planning allowed for new ideologies such as to gain traction a few decades later.

Zoning: Defining and Understanding Space

For as long as urban space has been planned in a systematic way, there have been attempts to strategically locate different uses in order to maximize land value and efficiency. Aforementioned considerations for how to manage social unrest, public health, and infrastructural deterioration grew into questions about how to manage spatial growth in a way that would promote industrial progress and convenience. These questions of discipline and order "forged a new relationship between the urban public and social science knowledge," as well as the "architectural adornment of urban space and the rational treatment of spatial development." This would have a wide scope of impact on space and people, making interdisciplinary cooperation and collaboration essential, and these new relationships set a foundation for the processes of city planning.[26]

Many details of zoning policies came into existence out of pragmatic needs, such as to protect buildings from fire that could spread and to protect their inhabitants and users from the poor conditions that arose in growing neighborhoods without access to sunlight, clean air, or fresh water. The aim of these restrictions on what land could be used for which purpose originally sought to keep separate the building typologies and resulting activity that did not function well together, such as industrial manufacturing warehouses and public schools, or garbage collection centers and residential homes. The result was isolated densities and land uses.[27] These were defined within legally adopted zoning documents that projected "shapes onto

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[26] Boyer, *Dreaming the Rational City; The Myth of American City Planning,* 9.
[27] Daniel G. Parolek, Karen Parolek, and Paul C. Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers* (Hoboken, New Jersey: John Wiley & Sons, 2008), 6.

street maps," creating a "patchwork" conception of land and defining "the use of private property with dramatic effects on its value and its owners' legal rights."[28]

Land-use planning was predicated on the idea that rationality would lead to the reproduction of capital growth and accumulation, so land was divided based on its most profitable and efficient use.[29] Categorizing "space to separate the uses and activities" sought to rationalize public space, reflecting the ideological and industrial structures that operated there.[30] This reflected the growing desire to control these increasingly complex processes of place and people and the need for systemization and categorization of urban space. As Lefebvre argued, "the Western industrialized world is so governed" by abstract systems that even the physical aspects of life such as one's environment "are represented and communicated primarily in terms of quantities, commodities, and categories."[31] This has, however, had well-documented drawbacks that still define our landscape today.

In addition to its impact on urban growth patterns, zoning has had aesthetic ramifications. The depletion of meaningful experience in the post-war American city was said to be due to the "uniformity and standardization" promoted by use-based zoning, because of which "'modern' buildings with different functions [were] constructed to resemble each other" both in urban cores and suburbs.[32] Beyond individual buildings, the public realm is impacted by "gigantic signs directed to high-speed traffic," as well as minimum set-back lines that encourage developers to "place massive, often half-empty parking lots alongside the roads, creating an auto-centric

[28] Stephen M Judge, "CODEX IMAGINARIUS: VISUAL CODES IN LAND USE PLANNING AND AESTHETIC REGULATION," *NOTRE DAME LAW REVIEW* 81, no. 4 (2006): 1595–1628.1596.
[29] Boyer, *Dreaming the Rational City; The Myth of American City Planning,* 79.
[30] Garcia-Domenech, Sergio. "Urban Aesthetics and Social Function of Actual Public Space: A Desirable Balance." *Theoretical and Empirical Researches in Urban Management* 10, no. 4 (2015): 54-65., 60.
[31] Jana Carp, "'Ground-Truthing' Representations of Social Space Using Lefebvre's Conceptual Triad," *Journal of Planning Education and Research* 28 (2008): 129–42., 130
[32] Martin Krampen, *Meaning in the Urban Environment* (Routledge Library Editions, 1979), 10.

landscape without the architectural definition of adjacent buildings." These visually unappealing tendencies in urban development patterns have "no sense of place or uniqueness."[33] Zoning gradually "became a numerical affair losing touch with its original qualitative intentions."[34]

Zoning and sprawl also encouraged car-dependency. Transportation systems have massive effects on more than just how people move to and through cities; ubiquity of cars requires monetary commitments to infrastructure in addition to the dedicated use of large amounts of space. The highly decentralized residential neighborhoods that resulted from use-based zoning were connected to each other and nearby centers of commerce by stretches of highways. An increasingly large amount of land was used for housing a disproportionately small number of people relative to the urban core, directly causing the sprawl that has today resulted in massive mega-regions. This had a two-fold effect; building highways took up massive amounts of space and destroyed communities, especially those of poor people of color, which then displaced people living in a large number of traditional neighborhoods. The way that zoning normalizes car use creates a positive feedback loop that allows sprawl to continue today.[35]

Hosken acknowledges that the visual character of entire cities has changed in response to the growth of car travel. Pedestrians walking through an urban space experience the urban environment in an entirely different way than as drivers in a car. Pedestrians need more variety at finer detail, and larger landmarks with relatively 'less' meaningful information are necessary to stick out at higher speeds.[36] Space in the built environment that had been used by people and

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[33] Richard S Geller, "THE LEGALITY OF FORM-BASED ZONING CODES," *Journal of Land Use & Environmental Law* 26, no. 1 (2010): 38.

[34] Elizabeth Plater-Zyberk, "An Optimistic Moment," in *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers*, by Daniel G. Parolek, Karen Parolek, and Paul C. Crawford (Hoboken, New Jersey: John Wiley & Sons, 2008), x.

[35] Duany, Plater-Zyberk, and Speck, *Suburban Nation; The Rise of Sprawl and the Decline of the American Dream, 8.*

[36] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 102.

their habits, work, shopping, school, and residence increasingly had to be shared with "storage space for the automobile," and parking lots have since taken up large amounts of space and changed the value of land.[37]

It has been widely argued by proponents of incremental, community-level planning that "zoning militates against diversity;" figures such as Camillo Sitte, Jane Jacobs, and William Whyte were detractors of zoning entirely by use because it hindered the interconnectedness and social mixing of urban life, supporting "specialization at the expense of personal interchange."[38] This prioritization of industry and function over people and experience is built into the foundation of how we define and conceive of space, and continues to influence contemporary cities. This, however, overlooks the true source of complexity and vibrancy of the city, which are the people that live there.[39]

Ultimately, our understanding of what makes successful spaces has changed with time and technology, and it is increasingly important that we recognize the ways in which a mixture of uses and activities is essential for a vibrant urban place.[40] Urban growth as it is shaped by traditional development patterns is unsustainable due to its inefficient use of space and disregard for the personal experience. In order to improve the way cities grow, their regulatory backbone must uphold certain values that can then inform changes. The central values to ensuring that an urban environment considers the needs and individual experiences of its people will be discussed in the following chapter.

[37] Plater-Zyberk, "An Optimistic Moment," x.
[38] Talen, *New Urbanism and American Planning: The Conflict of Cultures,* 92; Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 3.
[39] Garcia-Domenech, "Urban Aesthetics and Social Function of Actual Public Space: A Desirable Balance," 60.
[40] Talen 37.

Meaning in the Urban Environment

The argument that there are methods through which places can be created and maintained in a way that better centers ordinary people largely relies on implications from research done to understand how users of urban space understand and inform the built environment. The term 'built environment' refers to anything visually tangible that is manmade and has placemaking qualities.[41] It is a central part of the lived experiences that occur in cities and is not a "simple passive stage-set for activity;" rather, it actively engages our perceptions.[42] This principle is important to understand because the fact that our environment affects our way of life supports the case for striving to achieve better "human and visual values" in our urban surroundings.[43]

Any investigation into perception of the urban environment is incomplete without referring to Kevin Lynch's seminal work on mental mapping and legible cities. Lynch defined the importance of understanding the qualities that give a place legibility, or the apparent clarity of the mental image of a city that a person in it has. His work posits the city as both *a collection of objects* as well as *an object itself,* one that is perceived by its inhabitants through constant interpretation and organization of sensory cues from the external environment. Lynch determined that "nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences," because "every citizen has had long associations with some part of his city, and his image is soaked in memories and meanings."[44] This implies that all people who interact with urban spaces have a stake in the qualities of their environment because they derive meaning from their surroundings, informing how they make

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[41] Donald Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis* (Bloomington: Indiana University Press, 1979), 4.
[42] Preziosi 11.
[43] Hosken, *The Language of Cities,* 16.
[44] Kevin Lynch, *The Image of the City* (Cambridge, MA: The MIT Press, 1960), 1-3.

choices and act. Lynch's research highlights the point of view the individual in order to understand the relevance that physical features of the built environment have to the formation of mental maps and wayfinding.[45]

Legibility as it pertains to the urban environment has been considered further by scholars from a variety of disciplines. The concept is defined by Donald Preziosi as "a certain coherent visual or architectonic logic whereby made forms [can] be 'read' and understood," both consciously and unconsciously.[46] Christopher Alexander describes the urban environment as a product of 'patterns,' of which the ability to perceive comes from a place within human nature. He argues that the art of building, or in this case, the planning process as a whole, is a reflection of human values, simultaneously collective and individual. Everyone has the inner drive to create spaces that are beautiful, welcoming, homey, personal, and alive, even if not trained as an architect. His 'timeless way' goes beyond experts, even if today's work necessitates their mediation of the necessary processes. According to Alexander, "hundreds of people together can create a town, which is alive and vibrant, peaceful and relaxed, a town as beautiful as any town in history. Without the help of architects or planners, if you are working in the timeless way, a town will grow under your hands." Alexander uses the word 'beautiful' often, but in his work, this goes beyond appealing aesthetics and gets at an innate feeling of satisfaction.[47]

Alexander's work examines the reasons why people care about the ways their communities are formed. He argues that they impact our well-being; when the world "is healthy, whole, alive, and self-maintaining, people themselves can be alive and self-creating."[48] Creative

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[45] Gouveia, Farias, and Gatto, "Letters and Cities," 341.
[46] Donald Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," *American Journal of Semiotics* 4, no. 1–2 (1986), 7.
[47] Christopher Alexander, *The Timeless Way of Building* (New York: Oxford University Press, 1979), 8.
[48] Alexander 25.

influences on the environment are so natural to humans that "any group of people" can do so effectively when given the opportunity, even if untrained in design disciplines.[49] However, he argues that while there is an ability within all people to create beautiful and functional places, this instinctive ability has been buried by the ways we have "beset ourselves with rules, and concepts, and ideas of what must be done to make a building or a town alive," causing us to become afraid of what will happen naturally."[50] The idea that we have to adhere to certain methods within the systematic regulations that govern how we conceive space has transferred ownership and agency away from people.

Additionally, there is significant research into the physiological reasons that places can and should be designed for people's experiences. Humans are hard to plan for and around because they are difficult to predict, given that "largely subconscious mental activities" govern our behavior and feelings.[51] To understand how this principle applies to urban built spaces, Sussman & Hollander examine design tendencies that are rooted in human nature. They find that people prefer outdoor spaces that create "room-like conditions" and continuous lines, gravitating toward the edges of overly large spaces.[52] Spaces with more sides are largely preferred, a tendency that is likely a remnant of evolution and that is heightened with anxiety and unfamiliarity, as sensing boundaries and edges is advantageous in helping a person identify escape routes, form mental maps, and orient oneself.[53] We are also more comfortable in spaces that feel scaled to the size of our bodies. More successful civic spaces use 100 meters as "a scale maximum" because this is about the range at which we can recognize the face and body language

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[49] Alexander, *The Timeless Way of Building,* 10.
[50] Alexander 13-14.
[51] Sussman and Hollander, *Cognitive Architecture; Designing for How We Respond to the Built Environment,* 25.
[52] Sussman and Hollander 10.
[53] Sussman and Hollander 25.

of another person and feel we are in the same social space as another person – a "social field of vision." Sidewalks and streetside outdoor spaces are best scaled at around 35 meters across, as this is the threshold for reading emotion and facial expression.[54]

Humans also have face-reading tendencies. Figures that read like faces appeal to us, and research has shown that our face reading instinct is so strong that we often see faces in very abstract urban objects like cars and houses.[55] We have an innate desire to find narratives and patterns in our surroundings. This tendency is an organizing mechanism with which "we look for ways to make attachments and derive meaning from our physical surroundings." Comprehending narrative from a place can take different forms, such as connecting physical attributes with a historical significance or the 'ordering' of objects in space. Examples of this in a city include the hierarchy of buildings in a civic square, where the central government building is largest and then framed by smaller buildings.[56]

These tendencies are rooted in human psychology and physiology. They impact our comfort level in different spaces and therefore determine how much time we will spend there or how we will act there. Well-defined streets and conditions that are scaled to human activity give us a level of comfort even when unfamiliar because they help us orient ourselves, navigate, and feel a sense belonging.[57] Bader's work expands upon the implicit feelings that can be caused by the "atmosphere" of a place; she argues that this meaning-making process "exists in almost every encounter of a human being with the world" and conveys a fundamental knowledge to a person,

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[54] Sussman and Hollander 86-89.
[55] Sussman and Hollander 77.
[56] Sussman and Hollander 135, 146.
[57] Sussman and Hollander 26.

such as "whether the user feels that a place is benign (safe, comfortable, welcoming) or malign (threatening, dangerous, rejecting)."[58]

Because such an intimate mental connection occurs when people interact with spaces, we have great attachment to them. We see places as representing ideals that not only people, but societies at large value. Cities have always been cultural centers, and part of the attachment we have to them is rooted in their physical character. In most historical cities, gathering places for commerce and governance acted as the social backbone of community, and it was a sign of power and pride for a place to be beautiful.[59] At their best, places are manifested representations of what their citizens strive to be; communities are the basis "for freedom and liberation, for a diversity of people and ideas, for man's highest aspirations," even today.[60]

The city is a powerful symbol that can in itself represent the complexities of its society, in which well-organized elements "can also have strong expressive meaning."[61] A description of the elements that are found in a certain city can tell a story about the way of life that occurs there. These are more than "dead pieces of architecture and building – each one has an entire life associated with it." The qualities of the objects and characteristics comprising a place make us imagine and remember what people are doing in those spaces and give us an idea of what life is like in that environment.[62]

Urban Semiotics

The mechanisms and implications of people's interpretation of space can be examined using a semiotic framework. There is a substantial body of work that has applied the principles

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[58] Aya Peri Bader, "A Model for Everyday Experience of the Built Environment: The Embodied Perception of Architecture," *The Journal of Architecture* 20, no. 2 (n.d.): 244–67., 261.
[59] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 12.
[60] Hosken 3.
[61] Lynch, *The Image of the City,* 5.
[62] Alexander, *The Timeless Way of Building,* 71-72.

and methodologies of semiotics to document the way users of urban space actively derive meaning from their surroundings. Also referred to as semiology, this perspective is used in a range of disciplines including linguistics, philosophy, and psychology. Semiotics is useful in understanding the emergence and the advantages of modern, human-centered planning ideologies because it can encourage us to take into account concerns of interpretation and place at the level of the individual.

Semiotics is the study of recognized sign systems that convey meaning to those who interact with them. It is the process of identifying and understanding any phenomenon as if it were part of a sign system capable of communicating meaningful information.[63] The literature on semiotics contains some variation, but this section will outline generally what it is and how it has been applied to urban environments and the design and planning professions.
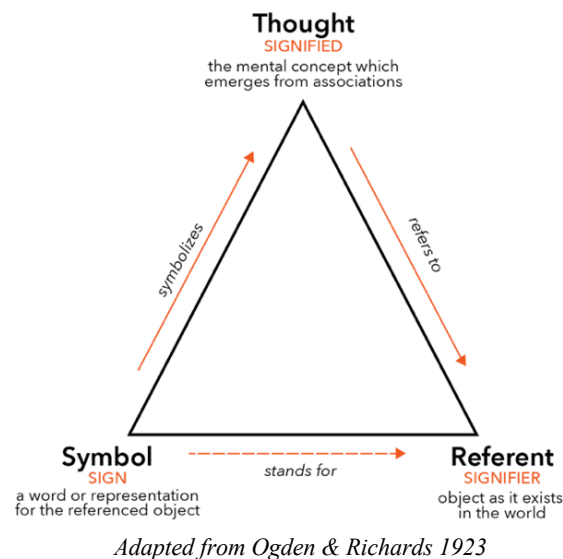
In semiotics, a *sign* is comprised of that which *signifies,* a form, word, or object, and that which *is signified*, an associated meaning.[64] Signs stand for anything, or according to Ogden & Richards, *have meaning*, when they are interpreted and made sense of by someone. Perceiving signs as symbols causes one to consciously or unconsciously "perform an act of reference" between the symbol and the signifier, or *referent,* that calls it forward. Engagement with the environment is therefore a process that prompts active participation on the part of the user.[65] Ogden & Richards refer specifically to linguistic communication in their research, but the same principles can apply to interaction with objects and visual signs as well.

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[63] Umberto Eco, "Function and Sign: Semiotics of Architecture," in *City and The Sign*, ed. Mark Gottdiener and Alexandros Ph. Lagopoulos (New York: Columbia University Press, 1986), 55.
[64] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 2.
[65] C. K. Ogden and I. A. Richards, *The Meaning of Meaning; A Study of the Influence of Language upon Thought and the Science of Symbolism* (New York: Harcourt, Brace & World, Inc., 1923), 10-11.

