

THE SUITABILITY OF AFFORDABLE HOUSING, “SMART URBANISM,” AND  
INFORMALITY: A CASE STUDY OF ROCINHA, A FAVELA IN RIO DE JANEIRO,  
BRAZIL

By

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To Mom and Dad

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## LIST OF ABBREVIATIONS

ADA	Amigos dos Amigos
AMI	Area Median Income
ASPA	Ação Social Padre Anchieta; a daycare, education, and community center in Rocinha
CNU	Congress for the New Urbanism
CV	Comando Vermelho
EPA	U.S. Environmental Protection Agency
HOPE VI	Housing Opportunities for People Everywhere
HUD	U.S. Department of Housing and Urban Development
IBGE	Brazilian Institute for Geography and Statistics
LEM	Location Efficient Mortgage
PPS	Project for Public Spaces
SGN	Smart Growth Network
TC	Teraceiro Comando

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Recently smart growth and the New Urbanism have been recognized as two of the most significant contributions to planning theory, providing principles by which to manage growth in economically, environmentally, and socially responsible ways. By limiting sprawl, promoting public transportation, and creating diverse, vibrant communities in which residents feel a sense of pride, the goals of smart growth and the New Urbanism are not dissimilar to the overall goals of affordable housing providers – both aspire to create meaningful, thriving communities that enrich the lives of residents. Recent housing policy, however, has overwhelmingly focused on affordability, ignoring the components of housing that contribute to a suitable and livable environment. Using the concepts of smart growth and the New Urbanism, this study suggests an integrated concept of Smart Urbanism, exploring the components of a livable, suitable community.

While scholars debate the effect of Smart Urbanist principles on the cost of housing, these policies clearly encourage and contribute to the quality and suitability of housing, creating collaborative communities that are dense, walkable, and provide access to transit, open space, and numerous functions of daily life. Typically, studies exploring the relationship between smart

growth and/or the New Urbanism and affordable housing examine communities in the United States where large-scale developers or progressive local officials mandate implementation of the strategies. The context for this study, however, is the organic, grassroots application of these strategies in the favela of Rocinha, providing an analysis of the intersection of formal and informal development practices.

Notoriously recognized as enclaves of poverty and violence, favelas can also contain certain attributes. Responding to the failure of formal government policies that provided few housing options, residents of Rocinha used their limited resources to build their own community. By using field notes from a visit to the site and conversations with locals to examine the prevalence of Smart Urbanist principles in Rocinha, this study finds that the organic, grassroots development of the community led to the implementation of the same Smart Urbanist principles advocated by scholars and practitioners in the United States. This finding reinforces the connection between these policies and suitable housing, reinforcing the suitability of Smart Urbanism, and legitimizing the grassroots process through which Rocinha was built. While arguing for an integrated approach that embraces both formal and informal development processes, this study also provides opportunities for further research on the suitability of informal squatter settlements around the world and the dichotomy between formal and informal planning practices.

## CHAPTER 1

### INTRODUCTION: SMART GROWTH, THE NEW URBANISM, AND INFORMAL SETTLEMENTS

#### **Affordable Housing, Smart Growth, and the New Urbanism**

In 1949, the U.S. Congress adopted legislation calling for “a decent home and suitable living environment for every American family” (Schwartz, 2006, p. 1). Yet 60 years later, this goal remains an intangible dream for many families. As indicated by declining rates of home ownership and the growing proportion of income paid for housing by many low-income households, a major issue is housing affordability (van Vleet, 1997). In fact cost burden, defined as housing costs that exceed 30% of pre-tax household income, has become the primary concern of government policies and programs. This concept does not consider, however, the quality and suitability of housing which play an integral role in one’s quality of life, with the potential of directly contributing to one’s mental, physical, and emotional well-being. In 1940, 45% of all households in the United States lived in homes without complete plumbing (Schwartz, 2006, p. 16). Although this number dropped significantly by 1990, to little more than 1% (Schwartz, 2006, p. 16), “America’s housing challenges cannot be described with statistics alone; they must be understood as a quality of life issues as well” (Millennial Housing Commission, 2002, p. 3).

It thus becomes necessary to redefine affordable housing, recognizing that a minimized cost burden does not alone make housing suitable for a particular household. For housing to be considered suitable, accessibility, density, walkability, and mixed land uses, including the availability of adequate open space, must be considerations. Though less tangible, a sense of place, as afforded through community collaboration in the planning process, also contributes to suitability. Suitable affordable housing faces the challenge of providing all these amenities while simultaneously keeping costs at a minimum.

In addition to a lack of affordable housing, modern American cities face unbridled growth, as land consumption outpaces population growth two to one (“A Complex Relationship,” citing HUD, 2000). Responding to sprawling development patterns, smart growth and the New Urbanism emerged in the 1990s as two separate movements aimed at managing growth in economically, environmentally, and socially responsible ways. Specifically, smart growth advocates aspire to thwart sprawl through ten broad principles ranging from promoting infill development to encouraging community collaboration in the development process (SGN, 2008). New Urbanists promote twenty-seven principles to guide public policy, development practice, urban planning, and design, which can be synthesized into four major goals: the restoration of existing urban centers, the restructuring of sprawling suburbs, the conservation of the natural environment, and the preservation of the built legacy (CNU, 2001).

While on first glance housing affordability and managed growth<sup>1</sup> may appear unrelated, recognizing the connection between the two is the first step towards building more livable communities. As both have become hot topics of popular media and even dinner table conversations, a significant amount of scholarly literature has emerged analyzing the effects of smart growth and New Urbanist principles on affordable housing. Much like the majority of government policies over the last several decades, however, this literature overwhelmingly emphasizes the affordability of housing, noting only one’s financial ability to pay for shelter rather than the suitability of that shelter. Affordable housing should address quality of life, integrating smart growth and New Urbanist features to create suitable, not just affordable, housing. This study explores how smart growth and the New Urbanism can contribute to housing suitability, exploring the application of this approach in a low-income, self-help housing

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<sup>1</sup> At times in the remainder of this thesis, smart growth and the New Urbanism will be referred to as growth management strategies or progressive planning policies.

community. Specifically, this thesis examines how these typically formal tools used in the U.S. are implemented in the informal squatter settlements of the Brazilian favelas.

### **Rocinha Case Study**

Assessing the influence of smart growth and the New Urbanism on affordable housing requires the use of a case study, many of which already exist. These case studies, however, largely focus on Western developments where large-scale developers or progressive local officials mandate the implementation of specific strategies associated with smart growth and/or the New Urbanism. While these case studies have contributed to our understanding of design and, to a lesser extent, land use and affordable housing, a case study of an informal settlement built using a self-help approach provides insight on the organic application of smart growth and the New Urbanism in an entirely different context – to create suitable, affordable housing.

In Brazil, favelas exist as informal infill communities built by residents in response to an inability to afford shelter with access to the myriad opportunities of the city. Although favelas are popularly perceived as enclaves of violence and poverty, the inherent self-organization of these communities makes them ideal for examining the incorporation of smart growth and New Urbanism concepts to create affordable and suitable housing and communities. Because favela residents implement the design of the community themselves, the elements they choose to incorporate are those that contribute most meaningfully to their daily lives. Any implementation of smart growth or New Urbanist features, then, is the direct result of the positive impact these elements have on the suitability of housing and residents' quality of life.

Specifically, this study will use a case study of the Rocinha favela in Rio de Janeiro, Brazil to examine the organic application of smart growth and New Urbanist strategies and their impacts on housing suitability. Could the grassroots design strategies of Rio's urban poor be the same as those advocated using professional methods in the United States? What implications

could this finding have for these movements in the United States? After reviewing the literature on smart growth and the New Urbanism, a comprehensive list of their respective policies, many of which overlap, was created. Using field notes from a 2006 visit to Rocinha and conversations with both community leaders and residents, the researcher was able to note the similarities in community design between formal growth management policies of the U.S. and informal development patterns of Rocinha. While most studies of favelas note the many deficiencies of these communities, this study will focus on their attributes. Despite the historic efforts of governments and citizens to eradicate favelas, the organic evolution of these communities generates several desirable features (Salingaros et al., 2006), including those advocated by the smart growth and New Urbanist movements. The international, informal case study of Rocinha provides an opportunity to explore the universality of smart growth and New Urbanist strategies and features as part of an organic process that challenges the formal approach of growth management strategies in the United States.

### **Progression of the Study**

The following chapters address the characteristics of suitable affordable housing, exploring the ways in which the policies advocated by smart growth and the New Urbanism contribute to this concept and the application of these methods by the urban poor in Brazil. The literature review in Chapter Two redefines affordable housing within the context of smart growth and the New Urbanism. It provides the context for the rest of the analysis, offering a review of the critical literature related to the topic, generating a comprehensive definition of suitable affordable housing, and making the necessary connection between housing and quality of life. Chapter Three outlines the methodology used in conducting the study, maintaining that the organic self-help development pattern of Rocinha represents a significant case study of the natural benefits of smart growth and the New Urbanism. The findings associated with the

implementation of this case study approach are reviewed in Chapter Four. Finally, Chapter Five analyzes these findings and their implications, while also offering opportunities for continued research.



## CHAPTER 2

### REVIEW OF THE LITERATURE: REDEFINING AFFORDABLE HOUSING WITHIN THE CONTEXT OF SMART GROWTH AND THE NEW URBANISM AND AN INTRODUCTION TO INFORMAL SETTLEMENTS

This chapter begins by defining affordable housing and then reviews the literature pertaining to smart growth and the New Urbanism, assessing each in relation to affordable housing. It then examines additional literature on quality of life, suggesting the necessity of a broader definition of affordable housing that incorporates suitability. A critical analysis and comparison of smart growth and the New Urbanism follow. Recognizing the similarities of the two movements, for the purposes of this study an integrated interpretation of the movements is formulated.

#### **Affordable Housing**

In the preamble to the 1949 Housing Act, Congress proclaimed its goal of “a decent home in a suitable living environment for every American family” (Schwartz, 2006, p. 1), alluding to the important role housing plays in one’s daily life – a point that was reiterated in the 1968, 1974, and 1990 Housing Acts (Hartman, 1998, p. 231). More recently, “every government has explicitly recognized that adequate housing is a right under international law” (Hartman, 1998, p. 229, citing Leckie, 1994, p. 14 – 15), and religious leaders from the Vatican and local dioceses alike have issued statements concerning the absolute and necessary provision of suitable housing (Hartman, 1998, p. 227). Housing plays a crucial role in the lives of individuals, as

Few things intersect with and influence as many aspects of life as housing does. Housing is far more than shelter from the elements. As home, housing is the primary setting for family and domestic life, a place of refuge and relaxation from the routines of work and school, a private space. It is also loaded with symbolic value, as a marker of status and an expression of style. Housing is also valued for its location, for the access it provides to schools, parks, transportation, and shopping. (Schwartz, 2006, p. 2)

In fact, housing is more critical than mere shelter “not only because it consumes so large a portion of the household budget,” but also because it is “the central setting for so much of one’s

personal and family life as well as the locus of mobility opportunities, access to community resources, and societal status” (Hartman, 1998, p. 230, citing Hartman, 1975).

In addition to the personal benefits housing affords, housing accounts for over one-fifth of the nation’s gross domestic product, and generates employment in construction and development industries (Schwartz, 2006, p. 3). Affordable housing has the potential to increase the economic base of a community. In 2001, residential construction generated a total of \$65 billion in taxes and fees for all levels of government, while also generating a significant number of full-time-equivalent jobs for the local economy during the construction period and substantial income for local businesses and workers (Schwartz, 2006). On an individual level, adequate housing has the potential to prevent several health hazards associated with physically deficient housing. Peeling lead paint in poorly maintained homes causes learning disabilities and behavioral problems when ingested by children, and asthma and similar respiratory problems are linked to mold and dampness (Schwartz, 2006). The role of housing, then, is vital to both the nation as a whole, its communities, and its individuals.

The problem lies in the ability of the general public to access this significant and necessary good, as the increasing cost of housing has put it out of reach for many individuals and families. In the United States a home is considered affordable to a particular household if it costs no more than 30% of that household’s income before taxes (Schwartz, 2006, p. 23). A household is considered cost-burdened if more than 30% of pre-tax income is spent on housing. Recently, Michael Stone devised an alternative scale of housing affordability, reflecting the fact that households may be able to afford to spend more or less than 30% of their income on housing, depending on their other basic needs (Schwartz, 2006). A married couple with no children and an income of \$30,000, for example, could afford to spend more than 40% of their income on

housing while still being able to afford other goods and services, while a couple with three children and the same income could afford to spend less than 5% on housing (Schwartz, 2006). Regardless of which definition is used, the growing gap between median income and the cost of housing traditionally leaves state and local governments with the responsibility of subsidizing affordable housing, although the recent housing crisis has prompted an engaged response from the federal government as well.

As a nation, however, we have never come close to achieving the goal of providing all Americans with decent, affordable housing (Hartman, 1998, p. 230). The failure to meet the goal loftily stated in the 1949 Housing Act is suggestive of the difficulty associated with the provision of affordable housing. One of these many challenges is opposition from neighbors. Suburbanites have a long history of resisting higher density affordable housing for fear of declining property values and concerns over their new neighbors (Danielsen et al., 1999, p. 516, citing Baar, 1992) – a phenomenon that has become known as NIMBYism, or “Not In My Backyard” activism.

Additional challenges arise from the fact that strategies for addressing affordable housing too often lean toward subsidies, density bonuses, special financing, and lower construction quality (Calthorpe, 1993, p. 29). But subsidies are already limited, increased density is challenged by NIMBYists, construction quality cannot and should not be further stripped to reduce costs (Calthorpe, 1993, p. 29), and given the current global economic situation and its close tie to mortgages, creative financing is perhaps more of a rarity than ever. Providing affordable housing, then, must take a new approach, recognizing the continued need to address cost burden while considering these obstacles. “A broader picture of how we form communities and how we see the home itself is central to rethinking this relentless problem. The need for affordable housing illustrates the desirability of integrated solutions” (Calthorpe, 1993, p. 29).

## Smart Growth

Included among these integrated solutions, smart growth emerged in the 1990s as a reaction to worsening conditions. As Americans fled to the suburbs in the decades following the Second World War, so, too, did unbridled development evident in increased highway congestion and school over-crowding. Not surprising, then, as years passed and these trends continued, people grew tired of and concerned about the increasing congestion, air pollution, loss of open space, and the rising cost of public facilities associated with this suburban in-migration – frustrations that found a potential solution in the principles of smart growth. As “a set of broad goals and policies designed to counteract sprawl” (Downs, 2004, p. 3),<sup>1</sup> smart growth does not aim to limit growth, but rather to guide it. Smart growth is “development that accommodates growth in... economically viable, environmentally responsible, and collaboratively determined ways” (Porter, 2002, p. 1).

More specifically, the Smart Growth Network (SGN) (2008) and the U.S. Environmental Protection Agency (EPA) (2008) define ten principles advocated in smart growth policies:<sup>2</sup>

- Create a range of housing opportunities and choices;
- Create walkable neighborhoods;
- Encourage community and stakeholder collaboration;
- Foster distinctive, attractive communities with a strong sense of place;
- Make predictable, fair, cost effective development decisions;
- Mix land uses;
- Preserve open space, farmland, natural beauty and critical environmental areas;
- Provide a variety of transportation choices;
- Strengthen and direct development towards existing communities; and

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<sup>1</sup> Downs (2004) describes sprawl as “low-density peripheral growth that includes new subdivisions that leapfrog far beyond existing settled areas onto vacant or agricultural land” (p. 1). He maintains that it “relies heavily on the almost exclusive use of private automobiles for transportation; the control of land use by fragmented and relatively small local governments; and the lack of even moderately coordinated land use planning among communities” (Downs, 2004, p. 1).

<sup>2</sup> SGN and EPA present the same principles, though they organize them differently. There does not appear to be an intended significance to their ordering. For the purposes of this thesis, the principles are presented according to the order used by SGN.

Take advantage of compact building design (SGN, 2008).

While “the principles of smart growth are widely acceptable ideas about the desirable form and character of communities” (Porter, 2004, p. 1), the specific components of smart growth remain open to interpretation, as any organization’s list of smart growth principles depend, at least to an extent, upon the interests of the organization (Porter, 2002, p. 1). Individual communities can pick and choose which principles they would like to address through specific policies, meaning that the smart growth tools employed by one community can vary drastically from those used by another.

**Smart Growth and Affordable Housing:** Smart growth and affordable housing both aim to improve communities: smart growth through policies aimed at discouraging sprawl, and affordable housing by providing housing opportunities for people who may not be able to afford market-rate units. But the relationship between smart growth and affordable housing remains complex, as do smart growth and affordable housing in and of themselves. In the elections of 2000, “533 state or local ballot initiatives in 38 states focused on issues of planning or smart growth, with an approval rate of more than 70 %” (Voith & Crawford, 2004, p. 83), indicating that smart growth policies are being supported across the nation. Yet because the relationship between smart growth and affordable housing is not fully understood, the implementation of these policies may have profound, though perhaps unanticipated effects on the residents of affordable housing. An important component of a community’s health, vitality, and economic development, affordable housing is being affected by the smart growth policies that are sweeping the nation.

Though much has been written on the possible effects of smart growth policies on affordable housing, scholars do not agree on whether smart growth generally helps or hinders the

availability of affordable housing. There does seem to be agreement, though, that given the various political motivations and implementation strategies associated with smart growth, assessing its impacts on housing affordability remains difficult.

