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New Urbanism as Sustainable Development?

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Abstract

New urbanism is an urban design movement to create pedestrian-oriented settlements that also advance social equity and mitigate the environmental impacts of development. Proponents of the movement have suggested it offers a model of sustainable development. This paper investigates this claim by discussing the implications of empirical research on new urbanism for the ways in which the movement contributes to sustainability. The paper uses the concepts of environmental and social sustainability to frame the discussion. The paper traces the origin of new urbanism and the evolution of its interest in sustainable development. Review of scholarly research on new urbanism in practice shows the movement supports in limited ways both environmental and social sustainability. Moreover, this research also shows that some forms of new urbanism development unintentionally counteract environmental sustainability goals while other forms fail to achieve social sustainability goals. Citing the diverse ways in which new urbanism is put into practice, the paper concludes by considering how understanding the heterogeneity of new urbanism as it exists in the world will impart greater clarity to further analysis of the ways in which the movement actually contributes to sustainable development.

Environmental and Social Dimensions of Sustainability

New Urbanism (NU) is a movement to reduce sprawl and improve societal well-being through changes in the built environment that produce compact, socially diverse, and pedestrian-oriented settlements. Proponents of the movement have claimed it is a model of sustainable urban development (Congress for the New Urbanism 2008). I evaluate this claim by discussing how the practice of NU relates to sustainable development goals. I argue that urban development under the banner of NU takes steps both toward and away from sustainability. I develop this argument in three parts. I first consider the origins and expansion of the NU movement and find that there is emphasis on environmental over social sustainability goals. I then review literature on the metropolitan geography of NU and find that NU has contributed to both urban infill and peripheral development. I discuss research on the latter instance of NU development, which finds that some environmental sustainability goals are supported on technological grounds while other goals are not. Finally, I discuss literature on the ways residents of compact NU settlements interact with their built environment and neighbors, which shows that NU is associated with sustainable behaviors, such as walking and social interaction. However, these associations appear to apply only to a select set of development contexts into which NU has been deployed. Outside of socially homogeneous contexts, NU does not appear to foster behavior conducive to social sustainability goals. Noting some limitations to these findings, I conclude by identifying an approach future research can use to advance analysis of NU and sustainability. Before I discuss the origins of NU, I first define the concepts of environmental and social sustainability.

The Bruntland Report's definition of sustainable development serves as a useful point of departure for discussion of New Urbanism and sustainability.[1] Brundtland situates the process of development in a context of human–environment interdependencies such that

the well-being of humanity and the bio-physical environment are inextricably linked (World Commission on Environment and Development (WCED) 1987). From this view, Campbell (1996) has theorized sustainable development as possible only by balancing interests of economic growth, environmental preservation, and social equity, interests that are often conflicting with one another in development practice (Godschalk 2004; Moore 2007). The latter two interests refer to the environmental and social dimensions of sustainability and are of particular interest because NU advocates use urban design as a way to advance environmental and social sustainability interests.

In the context of urban development, *environmental sustainability* brings into focus the impact that human behavior has on the bio-physical world. This dimension highlights concern for the ways land use, transportation, and the built environment itself can contribute to, mitigate, or even neutralize negative implications of humanity's use of environmental resources for the quality of the water, air, and habitant upon which life depends (Leitmann 1999; White and Ellis 2007). In terms of changes to the built environment, this aspect of sustainable development is typically pursued through technological innovations in building materials and design methods—what Williams and Dair (2007) referred to as "technical sustainability"—though the potential of these is only fully realized when complemented by behavior that supports sustainable development goals (Youngentob and Hostetler 2005), which Williams and Dair termed "behavioral sustainability."

Recognizing the importance of behavior, *social sustainability* emphasizes that development is socially mediated and has societal implications, both of which are important to craft workable strategies to achieve environmental sustainability and economic growth. This dimension of sustainability encompasses two aspects. On the one hand, a concern for social equity both within and across different societies is important to achieving sustainability. As Vallance et al. (2011, p. 344) pointed out, it is "unrealistic to expect people to care about global warming or species extinction when they are cold, hungry, looking for work, or feel unsafe in their own home." Thus, creating built environments with equitable access to essential services, jobs, transportation, and housing is critical to sustainability. At the same time, social sustainability also draws attention to the fact that certain social conditions are necessary to support environmentally sustainable behavior (Bramley and Power 2009). Thus, on the other hand, fostering sustainability of community, which includes social interaction within a place, neighborhood pride, and participation in collective activities, is important to creating a city where people want to live (Bramley et al. 2009; Dempsey et al. 2011). These concepts provide a framework that I use to trace how NU practitioners have operationalized sustainable urban development.