Meaning can be implicit, especially when it comes to architecture and design, the purpose of which is sometimes argued to be more functional than representational.[66] However, architecture in an urban place is deeply tied to cultural and social situations because the people who design them are equal parts participants in and creators of their 'culture.' Barthes, a prominent semiotician, wrote that semiotics in the built environment served to "decompose the urban text into signs composed of signifiers and signifieds." The meanings of these signs are highly transient and so the reading of the city is subjective and open to a variety of interpretations.[67]

Thought
SIGNIFIED
the mental concept which
emerges from associations

symbolizes

refers to

Symbol
SIGN
a word or representation
for the referenced object

stands for

Referent
SIGNIFIER
object as it exists
in the world

Adapted from Ogden & Richards 1923

The basic assumption that underlies semiotic analysis is the idea that objects which carry meaning, referred to as *sign vehicles*,[68] convey this meaning to people who come into contact with and perceive them. Recognition of an object is "to recognize it as an element of a set," or "to recognize it as an element of the 'extension' of a concept. Identifying an object therefore

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[66] Eco, "Function and Sign: Semiotics of Architecture," 57.
[67] James S. Duncan, "PROGRESS REPORT: REVIEW OF URBAN IMAGERY: URBAN SEMIOTICS," *Urban Geography* 8, no. 5 (September 1, 1987): 476.
[68] Eco, "Function and Sign: Semiotics of Architecture," 60.

entails conceptualization."[69] A collection of sign vehicles can comprise a *sign system*, which are connected by a conventional set of rules that governs the relationship between the objects and their meanings and are specific to the culture and time in which the objects exist.[70] Urban semiotics is the attempt to understand the urban landscape as one of these sign systems and its usefulness in appealing to users of urban space. Gottdeiner's introduction to the topic states generally that it is concerned with the "material structure of the built environment, the image of its inhabitants, the codes of meaning found articulating with space, and the discourse of urban planners, analysts, and academicians."[71]

Another term of note in semiotics is an *index*. Indices are signs that convey information beyond that which they literally represent. According to Krampen, an index's association with a signified goes beyond its apparent function or characteristics by way of a connection formed by a collectively agreed upon social rule, or a process of *signification.* Signification and this unconscious understanding of meaning is central to understanding how built environments have meaning beyond simply the objects within them like traffic signs and billboards. The fact that a red light means 'stop' without explicitly saying so is an example of that red light acting as an index, and is more broadly indicative of the fact that comprehensible meaning is not limited to written signs. Users recognize the meaning of an object in reference to a set of properties, unconsciously moving from the concrete object to the associated abstract concept.[72] "Pictorial advertising, traffic signs, and other nonverbal communicative devices" function in urban space as

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[69] Krampen, *Meaning in the Urban Environment*, 53.
[70] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 2-3.
[71] Duncan, "PROGRESS REPORT," 475.
[72] Krampen 89.

a means of communication, and "are operant… in the whole sphere of human behaviour in general."[73]

The meaningful connection between a piece of information and a physical object representing it symbolically only works if there is consistency in relationships between objects, or a "pattern of relationships," that all members of society can understand. This is how a place comes to be recognized as urban or otherwise; cities have identifiable shared characteristics in common, such as a central business district, road and freeway networks, houses with yards arranged in neighborhoods. "Patterns of relationships among other smaller patterns, which themselves have still other patterns hooking them together – and we see finally that the word is entirely made of all these interhooking (sic), interlocking nonmaterial patterns." People learn to make sense of environments they interact with by recognizing these patterns and expecting them to occur in familiar ways, even if there are differences in context, setting, and location.[74] It is important to consider this framework in design strategies or we risk alienating people and their internal processes of interpreting meaningful information in a space.

Phenomenology in Planning

Another framework that considers the perspective of the individual in space and offers this to the processes of urban planning is that of phenomenology. Phenomenology considers external stimuli, including objects and environments, as they are experienced from the personal point of view. It prioritizes the "perceptive subject" and precludes the idea that there is an absolute truth, instead prioritizing "how we see over what we see."[75] This approach prompts us

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[73] Krampen, *Meaning in the Urban Environment,* 2-3, emphasis added.
[74] Alexander, *The Timeless Way of Building,* 87, 91.
[75] Andrew Whittemore, "Phenomenology and City Planning," *Journal of Planning Education and Research* 34, no. 3 (2014): 301–8., 301, 303

to understand a city as consisting of a "multitude of parallel narratives" with structure and contents that are comprehended by the people there. It speaks to the multifaceted nature of any one city's "soul" or essence, something that is unique to each person who encounters it, and helps explain why there is "no one representation that can make sense of the complex whole" of any one place.[76]

A phenomenological approach to planning considers the city through the ways that "diverse constituents see their situation," understanding that planners' knowledge is not "absolute or transcendent between groups." Attention is paid to individual "perception, emotion, and feeling as legitimate sources of knowledge" about the production of space.[77] This knowledge is constantly forming as conceptual, mental, and sensory perception occur in spite of the economic and physical frameworks laid down by decision makers.[78] By this reasoning, it is counterintuitive for planners to assume that their training can universally facilitate change. It is important to combine this expertise with the way individual people "receive new knowledge" about their daily environment and local context.[79]

Bader has written about the value of a phenomenological model for planning that considers the lived experience of the built environment based on Walter Benjamin's concept of "distracted reception," through which architecture is most commonly perceived in a "state of habitual distraction" rather than intentional, focused attention. This is the most common way that the urban environment is experienced in daily life. In contrast to the "professional understanding" of place, which is framed by best practices, processes, and regulations, the

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[76] Mads Qvortrup, "The Phenomenology of the City: Chasing the Essence of Urban Life," *City* 2, no. 7 (May 1997): 169–70, https://doi.org/10.1080/13604819708900072., 169
[77] Whittemore, "Phenomenology and City Planning," 302-303
[78] Carp, "'Ground-Truthing' Representations of Social Space Using Lefebvre's Conceptual Triad." 130
[79] Whittemore 306

"direct human experience" of place is subtle and informed by movement, feelings, and emotions.[80] It is valuable to consider ways that these perspectives can be reconciled so as to bridge the gap between the different actors that have a hand in placemaking.

As it has gained traction in urban studies and theory, this view of planning has "identified a whole new vocabulary of urban form," one that depends on sensory qualities, feelings, materials and textures, surfaces and facades, style, and all other elements perceived by the attentive user, whether conscious or implicit. This has "permanently humanized the vocabulary of urban design," emphasizing urban lived experiences and the tangible objects that shape them.[81] Planners considering a phenomenological approach benefit from understanding all things in the urban environment "have meaning, and how different frames of reference give different meanings to each object" for each individual.[82] When we account for the dynamic nature of personal experiences when creating physical spaces, they will better "reflect existing social differences," both in terms of their physical form and social use.[83]

Perception in Design Processes

The process of creating and interpreting meaning is multifaceted, but it is fundamental to successful design methods and outcomes alike. When an architect is to design a building, they must employ the properties that are characteristic to its type in order for it to function as a coherent object. For example, when designing a church, a designer will use different methods, design elements, and materials than if the design was to be a stadium. The architect participates in the symbolic process and abides by these 'rules' for what a building with a certain use is

[80] Bader, "A Model for Everyday Experience of the Built Environment: The Embodied Perception of Architecture." 244-245
[81] Jacobs and Appleyard, "Toward an Urban Design Manifesto." 114
[82] Whittemore, "Phenomenology and City Planning." 304
[83] Carp, "'Ground-Truthing' Representations of Social Space Using Lefebvre's Conceptual Triad." 131

expected to have. The same goes for planners and urban designers who make decisions based on what type of use the land in question needs to fulfill, and who then employ certain design choices and techniques in order to encourage them.

Design can therefore be thought of as the process of expressing intention to the user,[84] and placemaking can be understood as the ongoing and dynamic "generation of imaginary textual systems – of ideologies." The user themselves is the site where this ideological meaning is sustained.[85] Therefore, environmental images are understood through a "two-way process between the observer and his environment" in which the observer – "with great adaptability and in the light of his own purposes – selects, organizes, and endows with meaning what he sees."[86] When a person is to 'consume' or interact with architecture, they engage in recognition of a set of properties that signify meaningful information. This information is used it to understand things about their location, an object's intended use, their safety, whether or not they are allowed there, under what expectations they should act while they are there, to name a few examples. Based on convention and prior experience, visual information from the surrounding environment is consciously and unconsciously assessed and these judgements are made.[87]

Lynch explains that the qualities in objects that make meaningful interpretation possible comprise its *imageability*, a term that refers to the "physical qualities which relate to the attributes of identity and structure in the mental image" or the "quality in a physical object which gives it a high probability of evoking a strong image in any given observer."[88] The imageability of an object or group of objects matters because "if the environment is visibly organized and

[84] Krampen, *Meaning in the Urban Environment,* 62.
[85] Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," 3.
[86] Lynch, *The Image of the City,* 6.
[87] Krampen, *Meaning in the Urban Environment,* 64.
[88] Lynch 9.

sharply identified, then the citizen can inform it with his own meanings and connections." Successful places are memorable for this reason.[89]

Perceiving imageable qualities in the built environment is often unconscious. Alexander posited this from the perspective of an inherently human subjectivity; it is difficult to pinpoint why the quality of our surroundings matters so much because according to him, the quality cannot be named or explained. This quality is also highly place-specific, determined by the place in which it exists and in relation to its surroundings and associated social and cultural norms.[90] These unconscious associations are hard to explain, not because they are vague, but rather because they are exact. In semiotics, the use of signifiers to stand for conceptual signs always slightly dilutes or obscures the true meaning of the signified; what Alexander's patterns represent is literally *how things are*, and so using language to describe them leads to distortion.

The ways in which built forms can be designed to represent implicit values are what allow a place to represent shifting cultural values and ideologies. Preziosi argues that "one of the primary functions of cities is precisely to engender and replicate images of themselves," providing the means for life-worlds, or the environment as it is immediately and directly experienced by a user, to be reckoned with.[91] Boyer recounts ways that ideals are represented through changes in the built environment, subsequently symbolizing changes in the social world of the citizens. For example, romanticizing rural and agrarian life as a respite from the chaos of the mid-19th century city resulted in renewed interest in building urban park systems due to the belief that "nature held the power to uplift the downtrodden and instill in man the best ideals from America's rural democratic past." The tendency for government buildings to emulate

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[89] Lynch, *The Image of the City,* 92.
[90] Alexander, *The Timeless Way of Building,* 26.
[91] Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," 3.

classical Greco Roman architecture creates a collective "civic vision" that is represented in

public space by tying it to the historical roots of democratic values. Modeling American art and

architecture in such a way as to call back to historic European cities as models of beauty and

civic order has long been popular, as these older places developed slower over longer periods

and are said to have a certain character that American cities often lack due to their more recent

development.[92]

This is the process by which large scale design of a city happens – as a dialogue with

levels of meaning, both literal substance and implied subtexts. Designers, planners, architects,

and builders have to operate within the same social conventions as those who will use their

designs, because in order for them to be comprehensible and functional they must first be

recognizable. Therefore, the "citizen-consumer" has to be able to understand on some level the

same "semiotic structure which the urban designer originally operated with."[93] This idea is not

entirely unique to urban space, as clearly all objects must be recognized as having a use in order

for someone to know to use them. However, when this conceptualization of meaning happens on

a large scale and at an unconscious level by a vast number of people as it does in the

contemporary city, it becomes harder to create the environment to be intuitive. It requires

intentional effort and the consideration of different perspectives. Therefore, it warrants trying to

understand the sociocultural and cognitive mechanisms through which people make sense of

their places. The success of an environment is based on people's interactions with their

surroundings, interactions that "help them to make sense, code and evaluate their environment

and then take appropriate action."[94] What a person participating in space understands as the built

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[92] Boyer, *Dreaming the Rational City; The Myth of American City Planning,* 34, 43-44.
[93] Krampen, *Meaning in the Urban Environment,* 89.
[94] Gouveia, Farias, and Gatto, "Letters and Cities," 342.

environment, "as the 'container' for our way of life," slowly develops power to shaped lived experience.[95]

Making Meaning

Signs serve to *denote* meaning about their precise functions, as well as *connote* implicit information that draws on "successive meanings" resulting from social conventions and ideological associations from the user's past experiences.[96] These signifying qualities are highly dependent on the context in which they are found, both in terms of their physical surroundings and social conventions.[97] In the example of a staircase provided by Eco, the object's function in its most literal sense can be understood from its form. An inclined series of horizontal levels at successive heights denotes the purpose and the possibility of going up or down. This is an example of the "*presence of a sign vehicle whose denoted meaning is the function it makes possible.*"[98] However, depending on the aesthetic components of the staircase, ones that go beyond the most basic point at which the object can be recognized as a staircase – characteristics such as banister embellishments, plush carpeting or shiny wood, or creaking floorboards – it can also convey other information, perhaps indicating grandiosity or structural integrity. A chair as a recognizable object tells an observer that they may sit, but other "accessory" qualities of the specific chair in question might tell the would-be user *how* they should sit, as in an elaborate throne with elements like embellishments, a high back, or high-quality materials.[99]

Preziosi offers the example of color associations that can be connected to social or economic class. Color-meanings can reflect identity very clearly, as in the dark blue of police

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[95] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 3.
[96] Eco, "Function and Sign: Semiotics of Architecture," 61.
[97] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 16.
[98] Eco 60.
[99] Eco 64.

uniforms. The inverse that results from such an association is also meaningful; if purple

represents an aristocratic or royal class, then in certain contexts that color stands in opposition to

the identity of other social groups, such as merchants.[100] Similarly, the colors red and green hold

strong meaning when presented in opposition on a traffic light. In this way, any urban object can

be read as a sign vehicle for its conventionally signified meaning, which is its function, as well

as intentionally manipulated to construct different symbolic meanings.[101] Eco argues that both

the connotative and denotative meanings of an object are "culturally and historically specific."[102]

Other architectural elements can be examined for this dual meaning as well. For example,

the functionality of windows as objects that comprise whole architectural forms can be

understood on multiple levels, the most literal of these being their functions such as allowing for

natural light, the ability to see a view from a high floor, a way to identify who is at the front

door. However, there is further implicit information that can be found in their connoted meaning,

as part of the building's visual rhythm or embellishments that help to distinguish the architectural

style in which it was designed. In this way, the aesthetic composition of an architectural object

assumes "symbolic function" through both denotation and connotation.[103]

If architectural objects can be sign vehicles for conveying meaning, then cities are larger

"complex and polysemic" objects themselves that offer an ongoing, continuously changing array

of meaningful signs. From a semiotic perspective, the city is a whole that "must be imagined as

an agglomerate *of beings and of things."* One can identify and understand the city as a legible

text, the subjects of which would be the human users of the city, and the grammatical objects of

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[100] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 16.
[101] Eco, "Function and Sign: Semiotics of Architecture," 61.
[102] Duncan, "PROGRESS REPORT: REVIEW OF URBAN IMAGERY: URBAN SEMIOTICS," 479.
[103] Eco 62.

which would be "the things the subjects are in contact with and manipulate." [104] The city is a "supersign composed of signs," within which there are sub-sign systems consisting of spatial objects such as buildings, parks, plazas, and squares, "directional" signs like road networks, and "symbolic systems" which involve the relationships that exist between the city and "phenomena such as street names and traffic signs, which are based on conventional association."[105] Architectural forms are discrete, but always embedded in larger scale "communicative events" that incorporate countless different associated signs in tandem.[106]

Thus, the city is an "integrated whole" comprised of parts that are objects and signs themselves, while at the same time may be understood as an object or sign on its own. An urban landscape can be conceptualized in terms of a distribution of architectural components existing in geographic space according to society's collective definition of what a 'city' is. The meaning derived from a city's form will change over time, not just in terms of aesthetics or style, but as social norms, technologies, and needs change.[107]

Language and The Environment

Scholarly work on the comprehension of the built environment often likens the process to reading and interpreting words on a page, in that the sign systems that comprise the world around us are like 'legible' texts (see Barthes 1970, Lynch 1960, Preziosi 1986). Understanding the meaning-making capabilities of urban place has similarities to analyzing the meaning of language, in the sense that the environment is like something that has been spoken, rather than a

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[104] Algirdas Julien Greimas, "For a Topological Semiotics," in *City & The Sign*, ed. Alexandros Ph. Lagopoulos and Mark Gottdiener (New York: Columbia University Press, 1986), 33, 38.
[105] Krampen, *Meaning in the Urban Environment,* 43.
[106] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 3.
[107] Krampen 66-67.

speaking subject.[108] Semiotic principles are closely associated with the study of linguistics and communication, so it follows that visual communication systems are often analyzed as a type of discourse. The close relationship between sign systems and language is tied to the early use of semiotics in contexts related to linguistic symbols, which has since been broadened to include any "phenomena [follows] the process of intentional communication" and conveys content and expression through the composition of smaller units of substance.[109]

Researchers have argued that the use of semiotic principles to understand non-linguistic communication is justified because language and objects have a "common" origin, in that they are both "human artefacts (sic)."[110] Spoken and written language as well as components of the built environment are both, at their cores, planned and intentional creations that result from human effort. Any human environment is comprised of these meaningful artifacts because for as long as humans have lived, they have created and adapted their surroundings to suit their biological needs and social values.[111]

Urbanists and urban semiologists have drawn on linguistic concepts in their work due to these similarities, often using terms such as grammar, vocabulary, and syntax to refer to urban places or the elements that comprise them. Some make outright attempts to "translate the visual language of perception into the literal language of words."[112] Christopher Alexander's 'pattern language' is one example, drawing on people's mental images of patterns in the world and their function as "abstract representations of the very morphological rules which define the patterns in

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[108] Raymond Ledrut, "Speech and the Silence of the City," in *City & The Sign*, ed. Mark Gottdiener and Alexandros Ph. Lagopoulos (New York: Columbia University Press, 1986), 119.