In 2005, the U.S. Department of Housing and Urban Development (HUD), the federal agency overseeing the majority of urban affordable housing programs, published a document claiming that land-use regulations, such as those promoted by smart growth advocates, “excessively [increase] the cost of new or rehabilitated affordable housing without sound compensating public benefits” (p. 1). In adamantly calling for deregulation, even HUD admits the complexity and variety of smart growth policies and their effect on affordable housing: “some smart growth principles, such as higher density development, can facilitate the development of affordable housing, [though a number of communities] have used smart growth rhetoric to justify restricting growth and limiting developable land supply, which lead to housing cost increases” (HUD, 2005, p. 5). The publication goes on to discuss the ways in which land-use regulations, some of which can be characterized as smart growth based on the principles listed previously in this chapter, raise development costs and therefore impede housing affordability.

For instance, the implementation of environmental regulations, some of which qualify as smart growth based on the principle of preserving open space, may curtail the development of much needed affordable housing by increasing the cost of land (HUD, 2005). Even before the term “smart growth” entered the vernacular, scholars wrote of “a widespread belief that... environmental controls [would] have a significant adverse effect on the supply, cost and allocation of land for housing” (Soloman, 1976, p. 8). Environmental policies limiting development on environmentally sensitive land increase housing demand for the existing housing stock, thereby increasing its price and reducing housing affordability (White, 1992, p.

4). More specifically addressing the conflict between the preservation of open space and affordable housing, Wendell Cox (2002) takes issue with urban growth boundaries, a process he refers to as land rationing. First adopted by Oregon in the 1970s and recently established in several other communities, urban growth boundaries designate specific land for urban development, consequently prohibiting urban development outside the boundary (Cox, 2002, p. 39).

Local officials' application of urban growth boundaries decreases the amount of developable land, therefore increasing competition for that land (Cox, 2002, p. 4). A simple rule of economics states that increased competition for a good, in this case land, increases the price of that good relative to the price of that good under conditions of relatively low competition (Cox, 2002). The application of urban growth boundaries, then, increases the cost of developable land, which is passed onto the consumer once the land is developed.

In addition, HUD's (2005) advocacy for deregulation argues that impact fees decrease housing affordability. Rather than local governments paying for the infrastructure required for development, such as streets, water, and sewer, development impact fees instead put the burden of paying for this infrastructure on the individual developer (Cox, 2002; HUD, 2005). The impact fees incurred by the developer are passed on to individuals in the form of higher housing costs. Though this increase in housing price creates a burden for all households, low-income households feel the decrease in housing affordability more acutely (Cox, 2002).

Identifying both environmental regulations and impact fees as smart growth policies that decrease housing affordability, HUD (2005) cites increased density as a smart growth tool that facilitates housing affordability (p. 3). While attesting to the difficulty of universally defining smart growth as either good or bad for affordable housing, Voith & Crawford's 2004

examination of density's affect on housing affordability further complicates this notion. Increased density, they claim, makes *high*-density housing *less* expensive and *low*-density housing *more* expensive (Voith & Crawford, 2004). Mandating higher density development decreases the future supply of low-density housing, therefore increasing its price (Voith & Crawford, 2004). Similarly, the future supply of high-density, less land-intensive development increases, causing prices of these units to fall. Thus an ambiguous relationship exists between housing affordability and increased density, a design element advocated by the smart growth policy of compact building design (Voith & Crawford, 2004). Unintentional losses of affordable housing can result from growth management policies that mandate higher density without lowering regulatory barriers (Danielsen, Lang, and Fulton, 1999, citing Fischel, 1990, 1997). It remains unclear, then, what the specific effects of high-density, compact development are on housing affordability.

Clearly “density alone is not the answer to providing affordable housing” (Carlson & Mathur, 2004, p. 31), though it remains one of several potential policies that can increase affordable housing availability. Higher density development does not necessitate high-rise buildings that conflict with neighborhood character and are unwanted by local residents (Carlson & Mathur, 2004, p. 30 – 31). Instead, accessory dwelling units, also known as “mother-in-law apartments,” can increase density in suburban single-family neighborhoods and provide affordable housing while reinforcing traditional neighborhood character and avoiding neighbors’ opposition (Carlson & Mathur, 2004, p. 31). When done properly, increased density can mean a welcome addition of affordable housing to a community (Carlson & Mathur, 2004, p.31).

Inclusionary zoning is another smart growth policy advocates maintain increases the availability of affordable housing. Unlike the debated policies already mentioned here, most



scholars agree that inclusionary zoning does actually contribute to the provision of affordable housing. “Inclusionary zoning refers to regulatory programs that pressure housing developers to include in their projects a certain percentage of units to be sold or rented at below-market prices to relatively low-income households” (Downs, 2004, p. 13). It therefore fulfills the smart growth principle of expanding the range and options of available housing within a community. While both Porter (2004) and Harmon (2004) maintain that inclusionary zoning encourages and aids the production of affordable housing, the fact that inclusionary zoning is an element of smart growth *directly intended* to increase housing affordability makes their arguments rather redundant.

Nonetheless, even inclusionary zoning cannot meet all affordable housing needs, as it represents only one smart growth tool a community can employ (Porter, 2004; Harmon, 2004). None of the tools cited, in fact, can alone adequately address affordable housing needs, as effective smart growth goals can only be realized through a combination of multiple policies, a strong community commitment, and political will (Downs, 2004, p. 19).

The debated results of smart growth policies, and the fact that local governments each implement smart growth policies to various degrees, resulting in differing outcomes, hardly provide a satisfactory answer as to how smart growth affects housing affordability. Impact fees (Cox, 2002; HUD, 2005) and urban growth boundaries (Cox, 2002) may diminish housing affordability, while inclusionary zoning typically enhances it (Cox, 2002). Meanwhile, the effects of increased density on housing affordability remain in question (Voith & Crawford, 2004). Yet while the debate continues among scholars, smart growth policies continue to be implemented across the nation, often with little understanding as to how they might affect affordable housing.

## **New Urbanism**

Much as smart growth policies evolved from frustrations with suburban land development patterns and the accompanying environmental degradation, in 1993 the Congress for the New Urbanism (CNU) was formed to build communities that enhance residents' quality of life and protect the natural environment (CNU, 2007). Since its inception, the New Urbanism has been hailed as the most significant movement in urban planning of the twentieth century (Song & Knapp, 2003, p. 218, citing Fulton and CNU), and it has continued to have a significant impact into the twenty-first century. Recognizing that the compact, mixed-use communities of the early twentieth century had been replaced by suburban development dominated by a separation of uses, the 1996 Charter for the New Urbanism acknowledges "disinvestment in central cities, the spread of placeless sprawl, increasing separation by race and income, environmental deterioration, loss of agricultural lands and wilderness, and the erosion of society's built heritage" (CNU, 2001, p. 1) as one integral challenge faced by modern community-building. In response, the Charter supports four major goals:

The restoration of existing urban centers and towns;

The restructuring of sprawling suburbs into communities composed of diverse neighborhoods and districts;

The conservation of natural environments; and

The preservation of built legacy (CNU, 2001).

Maintaining that "physical solutions by themselves will not solve social and economic problems" (CNU, 2001, p. 1), CNU advocates public policy and development practices that create environments welcoming to pedestrians, public transportation, and the private automobile, support defined public spaces, and endorse architecture that is locally compatible (CNU, 2001).

The Charter goes on to list twenty-seven principles "to guide public policy, development

practice, urban planning, and design” (CNU, 2001, p. 2) divided into three broad categories: “The region: Metropolis, city, and town,” “The neighborhood, the district, and the corridor,” and “The block, the street, and the building” (CNU, 2001, p. 2). In brief, these principles include mixed-use, high-density neighborhoods; convenient public transit, pedestrian-friendly street networks that include bicycle lanes, integrated open spaces, and architecture that stimulates and encourages social interaction (Song & Knapp, 2003, p. 219).<sup>3</sup>

Similar to smart growth principles, the principles of the New Urbanism do not seek to thwart growth, but instead provide strategies for the continued and sustainable growth of regions, cities, and communities (Calthorpe, 1993, p. 41). In many ways, the New Urbanism harkens back to the traditional style of building communities – the tradition of compact, mixed-use design that dominated community building before the rise of the automobile. In its effort to enhance the livability of communities, then, the relationship between the New Urbanism and affordable housing is a natural one to explore, as affordable housing can also enhance a community’s livability.

**New Urbanism and Affordable Housing:** Much as the previous discussion of smart growth and affordable housing recognized that both aim to enrich quality of life, the New Urbanism and affordable housing similarly have broadly identical goals of creating stronger communities. Yet while recognizing that design alone is not the solution to the myriad of obstacles faced by community-builders, CNU’s approach to affordability remains largely design based. Henry Cisneros, former HUD Secretary, referred to this design approach as “natural affordability,” suggesting that small-unit size, increased density, prudent selection of materials, and construction efficiencies inherently create unit affordability (CNU, 2008).

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<sup>3</sup> A complete list of these principles can be found in the Appendix.

Though “natural affordability,” then, may be a built-in benefit of the New Urbanism, principle seven of the Charter for the New Urbanism more specifically states:

Cities and towns should bring into proximity a broad spectrum of public and private uses to support a regional economy that benefits people of all incomes. Affordable housing should be distributed throughout the region to match job opportunities and to avoid concentrations of poverty. (CNU, 2001, p. 2)

Principle thirteen of the Charter affirms:

Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interactions, strengthening the personal and civic bonds essential to an authentic community. (CNU, 2001, p. 2)

While both principles express an “unequivocal goal of income diversity” (Johnson & Talen, 2008, p. 583), empirical analysis suggests that actual New Urbanist developments are neither diverse nor affordable, despite the prominence of these principles in the movement.

A study examining 234 market-rate New Urbanist projects<sup>4</sup> from across the country sought to conclude whether units within those developments were affordable to median-income residents of the community. Researchers compared the lowest price per unit available for ownership to the salaries of the area’s middle-income residents as defined by HUD, to the salary of a local elementary school teacher, and the salary of a cook within the county (Talen, 2008). The results provide an empirical basis for criticism of the New Urbanism – that New Urbanist developments are not largely accessible to middle-income families or individuals, and fail to address affordability.

The results of the study, which had a response rate of 65%, indicate that 15% of the projects surveyed included units affordable to those earning the area median income (AMI), 10% of projects included units affordable to local elementary school teachers, and 7% of the

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<sup>4</sup> Noting the difficulty in identifying New Urbanist developments, the specific criteria used for deeming a specific development as New Urbanist remain unclear.

developments could accommodate a cook employed within the county (Talen, 2008). While recognizing the small percentage of units available to these households, Talen notes that the New Urbanist movement is “not even hitting on low-income whatsoever” (CNU, 2008). The study fails to supply, however, an analysis of the availability of affordable units in conventional developments within the same communities. This lack of critical comparative analysis makes it impossible to determine if New Urbanist projects are any less affordable than non-New Urbanist projects (McIlwain, 2008).

The study, though, considered only New Urbanist projects developed at market-rate, without the assistance of public subsidies or federal monies. Many New Urbanist projects take advantage of these available funds, which then mandate that a certain percentage of the project be accessible to very low, low, and moderate income households.<sup>5</sup> The HOPE VI program is one of the most popular methods through which New Urbanist developments meet low-income housing requirements. A HUD administered program established in 1992 and first funded in 1993, HOPE VI, or Housing Opportunities for People Everywhere, aims to provide stable, mixed-income communities by demolishing and redeveloping public housing (FitzPatrick, 2000; GAO, 2003). The program strives to create communities for a mixture of economic groups, replacing dilapidated public housing with mostly single-family homes, duplexes, and row homes or townhouses, while ensuring access to transportation and a pedestrian-friendly environment (FitzPatrick, 2000).

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<sup>5</sup> Since different housing programs utilize different income ranges and income percentages are altered according to regional conditions, it is difficult to strictly define HUD’s income ranges. According to Johnson and Talen (2008), very low income households earn between 30 and 50% of the AMI, low income households earn between 50 and 80% of the AMI, and moderate income households earn between 80 and 120% of the median income for the area. For full information on how HUD defines limits for different income ranges, see the U.S. Housing Act of 1937 and the HUD produced document *FY2006 HUD Income Limits Briefing Manual*.

Legislatively, HOPE VI has four goals: 1) improve the living environment for public housing residents of severely distressed public housing through the demolition, rehabilitation, reconfiguration, or replacement of obsolete public housing; 2) revitalize sites on which such public housing is located and contribute to the improvement of the surrounding neighborhoods; 3) provide housing that will avoid or decrease the concentration of very low income families; and 4) build sustainable communities (GAO, 2003, p. 1; Popkin et al., 2004, p. 1). “A central premise of HOPE VI... was that the overconcentration of profoundly poor, non-working households was a major contributor to... high levels of social problems” (GOA, 2003, p 14), echoing CNU’s insistence that affordable housing should be distributed to avoid concentrations of poverty (CNU, 2001, Principle 7).

The union of New Urbanist principles with the provision of affordable housing, however, is not entirely unexpected. Michael Pyatok, a renowned architect of low-income housing, is quoted as saying, “planning mixed-use neighborhoods offering a wide variety of work opportunities along with good public transit may be the single most important contribution to housing affordability” (Nothstine, 2008), alluding to the natural alliance between the New Urbanists and HUD, the federal provider of public housing in the United States. Accordingly, HUD recognizes that good design is an integral part of good low-income housing (Schwartz, 2006; CNU and HUD, 2000, p. 2). In 2000, HUD collaborated with CNU to establish fourteen strategies for developing low-income housing in vibrant, desirable neighborhoods:

**Citizen and Community Involvement:** Engages residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the process of designing change for their neighborhoods.

**Economic Opportunity:** The design of neighborhood development should accommodate management techniques and scales of construction that can be contracted to local and minority businesses.

**Diversity:** Provide a broad range of housing types and price levels to bring people of diverse ages, races, and incomes into daily interaction – strengthening the personal and civic bonds essential to an authentic community.

**Neighborhoods:** Neighborhoods are compact, pedestrian-friendly, and mixed use with many activities of daily life available within walking distance. New development should help repair existing neighborhoods or create new ones and should not take the form of an isolated “project.”

**Infill Development:** Reclaim and repair blighted and abandoned areas within existing neighborhoods by using infill development strategically to conserve economic investment and social fabric.

**Mixed Use:** Promote the creation of mixed use neighborhoods that support the functions of daily life: employment, recreation, retail, and civic and educational institutions.

**City-wide and Regional Connections:** Neighborhoods should be connected to regional patterns of transportation and land use, to open space, and to natural systems.

**Streets:** The primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use. Neighborhoods should have an interconnected network of streets and public open space.

**Public Open Space:** The interconnected network of streets and public open space should provide opportunities for recreation and appropriate settings for civic buildings.

**Safety and Civic Engagement:** The relationship of buildings and streets should enable neighbors to create a safe and stable neighborhood by providing “eyes on the street” and should encourage interaction and community identity. Provide a clear definition of public and private realm through block and street design that responds to local traditions.

**Dwelling as Mirror of Self:** Recognize the dwelling as the basic element of a neighborhood and as the key to self-esteem and community pride. This includes the clear definition of outdoor space for each dwelling.

**Accessibility:** Buildings should be designed to be accessible and visitable while respecting the traditional urban fabric.

**Local Architectural Character:** The image and character of new development should respond to the best traditions of residential and mixed use architecture in the area.

**Design Codes:** The economic health and harmonious evolution of neighborhoods can be improved through graphic urban design codes that serve as predictable guides for change. (CNU and HUD, 2000, p. 4)

Advocated by both CNU and HUD, these principles directly address the principles of the New Urbanism and indirectly address the issue of housing affordability by advocating income

diversity and compact design. Although the fourteen strategies are primarily design-based, both HUD and CNU (2000) admit that vibrant communities can only be built if design is considered along with social and economic development. While these principles have been integrated into many HOPE VI projects across the county, the ultimate success of the HOPE VI program remains a topic of debate.

Overall, through 2001 HOPE VI “has succeeded in demolishing 97,000 units of the worst housing units in the inventory, pumping over \$4.2 billion in federal spending dollars into distressed neighborhoods, leveraging billions of dollars of private investment, and pioneering mixed-finance development (Clancey & Quigley, 2001, p. 529). Critics, however, claim that in decreasing the density of redeveloped sites, the HOPE VI program leads to the production of fewer units available to low-income households, and therefore fails as a housing program that aims to provide for low-income residents (FitzPatrick, 2000). In fact, “the central problem is that the federal plan does not adequately consider the needs of residents in the developments,” a problem that has plagued all federal attempts at providing public housing (FitzPatrick, 2000, p. 423). While on the opposite side of the HOPE VI debate than FitzPatrick (2000), Clancey and Quigley (2001) agree with his insistence that the HOPE VI program shrinks the supply of housing units available to low-income households. They maintain, however, that the loss of units is compensated for by the increased quality of and opportunities afforded by the units provided, blaming any failures of the program on local implementation rather than structural oversights in the policy (Clancey & Quigley, 2001).