New Urbanism's Origins and Expansion

New Urbanism is a distinctly American innovation, and it emerged as an intentional response to post-World War II suburban sprawl (Duany and Brain 2005; Garde 2006; Lehrer and Milgrom 1996; Robbins 2004).[2] At its heart, this movement represents a paradigm shift for land development in American metropolitan regions and is guided by an interest in creating places that both minimize the environmental impact of growth and foster a place-based sense of community among residents (Bjelland et al. 2006; Ellis 2002; Grant 2006; Talen 2005). The originators of the movement certainly saw their actions in this way and created an organization, The Congress for the New Urbanism (CNU), in 1993, to give voice, visibility, and advocacy to the movement's model for urban development. The origins of NU do not begin here, however.

New Urbanism emerged in the United States (US) during the 1980s in two distinct locations where architects and designers pioneered a movement known as "neotraditional

urbanism" (Ellin 1996; Furuseth 1997; Lehrer and Milgrom 1996; McCann 1995).[3] In San Francisco, Calthorpe (1989) worked during the 1980s to create "pedestrian pockets," which are low-rise, high-density neighborhoods with a mix of residential, commercial, and civic land uses organized in relation to a transit station. Pedestrian pockets were precursors to Transit-oriented Development (TOD; Bressi 1994). At the same time, Duany and Plater-Zyberk (1991) worked initially in Florida to create Traditional Neighborhood Development (TND). Their approach is modeled on the streetcar suburb of early 20th century America and features a mix of housing types built to moderate density and organized into a gridded street system with a walkable built environment (Duany et al. 2000). The design of these neighborhoods also includes a town center or mainstreet to centralize nonresidential land uses.

Both sets of architects positioned their respective neotraditional innovations as a significant break from the automobile-centered landscapes of suburbia in favor of a compact pedestrian-friendly design that incorporates a mix of people and activities that make for vibrant urban places (Calthorpe 1993; Duany et al. 2000). As such, these and other neotraditional innovations that inform NU reflect a selective use of earlier planning approaches and draw heavily on ideas used in the town planning movement of the early 20th century (Grant 2006; Katz 1994; Rees 2003; Talen 2005). NU calls on elements of Howard's (1985 [1902]) garden city model of master-planned communities, Jacobs, (1961) celebration of Greenwich Village's density and diversity, Perry's (1974 [1929]) neighborhood unit theory, and regionalist views of Geddes (1915) and McHarg (1969) that emphasize human–environment interrelationships. Léon Krier, a traditionalist architect active in Europe, has also served as a mentor to neotraditionalists working in the US (Thompson-Fawcett 2003).[4] NU practitioners thus draw on an eclectic mix of geographic imaginaries of the urban, which can stand in conflict with one another (Beauregard 2002; Berke 2002; Talen 2006). Such contradictions have created an opening for divergent interpretations and applications of NU.[5] Nevertheless, the architects and designers at the vanguard of neotraditional urbanism worked together to synthesize these and codify the movement by creating two foundational documents.

Calthorpe, Duany, Plater-Zyberk, and other architects, designers, and urbanists convened in 1991 to formally document the Awahnee Principles, which outline the ethics and values common to their respective approaches to neotraditional urbanism (Corbett and Velasquez 1994). This meeting helped coalesce the different approaches to neotraditional urbanism and resulted in the declaration of a code that urban design professionals should observe (Falconer Al-Hindi 2001). This code particularly reflects an agenda to shape growth according to notions of regionalism and ecological planning. Conversation around the Awahnee Principles continued among architecture and design professionals, who founded CNU in 1993. These actors later elaborated a set of foundational principles for the movement in the *Charter of the New Urbanism* (Congress for the New Urbanism 1996).

The *Charter* describes 27 principles that define NU. These principles reflect a vision for settlements with several features, namely (i) neotraditional esthetics that are sensitive to local architectural styles, building materials, and history; (ii) a higher density built environment that incorporates or allows for multimodal transportation and walking, in particular; (iii) land use policies that enable a mix of nonresidential land uses, especially civic and open spaces, as well as multiple types of housing that together create a demographically diverse place; (iv) designs that are consistent with progressive regional planning goals; and (v) a sensitivity to the environmental impact of development and an effort to promote environmental conservation and increase regional density. Taken together, these principles suggest a distinct urban design theory and identify a set of goals that NU development should realize. These principles also reflect a budding interest in sustainable development as the principles integrate concerns for improving social equity and decreasing the environmental impact of settlements.