[109] Krampen, *Meaning in the Urban Environment,* 1, 13.

[110] Krampen 13.

[111] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 1.

[112] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 28.

the world."[113] Such a system of patterns is comprised of a set of symbols and a set of rules for combining these symbols, and can be used by anyone to shape their environment for themselves.

While useful to consider, the similarities between language and the environment are not all encompassing and, while helpful, are not exact.[114] Ledrut rejected likening space to grammar in a literal sense because the built environment is not a true communication system, and that applying linguistic terms to it is only metaphorical.[115] Preziosi has argued that 'reckoning with,' rather than 'reading,' is a more appropriate descriptor for the process of engaging with the built environment because it better captures the active "thinking through" associated with interpretation of the landscape and imbuing it with meaning.[116] This reckoning-with provides a more active connotation to the process by framing it through the act of interpretation, which is not possible without the user. The question is still essentially about how built environments manifest ideas, values, and qualities, and how they present as meaningful for people who perceive and interact with them.

While not literal, the equation of the built environment with language is an arguably egalitarian one; even though the formal processes of designing and creating architectural objects and urban spaces is the work of trained experts, all people produce language of some type. Adopting this perspective in relation to the built environment can help gear the understanding of what makes meaningful urban space toward the level of the individual, no matter their background. This "gives each person who uses it the power to create an infinite variety of new

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[113] Alexander, *The Timeless Way of Building,* 181.
[114] Krampen, *Meaning in the Urban Environment,* 35.
[115] Duncan, "PROGRESS REPORT," 478.
[116] Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," 3.

and unique buildings, just as ordinary language gives him the power to create an infinite variety of sentences."[117]

Units of Urban Form

Many researchers have used the methodology of identifying basic units of urban forms as being of interest to understanding something about the environment. These pieces of the urban landscape are able to be identified, broken down, and examined, and also comprise the city as a whole. Notable are Lynch's edges, nodes, landmarks, districts, and paths, which he understood as specific, easily comprehended pieces of a larger urban fabric that people registered and remembered.[118] Other, more ephemeral qualities, such as light, color, rhythm, and value, can characterize objects further.[119] The townscape movement applies "a human vocabulary" to the built environment that included textures, sights, sounds, and values shaped by local attitudes.[120] Cook also outlined four overall functional systems for written signs: locating, such as house numbers and street names; informing, such as for sale and store hours signs; controlling behavior, such as no parking and no smoking signs; and service signs, such as fire hydrant signs and manhole covers.[121] These functions can just as easily be applied to symbols and objects as to written signs. Jacobs and Appleyard describe how the "vocabulary of urban form" depends on such physical identifying elements, and they claim that taking on a perspective that identifies and prioritizes these qualities has humanized the way we conceptualize space as interactive and meaningful for individuals.[122]

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[117] Alexander, *The Timeless Way of Building,* 173.
[118] Lynch, *The Image of the City,* 41.
[119] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 22.
[120] Talen, *New Urbanism and American Planning: The Conflict of Cultures,* 94.
[121] Vivian Cook, "Meaning and Material in the Language of the Street," *Social Semiotics* 25, no. 1 (January 2015), 84.
[122] Jacobs and Appleyard, "Toward an Urban Design Manifesto."114.

Finally, some of the founders of New Urbanism have specified five characteristics that encourage suburban sprawl. In ways similar to those discussed above, these are physical characteristics or visual cues that are indicative of some of the effects of zoning. These characteristics are observable aspects of the built environment common to modern development patterns that, when present, can indicate other historical or even political information. These include: housing subdivisions, or clusters of houses in areas only consisting of residences, which are often referred to as neighborhoods, though Duany, Plater-Zyberk, & Speck argue that this is misleading, as neighborhoods have historically been comprised of a mixture of uses and offer access to richer experiences; shopping centers or strip malls exclusively for shopping and retail, often accompanied by large parking lots; office parks whose only use is workspace and are only used during the workweek; civic institutions, including public buildings where administrative and government work is done, as well as schools, churches, which, in suburbs, are often very dispersed and only busy at certain times because having to drive to them makes them less accessible; and the large roadways that connect the other four components, as people living in suburbs have to spend a lot of time moving between these uses in order to fulfill the many activities that tend to take place and so spend a considerable amount of time driving. These are some examples of visual and material qualities that symbolize a type of environment or community that is entirely dictated by conventional use-based zoning. The unifying factor among these five components is that they are all strictly single-use. One of the key principles of New Urbanism is that mixed-use development results in much better places and make residents feel more connected to them.[123]

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[123] Duany, Plater-Zyberk, and Speck, *Suburban Nation; The Rise of Sprawl and the Decline of the American Dream, 5-7*.

What these forms and qualities have in common is that they are often perceived unconsciously as a whole rather than separate parts. Alexander called qualities like these *patterns*, referring to something in the world, a unit of activity and space that repeats itself elsewhere, always appearing in slightly different but still recognizable manifestations.[124] He argued that any place is made up of "certain concrete elements, with every element associated with a certain pattern of events… repeating endlessly, combined in an almost endless variety of combinations." A building is made up of walls, windows, doors, rooms, staircases, doors and doorknobs; a city is made up of houses, parks and gardens, streets and sidewalks and stoplights at intersections, offices, stores, rivers and trees and parking lots; a cathedral is made up of a nave, aisles and benches and pews, columns, windows, the choir and altar. All of these are identifiable because they repeat over again, in different iterations which are still recognizable. Alexander assesses these and asks how the structure of any space supports and encourages the associated pattern of events that happens there.[125] The fact that it well established for urban theorists to examine environments in this fashion, regardless of their varying hypotheses, shows how important these identifiable indicators are to the character of a place.

Social Implications of Meaning

Semiologists consider the city, like any collection of signs, to be a reflection of the society that creates it, ascribes meaning to it, and further conceptualizes that meaning. The city as a semiotic text is "an inscription of man in space"[126] in a literal sense, as humankind has manipulated the world around it to suit its needs for as long as it has existed throughout history.

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[124] Alexander, *The Timeless Way of Building*, 181.
[125] Alexander 82-83.
[126] Roland Barthes, "Semiology and the Urban," in *City & The Sign*, ed. Alexandros Ph. Lagopoulos and Mark Gottdiener (New York: Columbia University Press, 1986), 90.

However, cities are also indicative of the societies that build them in a more abstract, ideological sense. A place can be representative of the values of those that live there, and the ways in which these are communicated to us is important to consider from the perspective of the individual.[127]

Proponents of socio-semiotics and phenomenology have taken this view and have argued that social norms heavily inform built environments. Observation, especially unconsciously, is a very personal experience and is "influenced by all that you have learned and seen throughout your life."[128] As a result, cultural norms, social conventions, routines and other rules can be just as effective in organizing behavior and ordering social spaces than written rules.[129] Although every individual creates and operates on their own image and meanings associated with a sign, there is also an agreement of shared meaning among members of the same social group. It is these "group images, exhibiting consensus among significant numbers, that interest city planners who aspire to model an environment that will be used by many people." [130] The built environment "cannot be read in terms of any one homogeneous code," but rather a mass of associations which have been codified and changed over an individual or collective history.[131]

However, neither space nor the elements that define a space actually cause activity or events directly. A much more "complex" process of interpretation actually shapes behavior; for example, people on a sidewalk recognize that the space they are in is a sidewalk because of previously formed associations, even if they have never walked along that specific sidewalk before. As a member of a certain cultural group, they also have a learned understanding of the function of a sidewalk. This knowledge is what "causes them to behave on sidewalks," not

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[127] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 3.
[128] Hosken 22.
[129] Tonkiss, *Cities By Design; The Social Life of Urban Form,* 93.
[130] Lynch, *The Image of the City,* 7.
[131] Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," 12.

merely the presence of the "purely spatial aspect of the concrete and the walls and curbs." In the example given by Alexander, a sidewalk in located in New York City is a place for traveling, walking, and moving past at an expected pace, and will be understood in a different way than a sidewalk in Bombay where people may sit and talk, park their cars, or even sleep.[132]

The recognition and interpretation of meaningful spatial objects is never independent of the society to which the user belongs, so all perception of the environment is related to how a subject has been socialized. Because of this, a truly holistic understanding of meaningful urban placemaking involves areas of knowledge that go beyond design and cognition to include those such as sociology, history, and politics.[133] People conceptualize space by forming personal "relationships both with each other and with objects," which Greimas describes as occurring "within a specific cultural 'tale.'"[134]

This perspective on the built environment allows for the "integration" of human subjects into the text of the city as 'users,' which better allows us "to conceive of *the city as a set of interrelations and interactions between subjects and objects.*"[135] The user of a space, visitor to a place, or interpreter of an urban sign system is inextricably tied to the meaning of the built environment, and this meaning exists when it is interpreted and made sense of. The research presented here is far-reaching, but centers on the argument that meaning-making is a process of dialogue involving both the sign and the subject comprehending it. Rather than being passively present in a stage-like backdrop, people are actively engaged with their environment, repeatedly facing choices and making judgements which might be different for other people at other

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[132] Alexander, *The Timeless Way of Building,* 72-73.
[133] Krampen, *Meaning in the Urban Environment,* 53.
[134] Krampen 25.
[135] Greimas, "For a Topological Semiotics," 41.

times.[136] The environment, especially one as complex and dynamic as the modern city, is "more than a setting" but an extension of one's choices and actions,[137] and "a place for seeing meaning… where ideology is actively *enacted.*"[138] People look for buildings and places to reflect us, and being able to read a narrative in a place helps us orient ourselves in the same way that clear physical boundaries and paths do. The application of these frameworks to urban built space inextricably ties the person to the place as a participant in the systems that unfold around them.

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[136] Preziosi, *The Semiotics of the Built Environment; An Introduction to Architectonic Analysis,* 10.
[137] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 19.
[138] Preziosi, "Reckoning with the World: Figure, Text, and Trace in the Built Environment," 10.

Form-Based Codes

The contemporary use of form-based zoning and building codes can be viewed as an exploration of a tangible way to implement human-centered community development and placemaking in real places. A form-based code (FBC) is, broadly, a legal regulatory code that references the visual quality of the public realm by addressing physical form rather than or in addition to zoning by separation of land uses. These codes offer a potential mechanism for applying previously discussed values to existing places.

Planning physical environments based on visual and aesthetic form has been practiced throughout history, from the Greek public forum to the Spanish colonization of the North American hemisphere.[139] In the modern United States, however, zoning has long been based on the separation of land use as described previously. Cities in the US have lacked any form-specific regulation for a long time, only adopting comprehensive use-based zoning codes in the early 20th century as a way to mitigate the effects of industrialization on living conditions. The resulting decentralization of communities and the segregation of racial groups and social classes were further exacerbated by large-scale suburbanization that occurred over the next several decades. Inequity, inefficiency, and heavy-handed bureaucratic implementation by decisionmakers caused dissatisfaction with the places that resulted from these methods throughout the century.[140]

New Urbanism

The historical trajectory of urban planning in America has made space for New Urbanism and its values to grow. The Congress for the New Urbanism was founded in the 1990s as a

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[139] Emily Talen, "Design by the Rules: The Historical Underpinnings of Form-Based Codes," *Journal of the American Planning Association* 75, no. 2 (March 27, 2009): 144–60, https://doi.org/10.1080/01944360802686662, 147-148.
[140] Talen 153-155.

unified organization to promote urbanist ideals. The values that the CNU supports are some that

directly address solutions to the aforementioned repercussions of 20th century planning practices,

including walkable, compact neighborhoods, decreased reliance on cars, and avoiding both

sprawl and destructive urban renewal and slum clearance.[141] The CNU governing document, the

Charter of the New Urbanism, addresses these values centering around the belief that people

have a stake in their communities, and that places should be designed to prioritize them. By

advocating for changes in both public policy and urban design and development practices, New

Urbanists generally seek to promote typological and economic diversity, the accessibility of

public spaces, pedestrian- and transit-oriented development, and architecture and landscaping

that accentuates places' local character. Notably, the charter acknowledges that "physical

solutions by themselves will not solve social and economic problems," but the New Urbanists

generally follow the principle that a successful political and social framework for designing the

built environment is essential for positive economic, social, and environmental change.[142]

 The ways in which New Urbanist values can actually be implemented in the physical

environment rely on political and design processes. While not an invention of New Urbanism,

FBCs are an example of a tangible tool with which these ideals can be made reality in actual

places. As such, many New Urbanists are among those who first experimented with and continue

to advocate for their implementation.

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[141] "The Movement," Congress for the New Urbanism, n.d., https://www.cnu.org/who-we-are/movement.
[142] "Charter of the New Urbanism," 2001.

Early Form-Based Codes

Use-based zoning has long been denounced by urbanists, who argue that its lack of functionality cannot properly support successful, inclusive, and harmonious urban growth and development.[143] In the 1980s, people sought ways of creating these 'better' neighborhoods and cities, ones that would be socioeconomically diverse, compact, and socially connected. As one of the most powerful tools for determining what can be built, where it can be built, and how it can look, many saw zoning codes as the root of the problems they were trying to address. Instead of focusing on a case-by-case analysis of building and site projects, it made more sense to reform the regulations governing all new development.[144] New Urbanist planners began to advocate for code reform, particularly form-based methods, because they were effective, pragmatic tools for actualizing the values and ideas they espoused.[145]

Form-based codes were heralded by some as an "antidote" to the pitfalls of traditional use-based zoning. By encouraging key characteristics like walkability, missing middle housing, and a vibrant and pleasant public realm, planners hoped that these codes would provide the necessary flexibility for better placemaking. The CNU advocated that codes "focus on the visual harmony in the public realm; require continuous urban frontage to ensure a degree of uniformity; and be sensitive to context," and that these values be codified within legal zoning documents.[146]

These and other experiments with zoning aimed to expand beyond that which conventional methods allowed, but they had to be worked into existing legal frameworks. To do this, planners and developers took advantage of areas that were zoned as planned unit

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[143] Polyzoides, "The Time Is Now," xv; Plater-Zyberk, "An Optimistic Moment," x; Duany, Plater-Zyberk, and Speck, *Suburban Nation; The Rise of Sprawl and the Decline of the American Dream,* 11.

[144] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 9.

[145] Emily Talen, "Help for Urban Planning: The Transect Strategy," *Journal of Urban Design* 7, no. 3 (2002): 293.

[146] Talen, "Design by the Rules; The Historical Underpinnings of Form-Based Codes" 155.

developments (PUDs). A PUD is a type of zoning category within the jurisdiction of a traditional use-based code, but it does not have a specific land use associated with it. Therefore, PUDs are something of a work-around within complex zoning areas and many can be found containing developments adhering to form-based regulatory guidelines. Because FBCs are still growing in popularity, it is uncommon to find entire cities or towns that have overhauled their codes in favor of a fully form-based framework. It is much more prevalent to find examples of their principles applied within small areas – pockets of infill or redevelopment, a specific corridor or town center, or other area targeted for development – that have been rezoned as PUDs to allow for more flexibility within the parameters of conventional zoning. At this point in time, "FBCs are used in more limited areas" like these corridors or revitalization areas, rather than implemented across the scale of an entire municipality. Early FBCs instead took advantage of the flexibility of PUDs to circumvent the restrictions traditional zoning regulations place on the kind of development allowed in one place.[147]

Additionally, it is relevant to present one of the most widely referenced contemporary FBCs as they have been defined here, the SmartCode. The SmartCode was originally developed by Duany Plater-Zyberk, a firm run by prominent New Urbanists, as a template that could be customized, or "calibrated," to fit the needs of municipalities.[148]

> *"The SmartCode is a model ordinance. It is not persuasive and instructive like a guideline, nor is it intentionally general like a vision statement. It is meant to be law, precise and technical, administered by municipal planning departments and interpreted by elected representatives of local government. The SmartCode is designed to be calibrated to local circumstances, ideally with the participation of the local citizens."* (SmartCode v 9.2 iv)

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[147] Mary E. Madden and Joel Russell, "The Emergence of Form-Based Codes," *PlannersWeb* (blog), December 5, 2014, http://plannersweb.com/2014/12/fbc2/.
[148] SmartCode Version 9.2, n.d.

The SmartCode is much more compact that comparable conventional zoning documents. It utilizes tables, charts, and images accompanied by written descriptions, thereby compressing much more information onto each page than a traditional code.[149] The SmartCode uses both words and pictures to describe the intended feel of the zone, along with examples of what type of uses tend to go there. This serves to describe the "General Character" and typology of public spaces, in addition to other metrics typical to codes such as building heights and setbacks. The SmartCode requires thoroughfares for both vehicles and pedestrians to be "designed in context with the urban form" and engineered to the "desired design" typologies of their zone. Streets should define blocks and connect with other streets "wherever possible" to form a pedestrian-oriented network.[150] Regardless of whether or not a form-based code follows the SmartCode template, these core values are central to the goals it sets for the community.