### **Reevaluating the Literature**

Smart growth and New Urbanism, it appears, can each be interpreted as either aiding or thwarting the production of affordable housing. This statement, and the literature examined in the preceding sections, accepts affordable housing as defined based on cost relative to income



with the 30% threshold. The following sections explore the shortcomings of this narrow definition and review additional literature concerning quality of life, maintaining that suitability of housing should be a central consideration in defining affordable housing. For the purposes of this study, such housing is called suitable housing, a term that incorporates features contributing to quality of life. Within this context, smart growth and the New Urbanism join forces to generate in concert a single list of desired principles.

### **Beyond Affordability – What Else Is Important in Providing Affordable Housing?**

The commonly accepted and utilized definition of affordable housing outlined earlier in this paper suggests that “a decent home in a suitable living environment,” costing households no more than 30% of pre-tax annual income, is affordable (Schwartz, 2006, p. 1, citing the 1949 Housing Act). Recent analysis of affordable housing emphasizes the cost of housing, rather than ways in which *suitable* housing can directly contribute to one’s quality of life.<sup>6</sup> Of seven goals prominent within American housing policy since the 1930s, only one acknowledges the quality of housing (Schwartz, 2006, citing Katz et al., 2003).

This failure necessitates a clarification of terminology. While *housing affordability* only recognizes one’s financial capacity to pay for housing, as suggested by the 30% threshold, *suitable affordable housing* encompasses housing cost while integrating additional factors that contribute to the quality of life. Douglas Porter (2002) considers six qualities of community development, one of which is “livability” (p. 1). While implying a “comfortable environment with essential support for everyday life” (Porter, 2002, p. 67), livability is the attribute that all

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<sup>6</sup> David Felce and Jonathan Perry (1995) describe quality of life as “a combination of life conditions and satisfaction, weighted by scale of importance” (p. 55). Because this definition is multidimensional, integrating objective and subjective indicators, a broad range of life domains, and individual values, they maintain that quality of life is difficult – if not impossible – to operationalize (Felce & Perry, 1995, p. 55). Potentially, quality of life could be different for every individual. Although Felce and Perry’s (1995) discussion of quality of life occurs within the context of medical practice, it is applicable to a broader range of topics, including affordable housing.

housing, affordable or otherwise, must ideally possess to be considered suitable.<sup>7</sup> Even with this definition, though, livability, quality of life, and therefore suitable affordable housing remain somewhat intangible. What specific factors, then, contribute to livability and make housing suitable for its residents?

While HUD (2005) and Cox (2002) both claim that impact fees reduce the *affordability* of housing, they fail to discuss the ways in which impact fees ensure access to necessary infrastructure and guarantee a minimal quality of life. Florida's 1985 Growth Management Act requires that facilities and services be available concurrent with development (Florida Legislature, 2008), mandating a minimum level of infrastructure service for new development. While transportation, potable water, sewer, solid waste drainage, parks and recreation, and education are all subject to concurrency within the state of Florida, local governments must determine the level-of-service standards they wish to achieve (Florida Department of Community Affairs, 2005). Nonetheless, by requiring that local governments create local levels-of-service for this infrastructure, the Florida Legislature recognizes that access to certain utilities and infrastructure comprises an essential component of any development.<sup>8</sup> While buildings can be constructed without access to water, sewer, and other facilities and still meet the requirement of *affordability* by costing no more than 30% of a household's income, such structures would not be considered suitable for habitation. Because access to these services is part of the "essential support [necessary] for everyday life" (Porter, 2002, p. 67), these utilities represent a necessary component of suitable affordable housing.

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<sup>7</sup> Felce and Perry (1995) recognize that quality of life is potentially different across individuals. Porter (2002) similarly maintains that what one individual considers livable might not appeal to someone else (p. 67), hinting at the close relationship between livability and quality of life.

<sup>8</sup> Florida is not alone in its adoption of a Growth Management Act, as twelve other states require similar concurrency. These states are Hawaii, Vermont, Oregon, New Jersey, Rhode Island, Georgia, Washington, Maryland, Arizona, Tennessee, Colorado, and Wisconsin (Anthony, 2004).

While access to infrastructure is vital, so, too, is access to services, including employment, education, healthcare, and shopping. The United Nations predicts that worldwide urban population will nearly double between 2000 and 2030 while rural population will decrease by nearly half that (UNFPA, 2007, p. 6), illustrating both an increase in population and a migration towards cities. Clearly access to myriad opportunities attracts people to cities, as urban centers often serve as centers for employment and shopping. Again, access to these services is closely related to quality of life and livability. While education and healthcare contribute directly to quality of life, employment provides a means by which to live, while shopping provides access to necessary goods. Indeed, the linkage of high-poverty neighborhoods to low school performance, high teenage pregnancy rates, and low earnings and employment levels (Smith, 2002) reinforce the argument that families and individuals of low-incomes need access to services such as education, healthcare, and employment more urgently than others. Affordable housing, then, should be located where these services are readily accessible.

This discussion, however, is not to suggest that affordable housing must – or even definitively should – be located within urban centers. What remains imperative is that it is situated within ready access to these services, which may or may not be in the urban core. Indeed access, i.e. transportation, is yet another component of suitable affordable housing.

Transportation, whether through connectivity of local roadways or the availability, reliability, and frequency of public transportation, provides a means by which residents gain mobility and access to services not readily available within their own community.

Transportation, however, is a distinct component of both *suitable affordable housing* and *housing affordability*. The Center for Housing Policy found that for every dollar a working family saves on housing, an additional seventy-seven cents are spent on transportation (Lipman,

2006, Message from the Chairman). Spatially, a “lack of affordable housing [exists] proximate to employment sites” (Smith & Steiner, 2002, p. 453), suggesting that individuals hoping to save on housing costs must make lengthy and expensive commutes between home and work. Not surprisingly, then, “housing and transportation are the two largest expenses for most households. ... For households of all income levels, 27% of income goes for housing alone and another one-fifth goes to the cost of getting around” (Lipman, 2006, p. 1). But more significant than both being major expenses for most families, a trade-off exists between housing and transportation expenses: families that spend more than 50% of their total expenditures on housing designate 7.5% of their budget for transportation, while families that spend 30% or less of their total budget on housing spend almost 25% of their budget on transportation (Lipman, 2006, p. 1).<sup>9</sup> Simply put, the less one spends on housing, the more one probably spends on transportation – meaning that low-income residents of affordable housing may spend a significantly higher percentage of their income on transportation than other income groups. Given the positive correlation between access to transportation and housing affordability, it is essential that those siting and providing affordable housing be mindful of this relationship.

While employment opportunities and infrastructure, to mention only two components of suitable affordable housing, are vital to one’s quality of life, to limit the discussion to these factors would suggest that residents of affordable housing should and do spend their entire day working. To believe that anyone devotes his or her entire day to productivity would be naïve. Concurrency in the state of Florida, one remembers, applies equally to parks and recreation, suggesting that relaxation and the natural environment are also essential elements to one’s life. In California, a bill was recently signed into law that creates incentives for local governments to

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<sup>9</sup> See Figure 2-1.

include plans and funding for parks in the communities in which they build affordable housing (California Department of Housing and Community Development, 2008). Lynn L. Jacobs, Director of California's Department of Housing and Community Development, accurately stated that the parks will "enhance the quality of life" in these neighborhoods (California Department of Housing and Community Development, 2008), recognizing that parks afford significant educational and recreational amenities and should be considered when developing affordable housing.

Certainly these factors contributing to the suitability of affordable housing, though not exhaustive, illustrate the point that the cost of housing is not the only variable worth considering in providing quality affordable housing. These qualities, in fact, are desirable in all housing, whether built as intentionally affordable or not. Households of all income levels can benefit from the attributes outlined in this section. Yet despite the importance of these factors, the literature assessing smart growth, the New Urbanism, and affordable housing overwhelmingly focuses on the *affordability* and design of housing, shying away from analyzing if and how these policies enhance affordable housing's *suitability*.

A more complete definition of affordable housing, then, must encompass the concept of affordability, based on a household's pre-tax income, and the concept of suitability. Such housing offers a healthy, productive life, while available to households at a cost they are sustainably able to afford. The literature's failure to make this connection between affordable housing and quality of life, however, highlights an additional gap in the literature that is mirrored in government programs emphasizing the ratio of cost to income over suitability. Because affordable housing has previously been defined as any housing costing no more than 30% of a household's income, the discussions relating either smart growth or the New Urbanism to

affordable housing are inherently flawed. By using an incomplete definition as its basis for analysis, the discussions have been limited to those pertaining to the cost of housing, rather than its suitability. Clarifying this problem has necessitated the redefinition of affordable housing. Similarly, for the purposes of this study, the term “suitability” reflects an integration of the shared characteristics of both these movements.

### **Smart Growth, the New Urbanism, and Great Places**

The qualities associated with suitable affordable housing are largely qualities that are considered desirable in any type of housing development. The principles of smart growth and the New Urbanism, then, contribute not only to suitable affordable housing, but suitable housing in general, enhancing quality of life. While not specifically addressing the suitability of affordable housing – or any housing particularly – the Project for Public Spaces (PPS) (2003) has determined what aspects – key attributes and intangible qualities – contribute to great places (see Figure 2-2). The organization also established measurements of these qualities. A review of the PPS diagram reveals that many of the factors contributing to a great place are the same as those that have been discussed as contributing to suitable affordable housing and to smart growth and New Urbanist principles. According to PPS, “Access & Linkages,” meaning that a community is “connected,” “walkable,” and “accessible,” contribute to a great place. Accessibility, walkability, a variety of transportation choices, and connectedness are all virtues prescribed by both planning movements and amenable to suitable affordable housing. The attractiveness of and pride in a great place, both intangible qualities, directly relate to the principle of encouraging “distinctive, attractive communities with a strong sense of place,” as advocated by smart growth (SGN, 2008). Similarly, the “land use patterns” that PPS designates as a measure of “Uses & Activities” reflect the principles of mixed land uses that both smart growth and the New Urbanism advocate and that meet the needs of residents of affordable housing.

Thus, the indicators of a great place can serve as a guide for suitable affordable housing. Furthermore, the PPS determinants of a great place give credence to the principles of smart growth and the New Urbanism. The PPS model, then, serves as a tangible link between the principles of progressive planning movements and the qualities of suitable housing.

**What does this mean?** Because the PPS model provides tangible ways of measuring intangible qualities, it provides a useful framework for this study. Though beyond the scope of this thesis, the qualitative elements of smart growth and the New Urbanism can be transformed into quantitative measurements applicable to understanding the suitability of housing. Studies that combine measures of transportation and housing costs are already facilitating this quantitative transformation. Realizing that households living near jobs, education, shopping, and services spend less on transportation than those that live far from the same resources and recognizing the trade-off that exists between housing and transportation costs,<sup>10</sup> an innovative approach known as the Location Efficient Mortgage (LEM) attempts to link the two (Arigoni, 2001, p. 25). Since living near public transit can result in reduced transportation costs, often due to being less dependent on the private automobile and only owning one car, the LEM seeks to include these savings in calculations of housing affordability (Arigoni, 2001, p. 25). Potential homebuyers considering a home near public transportation, then, would qualify for a higher mortgage because they have more available income for housing (Arigoni, 2001, p. 25).

### **Smart Urbanism**

While the LEM suggests the need for greater transportation options, both smart growth and the New Urbanism similarly advocate transportation alternatives. Though often included in the

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<sup>10</sup> For a graphical representation of this trade-off, see Figure 2-3. Note that although the split between housing and transportation varies by location, the combined expenditure remains roughly the same. This reflects the trade-off that exists between housing and transportation costs (Lipman, 2006, p. 3).

same discussion, smart growth and the New Urbanism are largely treated as two separate movements. While smart growth emerged from a sensitivity to the environment that resulted in a broad, regional approach, the New Urbanism aims to combat sprawl, while assuming a more fine-grained, design-based approach to help communities function more effectively through the application of specific design principles. The ultimate outcomes of the two movements, however, are remarkably similar. While the approaches of smart growth are more regional than the specific design codes employed by the New Urbanists, the policies and practices endorsed by either movement bear resemblances that cannot be ignored, as both aim to improve the lives of residents through the provision of high-density, walkable, mixed-use neighborhoods that have access to a variety of transportation modes and adequate green space. In general these goals are not specific to either smart growth or the New Urbanism and differ little from the goals of growth management, sustainable development, or simply good planning.

Consistent with definitions of smart growth, a document prepared by CNU and HUD (2000) describes the New Urbanism in the following terms:

In a well designed neighborhood, adults and children can walk safely to nearby shopping, schools, and parks. Public facilities serve as focal points for community activity. A broad range of housing options allow a mix of family sizes, ages, incomes, and cultures to live harmoniously. Transit service to regional jobs is a convenient walk from home. Neighbors know each other and take a special sense of pride in their homes and community. Healthy neighborhoods foster positive community spirit that can in turn help mend old wounds and remake the city. (p. 3)

Both movements advocate walkable communities accessible by public transportation, where households of different incomes and preferences are mixed in among the built and natural environment. While CNU members “believe that compact, pedestrian-friendly neighborhoods



are the best building blocks for vibrant communities” (CNU and HUD, 2000, p. 35), advocates of smart growth would almost certainly agree.<sup>11</sup>

Given these overwhelming similarities, especially within the context of this study, continuing to discuss smart growth and the New Urbanism as two separate and distinct ideologies is unnecessary. Instead, the remainder of this thesis will use the term “Smart Urbanism” to describe the principles and policies advocated by both smart growth and the New Urbanism. While some scholars and advocates of either movement will insist that these are distinctive and separate movements, the comparison is not unfounded. The New Urbanism encourages planning in an economically, ecologically, and environmentally sustainable way, which are all principles that can be accurately identified as smart growth. CNU is even a member of Smart Growth America, a coalition of national, state, and local organizations committed to building better communities (Smart Growth America, n.d.), illustrating the interconnectedness of the movements.

Smart Urbanism, then, the term that will be utilized for the remainder of this document, can be defined by the following principles, which represent a combination of smart growth and New Urbanist principles, and are presented here in no particular order:

Provide a range of housing types, choices, and prices;

Ensure walkability;

Encourage community collaboration by engaging residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the process;

Offer distinct, attractive communities with a strong sense of place, as defined by streets, public gathering spaces, and civic buildings;

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<sup>11</sup> For a more detailed, graphical representation of the overlap between smart growth and the New Urbanism, see Table 2-1. While several of the detailed New Urbanist principles directly relate to more than one of the broader smart growth principles, an attempt was made to list each New Urbanist principle only once, as compared to the most relevant smart growth principle, for simplicity.

Practice fair, cost effective development decisions that are consistent with local climate, topography, history, and building practice;

Mix land uses that support the functions of daily life: employment, recreation, retail, and civic and educational institutions;

Preserve open space, natural beauty, and critical environmental areas to define and connect different neighborhoods and districts;

Provide a variety of transportation choices, including public transit, pedestrian, and bicycle traffic;

Direct development towards existing communities by encouraging infill; and

Encourage high-density, compact design.

Like both smart growth and the New Urbanism, Smart Urbanism can help developers and housing agencies design communities, rather than just individual structures.

### **Informal Settlements and Self-Help Housing as a Means to Evaluate Smart Urbanism**

Better understanding Smart Urbanism and its contributions to housing suitability requires examining the implementation of these policies. While most studies considering the impact of Smart Urbanist features on affordable housing examine traditional Western developments, examining an informal settlement in the Global South provides an opportunity to explore the universality and suitability of these features in the context of an organic, self-help development. Informal Brazilian squatter settlements, known as favelas, offer the ideal situation for exploring the relationship between the principles of Smart Urbanism and housing suitability, as the communities are built entirely by the residents. Residents of these communities generally have low-levels of education and are among the poorest in a city. They choose to build their communities in ways that best suit their daily lives and contribute to their quality of life. Any implementation of Smart Urbanist principles, then, is the result of their practicality and desirability, and not any knowledge of either smart growth or the New Urbanism principles

Numerous studies assessing people's willingness to pay for smart growth and New Urbanist features in communities in the United States have been completed, largely concluding that residents are willing to pay increased prices for the qualities associated with these features (Song & Knapp, 2003). These findings suggest the desirability of these features and a negative relationship between them and housing affordability (Song & Knapp, 2003). Rather than exploring a community in which the principles of Smart Urbanism are imposed on residents by a conscientious developer or progressive local planning department, a more revealing case study is that of a community built through self-help housing, a tactic through which one constructs most if not all of their home in order to save money on labor costs (Rural Housing Service, 2003). "This methodology recognizes and incorporates the self-organizing features of the most robust human settlements," valuing the "organic" process of building one's own home above top-down interventions that dominate today's housing market (Salingaros et al., 2006, p. 2).

While the formal pattern of land development begins with tenure security and works through a chain of planning, surveying, infrastructure development, and construction before the site is occupied, the informal pattern of land development assumes the exact opposite course, beginning with land occupation before ultimately reaching (and still only in some cases achieving) security of tenure (Macedo, 2008). The formal process is dominated by control of the developer and/or local developers, while residents largely perform the activities in the informal process. Figure 2-4 illustrates this dichotomy.

The commonly accepted definition of a favela is an informal squatter settlement, popularly perceived as an enclave of poverty, violence, and illegal activity. Since 1991 (IETS, n.d.), the Brazilian Institute for Geography and Statistics (IBGE)<sup>12</sup> has used the following description:

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<sup>12</sup> The IBGE is the Brazilian equivalent of the Census Bureau in the United States.