This interest has continued to grow within the movement, as evidenced by the Congress for the New Urbanism's (2008) release of the *Cannons of Sustainable Architecture and Urbanism* and its efforts to advance green planning standards through Leadership in Energy and Environmental Design for Neighborhood Development (LEED-ND), a green certification scheme for an entire neighborhood (Berke 2008; White and Ellis 2007). Indeed, NU has continued to evolve.

The evolution of NU can be traced, in part, through the changing activities of CNU. Since forming in 1993, CNU was able to wed NU design principles with the HOPE VI program, an effort of the US Department of Housing and Urban Development to redevelop public housing as mixed-income neighborhoods (Bohl 2000). CNU was also able to influence the US federal government's rebuilding agenda in the Gulf of Mexico after the massive hurricane destruction to the area in 2005 (Talen 2008). These two high-profile initiatives demonstrate an interest in promoting social equity. At the same time, the rhetoric of CNU has increasingly emphasized environmental sustainability.

Concern about the environmental impacts of development and ways to mitigate these have moved to the center of NU. Hints of prioritizing an environmental change agenda were evident in 1998, when CNU framed NU as a strategy to implement smart growth policy (Ivanic and Grant 2011; Rees 2003; White and Ellis 2007). The movement's interest in promoting environmental sustainability took center stage by 2007, when CNU, the US Green Building Council, and the National Resource Defense Council (2007) unveiled criteria for LEED-ND. This moment represents an interest to frame NU as allied with the green community planning movement. Moreover, if the *Canons* and LEED-ND are read as part of a story that proponents of NU tell about how the movement fosters sustainable development, it now seems that an interest in environmental sustainability overshadows the social sustainability concerns that also inspired the movement. To further investigate the connections between NU and sustainable development, it is productive to investigate how NU's design principles have been put into practice. This consideration unfolds in several parts, the first of which examines NU's distribution within metropolitan areas.

The Distribution of New Urbanism Settlements

Much of the knowledge about the intrametropolitan geography of NU projects is the result of US-focused research. By 2008, 401 neighborhood-scale NU projects had either been started or completed in the US (Trudeau and Malloy 2011). The issue of what counts as a NU project is fraught with uncertainty as the movement has become diffuse enough that elements of it are widely, though perhaps only superficially, practiced (Sohmer and Lang 2000). Moreover, CNU has neither created a comprehensive register of NU projects nor a system of vetting whether a project exemplifies NU.[6] In response to this uncertainty, scholars have typically used a database of NU projects created and maintained by *New Urban News Publications* (Steuteville 2008), a trade and advocacy organization that covers the movement. This database records projects that are at least 15 acres in size that have received awards from CNU or that are self-presented examples of NU. Consequently, researchers have primarily tracked neighborhood-scale projects.

Scholars researching the distribution of NU have thus employed this database (e.g., Berke et al. 2009; Falconer Al-Hindi 2001; Garde 2004; Steffel-Johnson and Talen 2008; Stevens et al. 2010; Trudeau and Malloy 2011). From this scholarship, I identify three dimensions to the geography of NU projects. First, NU neighborhoods are located in 39 states and the District of Columbia, though most are clustered in metropolitan areas of California, Colorado, Florida, Georgia, North Carolina, and Texas (Talen 2010). Second, NU

neighborhoods were once evenly distributed across infill (including grayfield and brownfield) and greenfield sites (Falconer Al-Hindi 2001), though the balance is now tipping toward more infill sites (Trudeau and Malloy 2011). However, development on greenfield sites predominates in the Southeast and the Midwest states of Indiana and Michigan (Trudeau and Malloy 2011). Third, NU neighborhoods tend to be located outside of the central city, in first-ring and second-ring suburbs and in small towns;[7] indeed, a national-level study in the US found that neighborhood-scale projects are located an average of 10 miles from the center of an urban area (Trudeau, 2013).[8] While NU projects may be sited outside of central cities, these projects are nonetheless increasing settlement density (Berke et al. 2003; Gordon and Vipond 2005; Skaburskis 2006; Trudeau and Malloy 2011). Grant and Bohdanow's (2008) survey of projects in Canada suggests that these three dimensions also apply there. These dimensions thus indicate that NU has contributed to both compact and decentralized forms of development. I will next consider the implications that decentralized growth has for the idea of NU as a model for sustainable development.

Sustainable Development on the Urban Fringe?