Elements of a Form-Based Code

The most significant differences between form-based codes and their traditional predecessors are in the contents of the codes themselves. The ideas driving FBCs are "vision-based and prescriptive" in ways that traditional zoning is not.[151] The regulation of land use is second to the description of form. The general aesthetic quality and material design of the public realm is regulated in order to achieve a certain character that is cohesive within the context of the place.[152]

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[149] Judge, "CODEX IMAGINARIUS: VISUAL CODES IN LAND USE PLANNING AND AESTHETIC REGULATION," 1621.
[150] Geller, "THE LEGALITY OF FORM-BASED ZONING CODES," 46, 53.
[151] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 11.
[152] Parolek, Parolek, and Crawford 38.

Although they differ based on many characteristics such as the size of their jurisdiction, vision, and goals of the writers, all FBCs have the following characteristics:

1. They are legally enforceable;

2. They intentionally prescribe qualities of the public realm, often by regulating parts of private building or urban development; and,

3. Their purpose is to produce what the Form-Based Code Institute defines as 'time-tested' forms of urbanism, which encourage walkability, social interaction, and the use of public spaces that are visually well-organized and identifiable.[153]

Due to the prescriptive nature of the structure and scope of an FBC, a detailed visioning process often occurs at the start of the planning and writing process. Observational data and public input supplement the vision plan, which considers the existing community and illustrative goals for the intended outcomes of the code.[154] Public input is gathered in a variety of ways, often through participatory workshops and interviews with residents that can help planners understand the amount of change and speed at which it occurs that residents want and expect to see. These methods are intended to better inform and involve the community in plan development, meaning that the "designer is no longer a solitary 'expert' but a collaborator with the client and with other experts." In this way, FBCs are able to incorporate "a plurality of views" in planning. The collaborative visioning process is usually coordinated by partnerships between both municipal authorities and planners.[155]

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[153] Talen, "Design by the Rules," 146.
[154] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers* 96.
[155] Michael W. Mehaffy, "Generative Methods in Urban Design: A Progress Assessment," *Journal of Urbanism* 1, no. 1 (n.d.): 57–75., 58-59

The following elements are typically found in contemporary FBCs

Codes that utilize the urban **transect** are a type of FBC in which regulations for each zone vary depending on the zone's typology, ranging from rural to urban core. [156] Instead of regulating allowed uses, the spectrum format of the transect calls for designating how urban an area within the code's jurisdiction should be. Transect typologies describe "a range of human habitats that vary according to their level and intensity of urban character" along a continuum.[157] The SmartCode utilizes transect zoning and defines it as follows:

> *"This zoning system replaces conventional separated-use zoning systems that have encouraged a car-dependent culture and land-consuming sprawl. The six Transect Zones instead provide the basis for real neighborhood structure, which requires walkable streets, mixed use, transportation options, and housing diversity. The T-zones vary by the ratio and level of intensity of their natural, built, and social components. They may be coordinated to all scales of planning, from the region through the community scale down to the individual lot and building, but the new zoning itself is applied at the community (municipal) scale."* (SmartCode version 9.2 vii)
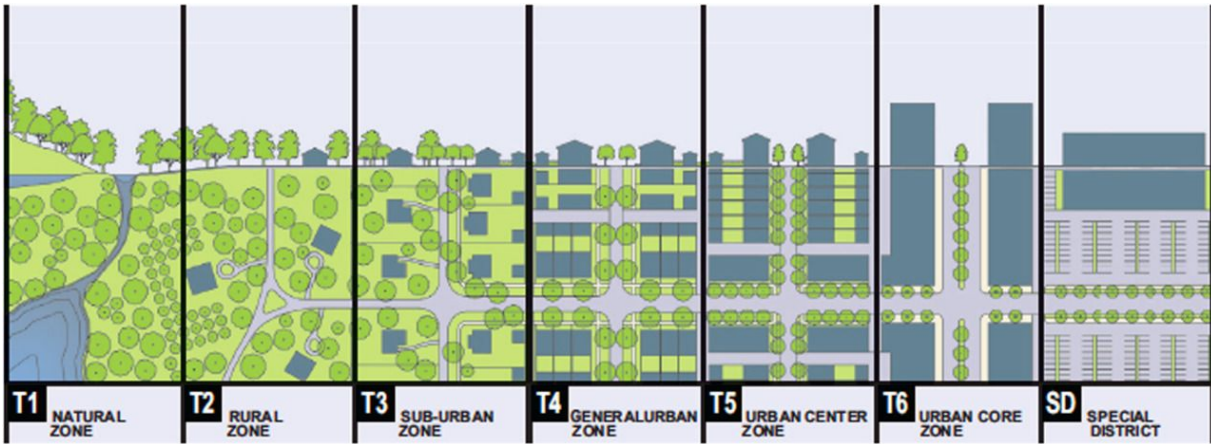
The SmartCode version 9.2, vii

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[156] Talen, "Design by the Rules; The Historical Underpinnings of Form-Based Codes," 156.
[157] Talen, *New Urbanism and American Planning: The Conflict of Cultures,* 18.

What ultimately distinguishes the different zones are visually identifiable characteristics. Duany, a founder of New Urbanism and co-creator of the SmartCode, proposes that the transect functions based on differentiating an urban place "by its *degree and appearance of urbanity*. Imagine ordering residential environments from highly rural at one end to highly urban at the other… each sector has its own particular range of densities, street profiles, open spaces and building forms." Coding using the transect is an approach that regulates open space as well as architectural objects consistently so that everything, including "fences, curbs, roof lines, landscaping, turning radii" and other elements, reads as a unified composition.[158] This precludes the need to define and regulate the placement of different land use types that would otherwise create a haphazard landscape.

Talen proposes that the transect itself, specifically as a part of an FBC's functionality, is an important tool for a holistic approach to designing the urban environment. The zones defined in the transect seek to organize elements of the urban environment by how they fit into appropriate typologies, or how they "preserve the integrity of different types" of urban, suburban, and rural places.[159] This organization is possible because of the significant impact that physical aspects or aesthetic characteristics of a place have on how users perceive that place. Duany Plater-Zyberk & Company describe the transect as a tool that "arranges in useful order the elements of urbanism by classifying them from rural to urban. Every urban element finds a place within its continuum. For example, *a street is more urban than a road, a curb more urban than a swale, a brick wall more urban than a wooden one, and an allée of trees more urban than a cluster*. Even the character of streetlights can be assigned in the Transect according to the

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[158] Sidney Brower, "The Sectors of the Transect," *Journal of Urban Design* 7, no. 3 (2002), 314; emphasis added.
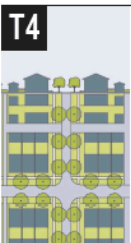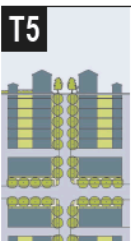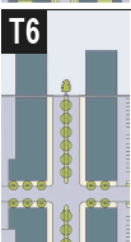[159] Talen, "Help for Urban Planning: The Transect Strategy," 294.

fabrication from cast iron (most urban), extruded pipe, or wood posts (most rural)."[160] The idea that in terms of physical quality, different objects' characteristics can be more or less urban relies on their ability to convey implicit meaning. The fact that, in terms of 'quantifiable' urbanity, a wrought iron gate > wooden fence has considerable implications from a symbolic perspective.

It may be worth noting that transect planning on its own is a methodology that utilizes the urban-to-rural transect in order to define planning standards and is not exclusively the invention of New Urbanists. A transect-based approach to coding is also more environmentally sustainable, as the framework of a transect more broadly originates in ecology. The use of the transect in urban planning brings to the discipline a sense of responsibility to balance urban and natural settings and integrate them with intention and consciousness.[161]

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[160] "The Transect," Congress for the New Urbanism, n.d., https://www.cnu.org/resources/tools., emphasis added
[161] Talen, "Help for Urban Planning: The Transect Strategy," 295

TABLE 1: Transect Zone Descriptions. This table provides descriptions of the character of each T-zone.

T-1 NATURAL

T-1 Natural Zone consists of lands approximating or reverting to a wilderness condition, including lands unsuitable for settlement due to topography, hydrology or vegetation.

General Character:	Natural landscape with some agricultural use
Building Placement:	Not applicable
Frontage Types:	Not applicable
Typical Building Height:	Not applicable
Type of Civic Space:	Parks, Greenways

T-2 RURAL

T-2 Rural Zone consists of sparsely settled lands in open or cultivated states. These include woodland, agricultural land, grassland, and irrigable desert. Typical buildings are farmhouses, agricultural buildings, cabins, and villas.

General Character:	Primarily agricultural with woodland & wetland and scattered buildings
Building Placement:	Variable Setbacks
Frontage Types:	Not applicable
Typical Building Height:	1- to 2-Story
Type of Civic Space:	Parks, Greenways

T-3 SUB-URBAN

T-3 Sub-Urban Zone consists of low density residential areas, adjacent to higher zones that some mixed use. Home occupations and outbuildings are allowed. Planting is naturalistic and setbacks are relatively deep. Blocks may be large and the roads irregular to accommodate natural conditions.

General Character:	Lawns, and landscaped yards surrounding detached single-family houses; pedestrians occasionally
Building Placement:	Large and variable front and side yard Setbacks
Frontage Types:	Porches, fences, naturalistic tree planting
Typical Building Height:	1- to 2-Story with some 3-Story
Type of Civic Space:	Parks, Greenways

T-4 GENERAL URBAN

T-4 General Urban Zone consists of a mixed use but primarily residential urban fabric. It may have a wide range of building types: single, sideyard, and rowhouses. Setbacks and landscaping are variable. Streets with curbs and sidewalks define medium-sized blocks.

General Character:	Mix of Houses, Townhouses & small Apartment buildings, with scattered Commercial activity; balance between landscape and buildings; presence of pedestrians
Building Placement:	Shallow to medium front and side yard Setbacks
Frontage Types:	Porches, fences, Dooryards
Typical Building Height:	2- to 3-Story with a few taller Mixed Use buildings
Type of Civic Space:	Squares, Greens

T-5 URBAN CENTER

T-5 Urban Center Zone consists of higher density mixed use building that accommodate etail, offices, rowhouses and apartments. It has a tight network of streets, with wide sidewalks, steady street tree planting and buildings set close to the sidewalks.

General Character:	Shops mixed with Townhouses, larger Apartment houses, Offices, workplace, and Civic buildings; predominantly attached buildings; trees within the public right-of-way; substantial pedestrian activit
Building Placement:	Shallow Setbacks or none; buildings oriented to street defining a street wall
Frontage Types:	Stoops, Shopfronts, Galleries
Typical Building Height:	3- to 5-Story with some variation
Type of Civic Space:	Parks, Plazas and Squares, median landscaping

T-6 URBAN CORE

T-6 Urban Core Zone consists of the highest density and height, with the greatest variety of uses, and civic buildings of regional importance. It may have larger blocks; streets have steady street tree planting and buildings are set close to wide sidewalks. Typically only large towns and cities have an Urban Core Zone.

General Character:	Medium to high-Density Mixed Use buildings, entertainment, Civic and cultural uses. Attached buildings forming a continuous street wall; trees within the public right-of-way; highest pedestrian and transit activity
Building Placement:	Shallow Setbacks or none; buildings oriented to street, defining a street wall
Frontage Types:	Stoops, Dooryards, Forecourts, Shopfronts, Galleries, and Arcades
Typical Building Height:	4-plus Story with a few shorter buildings
Type of Civic Space:	Parks, Plazas and Squares; median landscaping

The SmartCode's Transect Zone Descriptions, SmartCode version 9.2, 27

A **regulating plan** is found in most FBCs, usually as a very detailed map of the code's jurisdiction that indicates which standards apply to what part of the land within the area. These are similar in function to zoning maps in traditional codes, but are often more detailed, sometimes displaying distinct regulations for individual blocks or specific streets. In addition to defining different zones, the regulating plan shows which illustrated prescriptions for building form and public realm apply to different places.[162]

FBCs also contain **building form standards**, which are entitlements that describe the physical parameters of each zone within the code's area. The guidelines laid out in this section of the FBC is based on the "complex interrelationships" between the buildings, public spaces, and private uses that will exist there.[163] They provide an overview of the intentions of each zone in both narrative and illustrative forms in order to give a comprehensive and easy to understand framework that is then followed up with more precise, technical prescriptions that are essential for it to function as a regulatory document.

The regulations for building placement found in the building form standards are the basic guide for establishing the "urban character" of each zone. Minimum and maximum lot widths, setback distances, and landscaping requirements are laid out for each zone. Building form is regulated as well through height, width, and depth limits, and height relationships that ought to be followed between individual buildings. The pedestrian-level parts of building-fronts are described here as well through requirements on the height and number of windows of a street-facing ground floor.[164] In contrast to traditional zoning codes, which tend to only regulate form

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[162] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 17.
[163] Parolek, Parolek, and Crawford 39.
[164] Parolek, Parolek, and Crawford 40, 54.

through height limits and Floor-Area Ratio, FBCs offer a more intentional way to create spaces framed by buildings that contribute to the public realm.[165]

     Frontage type standards and **building type standards** refer to aesthetic aspects of form. Prescriptions for the frontage of buildings in a given place aim to ensure that the interaction between the public realm and the public-facing facade of a building is appropriate. This is done through suggesting certain frontage types for different zones, consisting of elements such as porches, arcades, awning-covered gallery windows, or appropriately sized yards.[166]

Public Frontage Types (Source: SmartCode version 9.2, 32)

[165] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 74.
[166] Parolek, Parolek, and Crawford 59.

T4 Building Type: Sideyard Building — T4

Building Type Standards
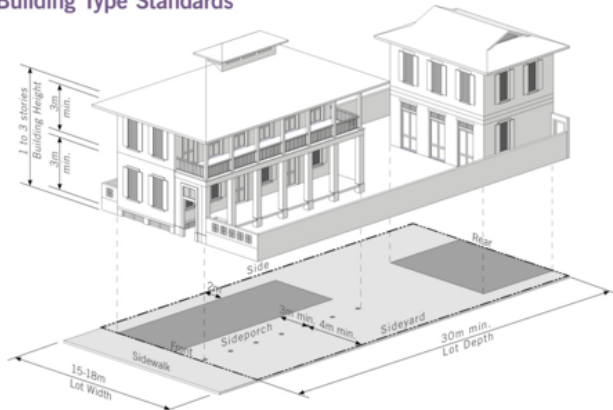
Standards (comply with all)

Lot width.	15-18m ☐
Lot depth	.30m min. ☐
Building distance from side lot line	2m ☐
Building height.	1-3 stories ☐
Floor-to-ceiling height	.3m min. ☐
Sideyard width	.4m min. ☐
Sideporch depth.	.3m min. ☐
Eave depth	1.8m min. ☐
Parking (if provided) accessed from rear alley.	☐
Front lot line defined by an allowed street facade type; side and rear lot lines defined by a building or wall. . .	☐

Allowed Street Facade Types (select one)

☐ Flex   ☐ Gallery   ☐ Wall and Forecourt   ☐ Dooryard
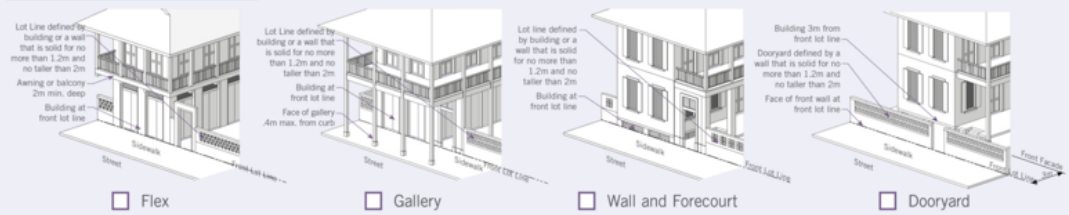
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Block Design Principles

Applicable to All
Transect Zones

☐ **Orient buildings towards civic space.**

Buildings adjacent to or across from civic space should face the civic space. Orient the front of a building towards the civic space, rather than its back or side.

Why this is important: This defines the public space and increases a sense of security within the public space.

Do this:

Buildings with fronts oriented toward public space reinforce the shape of the space. Windows oriented onto the space provide a sense of security that nearby residents may be watching.

Not this:

Buildings with sides oriented toward public space create a weak edge. Fewer windows facing the space make it feel less secure.

☐ **Orient buildings towards thoroughfares.**

The fronts of all buildings should orient towards a thoroughfare or civic space. Sides fronting on thoroughfares should be minimized and backs of buildings should never be oriented to the thoroughfare.

Why this is important: This defines and activates the interface between the private and public realm and increases the sense of security for pedestrians walking along the sidewalk.

Do this:

The fronts of all buildings are oriented towards a thoroughfare. Entries along the street promote walking and windows provide a sense of security that nearby residents may be watching.

Not this:

Buildings with sides and backs orienting towards the thoroughfares create a weak interface with the public realm and make the pedestrian experience less secure and less enjoyable.