Subnormal agglomerate (favelas and alike) is a group constituted of a minimum of 51 housing units (huts, houses...) occupying or having occupied until recently, someone else's property (public or private), generally built in a dense and disorganized way and lacking, in its majority, the essential public services. (IBGE, 2000)

This definition, like most definitions of favelas and informal settlements around the world, focuses on the elements lacking in the communities, using negation to define the spaces in which many of the urban poor live.

A team of scholars and practitioners, including Andrés Duany, founding father of the New Urbanism, noted the negative perception of favelas and insisted upon their worth:

[...] it is widely accepted (with only a few exceptions) that the unplanned owner-built favela is embarrassing to the government, and has to be bulldozed as soon as possible. Yet that assumption is wrong. Very few in a position of authority seem to consider the urban and economic advantages of existing shantytowns. The geometry of buildings, lots, and street patterns has for the most part developed (evolved) organically, and ... this self-organization affords a number of very desirable features. With all its grave faults, the favela offers an instructive spontaneous demonstration of economic, efficient, and rapid processes of housing people. (Salingaros et al., 2006, p. 5)

The remainder of this document operates from a similar foundation that recognizes the attributes of favelas, although these communities cannot be simplified and generically explained. Various profiles correspond to different favelas. While one favela may be defined by very low-income residents who work primarily in the informal economy, another may have the same income level and education as some formalized municipalities (Oliveira, 2006). While some favelas are overcrowded, others are meticulously planned with designated open space (Perlman, 1976). What is consistent among favelas, however, is the fact that they are the direct result of citizen action, built by the residents themselves, and therefore provide insight into qualities desired by the community.

Now that an improved definition of affordable housing and a succinct description of Smart Urbanism are available, one can begin to understand the relationship between the two. This connection will be elucidated through a case study of an informal settlement in Brazil. The

methodology is the focus of the next chapter. While most studies considering the relationship of smart growth and/or New Urbanist principles with affordable housing examine traditional Western developments, a case study of an informal settlement in the Global South highlights the suitability of these features, rather than the theoretical benefits identified by academics and practitioners who advocate the movements.

Table 2-1. A Comparison of Smart Growth and the New Urbanism

Smart growth principles <sup>1</sup>	New Urbanist principles <sup>2</sup>	Smart Urbanist principles
Create a range of housing opportunities and choices.	Provide a broad range of housing types and price levels; Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the person and civic bonds essential to an authentic community.	Provide a range of housing types, choices, and prices.
Create walkable neighborhoods.	Many activities of daily living should occur within walking distance. ... Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy; Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to automobiles.	Ensure walkability.
Encourage community and stakeholder collaboration.	Engage residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the process of designing change for the neighborhoods.	Encourage community collaboration by engaging residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the process.

<sup>1</sup> As defined by SGN, 2008.

<sup>2</sup> As defined by the Charter of the New Urbanism, 2001, and *Principles for Inner City Neighborhoods Design*, prepared by CNU and HUD, 2000.

Table 2-1. Continued

Smart growth principles	New Urbanist principles	Smart Urbanist principles
Foster distinctive, attractive communities with a strong sense of place.	A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use; Streets and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbors to know each other and protect their communities; Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form, because their role is different from that of other buildings and places that constitute the fabric of the city; Strengthen the personal and civic bonds essential to an authentic community.	Offer distinct, attractive communities with a strong sense of place, as defined by streets, public gatherings, and civic buildings.
Make predictable, fair, cost effective development decisions.	Architecture and landscape design should grow from local climate, topography, history, and building practice.	Practice fair, cost effective development decisions that are consistent with local climate, topography, history, and building practice.
Mix land uses.	Neighborhoods should be compact, pedestrian-friendly, and mixed-use; Promote the creation of mixed-use neighborhoods that support the functions of daily life: employment, recreation, retail, and civic and educational institutions.	Mix land uses that support the function of daily life: employment, recreation, retail, and civic and educational institutions.

Table 2-1. Continued

Smart growth principles	New Urbanist principles	Smart Urbanist principles
Preserve open space, farmland, natural beauty and critical environmental areas.	A range of parks, from tot-lots and village greens to ballfield and community gardens, should be distributed within neighborhoods. Conservation areas and open lands should be used to define and connect different neighborhoods and districts.	Preserve open space, natural beauty, and critical environmental areas to define and connect different neighborhoods and districts.
Provide a variety of transportation choices.	The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile; Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to automobiles.	Provide a variety of transportation choices, including public transit, pedestrian, and bicycle traffic.



Table 2-1. Continued

Smart growth principles	New Urbanist principles	Smart Urbanist principles
Strengthen and direct development towards existing communities.	Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion; The development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries.	Direct development towards existing communities by encouraging infill.
Take advantage of compact building design.	Neighborhoods should be compact, pedestrian-friendly, and mixed-use.	Encourage high-density, compact design.

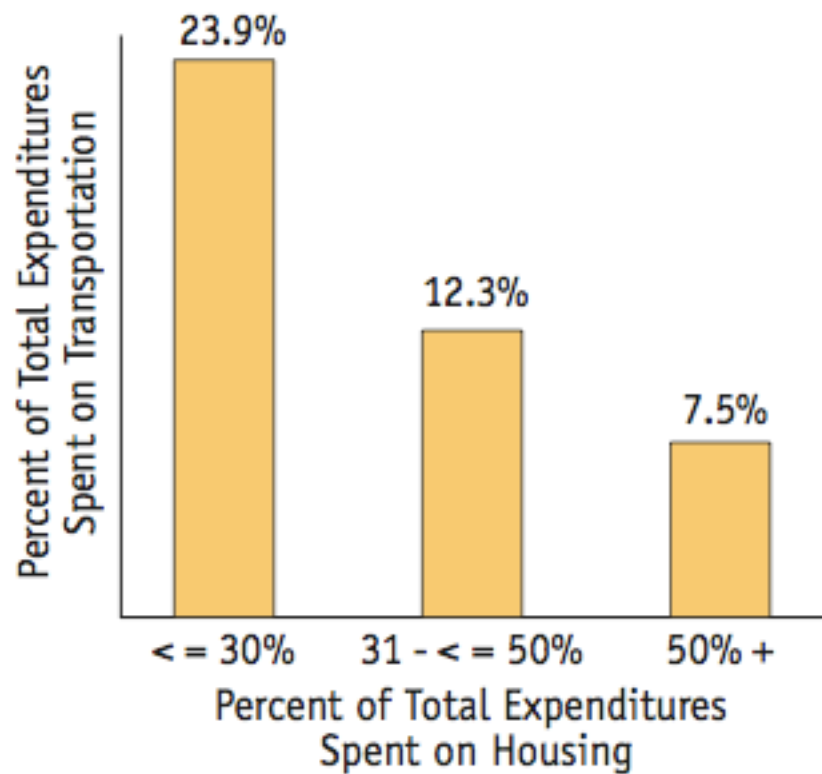


Figure 2-1. Households that Spend More of their Budget on Housing Spend Less on Transportation (Lipman, Barbara J. (2006). *A heavy load: The combined housing and transportation burdens of working families*. Washington, D.C.: Center for Housing Policy, p.1).

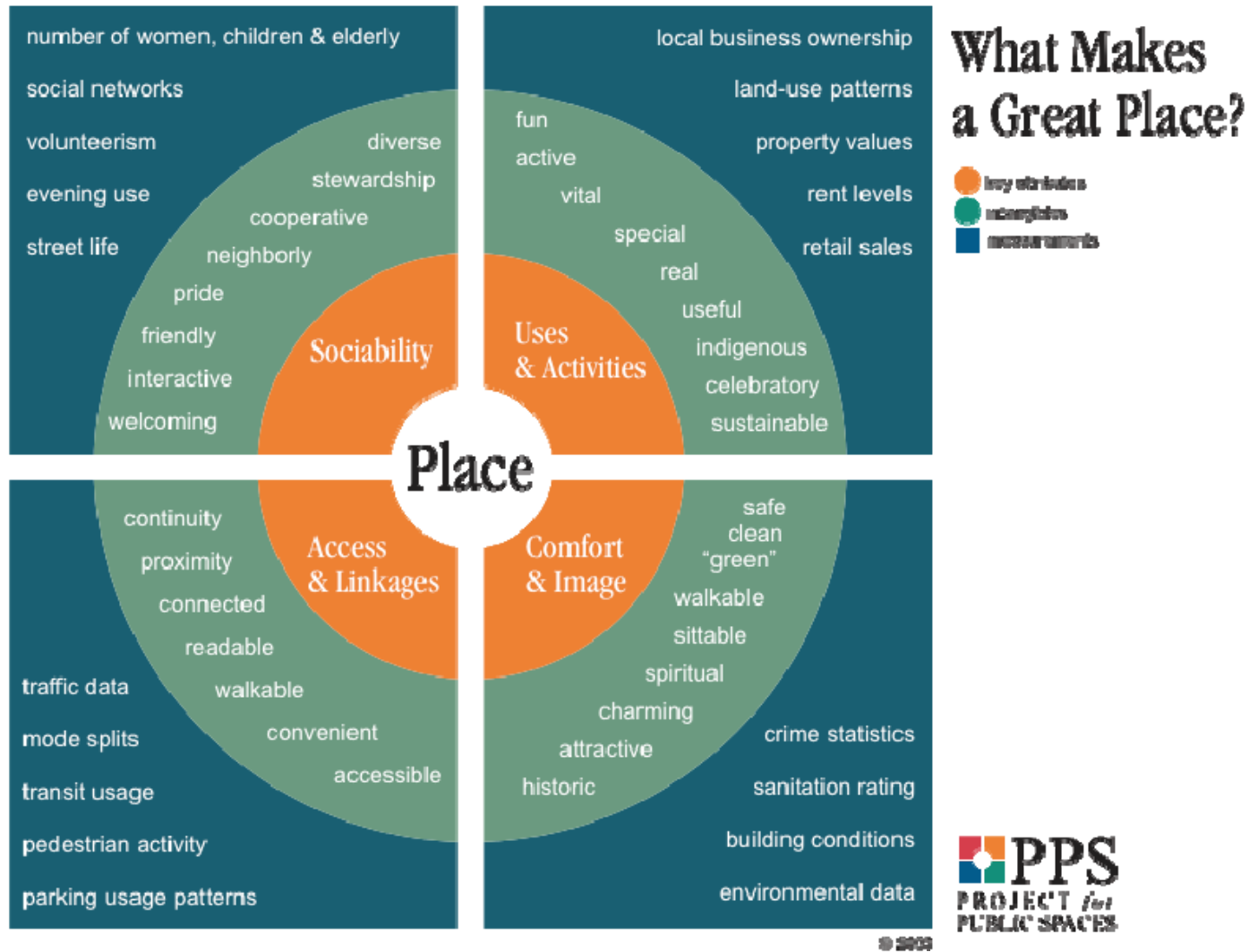


Figure 2-2. What Makes a Great Place? (Project for Public Spaces, 2003).

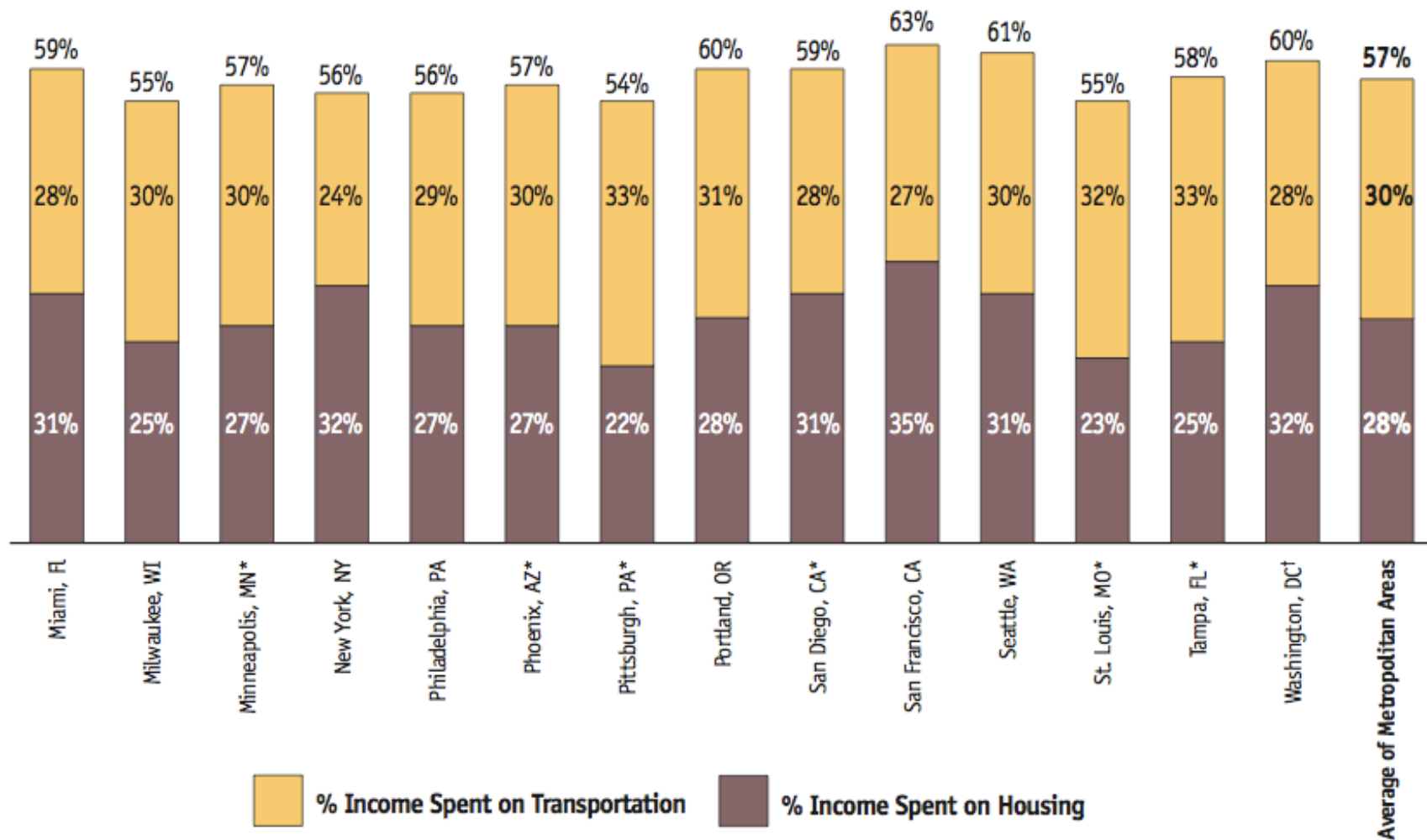


Figure 2-3. Tradeoff Between Housing and Transportation Costs in U.S. Cities (Lipman, Barbara J. (2006). *A heavy load: The combined housing and transportation burdens of working families*. Washington, D.C.: Center for Housing Policy, page 3).

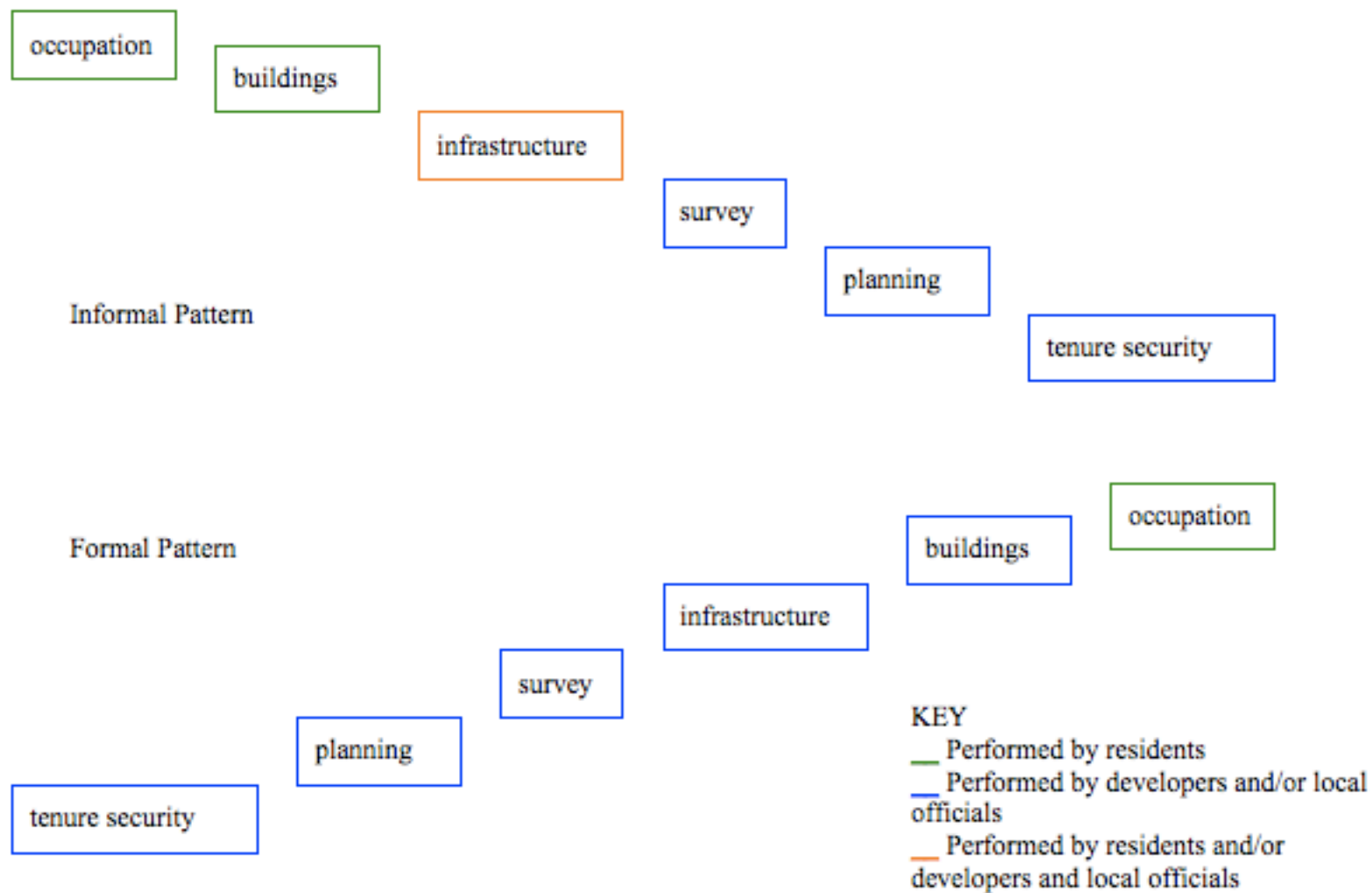


Figure 2-4. Patterns of Development for Formal and Informal Settlements (Based on Macedo, Joseli. (2008). Urban land policy and new land tenure paradigms: Legitimacy vs. legality in Brazilian cities. Land Use Policy 25, pp. 259 – 270, Figure 1, p. 264). Edited by author.