Before labeling NU's contribution to decentralized development patterns as a contradiction, it is important to note that decentralized development was included in the repertoire of earlier planning ideas on which NU draws, namely Howard's garden city. Indeed, development that produces compact urban form at the edge of the metropolis is part of the NU portfolio (Bressi 1994). Furthermore, the ongoing debate around whether decentralized forms of green development [frequently referred to as "green city" or "ecoburbs" (Neuman 2005; Crewe and Forsyth 2011)] contribute to urban sustainability suggests that it is important to inquire whether the decentralized development built under the banner of NU supports the movement's sustainability goals. One line of scholarship on the environmental impacts of NU development affords the beginning of such an inquiry.

Perhaps owing to the proliferation of greenfield-sited development during the first decade of NU development, many scholars investigated the ways in which NU projects at the urban periphery were designed to interact with the bio-physical environment. The resulting research collectively generated the hypothesis that NU lacks a serious commitment to environmental sustainability (Ivanic and Grant 2011; Zimmerman 2001). This hypothesis is built on several findings. Examinations of the land conservation stewardship practices in place in several different NU projects show a poor record for environmental habitat protection (Audirac et al. 1990; Beatley 2000; Durack 2001; Zimmerman 2001) and dedication of land to ecological restoration areas (Gordon and Tamminga 2002). Others argue that NU developers have taken greater care to market the natural amenities present in projects than they do to protect these amenities over the long term (Till 2001; Zimmerman 2001). Furthermore, Ivanic and Grant (2011) argued that nature is conceptualized in NU projects in a utilitarian way, which is a view that underwrites the pro-growth stance of the movement. Lastly, increases in settlement density can actually compound the ecological disruptions of settlement (Grant et al. 1996). For instance, the study of of 50 pairs of NU and conventional suburban projects by Berke et al. (2003) found that there are more impervious surfaces in NU projects. The increased density also leaves residents of NU projects located in floodplains at a heightened risk to hazards (Berke et al. 2009), especially since NU projects do not deviate from the status quo when it comes to incorporating hazard mitigation techniques (Stevens et al. 2010). At the same time, Berke et al. (2003) also found that NU projects as a whole were better than conventional urban development at protecting hydrologically sensitive areas as well as restoring them.

Before dismissing NU as a green-washing movement, it is important to shed some additional light on the hypothesis that NU fails to support environmental sustainability. While the evidence for this hypothesis clearly destabilizes proponents' claims that NU is a model for sustainable development, it is important to consider that the research on which the hypothesis rests does not apply to the entire movement. There are two aspects to this partiality. On the one hand, the research on which the hypothesis is based offers cross-sectional examinations of NU developments in the 1990s and early 2000s, before CNU's emphasis on environmental sustainability. Consequently, it does not consider how recent development practice has responded to the movement's more assertive stance on environmental sustainability. On the other hand, the research primarily focuses on greenfield development and thus cannot be generalized to the entire movement. In addition to these aspects, the research of Berke et al. (2003), in particular, shows that NU development excels in some aspects of environmental sustainability, such as protecting watersheds, even while offering a step back in some others.

In light of these points, it is important to note that NU development does employ land stewardship practices that actualize the movement's environmental rhetoric. At the same time, these and other practices are not without problems as a portion of NU projects does, in fact, take steps away from NU's agenda for environmental sustainability. Time and future research will tell whether this changes in response to CNU's avowed interest in promoting sustainable development.

So far, I have considered scholarship that offers insight into the technical sustainability of NU development and how this aligns with the movement's goals for sustainable development. In the next section, I consider another line of scholarship on NU in practice that offers insight about whether the compact design of NU settlements encourages behavior that promotes both environmental and social dimensions of sustainable development.

Compact Urban Form and Sustainability

New Urbanism proponents anticipate that a number of sustainable development goals can be achieved through compact urban form, particularly when there are mixes of land use and housing type incorporated into the built environment. I review empirical research that examines the conduct of residents in NU neighborhoods with regard to walking and social interaction to assess whether NU design is associated with behavior that supports the move *toward* environmental and social sustainability. I selected walking and social interaction because these topics are well explored through empirical research and each relates principally, though not exclusively, to different dimensions of sustainability. Proponents claim that the compact urban form of NU neighborhoods will foster a greater commitment to walking among its residents and thereby advance environmental sustainability interests by reducing energy use and CO_2 emissions. New urbanists also claim that these neighborhoods will promote social interaction among its residents and thus enhance sustainability of community and decrease social segregation of income groups. The research shows modest but limited support for these claims, though there are several caveats to consider, which I discuss in this section.