FINAL DRAFT: May 2014   Akanda SmartCode | 5-9

Building Type and Block/Public Realm Standards, Opticos Design, Akanda SmartCode Plan 2014

Classification of 'building type' in the context of FBCs and urban design is dictated by the physical form of the building first, and then according to its use or function. Building type standards are essential to effective FBCs because they ensure there is a diverse "fine grain" integration of distinct building types.[167] Building types are distinguished not only by their function, but also by how they are built; for example, multifamily housing buildings include a range of different types including courtyard apartments, stacked units, townhouses, bungalow courts, and high rise apartments. Each of these is a type of multifamily housing stock, but the distinctions made between them allow for a more detailed mixture of building forms and types to be encouraged. The ultimate goal of this type of section is to allow the code to "ensure that the physical form will ultimately be consistent with the urban patterns the community wants to replicate or institute."[168]

Architectural standards offer broader regulations for how a community wants to regulate architecture as it impacts urban form and public space. As such, this is not a component that is included in every FBC. However, prescribing certain elements of form can be helpful in accomplishing the overall plan for a community that the other standards lay out. These architectural guidelines may be explained through words, images and drawings, or a combination of the two, and may address the physical character of different building types more generally or more specific aesthetic design elements. Components of buildings' massing, window and door composition, rooflines, building materials, and other details may be addressed in this section.[169] Smaller details are important to consider as well because they can define the style of a given

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[167] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 65.
[168] Parolek, Parolek, and Crawford 60.
[169] Parolek, Parolek, and Crawford 78-79.

building. Roof materials can indicate climate concerns, while eaves and windowsills mark a

certain style or era. Regulating this type of detail can contribute to a certain vision the city may

be trying to achieve, or simply help maintain consistent character throughout its neighborhoods.

Due to the need for municipal regulators to ensure that the location of different uses

responds to the needs of the people, FBCs do regulate **land use**, though not to the same degree as

traditional codes. Certain land use types are restricted from certain zones of the transect, the

reasons for which are often intuitive; a single-family detached house in the T6 urban core's

central business district is neither the most accommodating nor responsible use of that space; nor

is a lot next to a landfill the best place for an elementary school. Economic development goals

can also be furthered by clustering commercial activity or promoting increased mixed-use sites.

These regulations are laid out by zone in the FBC. The judgement for what uses are permitted

within a zone is based on the needs and desires of the community and their appropriateness for

the purpose of that zone. Conditional and permitted exceptions are stipulated in this part of the

FBC as well. [170]

The way that FBCs regulate land use is more flexible than traditional zoning allows for.

Allowed uses are designated as 'permitted' when they reflect the context of the type of zone as

well as the needs and wants of the community. 'Conditional' uses are listed to encompass types

of activity that the community may find compatible with the zone and its needs, but that tend to

require further review because their potential impacts to surroundings, in terms of factors like

induced traffic, size, or hours of operation, are not usually mitigated through other means within

the general standards for that zone. Conditional uses are usually reviewed through a standardized

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[170] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 55-56.

process that varies by municipality. Traditional zoning codes tend to have overly exhaustive lists of conditional uses as an unintended symptom of their lack of requirements for physical form. Communities often "use the discretionary review required for conditional uses as a surrogate for building form standards that could otherwise reliably produce a predictable physical design outcome." Well-administered regulations that FBCs provide for the overall vision for an area can help prevent the complicated, bureaucratic approvals and permitting processes.[171]

The prominence of **images** in FBCs is another aspect that differentiates them from other types of codes. Diagrams, photos, and maps comprise a large part of FBCs and it is argued that they serve several purposes, including making the contents of the code easier to interpret and leading to better cohesion in placemaking.[172] FBCs typically illustrate the appropriate location of certain use types within zones and mixed-use areas or buildings.[173] FBCs rely on "images, diagrams, and matrixes" to make the regulations and their overall physical vision understandable to the officials as well as the public. Diagrams that show "flexible standards within a mathematically certain range may regulate the placement of buildings, streets, parking, above-ground utilities, and trash containers."[174]

The question of whether graphical or visual ways of demonstrating regulations are more effective has been raised before. Judge considers whether images and diagrams carry the same legal weight as words in legal documents like zoning codes, and if they really do allow for people of all experience levels to understand them better. This is a significant concern due to the barrier that legal jargon can pose, and the analysis of what value visual codes can provide in

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[171] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 56-57.
[172] Judge, "CODEX IMAGINARIUS: VISUAL CODES IN LAND USE PLANNING AND AESTHETIC REGULATION," 1610.
[173] Parolek, Parolek, and Crawford 57.
[174] Geller, "THE LEGALITY OF FORM-BASED ZONING CODES," 81.

"overcoming the information and resource gap likely to arise in collaborative methods of land use planning" is ongoing.[175] Images in FBCs can arguably better reconcile the distance between "the principal language" of urban design, "the drawing of forms in space," and the "written and numerical languages employed extensively within the social sciences."[176] Given the exclusionary power structure that can easily result from the jargon-filled language and the closed off writing and revising process of codes, it is worth trying to reconcile this when the object of planning and placemaking is the needs of people. [177]

Setting standards for aesthetic regulations

Several aspects of FBCs give them the potential to impact city form, and a large part of this is the way that the above components explicitly set standards for visual character of the urban form. Hosken argues that this can counter the potential alienation from community that arises from mega-regional growth. Modern development happens at such a large scale and fast pace, she claims, resulting in places that are not designed with regard for their quality. Building for prospering communities can be accomplished by evaluating their success visually,[178] and tools such as the Frontage Type Standards and Building Form Standards give legal emphasis to the importance a municipality places on the public realm and defining the general character of places. The inclusion of a vision plan in most FBCs codifies urbanist values into public policy and can reference a comprehensive set of ideals that provide direction to new development.[179]

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[175] Judge, "CODEX IMAGINARIUS: VISUAL CODES IN LAND USE PLANNING AND AESTHETIC REGULATION," 1616.
[176] Tonkiss, *Cities By Design; The Social Life of Urban Form,* 13.
[177] Judge 1616.
[178] Hosken, *The Language of Cities; A Visual Introduction to the Form and Function of Cities,* 16.
[179] Parolek, Parolek, and Crawford, *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers,* 147.

Brower argues that a successful code should consider not only the physical aspects of a place, but the social implications of those physical qualities. To him, an effective transect framework considers a range of social environments with varying opportunities for interaction. These might be represented along degrees from a 'center,' small town, residential partnership, to a retreat.[180] It is arguable that these social environments largely draw on the associated physical qualities and the presence of amenities that tend to induce activity and social interaction, as these qualities are very closely tied to how people experience a place.

Thus, the physical characteristics of a space can introduce ideas about what type of social place it should be. In more rural landscapes, building standards "would call for lower-density, smaller, detached buildings, deep setbacks, paths, trails, open swales and irregular plantings," while at "the most urban end of the continuum, standards would call for higher-density, larger, attached buildings, shallow setbacks, street and alley sections, and formal plantings."[181] The elements urban space function as meaningful cues to the user indicating how 'urban' the space they occupy is.

FBCs bridge the gap between shorter term, individual architectural forms and long-term master planning perspectives. Whereas "planning is supposed to be about the future visions and long-term aspirations of a community," zoning is more "narrowly focused and piecemeal, dealing directly with immediate building issues that cannot adequately reflect on long-term community goals." Zoning, in other words, does not inherently consider the overall urban fabric in a comprehensive way that takes into account the relationships between parts that make up the whole system. Traditional zoning is more commonly able to affect one lot or building at a time

[180] Brower, "The Sectors of the Transect," 314-316
[181] Talen, "Help for Urban Planning: The Transect Strategy," 295.

and "its concern is neither geographically broad nor temporally long range." However, comprehensive planning "seeks to guide the overall urban pattern in a much more abstract way, and in a manner that is rarely backed by legally enforced codes." FBCs, in theory, offer a way to impact both physical form and implement wider-scale visions at the same time.[182]

The Meaning and Value of FBCs

The literature overviewed here has established the fact that a visually meaningful, legible environment offers an urban experience that is not only more pleasant, but also "heightens the potential depth and intensity" of being in space.[183] Form-based codes offer a way to challenge the prioritization of "conversations and processes over the substance of vision and order" that is characteristic of American planning.[184] They make the intentional vision and aesthetic character of a city a formal priority while allowing for flexible uses that can change over time.[185] FBCs also incorporate "planning goals directly into the devices of implementation. Rather than 'forcing' zoning and sub-division regulations to conform to well-conceived plans… the plan and zoning code are conceived as being inseparable from the outset. This is one way to imbue an aspiration document, often hopelessly vague and ambiguous in terms of implementation, with legal enforceability."[186]

Form-based codes also offer an alternative way to make planning more accessible and understandable to the urban citizen. Even today it is often the case that only those who study and work with urban regulations, such as "local government staff, as well as private sector land planners, land use attorneys, and traffic and civil engineers" can actually to grasp the details and

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[182] Talen, "Help for Urban Planning: The Transect Strategy," 295.
[183] Lynch, *The Image of the City,* 5.
[184] Talen, *New Urbanism and American Planning: The Conflict of Cultures,* 278.
[185] Polyzoides, "The Time Is Now," xvi.
[186] Talen, "Help for Urban Planning: The Transect Strategy," 303.

larger implications of long-range urban planning[187] In addition to presenting a more holistic vision of community development than conventional zoning, the structure of FBCs can arguably better engage the public in the planning process by guiding change in a less alienating way.[188]

The validity and power of FBCs and how they designate physical characteristics via their regulating tools (the transect, building form standards, and the vision plan) is largely rooted in an understanding that is similarly tied to urban semiotics, the way we judge and perceive the things that make up our environment. It is ultimately an advantage for planners to consider the built environment and what makes it visually meaningful using tools such as FBCs because in doing so, they are required to approach the environment they are planning or designing the same way normal people do, from a human perspective.

Critical Perspectives on FBCs

While FBCs are a tool with the potential to help us create better places, there are arguments that bring up valid concerns that still exist about their methodologies and obstacles to implementation. Opponents of form-based zoning methods have pointed out that they can be too restrictive on architects and designers, limiting their creative license in building standards. Their worry is that the design guidelines written into an FBC will be too prescriptive, and that this will result in a "one-size-fits-all" process and aesthetic outcome that doesn't address local context.[189]

Christopher Alexander, who has been cited extensively in this thesis, raises potential concerns himself, which can be best viewed in his writing on the dichotomy between 'natural' and 'artificial' cities. Much of Alexander's work addresses his goal to bring back a way of

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[187] Geller, "THE LEGALITY OF FORM-BASED ZONING CODES," 40.
[188] Plater-Zyberk, "An Optimistic Moment," xii.
[189] Kaizer Rangwala, "Assessing Criticisms of Form-Based Codes," n.d., https://formbasedcodes.org/articles/assessing-form-based-code-criticisms/.

planning that honors the way that cities evolve organically, the way that so-called 'natural' cities

"grew as a whole." He argues that this type of place can be achieved through what he terms a

generative process, "involving the sequential collaboration of a series of participants" who work

together to "generate an evolving form that grows out of a complex transformation of the

existing place and its people" and that allows them to grow and change beyond what is initially

prescribed.[190] The prescriptive nature of FBCs and other emerging approaches to coding still run

the risk of oversimplifying people's lived experiences and causing "serious deficiencies" within

the environment.[191] This idea challenges the thought that good design must be the result of

master planning, instead offering that the design and creation of place is a continuous

evolutionary response to a complex combination of social, political, and economic conditions.[192]

However, Alexander wrote that 'artificial' cities, or "our modern attempts" to create places that

satisfy the needs of their users, have become somewhat necessary in order to accommodate the

rate and size of growth in America. We no longer have time to wait for our places to acquire the

"patina of life" over time that natural cities do organically over time.[193]

Alexander's concern lies in the possibility that the processes and tools used by planners

may be incapable of truly forming "adaptive responses to user needs," or in a sense, incapable of

"learning." Despite the benefits of a form-based approach to urban design, Alexander is skeptical

of the idea that *any* top-down "imposition" can fully adapt to the natural systems and patterns

upon which people depend.[194] To him, the role of the planner is "not to specify the final form,

but rather the intermediate process that will generate that form." FBCs do allow for generativity,

[190] Mehaffy, "Generative Methods in Urban Design: A Progress Assessment.", 57

[191] Michael W. Mehaffy, "A City Is Not a Rhinoceros: On the Aims and Opportunities of Morphogenetic Urban Design,"
Built Environment 37, no. 4 (2011): 479–96.

[192] Mehaffy, "Generative Methods in Urban Design: A Progress Assessment,"., 58

[193] Christopher Alexander, "A City Is Not a Tree," *Architectural Forum* 122, no. 1 & 2 (n.d.).

[194] Mehaffy, "A City Is Not a Rhinoceros: On the Aims and Opportunities of Morphogenetic Urban Design"

but they may not do enough to facilitate it. Alexander proposes a type of code that addresses "not the physical parameters of the built environment, but steps that the participants should take together in laying out and detailing a given structure." This "design-build" approach to coding is presented as an alternative even to FBCs, but nothing like it has been developed fully at this point.[195]

While FBCs in part emerged from criticism of the "top-down master-planning approach,"[196] they still emulate similar processes in many ways. The creation of a visioning plan, even involving local input to great extent, often still centers the planners and designers as the experts. Even though FBCs tend to be easier to understand than traditional zoning codes due to their language, concision, and use of pictures, they are still legal documents that must be comprehensive enough to be adopted as laws. Judge wrote that the SmartCode and FBCs like it, while condensing some of the information, "retains much of the technical language traditional to urban planning regulations" while supplementing them with images and diagrams.[197] This is necessary in order for the code to retain its specificity, and while the "combination of precise language and illustrative examples may increase the accessibility of the code and convey aspirational and emotional meaning," it must still utilize industry terminology and standards in order to be meaningfully interpreted by developers, architects, and builders who will later refer to it.[198]

To the extent that well-crafted FBCs still incorporate this type of jargon and set artificial restrictions on how places must look and be used, one can argue that they are not actually a true

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[195] Mehaffy, "Generative Methods in Urban Design: A Progress Assessment," 58, 69
[196] Mehaffy 59
[197] Judge, "CODEX IMAGINARIUS: VISUAL CODES IN LAND USE PLANNING AND AESTHETIC REGULATION," 1597
[198] Judge 1613

improvement to the top-down, abstract way of applying order to space that use-based zoning is. This is a valid claim. Rather than disprove this vein of criticism, it would arguably benefit planners more for them to learn about the biases they inherit throughout their education and training. The fact is that humans, and therefore designers, have a tendency to take complexity and to "reorganize it mentally in terms of non-overlapping units" that are more easily grasped. When combatting this tendency, Alexander again writes that it is important not to counter with making plans "in which overlap occurs for its own sake" because "overlap alone" is not what allows cities to adapt to people's needs. It is important even when trying to improve planning tools and processes that we avoid exerting this "conceptual simplicity" – which benefits "only designers, planners, administrators and developers," who tend to look at a city in terms of practicality, aesthetics, or profit – onto a place with existing patterns of meaning.[199]

Finally, while most of this research has investigated the benefits of incorporating the user experience into urban design and has defended the value of maintaining a cohesive visual character, a heavy focus on aesthetics can go too far if it sacrifices functionality, originality, and equity in the process. This potential detriment calls into question the idea of naturally occurring complexity within urban neighborhoods and if intervention or technology can replicate it. Design methods that are intended to produce desired aesthetic effects can make "catastrophic" errors if they confuse "the systems of art and the systems of living." Mehaffy argues that when "decorative expression" crosses the line and can no longer be used as a functional object, it becomes purely decorative and therefore does not add further meaningful placemaking value. Though aesthetics are an important factor in placemaking, design and the legal codes that regulate it cannot just mandate form that is aesthetically 'beautiful' or orderly. Regulations must

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[199] Alexander, "A City is Not A Tree."

actually support and enable natural growth and evolution that is shaped by people. Mehaffy warns that "that the aesthetic goals of artists may come into conflict with the many other (sometimes also conflicting) proper and legitimate goals of the user," and that planning professionals must be aware of the possibility that they risk operating as "as expressive artists and fee-earning specialist designers, at the expense of their users," if they do not consider their needs. [200]

While these and other criticisms of form-based coding and zoning reform are valid, the methods detailed here still allow for the creation of a more flexible plan than traditional zoning and better incorporate placemaking values that are central to the individual experience in cities. Proponents of FBCs maintain that they are written to be adaptable over time – creating a "well designed 'trellis' on which organic growth can self-organize" in the future.[201] As this perspective becomes more ingrained within the language and best practices of the planning and design professions, the issues described above may be approached and mitigated.

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[200] Mehaffy, "A City is Not A Rhinoceros: On the Aims and Opportunities of Morphogenetic Urban Design."
[201] Mehaffy, "Generative Methods in Urban Design: A Progress Assessment," 69

Case Study: Mueller Redevelopment

Herronstock Prints via Fine Art America

Several places in Texas provide opportunities to see the impact of a form-based approach to designing the built environment. Second only to Florida, where form-based codes were really first explored, Texas had 25 approved FBCs in 2013.[202] One of these is located in Austin at the former site of the Robert Mueller Municipal Airport (RMMA), now known as the Mueller neighborhood. The 700-acre site was intended to take a "conveniently located, underused piece of land" left after RMMA was decommissioned and adapt it for reuse as a self-described "urban village" in central Austin.[203] An example of greyfield infill redevelopment, the repurposing of the airport offered the chance to "recycle" industrial property, which tends to have a limited lifespan and can result in environmental damage to the area, "back into productive use" while also avoiding potential sprawl.[204]

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[202] Emily Talen, "Zoning For and Against Sprawl: The Case for Form-Based Codes," *Journal of Urban Design* 18, no. 2 (2013): 175–200.

[203] "Principles of New Urbanism," n.d., http://www.muelleraustin.com/plan/new-urbanism/.

[204] "Urban Infill & Brownfields Redevelopment," March 17, 2017, https://www.nlc.org/resource/urban-infill-brownfields-redevelopment.