## CHAPTER 3

### METHODOLOGY: A CASE STUDY OF ROCINHA

This chapter describes the methodology used to assess the relationship between Smart Urbanism and suitable affordable housing, both of which were explored and defined in the previous chapter. By examining the design of an informal squatter settlement, created through methods of self-help, one recognizes the practicality of Smart Urbanist principles, as they are employed by many individual residents not because they are familiar with either smart growth or New Urbanism, but simply because these practices foster the type of community in which they desire to live.

#### **Selection of a Case Study**

Assessing the effects of Smart Urbanist principles on the quality and suitability of affordable housing necessitates the use of an exploratory case study (Yin, 1984). More specifically, an international case study of an informal squatter settlement provides the opportunity to explore the universality of Smart Urbanist features. Broadly, a case study is an “empirical inquiry that: 1) investigates a contemporary phenomenon within its real-life context; when 2) the boundaries between phenomenon and context are not clearly evident; and in which 3) multiple sources of evidence are used” (Yin, 1984, p. 23). In this case study, Smart Urbanism is the contemporary phenomenon and the informal squatter settlement represents the real-life context in which it is assessed. Case studies provide researchers with the opportunity to “*explain* the casual links in real-life interventions” that cannot be simplified for survey or experimentation, and to “*describe* the real-life context” of an occurrence (Yin, 1984, p. 25). Case studies also serve to provide an illustrative, descriptive account, and to “*explore* the situation in which the intervention being evaluated has no clear, single set of outcomes” (Yin, 1984, 25). In exploratory case studies, fieldwork and data collection can often be accomplished prior to the

finalization of research questions, although the framework of the research must be firmly established (Yin, 1984). In the case of this research, fieldwork was completed in relation to a separate project, and it was not until later learning about the principles of smart growth and the New Urbanism that the researcher recognized their prevalence in the informal settlements studied in Brazil.

The case study chosen for this analysis is the favela of Rocinha outside Rio de Janeiro, Brazil. Rocinha is far from the stereotypical favela as its long history and large and diverse population grant it access to many services and much infrastructure other favelas lack. Yet despite some of the features characteristic of formal development that have recently been integrated into the community,<sup>1</sup> Rocinha's history is that of a self-help development. For this reason and for the purposes of this study, analyzing Rocinha as an informal settlement is valid, though certainly it is not representative of all favelas.

While using an informal settlement to better understand formal methods of planning in the United States is unconventional, so, too, is the nature of the analysis of Rocinha presented in this study. Unlike most studies examining favelas, this thesis will focus on the attributes of the community, rather than focusing on the tremendous deficiencies inherent in a system that allows one third of urban homes to exist in need of basic services such as potable water, garbage collection, or energy (Oliveira, 2006). Without ignoring the conditions of poverty inherent to most favelas, this document maintains that they offer valuable insight into the qualities that residents desire in a community.

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<sup>1</sup> These features will be discussed at greater length in the next chapter.

### **Implementation of Rocinha Case Study**

The majority of findings in this study are based on extensive field notes prepared during a visit to the site in the winter of 2006. The researcher spent several weeks in Rio de Janeiro during January and February of 2006 as part of an academic program studying the city's urban form, under-development, and social segregation. Students conducted an urban development and community organization case study that examined multiple favelas around the city, including Rocinha.<sup>2</sup>

The goal of the initial case study was to understand the present conditions of favelas and how they, and the lives of their residents, could be improved. As a member of a group of seven students<sup>3</sup> participating in the case study, the researcher of this thesis spent significant time becoming familiar with the community and engaging with residents to better understand their perspective. Although there was not a systematic, organized approach to gathering information for the initial case study, it involved both formal and informal discussions with local residents and leaders. A Rocinha resident and volunteer from Ação Social Padre Anchieta (ASPA), a daycare and community center located within the favela, led the case study researchers through Rocinha, granting access to parts of the community that otherwise did not welcome non-residents and allowing students to pose questions to seventeen residents throughout the community. Questions posed by the research team to both the ASPA guide and residents focused on their perception of the favela (do residents like the community, or is it simply the best option available to them?), their perception of the community's relation to the formal city (in terms of

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<sup>2</sup> The other favelas included in the original case study were Candelária, Santa Marta, and Cidade de Deus, or City of God, the setting for the popular 2004 film by the same name.

<sup>3</sup> When necessary, we were accompanied by a translator.



stigmatization, difficulties getting jobs, etc.), and their thoughts on both improving the community and the public's perception of it.

Although the initial case study did not raise exactly the same questions as those presented here, the observations, notes, and findings certainly inform this study. Exploring the community in person provided the opportunity to better understand the favela and its residents – knowledge critical to the completion of this study. Supplemented by additional readings and lectures assigned during the initial site visit, the fieldwork described informs the first part of the methodology. This part of the methodology involves examining Rocinha in its present condition, paying particular attention to the community's physical and structural patterns.

In addition to fieldwork, both the initial case study and that presented in this study rely on lectures presented by scholars of favelas and informality in Rio de Janeiro. The lecturers whose work most directly influenced this study are Adauto Cardoso, professor at Instituto de Pesquisa e Planejamento Urbano e Regional (IPPUR) at the Federal University of Rio de Janeiro (UFRJ), Rose Compans, who studies urban renewal programs on international, national, and local scales, and Fabricio Oliveira, an author and scholar of informality and urban poverty in Brazil.

The second part of the methodology, based on the fieldwork but completed retrospectively, considers the design elements observed during the initial trip to Rocinha within the specific context of the principles of Smart Urbanism. A construct such as that in Table 3-1 was used to determine which elements of Smart Urbanism have been incorporated into Rocinha through the development of self-help housing, serving as a checklist by which to examine the community. Due to the interrelated nature of the Smart Urbanist principles outlined earlier in this document, several of the policies have been synthesized into one element for the purpose of simplified observation and analysis. Mixed land uses in a community, for instance, afford walkability,

which in turn suggests a certain degree of density. Rather than examining mixed land uses, walkability, and density as three distinct features, the methodology combines them into a single element.

Similarly, because one's sense of place is often associated with one's involvement in and trust of the development process, a single element, "Community collaboration, sense of place, and fairness," will be used to assess Rocinha. Smart Urbanism advocates the principle of community collaboration, which encourages the involvement of residents and other stakeholders to meet the needs and expectations of all those affected by a potential development. This principle is closely related to two other principles of Smart Urbanism: a strong sense of place and fair development decisions consistent with local climate, topography, history, and practice. Ensuring community collaboration throughout the development process fosters a strong sense of place, as stakeholders take an active role in shaping the area's future. Similarly, participation from the community serves to guarantee that all development decisions are fair and agreeable to the community itself and other stakeholders.

The "Transportation choices, existing developments, and open space" element recognizes that locating near existing development provides access to existing transportation networks, while also preserving open space by reducing sprawl. "Housing options," suggesting that a range of housing types, choices, and prices are available, remains a singular element. The elements listed in Table 3-1 are those that will be used to assess Smart Urbanism in Rocinha. Each element in the table includes information about the Smart Urbanist principle that informed it.

The methodology described above outlines a way in which to qualitatively assess the prevalence of Smart Urbanist principles in Rocinha, intended to guide a discussion of the relationship between Smart Urbanist principles and quality of life. For the results of this study to

be meaningful, an understanding of the turbulent and complex history of favelas, specifically Rocinha, is necessary. The next chapter outlines this historical context for the emergence and continued existence of favelas and their configuration. It then applies the methodology described in this chapter to the case study community, by examining the structure and design of favelas in relation to the principles of Smart Urbanism, and begins to shed light on the universality of these principles.

Table 3-1. Elements for Analyzing Smart Urbanism in Rocinha

Element	Description
<p><b>Community collaboration, sense of place, and fair, predictable development decisions.</b></p> <ul style="list-style-type: none"> <li>• Encourage community collaboration by engaging residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the process.</li> <li>• Offer distinct, attractive communities with a strong sense of place, as defined by streets, public gatherings, and civic buildings.</li> <li>• Practice fair, cost effective development decisions that are consistent with local climate, topography, history, and building practice.</li> </ul> <p><b>Walkability, mixed land uses, and density.</b></p> <ul style="list-style-type: none"> <li>• <b>Ensure walkability.</b></li> <li>• Mix land uses that support the function of daily life: employment, recreation, retail, and civic and educational institutions.</li> <li>• Encourage high-density, compact design.</li> </ul>	<p>The community will be assessed in terms of the engagement of residents, neighbors, civic leaders, politicians, bureaucrats, developers, and local institutions throughout the development process, while also considering the community's identity and sense of place. Assessing the fairness of development decisions, while subjective, will require examining Rocinha both as a separate community and as an integral part of Rio de Janeiro, while the predictability of development decisions is contingent on consistency with local climate, topology, and development history.</p> <p>The community will be assessed on the ability of its residents and visitors to walk between destinations with relative ease. Achieving these criteria necessitates the mixed use of land to support the functions of daily life, such as employment, recreation, retail, and civic and educational institutions. Exploring this component will necessitate examining Rocinha both as a separate community and as an integral part of Rio de Janeiro. Density is also related to walkability and mixed land uses. Accordingly, the community will be assessed in terms of high-density, compact design.</p>

Table 3-1. Continued

Element	Description
<p><b>Transportation choices, existing developments, and open space.</b></p> <ul style="list-style-type: none"> <li>• Provide a variety of transportation choices, including public transit, pedestrian, and bicycle traffic.</li> <li>• Direct development towards existing communities by encouraging infill.</li> <li>• Preserve open space, natural beauty, and critical environmental areas to define and connect different neighborhoods and districts.</li> </ul>	<p>The community will be assessed on the variety of transportation choices available to residents, including public transit and pedestrian traffic. This assessment will be completed in terms of Rocinha as an individual community and as an integrated part of the surrounding city, and will therefore also include an assessment of its use of infill development. Additionally, the community will be assessed in terms of the preservation of open space, natural beauty, and critical environmental areas that connect different neighborhoods and that are available to residents for recreation, both within the community itself and within the context of Rio de Janeiro.</p>
<p><b>Housing options.</b></p> <ul style="list-style-type: none"> <li>• Provide a range of housing types, choices, and prices.</li> </ul>	<p>The community will be assessed on the variation of housing types and price of housing available to residents, both within Rocinha and within the context of Rio de Janeiro.</p>

## CHAPTER 4 THE SUITABILITY OF ROCINHA

This chapter will apply the methodology described in the Chapter 4 to provide a case study of Rocinha, a favela located in the hills surrounding Rio de Janeiro, Brazil. First, the chapter will provide a brief history of favelas and Rocinha specifically, including the community's place in the political and cultural landscape of Brazil today. Next, the development patterns evident in Rocinha are explored within the context of the principles of Smart Urbanism. The next chapter will discuss the implications of these findings and the significance of recognizing the implementation of formal planning principles in informal settlements of the Global South.

### **An Introduction to Brazil's Favelas**

Favelas first appeared in Rio de Janeiro towards the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> centuries, as recently emancipated slaves spontaneously began constructing shelters and communities on the undesirable hillsides surrounding the city (Penglase, 2002). Between 1872 and 1890, the population of the city of Rio de Janeiro nearly doubled, as former slaves left the countryside in search of a new start in the city and the Brazilian elite sought new sources of cheap labor (Penglase, 2002). This urban in-migration led to a deficit in affordable housing, part of which was alleviated by the formation of the favela. Low-income households, unable to afford formal housing within the city, remedied the situation by constructing self-built housing on undeveloped land. The land is typically on the undesirable hillsides surrounding the city, affording access to the services and employment opportunities of the city, at the risk of developing on land unsuitable for habitation due to a steep incline, potential environmental degradation, and lack of infrastructure and utilities. An equally pressing concern about the land is that the squatter residents do not own the property, making tenure precarious due to the constant threat of being removed at the request of the legal owner. While issues of tenure remain one of

the most immediate threats to favela residents, this topic is not within the scope of this thesis. Rather than focusing on what favelas lack, such as property titles, this document will focus on what favelas do have.

By 1920, an estimated 100,000 people resided in Rio's favelas, which had quickly become a feature of the city's urban landscape (Penglase, 2002). As such, they gained a reputation of being overcrowded and undesirable. Favela residents accounted for 7% of Rio de Janeiro's total population by 1950, and one decade later, 147 recorded favelas had a total population of 335,063 (Freire-Medeiros, 2008). In the 1960s and 70s, when Brazil's military dictatorship forcibly removed poor residents from the wealthy southern zone (Zona Sul) of the city at the request of their wealthy neighbors, several new favelas emerged (Cardoso, 2006). Some former favela residents were relocated to housing projects far from their jobs and social networks, at which point many simply moved to other favelas (Penglase, 2002). Others were relocated to what they were told would be "temporary" housing, although their families still live there today, nearly 50 years later. Even when the country returned to democracy in the 1980s, the fact that favelas were no longer technically illegal, as they had been under the military dictatorship, increased their prevalence (Cardoso, 2006). This trend continued in the 1990s, as statistics from the 2000 census indicate that the favelas in the city of Rio de Janeiro grew four times faster than other neighborhoods during the decade of the 90s; while the city's overall population increased 6.9%, the number of people living in favelas grew by 23.9% (Penglase, 2002). Much of this growth in favelas can be attributed to the rising cost of transportation and decreasing wages over the last fifteen years, forcing lower-income citizens to move to more central locations, such as those afforded by favelas. Today, local authorities estimate that there are approximately 600 favelas in Rio de Janeiro alone, housing about one million people (Berg-Schlosser & Kersting, 2003).

Historically, the Brazilian government has vacillated between extending support to the residents of favelas<sup>1</sup> and compulsorily removing favelas. The establishment of the Favela-Bairro program in 1994, however, markedly ended this practice as the municipal government began formally recognizing and upgrading favelas.<sup>2</sup> With the support of the Inter-American Development Bank, the program, launched by the Housing Department of the municipal government of Rio de Janeiro, now exists in over 100 favelas around the city and attempts to integrate the communities into the “regular” city by providing the infrastructure and services they often lack (Freire-Medeiros, 2008; Conde & Magalhães, 2004). Favela-Bairro accepts these settlements as “a new form of urban morphology that should not be destroyed but rather changed, improved, converted into a modest but livable neighborhood” (Conde & Magalhães, 2004, p. 3).

Specifically, the approach of Favela-Bairro involves five steps: 1) provide basic urban services, such as lighting, sewers, and phones; 2) put in the necessary equipment, including well designed public areas, schools, sports arenas, and civic and health centers; 3) build a proper access system by providing well paved roads, buses, and, as needed, overhead cable cars to deal with the rough topography of the sites; 4) begin a gradual effort to improve the housing units

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<sup>1</sup> The residents of favelas are commonly referred to as *favelados*. But because the term is often considered derogatory, and disliked by residents, this document will refrain from using it.

<sup>2</sup> Further solidifying the Brazilian government’s commitment to improving the lives of the urban dwellers, the City Statute of 2001 is a landmark document by which Brazil formally and legally granted its citizens a right to the city. The document provides support to all municipalities committed to facing the social and environmental problems that have affected the daily living conditions of the urban population, affirms the central role of local government, and maintains that representative democracy is to be reconciled with a participatory political process. “The City Statute has four main dimensions: 1) a conceptual one, providing elements for the interpretation of the constitutional principles of the social function of urban property and of the city; 2) the regulation of new legal, urbanistic and financial instruments for the construction and financing of a different urban order by the municipalities; 3) the indication of processes for the democratic management of cities; [and] 4) the identification of legal instruments for the comprehensive regularization of informal settlements in private and public urban areas” (Fernandes, 2007, p. 212). While the implications of the City Statute for this study are potentially significant, a complete understanding of the document, its creation, and its goals requires a full understanding of the Brazilian political climate that is beyond the scope of this thesis.



themselves, by rearranging them, bolstering their structures, and providing them with utilities; and 5) encourage the building of a collective identity (Conde & Magalhães, 2004, p. 3). Favela-Bairro, then, recognizes the positive attributes and potential of the favelas, and tries to enhance them through the provision of basic services and utilities. The analysis included in this document takes a similarly positive approach, examining the attributes of the communities rather than the dire deficiencies. While the existence of the Favela-Bairro program attests to the city's commitment to and enhancement of favelas, this thesis's evaluation of these communities seeks to highlight the qualities associated with Smart Urbanism that further testify to the strengths of these communities. Furthermore, the analysis provides insight on the inherent value and adaptability of these Smart Urbanist qualities.