1960s Aerial via Paul Freeman, Abandoned and Little-Known Airfields

1980s Aerial by Steve Cruse via Paul Freeman, Abandoned and Little-Known Airfields

Background

RMMA operated from 1936 to 1999, during which time Austin experienced rapid expansion. When changes became necessary to accommodate that growth, the city debated options such as expanding the airport or moving it farther out from the city center. Amid procuring the support and funding for these possibilities, a grassroots group called Citizens for Airport Relocation (CARE) was formed opposing the expansion of RMMA into adjacent neighborhoods, instead advocating alongside other nearby neighborhood associations for its relocation. Once the decision to relocate and build a new airport was finalized in 1993, CARE became active in planning for the redevelopment the site, calling for "a plan for a midtown village of residential and commercial development" comprised of "dense development, seeing the airport land as an opportunity to combat sprawl."[205]

Around the same time as the efforts to rethink the future of Mueller were undertaken, the Austin City Council created the Citizens' Planning Committee (CPC) and charged it with updating the city's land use decision-making policies. The broad recommendations made by the CPC led to Council launching Austin's Smart Growth Initiative, which set goals for how the city would approach future development.[206] These goals encouraged the city to seek opportunities to enhance and preserve existing neighborhoods and to discourage sprawling new ones where possible. This was a call for "reinvesting in the core of the city" and for the creation of Traditional Neighborhood Developments (TNDs), which helped frame neighborhood planning that was in progress by emphasizing density and a mixture of uses, lively public spaces,

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[205] Alice Embree and Mark Smolen, "Citizens for Airport Reclocation and Airport Neighborhoods Environmental Defense Association Records; An Inventory of the Collection" (Austin History Center, n.d.), https://legacy.lib.utexas.edu/taro/aushc/00612/00612-P.html.

[206] George Adams and David Gerard, "Smart Growth and Transportation: Opportunities and Challenges for Austin," *Institute of Transportation Engineers Journal*, 2000., 30

multimodal transportation options, and neighborhood character and design. By focusing on "opportunities for infill and redevelopment," Austin's Smart Growth Initiative codified incentives to promote "more efficient use of existing infrastructure" and goals of minimizing "traffic congestion by reducing commuting distances,"[207] priorities which helped prime the city to see the Mueller redevelopment as a worthwhile investment.

The Mueller property was rezoned as a planned-unit development in 2004.[208] The City of Austin worked in collaboration with Catellus Development Group to negotiate a master plan and Master Community Covenant agreements, which were adopted soon after the rezoning.[209] PUD zoning was utilized in order to allow for the implementation of the comprehensive design "based on a holistic vision" that paid mind to "details and parameters of the public realm" in a way that would not otherwise have been possible under the city's land development and zoning codes.[210]

The redevelopment of RMMA into the Mueller neighborhood resulted from changing needs of a growing city, vocal citizens, and good timing, leading the city to take advantage of the "opportunity to demonstrate the city's commitment to smart growth" and create a mixed-use neighborhood that would foster community in an otherwise leftover space.[211] These plans would take shape over the next 10 years, promising "various types of housing," strong streetscapes, "compatibility between buildings and a look of 'Hill Country architecture.'"[212]

[207] Adams and Gerard, "Smart Growth and Transportation: Opportunities and Challenges for Austin," 31.
[208] "City Council Ordinance 040826-061" (2004), http://www.austintexas.gov/edims/document.cfm?id=82909.
[209] "Mueller Zoning Wins First Round Approval," *Austin Monitor* (blog), July 25, 2004,
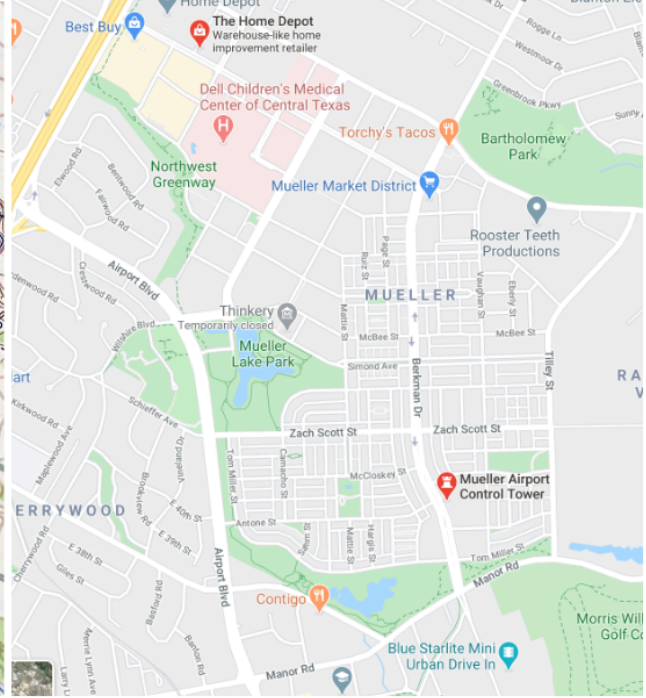https://www.austinmonitor.com/stories/2004/06/mueller-zoning-wins-first-round-approval/.
[210] Madden and Russell, "The Emergence of Form-Based Codes."
[211] Adams & Gerard 33
[212] "Mueller Zoning Wins First Round Approval."
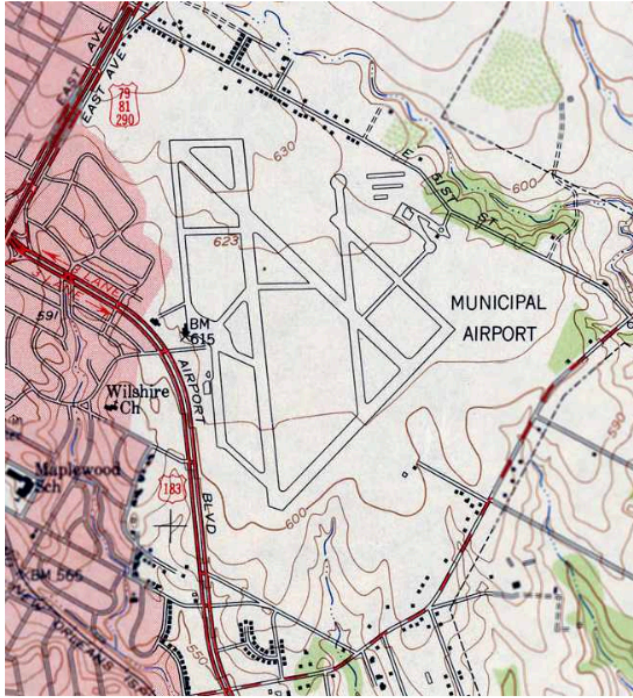
USGS 1950s Topographical Map via Paul Freeman   *Google Maps April 2020*

2008 Aerial of Initial Construction via Paul Freeman, Abandoned and Little-Known Airfields

Design Guidelines

Today, the Mueller development's density and design guidelines are governed by the Mueller Design Book (MDB). This document serves as the master plan for the neighborhood and is prescribed along similar lines as the form-based codes discussed herein. The neighborhood's website even has an informational section on the New Urbanist movement that describes their influence on the development.[213] The MDB guidelines define the overall vision for the neighborhood as one cohesive unit even though it contains a mixture of land uses as well as housing and other buildings that were designed by a variety of developers and builders.

> *"The design guidelines have been developed to promote a cohesive and high-quality development that achieves the community's vision for Mueller. They are intended to guide new development in ways that promote connectivity, neighborliness, activity, authenticity, sustainability, and livability. They are not intended to be highly prescriptive solutions that dictate a particular style, but rather as performance criteria that can encourage diversity, creativity, and innovation in the spirit of the Austin community."[214]*

The MDB supplements the Mueller PUD zoning with design standards and community vision goals, and is legally enforceable; "the guidelines provided in this edition of the Design Book shall govern all development henceforth."[215] The Design Book's guidelines are enforced by the neighborhood's New Construction Council and Modification Committee, which must approve all new build within the development's jurisdiction. These entities are given the power to enforce these regulations, perform maintenance, and approve project proposals by the Mueller Master Community Covenant, which was signed following the rezoning of the RMMA property.

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[213] "Principles of New Urbanism."
[214] McCann Adams Studio, "Mueller Design Book; The Master Plan for Robert Mueller Municipal Airport Redevelopment," 2017, 6.
[215] Mueller Design Book 6

The NCC and MC "must comply with all applicable laws, codes, regulations and governmental requirements" that are set out by the City of Austin and Travis County, but their approval is given similar power by the development's community covenant. [216] All of the individual "builders, developers, architects, and landscape architects" must adhere to this shared vision.[217] Finally, the MDB is meant to be "a dynamic document that will continue to evolve in response to changing conditions and circumstances" and is amendable by the master developer, Catellus in partnership with the city.[218]

Like a typically code, the MDB defines building regulations including massing, maximum building heights, frontage and setbacks, facades and landscaping, in addition to form-based aspects of the surrounding built environment. The design book also divides the Mueller property into different districts that have unique intended characteristics and purposes. These include the Town Center, the Northeast and Northwest quadrants, and the neighborhoods.[219] Each district type allows for multiple uses – rather than distinguish them by land-use alone, districts are differentiated by intended function and character. The Illustrative Plan map shows where these are located along with their intended densities.
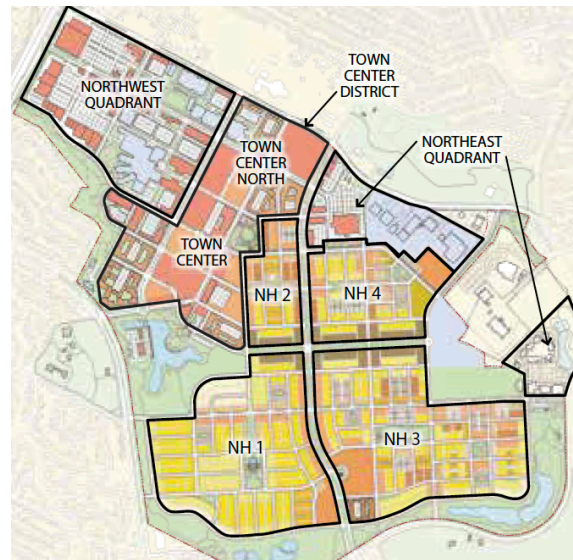
Mueller Design Book, page 21

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[216] Mueller Design Book 167-168
[217] Mueller Design Book 21
[218] Mueller Design Book n.p.
[219] Mueller Design Book 15-17

Illustrative Plan

Civic/Institutional
- School, Recreation Center, Hospital, Austin Film Society, Fire Station

Yard Houses
- Single Family Detached

Row Houses/Shop Houses
- Townhouse, Single Family Attached, Live-Work Loft

Mueller Houses
- Condos/Lofts with 4 to 6 units per house

Mixed Use Commercial
- Retail, Office, Medical Office, Research Development

Mixed Use Residential
- Office, High Density Multifamily, Retail

Open Space

Mueller Design Book 20-21

Each of these districts has unique guidelines that define the type of experience intended to be created by their built landscape. The Design Book acknowledges that this is "key to the success" of the area that they aspire to create. Also emphasized is the goal of creating consistency within the pedestrian environment; while "diversity of expression" is valued among individual buildings in Mueller, "the public realm comprised of sidewalks, street trees, planting, lighting and furnishings will provide a level of consistency and quality" to the "identity" of the

development. However, there is clear indication that the intent of the design guidelines is not to "create a themed environment that becomes dated over time," but rather offer a place where a diverse range of programming can take place and that "can evolve and be enriched over time" as the city changes and new people "bring new layers of expression and meaning" to the site. [220]

Town Center

The Town Center district is described as a "vibrant mixed-use" area in the center of the development and is probably the part of Mueller that is most reminiscent of a 'traditional neighborhood.' There is a high concentration of ground level retail and office space, with residences on upper floors. The pedestrian experience is highlighted and emphasized in the Design Book, aiming to create a destination both for those living in Mueller and visitors. [221]

The design details are provided in the MDB with the intent to communicate the guidelines for constructing a "coordinated, high-quality" pedestrian realm. These standards are enforced by the New Construction Council and apply to all development, regardless of building typology. [222] Aldrich Street is labeled a "principal street" that is programmed to be a busy pedestrian thoroughfare. The goal for the Town Center district and the main streets, including Aldrich as well as Simond Avenue and Robert Browning Street, is to create a place that naturally draws visitors for social purposes. Retail uses such as shops and restaurants are concentrated near these streets. [223]

The Design Book offers guidelines for material, aesthetic elements of the district. There is a paving master plan that lays out the sidewalks that should use concrete and those that should

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[220] Mueller Design Book Appendix E 3
[221] Mueller Design Book 67
[222] Mueller Design Book Appendix E 1
[223] Mueller Design Book 67

use pavers, the material and color of which is also provided. Buildings are also to be constructed "close to the property line to ensure that ground-level activities and storefronts energize the life of the district," creating "a broad, café-lined promenade of 35 feet." [224]
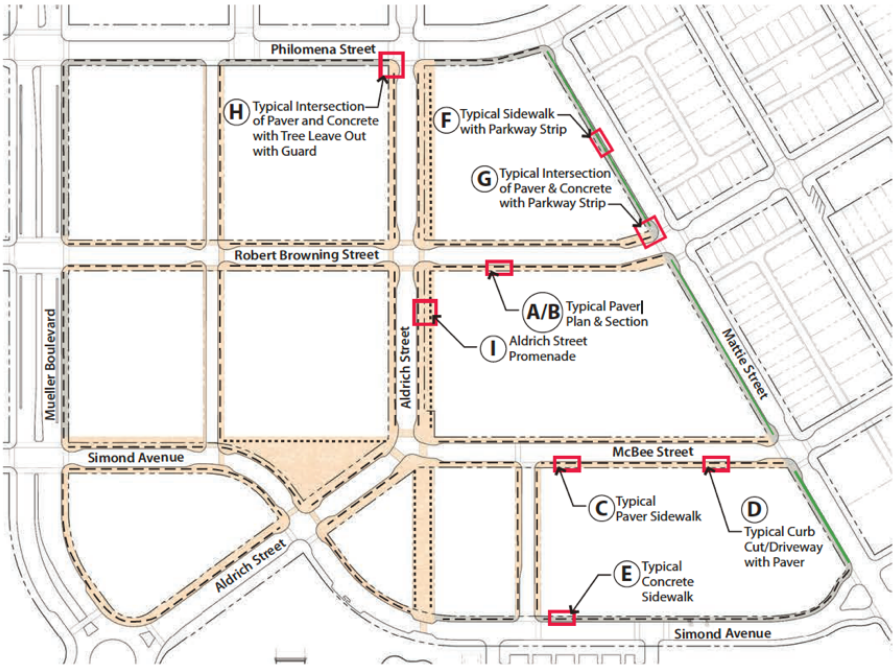

ALDRICH STREET DISTRICT PAVING MASTER PLAN

Legend

▢ Concrete Sidewalk

▢ Concrete Paver Sidewalk & Crosswalk

••••• Tree Paver Grate

— — Tree Leave-Out with Guard

——— Parkway Strip

Mueller Design Book Appendix E, page 4

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[224] Mueller Design Book Appendix E 4-5

Because outdoor seating and dining are encouraged throughout the Town Center, specific guidelines for these are included. Building setbacks are required to be an additional 20 feet from the property line. Tables are permitted within this area, as well as farther out from buildings where street trees and light fixtures are installed to extend the social space provided. Planters and barriers are encouraged so as to facilitate the feeling of enclosure and to break up the sidewalk space. Wherever there is outdoor seating or restaurant patios, the wide "promenade" must be maintained so as not to make the area feel cramped or haphazard. [225]
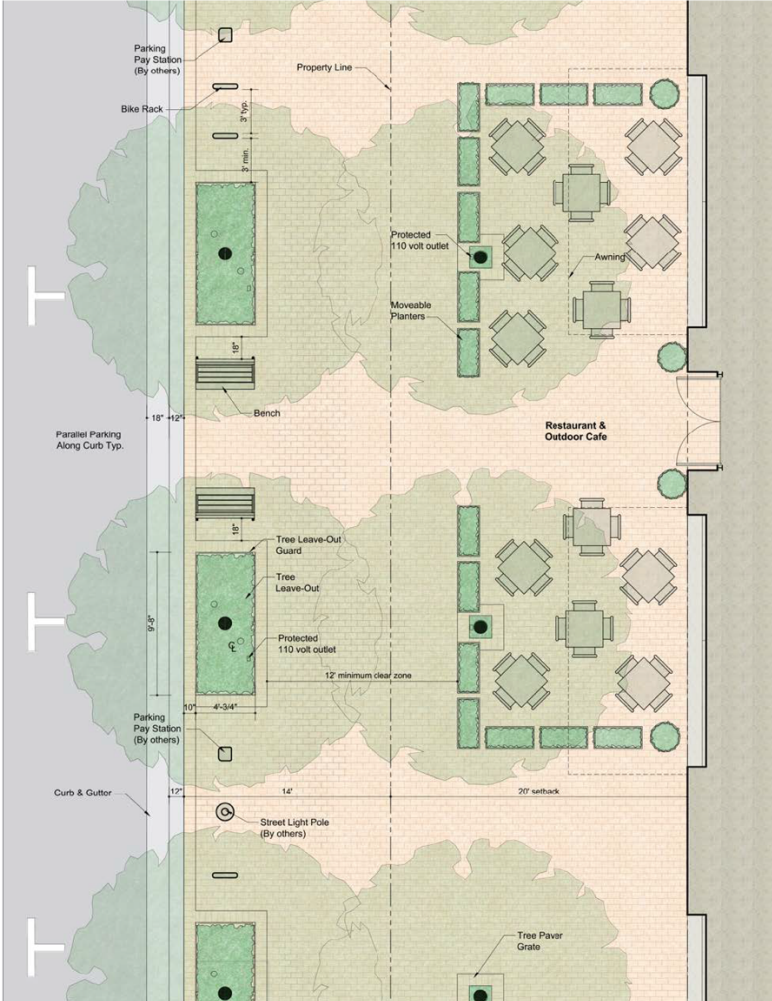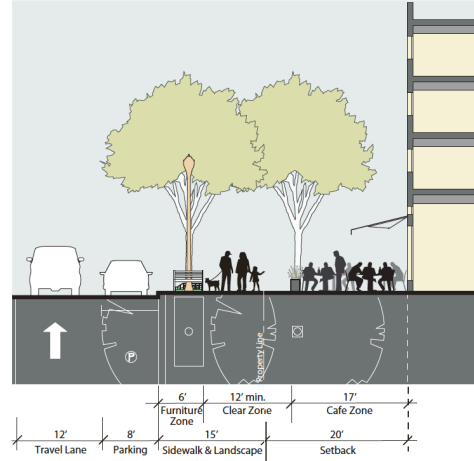

Mueller Design Book Appendix E, page 11

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[225] Mueller Design Book Appendix E 27

Third Street Promenade, Santa Monica

Mueller Design Book Appendix E, page 26

Street furnishings are also a point of emphasis, especially within the Town Center

district. An agreement between Catellus and the City of Austin allows for the developers to take

responsibility for furnishing all of the property's public right-of-ways, including outdoor

furniture, trees and landscaping, irrigation, lighting, recycling and trash bins, and bike racks. The

MDB delineates the look and feel of these fixtures, allowing for a standardized vision to be

applied across the development's districts. [226] Because the development is being built in phases,

provisions for temporary streetscaping is also included in the Design Book.[227]

Signage is another important aspect of the
built environment that is defined in the Mueller
Design Book. The regulations are not intended to
completely standardize signage in the area, but
rather to "provide direction" considering the heavy
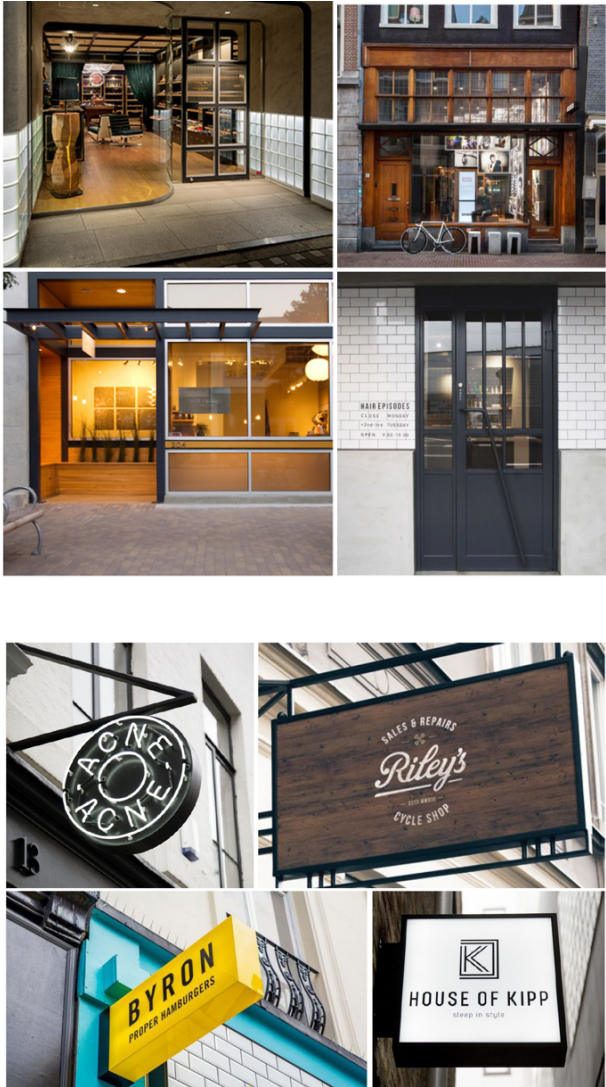concentration of retail storefront throughout the

Discouraged signage
Mueller Design Book Appendix E, page 17

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[226] Mueller Design Book Appendix E 21
[227] Mueller Design Book Appendix E 32

Town Center district. The signage standards are also in keeping with the City of Austin's Land Development Code.[228]

The priority for storefronts and signage is to add to the "open and inviting" nature of the pedestrian realm. Ground-level stores and restaurants should incorporate unique materials that create a strong sense of arrival and welcome entry. Storefronts should contribute to the street and sidewalk activity and allow views inside to enhance the connection between outdoors and indoors. These suggestions are left somewhat broad in order to allow for branding and identity, but "high quality materials," carefully executed details are desired. [229] Facades that employ less durable materials like plastics and laminates and that lack "added detailing" are explicitly


Encouraged signage
Mueller Design Book Appendix E, page 15, 29

discouraged. [230] The intention is that the Town Center remain an expressive, interesting place. Visually interesting building facades reflect the desired vibrancy that large groups of people and bustling activity will bring. The attention paid to signage and storefronts is especially important in mixed-use areas so as to express this identity to both residents and visitors.

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[228] Mueller Design Book Appendix F 3-4
[229] Mueller Design Book Appendix F 9-10, 14
[230] Mueller Design Book Appendix F 17

Neighborhoods

The neighborhoods surrounding the Town Center allow for a variety of housing typologies including yard houses, row houses, and multi-unit townhomes. While a majority of the neighborhood buildings are residential, there are many mixed-use apartments with street-level retail as well. This range of building types is intended to "foster a population with diverse demographic and economic characteristics."[231] The Design Book provides diagrams as well as images of the intended design concepts for each of the housing typologies to be included.
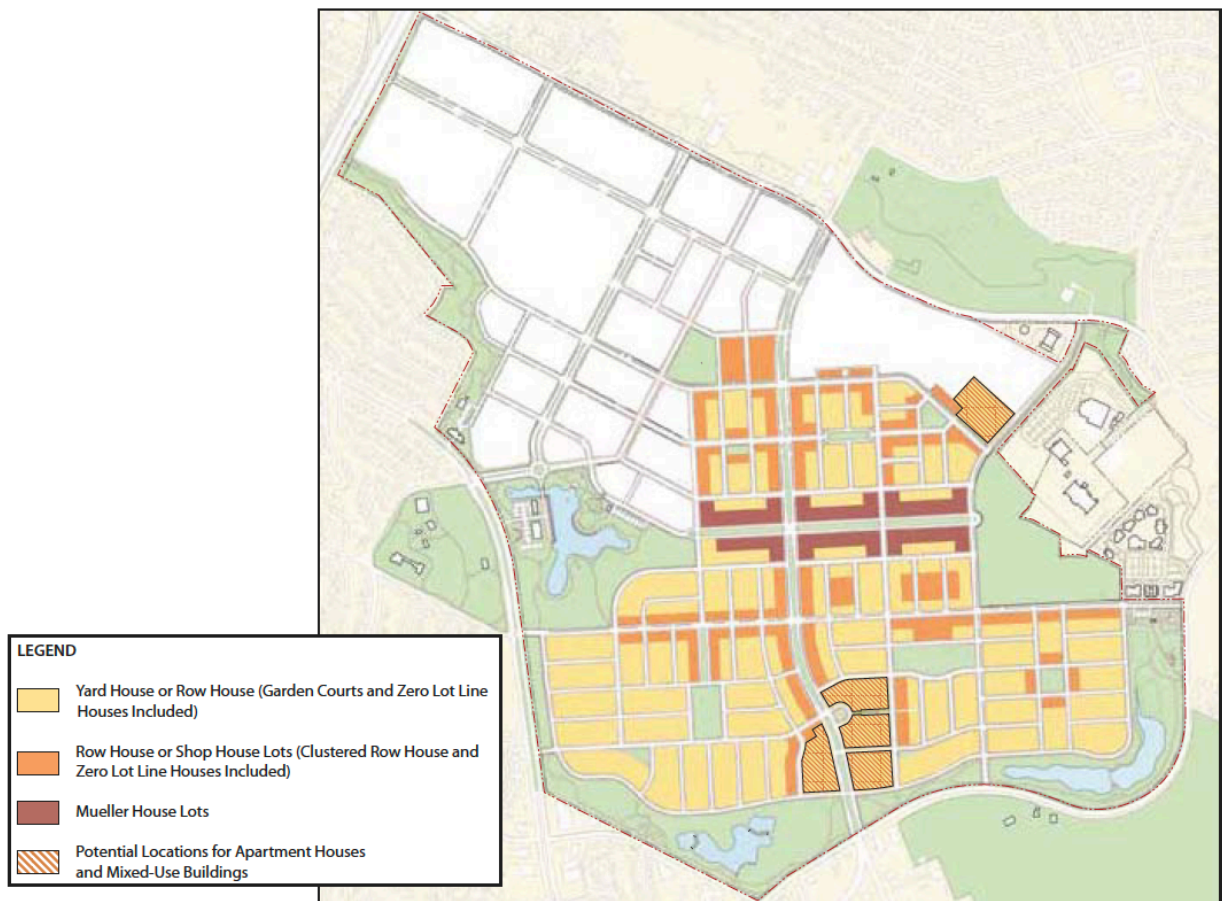
Distribution of Neighborhood Building Types

Mueller Design Book, page 24

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[231] Mueller Design Book 17, 23

Many neighborhood areas have garden court homes that share front yards so as to preserve space and maintain density even while providing single-family housing options. [232] Clustered row houses are two- to three-story attached housing units that also promote density within the neighborhood. These are oriented around a central green "through-block passageway" or paseo that allows for connectivity as well as shared social space. [233] The largest housing options are the Mueller Houses, which are comprised of four to six units but resemble a large single-family home from the street. Individual units inside Mueller Houses are "indistinguishable within the larger building form." These have "generous" shared front yards and provide a "counterpoint to surrounding detached and attached houses" while still allowing for density close to the Town Center.[234] Finally, apartment homes are found in neighborhoods in addition to in the Town Center district. These buildings are meant to create "activity nodes" around retail, restaurants, and offices. These amenities, along with street-level activity in the shop houses, are intended to help reduce the need for as many car trips outside the development. Large parking structures associated with multifamily housing are obscured by the buildings' residential facade so as not to disrupt the public realm. [235]

Shop house diagram and photographic example, Mueller Design Book pages 39-40

[232] Mueller Design Book 33
[233] Mueller Design Book 45-46
[234] Mueller Design Book 49
[235] Mueller Design Book 57

BUNGALOW

65 % Impervious Cover
1330 SF Floor Area
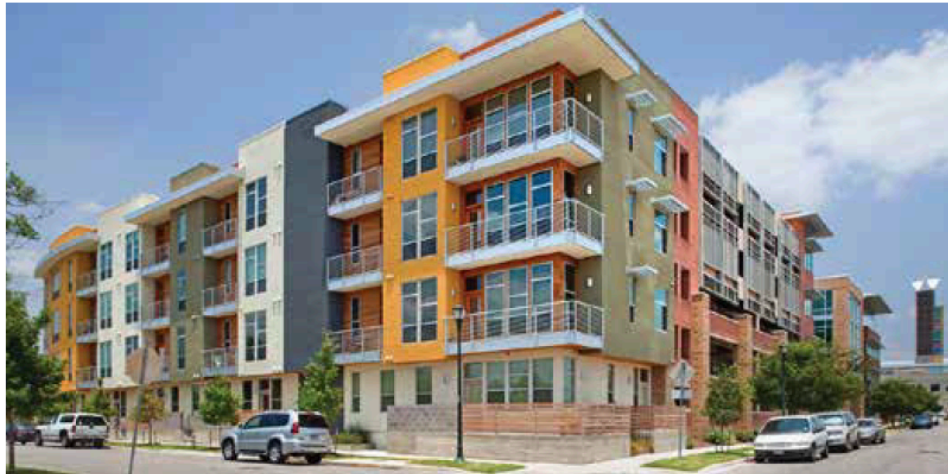
1-1/2 STORY COTTAGE

44% Impervious Cover
2330 sf Floor Area

Single family yard house typologies and examples, Mueller Design Book page 26

Mueller House, Mueller Design Book page 49

Apartment homes, Mueller Design Book page 61

Regardless of housing types therein, each neighborhood is meant to be oriented around multiple parks and public spaces. 90% of all Mueller residences are located within 600 feet of a neighborhood park, pocket park, or greenway. Each neighborhood is also connected to the Town Center by complete sidewalks and bike infrastructure, and cul-de-sacs are not permitted anywhere within the property. [236] The result of these guidelines is a community intended to be compact and lively, while also maintaining connectivity.

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[236] Mueller Design Book 17, 25

Northeast & Northwest Quadrants

The remaining parts of the Mueller development are referred to as the Northeast and Northwest quadrants. These pose an interesting addition to the site, and the plans for their use were highly debated during Mueller's initial master planning and community involvement phases. Initial recommendations from the City's Planning Commission included a ban on "construction sales and services companies," even on the Northwest section bordering IH 35. The intent was to limit the size of stores due to the typically large scale of highway-adjacent retail, but architects and designers involved in the project argued that even such large stores could be made appropriate for a new neighborhood with "well-thought out design controls."[237]

This restriction was ultimately discarded and now the parcel is a "mixed-use commercial and employment district" that contains 'big box' stores such as HEB, Home Depot, Bed Bath & Beyond, and Old Navy, as well as medical facilities and research centers. These provide a "strong employment anchor" and ensure that Mueller is utilized by both residents and other community members. [238]

Attempts made to pedestrianize parking lots
Mueller Design Book page 96

This area is an integral part of both the Mueller neighborhood and the surrounding communities, and attempts are made to utilize "the same principles of compact development" as the other districts, even though its function is very different. Prevalent bike, pedestrian, and transit links have been installed to maintain connectivity to the rest of the Mueller

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[237] "Mueller Zoning Wins First Round Approval."
[238] Mueller Design Book 89

neighborhood.[239] A street pattern is employed that is intended to "break down the scale of the 'superblock'" that tends to be alienating as well as to allow for finer-grained development in the future[240]

Flexibility is also codified in the guidelines for the area; "the pattern of streets and surface parking [is] designed to allow for future intensification and infill of the parking lots over time. In this regard, utilities [are] aligned along streets in such a way as to minimize the need for utility relocations in the future." [241] Building design proposals require flexibility and "highly specialized buildings suitable for only one user are discouraged." [242] Builders are instead encouraged to utilize open and adaptable designs so as to allow for redevelopment into "higher intensity uses in the future." [243]

Large parking lots still allow for future infill
Mueller Design Book page 108

Protected public realm adjacent to large stores
Mueller Design Book page 110

The diversity of uses in these districts provides an interesting layer to our understanding of these mixed-use, public realm-oriented developments. Big box stores and their massive parking lots are typically denounced for their use of space and inaccessibility, but the ability to incorporate them into plans for a society that heavily relies upon them in a new way offers an example for implementing form-based ideals incrementally.

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[239] Mueller Design Book 89
[240] Mueller Design Book 92
[241] Mueller Design Book 93
[242] Mueller Design Book 112
[243] Mueller Design Book 92

Other Considerations for Mueller

A few other notable priorities can be found in the Mueller Design Book that have an impact on meaningful aspects of its identity as a place. The Design Book emphasizes a commitment to reducing the need for as many car trips outside of the development (see pages 14, 18, 19). This is a high priority of a majority of urbanists today, especially in Sunbelt cities such as Austin that are highly dependent on single-occupancy vehicle trips. The ability to walk a reasonable distance to the grocery store or to one's place of employment can heavily impact a person's daily and weekly routines, requiring less reliance on personal cars. Transit corridors are integrated into the plan as well. The development claims to offer "one of the few opportunities in the region for the development of a transit-based community with sufficient densities and a pattern of land uses that can reinforce and justify the considerable public investment necessary to support high capacity transit." The Master Plan was designed so as to allow "for the alignment of future rail or high capacity bus service through the heart of Mueller."[244] This demonstrates a number of things, including a collaborative relationship with the area's transit authority as well as an emphasis on connectivity and accessibility. These aspects of a master planned development are arguably invaluable, as they prevent the Mueller neighborhood from becoming an isolated 'bubble.' Instead, the development is a destination for visitors and employees that values the efforts of the city and region to recreate how we design places.

Additionally, given the long history of Mueller and the large number of people and organizations whose actions have culminated in what the development is today, it is fitting that they have tried to maintain some of the site's historical elements. The RMMA control tower, the property's "focal point," has been restored and is an important visual landmark serving as both

[244] Mueller Design Book 14

an artifact and a navigating tool. The plans for its surrounding park are still in development, but it will be used as a public gathering and recreational space. [245] There is also a remaining airplane hangar that now functions as a covered farmer's market and event venue. [246] These visual reminders are strong symbols of the land's history as central to aviation and growth in Austin. They are preserved in the plan so as to maintain the identity of Mueller as a place, while also drawing attention to the massive changes the development has undergone as a result of a community vision.