The following sections will more specifically examine the Rocinha favela, paying particular attention to the design of the communities and the prevalence of any Smart Urbanist principles. An exploration of the community in terms of the principles of Smart Urbanism highlights the critical relationship between these principles and suitability.

### **An Introduction to Rocinha**

Occupying more than one half square mile and with population estimates upward of 150,000 (Ação Social Padre Anchieta, personal communication, February 1, 2006),<sup>3</sup> Rocinha is considered the largest informal settlement in South America. The occupation of the hillsides of Zona Sul, the wealthy southern zone of Rio de Janeiro and home to the beaches of Ipanema and Copacabana, began in the early 1940s as a result of the housing expansion occurring in the area

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<sup>3</sup> Accurate population estimates do not exist, as the only official numbers are considered grossly inaccurate. A 2000 census conducted by IBGE indicated that 56,338 residents live in Rocinha, while the power company has established 27,000 units to which they supply electricity (including illegal hook-ups). Ação Social Padre Anchieta (ASPA), a daycare, education, and community center operating within Rocinha, estimates that there are seven people per unit, which, given the estimates of the power company, accounts for almost 190,000 residents (ASPA, personal communication, February 1, 2006).

(Clare, 1999).<sup>4</sup> With the worldwide Depression still underway, a massive rural to urban migration left destitute migrants with few housing choices other than favelas. A combination of a real-estate boom in surrounding wealthy neighborhoods, continued rural to urban migration, and the destruction of other favelas contributed to the increased growth of Rocinha in the 1960s and 1970s. The wealthy neighborhoods surrounding Rocinha continue to guarantee jobs for the largely unskilled labor force, making it an ideal choice for low-income workers with few housing alternatives. Rocinha is now informally comprised of seventeen distinct districts.<sup>5</sup>

Today, while reigning as Latin America's largest "slum," Rocinha is far from a typical favela. With so many residents, it is perhaps not surprising that it has become the most urbanized favela in the city, with several paved roads, banks, a post office, and at one point even a McDonald's franchise, earning it the title of "First World of the Favelas" (Ação Social Padre Anchieta, personal communication, February 1, 2006). Recognizing these amenities, the local government officially recognized Rocinha as a legitimate neighborhood on June 18, 1993, a significant step in the authentication of stigmatized favelas. Nonetheless, residents claim that the acknowledgement has had little effect on the quality of the community, as the public continues to consider the community a slum (Ação Social Padre Anchieta, personal communication, February 1, 2006), carrying with it a stigma that makes it difficult for residents to even find employment.

As part of \$20 billion to be invested by the government in Rocinha, Oscar Niemeyer, an acclaimed Brazilian architect, is designing an enormous arch and pedestrian bridge to provide improved access between Rocinha and a neighboring area, while other planned improvements include a sports complex and pool, two nursery schools, a mini-hospital, and 500 new homes for

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<sup>4</sup> For a map locating Rocinha in Rio de Janeiro, see Figure 4-1

<sup>5</sup> These districts are Bairro Barcelos, Rua 1, Rua 2, Rua 3, Rua 4, Cochopa, Ropa Suja, Vile Verde, Macega, 199, Vila Cruzado, Laborioux, Boiadeiro, Dioneia, Cidade Nova, and Valao e Cesario (Ação Social Padre Anchieta, personal communication, February 1, 2006).

those displaced during the upcoming regularization (“Iconic Brazilian Architect,” 2007).<sup>6</sup> With these proposed improvements, Rocinha could be easily dismissed as an exception to the favelas dotting Rio de Janeiro’s hillside and accepted as an integrated part of the city. For the purposes of this analysis, however, the informal beginnings of Rocinha still qualify it as an informal settlement, developed in an ad hoc manner to meet the needs of residents.

In September of 2006, Rocinha became an official tourist attraction in Rio de Janeiro, as a law proposed by City Counselor Lilian Sá and sanctioned by Mayor César Maia ambiguously identifies Rocinha as an experience unlike any other in Rio that attracts voyeuristic tourists and as a vibrant community that is a welcome addition to the city (Freire-Medeiros, 2008). While tour guides insist that Rocinha has been a sight-seeing attraction since the early 1990s, the law justifies the official recognition in the following terms:

Versatile, multicolored, with a soul of its own. Rocinha is like that (...) [C]onsidered one of the most urbanized favelas in Rio de Janeiro, Rocinha has several peculiar points of attractiveness, not to mention the privileged location: green forest, smooth-surfaced hills, the beach and a strong feeling of community. (...) Someone who knows Rio can attest that Rocinha is a privileged place (...) In this upbeat, positive atmosphere, Rocinha has scored yet another victory and definitively entered the Rio de Janeiro tourist circuit, (...) law no. 4405/06 will increase social integration between the city and the community, because it will help dissipate the myth that Rocinha is an exclusively violent place, and therefore allow bigger investments from the public as well as private sectors. (Câmara Municipal do Rio de Janeiro, as cited in Freire-Medeiros, 2008, p. 4)

Yet despite these various recognitions and upgrades, Rocinha remains a favela in many ways. Though not within the scope of this document to explore the political climate and social stigmas that lead to the formation of favelas and continue to dramatically affect their residents, many of the stereotypes that stigmatized favelas from their beginnings still plague Rocinha, and to ignore them in this thesis would be to provide an incomplete picture of the community. As

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<sup>6</sup> Regularization, supported by Favela-Bairro, is the process through which favelas are upgraded to city standards through the paving of streets and access to services such as water, sewer, and electricity.

popular media attests, favelas are often home to drug trafficking, ruled by drug lords, and the site of violence between rival gangs or drug lords and police. While some literature and popular films romanticize these truths, the reality is that an estimated \$500,000 worth of drugs enter and exit Rocinha every week; the community is historically under the control of a criminal faction known as ADA (Amigos dos Amigos)<sup>7</sup> (Ação Social Padre Anchieta, personal communication, February 1, 2006), and in a single (though exceptionally violent) week in April 2004, at least fifteen people were killed and several more wounded in Rocinha as gunfire broke out between police and drug lords (Chetwynd, 2004).

Despite the presence of some improved infrastructure, tourists, and the most recognizable fast-food chain in the world, Rocinha struggles with issues foreign to formal neighborhoods. Until the recent intervention of the municipal government, residents have been left to their own devices to construct their community to suit their needs as best as possible. While this informality in development is often perceived as a grave problem afflicting favelas, it also makes Rocinha an ideal case study for examining the organic adaptation of Smart Urbanist principles and their impacts on the quality of housing and communities. The implementation of these principles reflects their convenience and suitability – not the influence of popular Western planning movements. The next step of the analysis identifies the prevalence of formal Western policies in Rocinha, focusing on the community's positive attributes rather than the negative traits that frequently stigmatize it.

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<sup>7</sup> Control of Rocinha switches between ADA, CV (Comando Vermelho) and TC (Teraceiro Comando), the three main criminal factions in Rio de Janeiro, in violent struggles for power. While typically maintaining strict control over street crimes, prohibiting muggings, break-ins, and rape, they are historically involved in drug trafficking, arms smuggling, bank robberies, kidnapping, and murder.

## **Smart Urbanism in Rocinha**

The term “dense” is frequently used to describe favelas, alluding to the fact that because squatters do not own the rights to the land on which they build their homes, they do so as compactly as possible. Smart Urbanism advocates density and mixed land uses. To facilitate illustrating the connection between Smart Urbanism and the design of Rocinha, the community will be discussed in terms of the principles of Smart Urbanism identified in the literature and operationalized in the methodology.

### **Community Collaboration, Sense of Place, and Fair, Predictable Development Decisions**

In Rocinha, the process of self-help housing construction offers perhaps the most profound form of community collaboration and ensures the realization of all three Smart Urbanist principles identified in this element. The community – the future residents themselves – makes all development decisions as they personally lay the brick of their homes. The collaboration, however, extends only to the residents of the neighborhood, ignoring the other stakeholders whose participation Smart Urbanism advocates. While a discussion of the difficulty in assuring the engagement of the entire community requires a full understanding of the political and social climate surrounding favelas in Rio de Janeiro, one can speculate that fuller collaboration would improve the lives and living conditions of Rocinha residents. Collaboration and cooperation would hopefully dispel the NIMBYist sentiments that manifest themselves as strong stigmas and prejudices against favela residents.

Involvement of future residents from the beginning also ensures the creation of a strong sense of place among residents. As noted in the law that recognizes Rocinha as an official tourist destination, the community can be characterized by its infectious vibrancy. Despite living in sometimes desperate conditions, without legal access to basic infrastructure, residents of Rocinha have made the land to which they arrived without legal right a pulsating community. Like most

favelas surrounding Rio de Janeiro, Rocinha is recognized for its samba school, which has repeatedly turned out “champions” of the samba, and its pulse on Funk, a specific type of dance music from Rio de Janeiro. These activities contribute to the unique culture of the community. This intensity is felt as residents sit at street cafes to sip cafezinhos, the Brazilian style coffee or eat feijoada, the Brazilian national dish, wave to neighbors as they zoom by on their scooters, or browse one of the shaded tables where local crafts, art, and Funk are sold to both tourists and locals. Whether due to uniting over a common struggle against prejudices or camaraderie in knowing they contributed to creating a community, interviews with residents suggest that a distinct sense of place exists within the limits of Rocinha. This sense of place, however, does not extend to non-residents, perhaps as a result of their lack of participation in the development process. Community members who were involved in the development process feel a strong sense of belonging, while residents of neighboring communities, who were not consulted during the development, largely view Rocinha as an eyesore and a social ill.

Recognizing the inherently different perceptions of Rocinha by residents and outsiders is crucial to assessing the fairness of the development process. The lack of a clear definition of the term “fair” makes it difficult to assess the fairness of the development decisions of Rocinha. Fair to the residents? Fair to the neighboring communities? Fair to the city as a whole? An attempt to define the term forces one to consider how “fair” it is to favela residents that they, approximately 20% of Rio’s total population (Rocha, 1996, p. 22, as cited in Happe, 2002, p. 27), have been left with no better alternative than constructing a house on land they do not even own. Residents of São Conrado, Gávea, and Barra de Tijuca, the wealthy neighborhoods adjacent to Rocinha, may argue that it is unfair that the largely poor favela residents live so near to their affluent communities, just as NIMBYists in the United States oppose affordable housing projects in their

communities. Any analysis of fairness is inherently subjective. Though advocated by Smart Urbanism, a discussion of fairness of development decisions requires an analysis of political, social, and economic factors that are well beyond the scope of this thesis.

In terms of predictable development, a discussion of a favela's adaptation to local topography is perhaps a separate issue entirely. Though the presence of hundreds of thousands of people on hillsides otherwise considered uninhabitable due to their steep slope reflects a feat of construction, landslides do occur in favelas. These disasters suggest that residents ignore soil type and site engineering during the construction process (Clare, 1990), indicating that although the communities adapt to the difficult terrain on which they develop, residents do so at the expense of their safety. While this criticism applies to individual structures, the urban fabric is perfectly adapted to the topography of the steep hillsides, due in large part to the fact that the residents constructing the community do not have access to the bulldozers and dynamite required to change the natural landscape (Salingaros et al., 2006). Indeed, "rapid growth of illegal settlements in and around various cities can be viewed not as the growth of slums but, in a very real sense, as the development of cities which are more appropriate to the local culture, climate and conditions than the plans produced by the governments of these same cities" (Hardoy & Satterthwaite, 1989, p. 8, as cited in Berner, 2001, p. 292).

### **Walkability, Mixed Land Uses, and Density**

Due in large part to Rocinha's location on the steep hillside of Dois Irmãos<sup>8</sup> Mountain, parts of Rocinha are accessible only on foot. The notion of walkability, however, as advocated by smart growth, the New Urbanism, and therefore Smart Urbanism, implies more than the ability to physically walk from one destination to another. Encompassed in this policy is the

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<sup>8</sup> In English this means "Two Brothers."

ability to walk between destinations easily, conveniently, and in an environment that is neither hostile to pedestrians nor designed at an incompatible scale. In formal policy making in the United States, walkability is often ensured by a gridded street system. Most recognizably, Manhattan was developed on a street grid, with avenues running parallel to each other in the North-South direction, intersected by streets running East-West.

Suggesting that Rocinha developed a similarly easy to navigate grid system would be misleading, to say the least. Some roads appear to be little more than secret passageways, hardly wide enough for two people to walk through side by side, and defined on either side by the bricks and mortar of a home. But the three neighborhood associations operating within the community work to avoid dark, dead-end alleys and meandering passages, in an effort to impede the clandestine drug trade and often-associated violence that occur on secluded streets (Williams, 2006).

The scale of the community, built by the local residents, remains welcoming to pedestrians even as vertical expansion<sup>9</sup> leads to ever increasing building heights, creating an environment that encourages walking. The notion of walkability, though, is closely linked to principles of mixed land uses and dense, compact design, both of which Smart Urbanism supports. The distance between the southwest and the northeast corners, the furthest points within Rocinha, is only 1.5 miles, though the neighborhood contains several local stores, providing shopping for goods such as groceries and clothes, multiple banks, and several local eateries, creating an environment conducive to walking amongst various uses. This mixed-use design element, while formally imposed by practitioners in the Global North, arose in Rocinha out of necessity, as the

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<sup>9</sup> As favelas such as Rocinha grow, they are limited by the steep hillsides on which they developed. Instead of expanding horizontally and consuming more land, they expand vertically, by adding additional stories to existing structures.



residents needed ready access to goods and services. The fifty plus daycare centers in Rocinha also arose out of necessity, in lieu of parents leaving their children at home unattended while they went to work, which was common practice before the appearance of so many child care facilities (Ação Social Padre Anchieta, personal communication, February 1, 2006). In Rocinha, the principle of mixed land uses is met both through the diversity of land uses within the favela itself, and through its privileged location in Zona Sul, which affords it access to the many services of Rio de Janeiro. As recently as 2001, Estacia de Sa University opened a campus in Rocinha, providing university level classes at reduced costs, contributing to the mixed land use of the favela, and solidifying its existence as a true neighborhood (Darlington, 2001).

Related to walkability and mixed land uses is the concept of density. Though Smart Urbanism is a proponent of density, the term is frequently used as a criticism against favelas, which are perceived as dense and over-crowded. Dense, compact design, however, ensures efficient land consumption, while also contributing to a community's walkability. In the case of Rocinha and other favelas, while density itself is not objectionable, the living conditions that are sometimes associated with such density are (Salingaros et al., 2006). Assuming there are 150,000 residents in Rocinha (an estimate that may be on the low end of actual conditions), in an area covering 0.6 square miles, Rocinha has a population density of 250,000 people per square mile. Compared to Mumbai, India, frequently considered the densest city in the world, Rocinha's population density remains high, as Mumbai has a population of 97,280 people per square mile (O'Sullivan, 2009).<sup>10</sup> Rio de Janeiro, where Rocinha is located, is also considered one of the densest cities in the world, though with only 25,600 people per square mile (O'Sullivan, 2009).

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<sup>10</sup> Like Rio de Janeiro, Mumbai is home to millions of squatters who are not accounted for in the census. When accounting for these residents, then, the actual population density of Mumbai may be significantly greater than census statistics indicate.

Even Rio's density pales in comparison to Rocinha's.<sup>11</sup> Because "higher-density housing... has traditionally been a major source of shelter for low-income households" (Downs, 2004, p. 5), it is not surprising that Rocinha is as dense as it is.

### **Transportation Choices, Existing Development, and Open Space**

When combined with walkability and mixed-land uses, the notion of compact neighborhood design represents only one component of the larger picture endorsed by Smart Urbanism, which also encourages development near existing communities and the availability of a variety of transportation choices. While public transportation is available within Rocinha itself, as the city bus provides access and an informal taxi system has evolved to take passengers from one side of the favela to the other on the back of a scooter, the community also has access to the transportation network of Rio de Janeiro. Rocinha's privileged location in Zona Sul affords access to the same public transportation enjoyed by the formal residents of the affluent neighborhoods – both bus and metro provide easy access to the rest of the city. Use of these transportation services is a function of Rocinha's location adjacent to formal Rio de Janeiro. If Rocinha had developed in the rural hinterlands of the city, where land was cheap and housing policy historically concentrated poor households, access to transit would be limited, if existent at all.

By locating on Dois Irmãos Mountain, Rocinha residents not only guaranteed themselves access to public transportation, and therefore all the opportunities of the city, but also practiced infill development, an approach the Smart Urbanists promote. By encouraging new development within the existing city, this principle seeks to avoid sprawl, cut down on transportation costs, and, most relevantly, ensure access to the utilities and infrastructure that already exists. Though

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<sup>11</sup> For a graphical representation of the densest cities in the world, see Figure 4-2. If Rocinha were included, its density would be shown as over two times greater than Mumbai's.

in recent years electric companies have gone into several favelas to provide legal access to electricity, residents have historically tapped directly and illegally into the electrical source, creating a precarious array of wires tangled above favela streets. Again, had Rocinha developed in the remote land outside of the city, residents would lack access to vital services. Even while one-third of urban homes in Rio need water, garbage collection, or energy (Oliveira, 2006), nearly 100% of homes developed by the poor outside the periphery lack these services.

Directing future development towards existing development also helps to guarantee the preservation of open space, as Smart Urbanism advocates. Yet due to the compact, precarious conditions in which Rocinha was developed, the community offers no open space within its limits, and it is even argued that the expansion of favelas contributes to environmental degradation. The trees that once occupied the landscape prior to development were cut down and largely used as construction materials. A major newspaper published and circulated in Rio de Janeiro, *O Globo*, has run a decades-long campaign against the largely unpopular favelas, calling for their removal from the “Marvelous City.”<sup>12</sup> The original basis of the campaign focused on the perceived nature of favela residents as parasitic and infectious, whose social ills were having negative effects on the city. The most recent evolution of the campaign focuses on the favelas as a form of environmental degradation, as the newspaper claims that they deprive the hillsides of their beautiful green cover (Compans, 2006).<sup>13</sup> Without arguing the extreme environmental position assumed by *O Globo*, the lack of parks and public places within the limits of Rocinha where residents can enjoy the natural landscape and children can play is evident. Nonetheless, Rocinha’s location on Dois Irmãos offers some of the most spectacular and breathtaking views of

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<sup>12</sup> A popular nickname for Rio de Janeiro.

<sup>13</sup> The evolution of the popular argument against favelas from a social standpoint to an environmental one is an interesting and complex issue. The argument no longer recognizes the many social problems favela residents face, and therefore fails to recognize the human face of the communities the campaign seeks to abolish.

Rio de Janeiro and Corcovado. Further, Rocinha is conveniently located near the renowned beaches of Ipanema and Copacabana, considered among the most luxurious beaches in the world, and granting coveted access for favela residents.<sup>14</sup>

Much as favelas, including Rocinha, have experienced significant growth, so has the formal city of Rio de Janeiro. As development occurs near the coveted locations of Ipanema and Copacabana beaches, posh residential and hotel high rises appear closer to Rocinha's limits. Today, expensive hotel and apartment developments exist across the street from the prejudiced and stigmatized informal settlement of Rocinha. The fact that the formal development occurred decades after residents began developing Rocinha suggests that the attributes of the city outweigh the perceived negative externalities of living so close to a favela. These same attributes attracted Rocinha residents to the city and continue to attract residents today.

### **Housing Options**

Similarly, Rocinha conforms to Smart Urbanist principles such as providing a range of housing types, choices, and prices by providing homes for a diverse population. Due to its beginnings and evolution as an informal squatter settlement, the issue of affordability, advocated by the Smart Urbanist principle supporting a range of housing prices, is not entirely relevant within the community itself, as the self-help development process dramatically minimizes costs. Land in Rocinha, and the structures built on it, are not sold through formal market mechanisms that govern home sales in other communities. Squatters take over vacant land, leaving only the cost associated with construction. As favelas, including Rocinha, expand, their outward growth is limited by the precarious landscape of Rio's steep hills, necessitating vertical, rather than horizontal, expansion. The result is the addition of multiple stories on top of existing homes. The

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<sup>14</sup> Like all beaches in Brazil, the famous beaches of Zona Sul are open and free to the public.

initial squatter often rents out these additional units, as a form of supplemental income. Even these transactions, however, occur informally, making it difficult to assess the total value of these rental agreements.

When considered within the context of the greater city, particularly Zona Sul, Rocinha contributes to the diversity of available housing. One remembers that favelas first emerged, and continue to emerge, as a result of a lack of housing opportunities for the urban poor, suggesting that life in the city was reserved for the affluent, and therefore indicating a lack of housing diversity. The city even stopped building low-income housing projects as more favelas appeared, viewing favelas as a substitute for government assisted low-income and/or public housing (Compans, 2006). This action suggests that favelas do indeed contribute to the diversity of Rio's housing stock. The continued growth of favelas implies that they still offer the best, if not only option for the urban poor, proving that without favelas, Rio de Janeiro fails to offer the range of housing types, choices, and prices advocated by Smart Urbanism.

While the stigma surrounding favelas, including Rocinha, is that they house only the poorest citizens, the community actually supplies homes for a diverse population. Through the process of self-help housing, residents construct their homes themselves, meeting their needs and expectations whether they are some of the poorest neighborhood residents or among the most affluent. The seventeen distinct districts of Rocinha each have their own unique features, just as different neighborhoods within a single city are noticeably different. At the top of Dois Irmãos Mountain, one can find the heavily guarded homes and territory of the drug lords who maintain significant political and social control over the community. Meanwhile the poorer favela residents reside in the lower districts of the *morro*, those closer to the *asfalto*.<sup>15</sup> A range of

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<sup>15</sup> Meaning "hillside," *morro* is a vernacular reference to the favelas, in contrast to *asfalto*, meaning "asphalt" and a reference to the formal neighborhoods of the city.

housing options, then, is offered both within Rocinha. Further, Rocinha and other communities like it create a greater diversity of housing choice in Rio overall. Thus Rocinha enhances the Smart Urbanist characteristics of the overall city.

### **Summary of Findings**

While certainly Rocinha is not without its grave problems, the favela's informal development was largely consistent with the principles of Smart Urbanism. Rocinha can be characterized as a dense, walkable community of mixed land uses, developed through community collaboration, and with access to a range of housing types and transportation choices, all of which are characteristics advocated by smart growth, the New Urbanism, and therefore Smart Urbanism. The next chapter discusses the implications of these findings by linking Smart Urbanism to suitable housing and examining the relationship between formal and informal development patterns.

Table 4-1. Smart Urbanism in Rocinha

Element	Evident in Rocinha	Lacking in Rocinha
<b>Community collaboration, sense of place, and fair, predictable development decisions.</b>	Self-help housing; involvement of residents. Sense of place; Samba school, Funk music.  Adaptation to topography.	No involvement of other stakeholders. Lack of government support combined with extreme poverty, which results in favela development. Lack of enforcement of codes resulting in unsafe living conditions.
<b>Walkability, mixed land uses, and density.</b>	Walkable. Mixed land uses, both within Rocinha and in the context of Rio as a whole; commercial, residential, educational. Dense development.	
<b>Transportation choices, existing developments, and open space.</b>	Informal taxi system within Rocinha. Access to Rio's transit. Development towards existing city of Rio. Access to public beaches and open spaces in Rio.	No open space within Rocinha. Possible environmental degradation.
<b>Housing options.</b>	Variety of housing options within Rocinha. Increases housing options available within Rio.	



Figure 4-1. Map of Brazil, Rio de Janeiro, and Rocinha. (Lonely Planet. (2009). *Map of Brazil*. Retrieved from <http://www.lonelyplanet.com/maps/south-america/brazil/>)



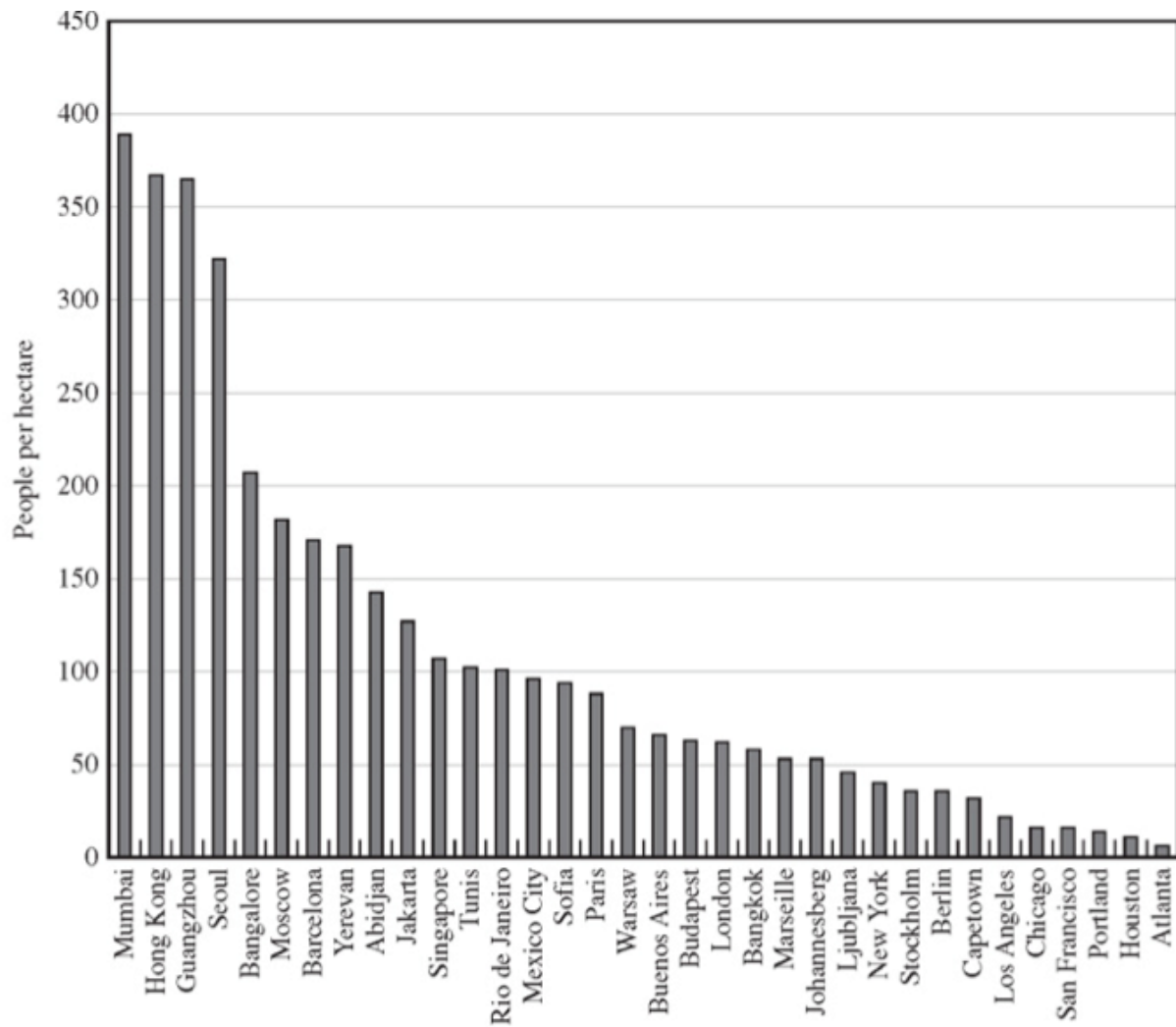


Figure 4-2. Population Density in World Cities. (O'Sullivan, Arthur. (2009). *Urban economics* (7<sup>th</sup> ed.). New York: McGraw Hill. Figure 7-1, page 165.)

## CHAPTER 5

### THE SUITABILITY OF SMART URBANISM AND INFORMALITY

This chapter, an analysis of the findings presented in the previous chapter, explores the implications of recognizing formal Western planning principles in an informal settlement in Brazil. Remembering the case study of Rocinha and the literature reviewed in Chapter Two, it will further analyze the relationship between Smart Urbanism and suitable housing, while also investigating the significance of formal planning policies and informal, organic implementation realizing the same outcomes.

#### **Informality and Suitability**

Success in Rocinha is measured “in human terms, i.e. the physical and emotional wellbeing of the resident” (Salingaros et al., 2006), and this study adopts the same scale to assess the adaptation of Smart Urbanism principles to informal settlements. Residents developed Rocinha out of necessity; their choices concerning the design of the community reflect convenience and practicality.

The first settlers strategically chose land near the city center, providing access to employment opportunities, transportation, and goods and services. Despite political and popular efforts to keep favelas separate from the rest of the city,<sup>1</sup> Rocinha exists as a bustling, vibrant neighborhood. It remains a strong community after facing over 100 years of prejudice and stigmatization. The suitability of Rocinha has contributed to its success in spite of its informality. Informality and suitability are not necessarily at odds.

Yet what specific elements have contributed to Rocinha’s success? Salingaros et al. (2006) argue that the organic evolution and self-organization of favelas afford a number of

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<sup>1</sup> When the drug war of April 2004 broke out in Rocinha, construction of a wall around the favela was proposed to isolate the problem (Compans, 2006).

advantageous and desirable features, many of which have been identified by this study as Smart Urbanism. Rocinha residents, unaware of smart growth, the New Urbanism, or Smart Urbanism, simply implement these principles because they make a community desirable, not because they are particularly concerned with environmental protection or design, as were the founders of these movements. The result of this informal development is a living geometry that is “loose, complex, and highly interconnective; without imposed constraints, human beings will build according to this natural geometry” (Alexander, 2005; Salingaros, 2006, as cited in Salingaros et al., 2006). Unconcerned with formal design virtues, favela residents seek instead to create a place they can call their own (Salingaros, 2006). Smart Urbanist principles, then, are implemented in Rocinha because they contribute to quality of life within the community.

The PPS model provided in Figure 2-2 offers a useful framework for assessing the intangible qualities of Rocinha that contribute to its overall suitability. Rocinha meets the key attribute of “Access & Linkages” suggested by the PPS model through its location within the existing development of Rio de Janeiro. As such, the community has access to the city and is accessible by the city, is conveniently located to provide this access, connected to the existing urban fabric, and in proximity to the services and opportunities of the city, including employment and transportation. Additionally, Rocinha boasts several “Uses & Activities” associated with a great place and that contribute to suitability, as measured by locally owned businesses and mixed land use patterns that accommodate an active and diverse community. Although the attributes of “Comfort & Image” and “Sociability” are considerably more difficult to define, particularly in the context of a favela stigmatized by the formal city, a distinct social network defines Rocinha, as does a keen sense of community involvement and volunteerism, as

residents eagerly lend a helping hand to each other, as evidenced by the fifty-plus community daycares.

This discussion, however, is not to suggest that Rocinha is a “great” place. As this document has frequently suggested, the living conditions in Rocinha are largely destitute, and violence and illegal drug trafficking often overwhelm the community. Yet despite these obstacles, the grassroots development process offers a distinctly suitable living environment, as defined by Smart Urbanism and reinforced through the PPS model. The fluidity and flexibility of self-help housing development grants residents the ability to choose the qualities they desire in their community.

In contrast to the self-organization of favelas, the traditional production of housing is a rigid system: “a system of rules, habits, laws, and accepted procedures” (Alexander, 1985, p. 26). The principles of Smart Urbanism are inherently a part of the same system as the smart growth and New Urbanist principles from which it is derived, a formal method by which to maintain a level of control over development. The self-help development process of Rocinha and all informal settlements, however, is an exception to the system. Smart Urbanist principles are prevalent within the community, suggesting that workable, livable communities are possible without the rigid constraints and requirements of the formal development process.

### **Formality and Informality: Do They Necessarily Conflict?**

Despite the similarities between the principles of Smart Urbanism and development patterns in Rocinha, equally significant are the differences. Primarily, Smart Urbanism reflects a formal, rigid approach encouraged in cities of the United States and other Western nations, while Rocinha represents a distinctly informal, organic approach.

Rocinha does not offer the only example of the dichotomy between formality and informality. The HUD administered HOPE VI projects discussed in Chapter Two provide

another example. The program outwardly encourages public participation, promoting a more organic approach that engages citizens in the design and development of their community. Yet, the federal program implemented by local housing agencies takes a formal approach, which assumes that those at the top know the conditions on the ground (Hill & Hupe, 2002). With HOPE VI, some scholars argue that an inability to “adequately consider the needs of the residents” (FitzPatrick, 2000) is ultimately responsible for the program’s failure. In fact, the major criticism of the program concerns this critical disconnect between policy formulators and on-the-ground reality.

As practiced in the U.S., smart growth and the New Urbanism are also formal approaches. Developers, local officials, and planners embrace the principles advocated by these movements, then model local regulations accordingly. The regulations govern the future development patterns of an area, effectively determining what can and cannot be built. Although New Urbanists advocate greater flexibility in the development process, arguing against Euclidean zoning<sup>2</sup> codes that strictly govern setback requirements, lot sizes, and other development practices, the movement remains formal and rigid, with little if any of the organic interaction of residents characteristic of Rocinha.

While there is nothing inherently wrong with the formal approach, Pressman and Wildavsky (1984) insist that policies that look good on paper do not always translate well when implemented, pointing to the vital communication and essential links necessary in effective implementation and suggesting that a number of small deficits combine to create a large shortfall when formal policy is ultimately implemented (Hill & Hupe, 2002). The greater the number of

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<sup>2</sup> As defined by the 1927 U.S. Supreme Court case *Village of Euclid, Ohio v. Ambler Realty, Co.*, Euclidian zoning separates land uses by geographic districts based on activity. Typical types of land use designations include single-family residential, multi-family residential, commercial, and industrial.

links, the greater the difficulty in achieving what Van Meter and Von Horn (1975) refer to as goal consensus (Hill & Hupe, 2002), and the greater difficulty in successfully implementing policy.

This type of formal approach towards policy implementation initially failed Rocinha residents, as government policies failed to provide suitable housing for low-income residents. While a lack of government programs to support housing opportunities for the poorest residents led to the formation of favelas, later programs that attempted to provide housing failed to address residents' needs, reflecting a formal approach in which the government authority had little comprehension of the real issues to be addressed.