Rick Pagniano via TOWERS.net

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[245] Mueller Design Book 139
[246] Mueller Design Book 132

Google Street View

Simond Ave, 2009 v 2014 v 2018

Aldrich Street, 2017 v 2019
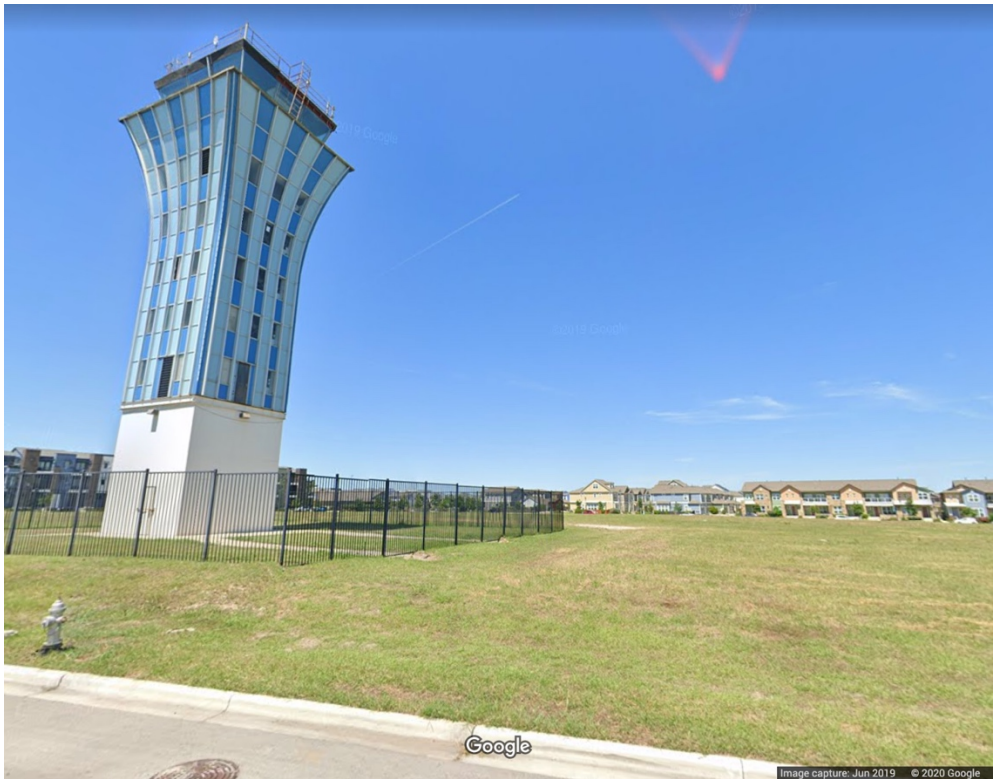
Aldrich Street, 2019

Apartment Homes, 2019

Paggi Square neighborhood park, 2013 v 2019

Row Houses, 2019

RMMA Control Tower, 2019

Looking Ahead: Leander TOD

Leander, Texas is a small but growing town in Central Texas located along the Interstate 35 corridor. About 30 minutes north of Austin, Leander is home to over 50,000 people and boasts a "unique blend of Texas Hill Country living in the urban Austin metropolitan area."[247] The town's local identity is very closely tied to the growing Austin metroplex, and they often promote the fact that residents can access the economic and cultural vitality of the city without sacrificing the space, lower cost of living, or slower pace associated with living in a smaller town. However, Leander currently lacks a central area that offers residents a local destination as well as pedestrian-friendly infrastructure, resulting in residents' dependence on surrounding cities like Round Rock and Austin to provide these experiences. As such, it is a high priority for the city to ensure that Leander has the capacity and the amenities to satisfy incoming population growth.

Leander's 'main' street, Brushy Street, Sarah Hyden 2020

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[247] "Welcome to Leander," n.d., https://www.leandertx.gov/community/page/welcome-leander.
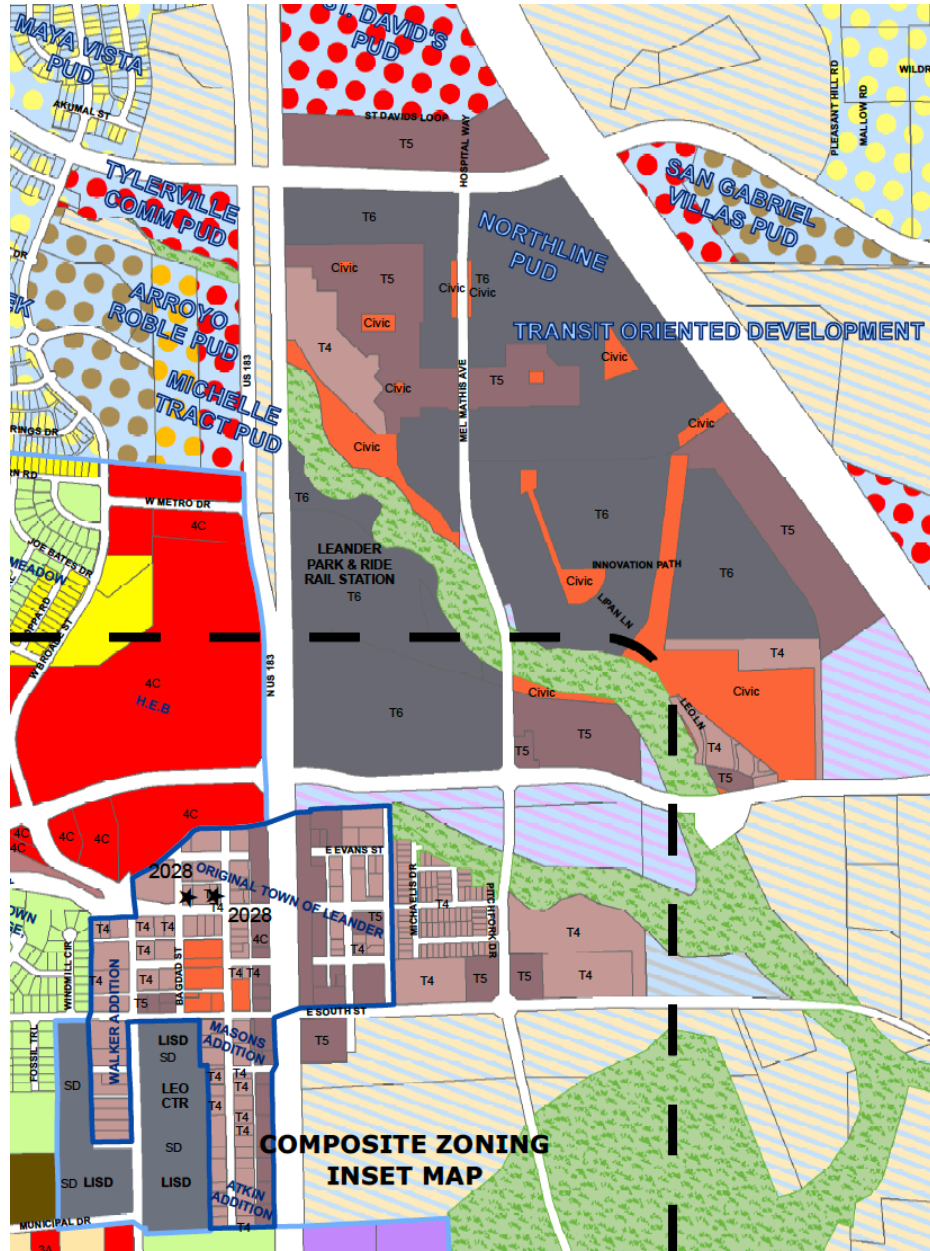
Background

Most of Leander is governed by a traditional composite zoning scheme, which is a use-based zoning system with added mechanisms for enforcing some site and architectural features.[248] The zoning code allows for Planned-Unit Development zones, and the PUD process was used to rezone what is now designated as the Transit-Oriented Development (TOD) using the urban transect.[249] What started as a large undeveloped parcel of greenfield land just north of the town's main street and bordered by Highway 183 offered an untapped space in which to create the necessary housing capacity and community-driven places for living and working.

Currently undeveloped land within the TOD, Sarah Hyden 2020

[248] "Ordinance 05-018" (n.d.), https://www.leandertx.gov/sites/default/files/fileattachments/planning/page/338/composite_zoning_ordinance_03.05.2020.pdf.
[249] "History of the TOD," n.d., https://www.leandertx.gov/tod/page/history-tod.

Leander Zoning Map via leandertexas.gov

RESIDENTIAL

- SFR - Single-Family Rural
- SFE - Single-Family Estate
- SFS - Single-Family Suburban
- SFU - Single-Family Urban
- SFU/MH - Single-Family Urban/Manufactured Home
- SFC - Single-Family Compact
- SFL - Single-Family Limited
- CH - Cottage Housing
- SFT - Single-Family Townhouse
- TH - Tiny House
- TF - Two Family
- NR - Neighborhood Residential
- MF - Multi-Family

RETAIL / COMMERCIAL

- LO - Local Office
- LC - Local Commercial
- GC - General Commercial
- HC - Heavy Commercial

INDUSTRIAL

- HI - Heavy Industrial

PUD LAND USE

- PUD - Single-Family
- PUD-CH
- PUD - Townhomes
- PUD - Multi-Family
- PUD - Mixed Use
- PUD - Local Office
- PUD - Local Commercial
- PUD - General Commercial
- PUD - Heavy Commercial

SECTORS

- OS - Open Space
- CD - Conventional Sector
- S1 - General Sector
- S2 - Station Sector

TRANSECTS

- Civic Building
- T4 - Genral Urban
- T5 - Urban Center
- T6 - Urban Core
- SD - Special District

SmartCode Process and Delays

In 2003, local and regional political leaders visited Washington, D.C. to learn about New

Urbanism and the potential of transit-oriented development projects.[250] Upon their return, the

city of Leander and Capital Metro, the Austin-area public transit provider, began a study of the

area's potential for economic growth and transit access. It was determined that, in addition to

being economically viable, a TOD would provide a convenient and vibrant destination within the

community.[251] The resulting partnership between the six landowners, the city, CapMetro, and

Gateway Planning led to the initiation of the planning process. This included a community

visioning process through a series of charette meetings and other presentations and a corridor

study to assess transit expansion options. In 2005, the master plan was presented to and approved

by the Leander City Council, including an adapted SmartCode tailored to the 2,300-acre site that

would replace the existing PUD. The land would soon be annexed by the city in order to begin

planning for the mixed-use "urban village."[252]

The adoption of the SmartCode in the TOD was an accomplishment in itself, given the

lack of familiarity that many developers and landowners have with the structure of form-based

zoning. The drafting process of the code was reviewed by the planning team and the landowners

to "educate" them on the merits of their approach, centered around "facilitating a market-based

dynamic for development, as opposed to micromanaging uses by the conventional zoning

process of Leander." The landowners were "skeptical" of the SmartCode at first, but were

gradually convinced that a more comprehensive approach to design elements and a "wider

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[250] Scott Polikov, "Leander, Texas," in *Form-Based Codes; A Guide for Planners, Urban Designers, Municipalities, and Developers*, by Daniel G. Parolek, Karen Parolek, and Paul C. Crawford, 2008., 250
[251] "History of the TOD."
[252] Polikov 252-253

latitude" of use types would actually be more flexible and easier for them to market to developers, offering opportunities for "more density, wider markets in terms of residential demand, and a resulting higher quality of nonresidential uses that would evolve via market forces, not through planning and zoning commission votes." According to planners involved in the project, it was this economic benefit that "proved to be the critical educational tool in implementing a successful plan" to make the TOD possible. [253]

Though the TOD master plan and SmartCode were adopted in 2005, development stalled in some places for several years. According to some, commercial interest in the area was slow "likely because of investor uncertainty." The Capital Metro commuter rail station was expected to spark more interest, but it opened in 2008 just as the economic downturn of the Great Recession hit. Additionally, in some cases developers have been confused by the SmartCode, seeing it at first glance as extra requirements and regulations that they must abide by rather than as the property's zoning code. Developers also seemed to be used to certain building and business typologies in suburban corridor locations like Leander; those who "would otherwise bring gas stations, strip malls and big-box stores to suburban areas may not [have been] interested in working within the parameters of the city's TOD SmartCode." The commitment to "try[ing] something different" in the TOD has lasted, though it seems to have delayed progress by several years.[254]

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[253] Polikov, "Leander, Texas," 252-254
[254] Emilie Lutostanski, "Council Considers New Name for Leander TOD," August 14, 2012, https://communityimpact.com/news/2012/08/14/council-considers-new-name-for-leander-tod/.

Leander Park and Ride – MetroRail Red Line stop and MetroBus terminals, Sarah Hyden 2020

In response to these delays, the partnership of the city, landowners, and master planners engaged in an update in 2014. The intention was to provide "adjustments to the code to address issues and implement best practices that [had] arisen since its original adoption."[255] The updated version of the Leander SmartCode was approved in 2014 and "dramatically" decreased the size of the TOD. Only 550 of the original 1,500 acres are now within the jurisdiction of the SmartCode transect zoning. The changes were made largely "due to feedback from landowners, who felt the Smart Code zoning was too restrictive," but the city has remained committed to seeing the TOD through, holding onto "its original vision of having a pedestrian-friendly, mixed-use development surrounding the Capital Metro train station."[256] The adjustments to the initial plan came as form-based coding practices were being updated nationally, but also required compromise in order to garner a necessary "shift in development philosophy."[257]

[255] "2014 SmartCode Update Process," n.d., https://www.leandertx.gov/tod/page/2014-smartcode-update-process.
[256] Cassie McKee, "Leander in Final Stretch of Approving TOD Map, Shrinks Smart Code Area," July 8, 2014, http://www.hillcountrynews.com/stories/leander-in-final-stretch-of-approving-tod-map-shrinks-smart-code-area,44844.
[257] Polikov, "Leander, Texas." 253

Leander Today

Since the 2014 update, the TOD property has been heavily marketed to developers. Interest has been "on the rise" over several years thanks in part to a branding approach that distinguishes the TOD as an urban village with room for growth beyond the streets of downtown Austin. Leander is also in a unique position due to the fact that the transit stop that serves as the anchor for the TOD is already built out and functional.[258] Austin Community College and St. David's Hospital have both built campuses surrounding the TOD, which offer employment draws that have sped up development plans as well.[259]

In March 2020, the largest plan to date for the Leander TOD broke ground. After a few years of negotiation and planning, a new development called Northline is getting underway just next to the commuter rail station's park and ride. Northline will be comprised of a "mix of retail, housing, hotel, business and restaurant space, as well as a park," and cover 115 acres in the center of the TOD. There is significant excitement surrounding this progress, which will "finally" allow for the creation of a walkable, vibrant social space that was the original goal of the TOD.[260]

Northline development within the Leander TOD
Courtesy of Northline Leander

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[258] Lutostanski, "Council Considers New Name for Leander TOD."
[259] Kate Harrington, "TOD Activity Heats Up in Leander," January 16, 2018, http://buildingatx.bigreddog.com/2018/01/tod-activity-heats-up-in-leander/.
[260] Adami, Leslie. "$800 Million District Transforming Austin Suburb into Urban Destination," September 12, 2018. https://austin.culturemap.com/news/city-life/09-12-18-800-million-district-transforming-austin-suburb-into-urban-destination-northline-leander

Northline rendering, Tynberg LLC

Construction of Northline initial infrastructure, Sarah Hyden 2020

It remains to be seen how well the Northline plans will execute the vision for such a placemaking effort in a suburban town, and the length of the process demonstrates that it takes time and effort to work this type of vision into the structure of the current Texas zoning and land development system. However, people in such small towns and suburbs want places that they feel are created with them in mind and that encourage growth and community. The efforts of the Leander TOD stakeholders mark progress made toward integrating new perspectives on urban space into contemporary planning in practice.

Conclusions

What the Mueller and Leander examples show most clearly is that there are myriad ways to approach implementing form-based zoning. The process depends on countless variables, including a place's political climate, economic resources, current populations, and projected growth, that have to be reckoned with before design questions can be answered. In the case of Mueller, a form-based approach was taken in order to refurbish an existing commercial infill property that no longer had a use. This created very different circumstances for the master planning process, initial construction, and budget estimation than in Leander, where a much greater initial investment in utilities and foundational construction must be made.

The locations of these two sites is also important to take into consideration, as the outcomes of the dense housing and mixed-use environments that tend to be created by FBCs will function differently at different distances from the urban core. As planning methods continue to innovate and look toward more sustainable best practices, transit access will be another vital aspect to be incorporated into zoning codes and master plans. Leander and Mueller take inverse approaches to the question of transit; Leander's transit hub is the anchor of the future development and was laid down first, whereas the Mueller Design Book encourages the future insertion of greater transit infrastructure within its high-density corridors.[261] Both conditions are viable and can be accommodated for by form-based zoning.

As these ideologies grow in popularity, it will be important for all involved to understand the negotiations and compromises required in practice. It is much easier to theorize about ways to build cities that are adaptable, beautiful, and adhere to a cohesive visual form than it is to see the actual building process through. Incorporating more diverse voices into the placemaking

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[261] Mueller Design Book 14

process will also bring differing opinions and values, but will hopefully lead to the creation of

better places as a result. In order to reach the goals for urban places set out by urban theorists and

enacted in the real built environment in a growing number of American cities, a shift in our way

of thinking about space and all of the complicated elements that go into shaping it must occur.

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