If we ask ourselves why the modern housing [such as that provided by the Brazilian government to the urban poor]... is so often "just wrong," instead of just right, we shall quickly see that the failures of adaptation are caused, most often, by the fact that the decisions which control the form of houses are almost all made at a level too remote from the immediate people and sites, to allow reasonable and careful adaptation to specific details of everyday life. Most of the processes which govern the shape of the houses and their parts are controlled at levels of government, or levels of industry, or levels of business, who are remote from the minute particulars of the house and family itself – so that, inevitably, they create alien and abstract forms, bearing only the most general relationship to the real needs, real demands, real daily minute-to-minute details which the members of the household experience. (Alexander, 1985, p. 36)

Here, Alexander speaks specifically of the failures and inadequacies of formal approaches to the provision of housing that are insensitive to the lives of potential residents. Urban place making, then, relies on urban form as much as it relies on the social process of development (Salingaros et al., 2006). As a result of housing programs relocating poor urban households outside of Rio without access to the services and opportunities they required, favelas increased in number and expanded as the urban poor grew increasingly unsatisfied with the housing provided to them by the government. Given Salingaros et al.'s (2006) claim that a rigid, formal approach simplifies the planning process, making it impossible to design and build a complex urban fabric (p. 7), not surprisingly these attempts at government housing failed.

The failure of rigid implementation resulted in residents taking matters into their own hands, assuming a grassroots approach by which they formulated and implemented policy themselves in the form of favelas. By invading land not owned by them and constructing their own homes, favela residents implemented what is perhaps the most extreme opposite of the formal approach, inherently including an organic, self-healing mechanism absent from most formal housing schemes (Salingaros et al., 2006).

Yet not until Lipsky's (1980) influential book was implementation examined from anything other than a rigidly formal perspective (Williamson, 2007). He introduced the term "street-level bureaucrat" to describe the public agency employee who actually performs the actions necessary to implement laws (Hill & Hupe, 2002). Because no laws dictate the formation of favelas, referring to favela residents as street level bureaucrats would be misleading. While writing about the production of housing, the language used by Christopher Alexander (1985) also characterizes this tension between formal and informal methods:

In short, the production systems which we have at present define a pattern of control which makes it almost impossible for things to be done carefully or appropriately, because, *almost without exception*, decisions are in the wrong hands, decisions are being made at levels far removed from the immediate concrete places where they have impact... and, all in all, there is a colossal mismatch between the organization of the decision and control, and the needs for appropriateness and good adaptation which the biological reality of the housing system actually requires. (p. 40)

Yet the grassroots solutions devised by the impoverished Cariocas<sup>3</sup> and the formal planning principles advocated by smart growth and the New Urbanism movements ultimately realize similar characteristics through opposite courses of implementation, as indicated by the Rocinha case study (see Table 4-1). Generally speaking, the process of development for formal

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<sup>3</sup> A Portuguese adjective used to describe residents of Rio de Janeiro.

and informal settlements also assume opposite courses but work towards a similar goal: suitable housing. Figure 2-4 highlights the diverging patterns of these approaches.

While the informal and formal methods to land development highlight the potential inadequacies of the formal land development process, the differing approaches of Smart Urbanists and favela residents emphasize the validity of either process. Smart growth and the New Urbanism are widely accepted movements in the United States, though some criticisms do surround the actual communities developed under their principles.<sup>4</sup> The acceptance of the theories behind the movement but the criticisms about the outcomes suggests a significant disconnect between policy formation and implementation – a typical issue associated with formal, rigid approaches (Hill & Hupe, 2002; Pressman & Wildavsky, 1984). Yet questions surrounding the validity of Smart Urbanist principles are addressed by the Rocinha case study, which illustrates the practicality and convenience of these principles. Here residents choose to implement them because they contribute to quality of life in their community.

Similarly, though perhaps more controversially, the prevalence of Smart Urbanist principles in Rocinha legitimizes the existence of favelas, by suggesting that they are valuable communities worthy of recognition. As Salingaros et al. (2006) remind us, “favelas built out of sticks and cardboard are unacceptable models to follow. Nevertheless, we wish to preserve as much as possible the DESIGN FREEDOM inherent” in the development of these communities (p. 26), alluding to the desirable features of favelas that mimic, though unintentionally, the formal principles of Smart Urbanism. In recognizing these Smart Urbanist principles in Rocinha, the perception of the community consisting of a chaotic living arrangement haphazardly

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<sup>4</sup> Criticisms of New Urbanist projects, for example, question the location of many of these developments on greenfield sites and the movement’s commitment to integrating housing for the lowest income residents into their developments.



established by residents, becomes one of a viable community comprised of several complex elements consciously assembled in a desirable fashion. Perhaps more importantly, the self-help approach empowers the citizens as their own agent, giving them the ability to shape their own destiny (Sen, 1999).

The challenge, then, is to strike a balance between the formal process of development and the informal, organic process of community building. The formal approach typically minimizes the role of the residents, while the organic approach, due to its nature, tends to privilege participation. A more appropriate middle ground, however, would enable livable, suitable communities to be built using both the expertise of developers and local officials and the keen understanding of residents' needs as advocated by the residents themselves.

Favela-Bairro is an attempt to reconcile the informal and the formal processes. The reactionary nature of the program, in its attempt to respond to the inadequacies of informal development with formal development practices, highlights the need for a *proactive* approach to community building that incorporates both processes. Ideally, the planner acts to reconcile the rigid and the organic, working with residents to better understand their needs and providing the guidelines for developers to meet these needs and provide a suitable community. The dichotomy between the formal and the informal, the rigid and the organic, needs to be settled to provide suitable communities for households of all means and income levels.

### **Beyond Rocinha: Suitability in Formal Developments**

The analysis of Smart Urbanist principles in Rocinha accommodated reflection on the implicit qualities of suitability inherent in these principles. Attempts to bridge the New Urbanism and affordable housing in the U.S. have occurred, most notably through the HOPE VI program. But the generally perceived failure of HOPE VI and the proven high-costs associated with formal New Urbanist developments in the United States suggest a failure in actual implementation,

despite the noblest intentions (Talen, 2008). This study, however, indicates that housing affordability, suitability, and Smart Urbanism are not mutually exclusive. It therefore challenges the CNU to produce housing that is both suitable and affordable.

Although this thesis linked smart growth and New Urbanist policies to suitability of housing and community, useful further research should attempt to quantify the relationship to determine the degree to which housing costs fluctuate with suitability. Much as the Location Efficient Mortgage accomplishes this link between transportation and housing, similarly measurable tools should be developed for the remaining policies advocated by smart growth and the New Urbanism. Providing quantitative measures of otherwise qualitative features creates a tangible link between suitability and affordability, suggesting fiscal incentives that could be integrated into the formal development process to create suitable communities.

In the case of Rocinha, the discussion of mortgages, as it relates to the LEM, is irrelevant, as residents squat on land they do not own. What is both relevant and familiar, though, is the innovation behind the LEM, which emerged as an innovative approach to link housing and transportation costs as they are reflected in the U.S. housing market in the drive until you quality phenomenon. Rocinha emerged as an innovative solution to the lack of housing options in Rio de Janeiro. By building in Zona Sul, residents of Rocinha have decreased transportation costs and housing costs. By quantifying the relationship between housing affordability and housing suitability, the trade-off becomes increasingly tangible and provides additional incentives for developers to incorporate appropriate principles into their community plans, thereby improving the quality of housing available to low-income households.

### **Beyond Rocinha: Opportunities for Further Research**

The results of this study indicate that smart growth and New Urbanist principles contribute to a livable, suitable community, and that the formal and informal development

processes can realize similar desirable features. What the study also indicates, however, is the legitimacy of favelas, serving as a potential springboard for a renewed argument for their formal recognition and improvement. The analysis of Rocinha suggests that it is a Smart Urbanist community, and therefore a community of value by standards of scholars and practitioners in the United States. Certain elements of the analysis necessitated examining Rocinha not as an isolated community, but as a part of Rio de Janeiro. Recognizing that Rocinha's Smart Urbanist features – features that are appreciated and advocated in the Global North – are enhanced when considered an integrated part of the city suggests that the formal integration of Rocinha into Rio de Janeiro is indeed appropriate. More significantly, though, the analysis indicates that the Smart Urbanism of Rio de Janeiro is similarly enhanced when Rocinha is considered an integrated neighborhood of the city. The variety of housing options, the distinct sense of place, and the city's density are each significantly improved when Rocinha is considered part of the city. The city of Rio de Janeiro, then, and its formal residents, benefit from the presence of Rocinha, which contributes to the suitability of their community.

While Rocinha, as somewhat of an anomaly among favelas, has already received formal recognition from the city, the purpose of this study is not to argue for its integration into Rio de Janeiro. But in recognizing and arguing the value of self-help developments and informal settlements, this study does suggest that other informal settlements should be evaluated using the same concepts of Smart Urbanism outlined in Table 3-1, providing further evidence of the suitability of these communities based on Smart Urbanist principles. This would require an examination of both additional favelas in Rio de Janeiro and Brazil and other squatter settlements around the world.

In addition to using the construct of Table 3-1 to analyze the prevalence of informally implemented Smart Urbanist principles, the examination of these informal settlements would benefit from using a more systematic approach to interviewing and conversing with residents. Much as the informal, self-help method itself meaningfully engages citizens, so, too, should future studies examine the intersection of formal and informal development processes. Engaging more significantly with community residents also offers the unique perspective of one who lives in the informal settlement, providing insight into their values and needs. This study, for instance, uses the values of middle class Americans to define Smart Urbanism and suitability, while the residents of informal settlements may have a different value system, and therefore define suitability in different terms. The only way to fully grasp these differences, however, is through discussions with community residents, which this author recommends for future studies.

Remembering that favelas have different development patterns – some emerging from “temporary” government housing for the urban poor and some informally developing on vacant hillsides – potential future research would involve comparative case studies of these different favelas in an effort to determine whether those initially developed by the government or informally developed by squatters have more desirable Smart Urbanist features. The Cidade de Deus favela, for example, is one such favela that began as temporary housing for poor residents forcibly removed from Zona Sul over forty years ago. A superficial examination of the community, from a visit to the site in 2006, suggests that it incorporates far fewer Smart Urbanist features than Rocinha. Cidade de Deus exists at quite a distance from downtown Rio, meaning that its residents have only limited access to the opportunities in the city. Perhaps as a result of the abundance of available land, Cidade de Deus is also far less dense than Rocinha, consisting of primarily one-story buildings in a sprawling community. The findings of a formal comparison

might reinforce the notion that grassroots efforts create more suitable communities than formal policies designed by officials otherwise unconnected to the community for which they plan.

Additional case study research of both international and domestic informal settlements provides an opportunity to reexamine and reinforce the intersection of formal and informal development principles, though the circumstances surrounding any given community will of course be drastically different. In the United States, for example, the recent financial and mortgage crisis has resulted in numerous foreclosures, leaving many families without a home. In response, tent cities have begun to appear in major metropolises across the country – informal communities of tents housing people until they can find a more permanent solution. Yet while a lack of access to an abundance of suitable housing recently led to the formation of informal settlements in the U.S., this phenomenon is significantly different than the lack of housing stock that historically led to the formation of favelas. Nonetheless, an intriguing comparison could be made, as the formal and informal dichotomy remains prevalent. Still, the colonias – informal settlements along the border with Mexico – certainly offer an opportunity to study this phenomenon in the United States.

There is room to take the current study into a new direction, by focusing on the formal planning policies of Brazilian municipalities. The political and social history of favelas is a complex one that this thesis does not claim to represent in its entirety, though a more thorough understanding of it would elucidate the reasoning behind the evolution of favelas as they exist today. Although Brazilian planning regulations do not currently apply to favelas, another pertinent analysis could examine the ways in which these regulations do or do not encompass the policies of smart growth and the New Urbanism advocated in the United States and organically present Rocinha. Assuming that Smart Urbanism guides the way to the best kind of development,

are the development patterns of favelas actually more environmentally, socially, and economically responsible than the patterns promoted by the formal policies of Rio de Janeiro and Brazil as a whole? Further research into formal planning policies in Brazil can help answer this question. Future studies can extensively explore the Favela-Bairro program and the Cities Statute, seeking to understand the ways in which these regularization policies adhere to the principles of Smart Urbanism and uncovering how, if at all, informal settlements have influenced formal planning processes.

Domestically, the self-help housing program may provide empirical evidence of the ways in which the integration of formal and informal practices is already underway. Administered by the U.S. Department of Agriculture, the Section 502 Mutual Self-Help Housing Loan Program makes loans available for the construction of homes for very low and low-income households who are unable to afford suitable housing through conventional market methods (Rural Housing Program, 2003). A comparative case study of one of these communities with an informal squatter settlement could potentially shed light on the ability of formal and informal processes to work together to create suitable living environments for the poor.

Although the issue of how a favela like Rocinha can be formally integrated into the urban fabric of the city, to the betterment of Rocinha residents and residents of Rio de Janeiro overall, is not explicitly addressed in this thesis, this question certainly deserves to be asked. Having established the physical and developmental validity of Rocinha, what is the next step in formally recognizing informal settlements as a cohesive part of the greater city? While this thesis emphasizes the physical planning of Rocinha, the social implications and issues of informal communities must be addressed, understood, and resolved before integration can successfully occur and informal and formal practices can be reconciled.

## APPENDIX

### PRINCIPLES OF THE NEW URBANISM

#### *The region: Metropolis, city, and town*

1. Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and rivers basis. The metropolis is made of multiples centers that are cities, towns, and villages, each with its own identifiable center and edges.
2. The metropolitan region is a fundamental economic unit of the contemporary world. Governmental cooperation, public policy, physical planning, and economic strategies must reflect this new reality.
3. The metropolis has a necessary and fragile relationship to its agrarian hinterland and natural landscapes. The relationship is environmental, economic, and cultural. Farmland and nature are as important to the metropolis as the garden is to the house.
4. Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion.
5. Where appropriate, new development contiguous to urban boundaries should be organized as neighborhoods and districts, and be integrated with the existing urban pattern. Noncontiguous development should be organized as towns and villages with their own urban edges, and planned for a jobs/housing balance, not as bedroom suburbs.
6. The development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries.
7. Cities and towns should bring into proximity a broad spectrum of public and private uses to support a regional economy that benefits people of all incomes. Affordable housing should be distributed throughout the region to match job opportunities and to avoid concentration of poverty.
8. The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile.
9. Revenues and resources can be shared more cooperatively among the municipalities and centers within regions to avoid destructive competition for tax base and to promote rational coordination of transportation, recreation, public services, housing, and community institutions.

#### *The neighborhoods, the district, and the corridor*

10. The neighborhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form identifiable areas that encourage citizens to take responsibility for their maintenance and evolution.
11. Neighborhoods should be compact, pedestrian-friendly, and mixed-use. Districts generally emphasize a special single use, and should follow the principles of

- neighborhood design when possible. Corridors are regional connectors of neighborhoods and districts; they range from boulevards and rail lines to rivers and parkways.
12. Many activities of daily life should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.
  13. Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interactions, strengthening the personal and civic bonds essential to an authentic community.
  14. Transit corridors, when properly planned and coordinated, can help organize metropolitan structure and revitalize urban centers. In contrast, highway corridors should not displace investment from existing structures.
  15. Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.
  16. Concentration of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.
  17. The economic health and harmonious evolution of neighborhoods, districts, and corridors can be improved through graphic urban design codes that serve as predictable guides for change.
  18. A range of parks, from tot-lots and village greens to ballfields and community gardens, should be distributed within neighborhoods. Conservation areas and open lands should be used to define and connect different neighborhoods and districts.

### ***The block, the street, and the building***

19. A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use.
20. Individual architectural projects should be seamlessly linked to their surroundings. This issue transcends style.
21. The revitalization of urban places depends on safety and security. The design of streets and buildings should reinforce safe environments, but not at the expense of accessibility and openness.
22. In the contemporary metropolis, development must adequately accommodate automobiles. It should do so in ways that respect the pedestrian and the form of public space.
23. Streets and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbors to know each other and protect their communities.
24. Architecture and landscape design should grow from local climate, topography, history, and building practice.
25. Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form, because their role is different from that of other buildings and places that constitute the fabric of the city.



26. All buildings should provide their inhabitants with a clear sense of location weather and time. Natural methods of heating and cooling can be more resource-efficient than mechanical systems.
27. Preservation and renewal of historic buildings, districts, and landscapes affirm the continuity and evolution of urban society.

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## BIOGRAPHICAL SKETCH

Laura Abernathy was born in São Paulo, Brazil in 1984. She spent the next eighteen years moving between South America, Europe, and the United States with her two sisters and parents, before attending Franklin & Marshall College in Lancaster, PA, where she earned her bachelor's degree in economics and English Literature. Living and traveling around the world offered Laura the opportunity to see first-hand the many different forms cities take and the tremendous inequalities that accompany them. It was not until a study abroad experience in her junior year of college that she began to recognize urban planning and community development as means by which to strengthen cities and create more livable environments for all residents.

In 2007 she enrolled in the University of Florida and moved to Gainesville to begin her formal education in planning. She hopes to continue to explore the factors that contribute to a livable city, enhancing the lives of marginalized residents and creating more livable communities around the world.