WALKING

New Urbanism design fosters pedestrianism, but in ways that are not completely aligned with the movement's predictions. NU's operating premise is that the compact neighborhoods with a pedestrian-oriented design will inspire people to walk more. This premise is reasonable, especially since a person's choice of transportation mode is influenced by characteristics of the built environment (Ewing and Cervero 2001). Researchers investigating this premise

have compared the transportation behavior of residents in NU neighborhoods with their peers in neighborhoods designed according to conventional auto-oriented principles (Dill 2006; Greenwald 2003; Khattak and Rodriguez 2005; Nasar 2003; Podobnik 2011; Rodriguez et al. 2006). These comparisons focus on TND-style neighborhoods located in suburban settings. These studies collectively show that residents of these two types of neighborhoods do exhibit different transportation behaviors. For instance, residents in NU neighborhoods make more walking trips for utilitarian purposes, such as shopping and errands (Rodriguez et al. 2006), but do not drive less than their peers in conventional suburban subdivisions (Dill 2006; Greenwald 2003; Podobnik 2011). Though, other studies do find that residents of NU neighborhoods use automobiles less frequently (Nasar 2003) and log fewer vehicle miles traveled than their counterparts in conventional suburban subdivisions (Khattak and Rodriguez 2005).

While the comparisons made in these studies are able to control for socio-economic differences, there are at least three caveats to the conclusions they draw. First, it is currently unclear whether the compact design associated with NU enables or induces change in travel behavior (Handy 2005). This is because it is very difficult to control for a selection bias that may attract to NU neighborhoods people who are interested in walking more in their everyday life (Dill 2006). Second, the studies that examine travel behavior have not determined whether the higher rates of walking apply to residents of different income groups. This is important since residents of many suburban NU neighborhoods tend to have middle class incomes and these neighborhoods tend to demonstrate a high degree of social homogeneity (Podobnik 2011). Thinking about the first two caveats together, it is important to determine whether the findings of these studies on pedestrianism and NU are unduly influenced by a focus on a self-selecting group of middle class people who move to NU neighborhoods because they want to walk more. The third caveat exists in the empirical absences of these studies. Researchers have, with good reason, restricted their analysis to comparisons of residents of suburban TNDs and subdivisions. Consequently, however, this body of research has not heretofore examined the full breadth of transportation behaviors that may be associated with NU, especially in neighborhoods with TOD designs or that are located in denser areas of settlement. The behavior of residents in these latter types of NU projects may be different or perhaps show stronger levels of association since research on compact urban form more broadly construed shows that an increase in settlement density is highly correlated with an increase in walking and biking (Bramley et al. 2009; Burton 2000; Holden and Norland 2005). These caveats notwithstanding, there is support for the idea that NU neighborhoods provide an environment that enables people to walk more. In connection to promoting pedestrianism, NU proponents expect that walkable places will also host greater degrees of social interaction among residents.

SOCIAL INTERACTION

Where NU neighborhoods host a socially homogeneous resident population, social interaction among residents is high. However, where the population is heterogeneous, especially along lines of race, ethnicity, and income, social interaction is low. New urbanists expect that environments with high-quality pedestrian facilities a mix of nonresidential land uses and improved access to public space will foster a greater degree of social interaction among neighborhood residents. In the initial stages of the movement, proponents made the claim that the design of the built environment creates a sense of community. This notion has been convincingly critiqued (Brain 2005; Clarke 2005; Talen 1999). And, NU activists seemed to have moved away from this claim with the 2008 release of the *Canons*, yet still posit a positive, but not causal, association with the built environment and social interaction.

Initial efforts to research this claim show a positive relationship between walkable built environments and neighboring activity. Lund (2003) found that an increase in walking is significantly and positively associated with casual social interactions with neighbors. Though, du Toit et al. (2007) caution that such associations are weak but are likely mediated by walking for transportation. Brown and Cropper (2001) compared residents of NU and conventional suburban subdivisions and found that NU residents engage in significantly more informal, unplanned, and casual interactions with neighbors, though both groups demonstrated comparable levels of sense of community. Further examination of residents in conventional and NU suburban neighborhoods finds that NU residents experience a stronger sense of connection to their fellow residents and participate to a greater degree in neighboring activities (Gwyther 2005; Kim 2007; Kim and Kaplan 2004; Podobnik 2002;). These findings are, however, based on research that compares residents of suburban neighborhoods where there is a high degree of social homogeneity. Further, several of the studies did not explore how socio-economic differences affect sense of community and neighboring. More recent studies that examine mixed-income neighborhoods, which begin to address these shortcomings, show a different picture.

Research on social interaction in mixed-income communities suggests that there is little interaction between residents of different classes. There are two sets of studies that have examined social interaction among residents of NU HOPE VI projects, which host residents of a variety of housing tenures, including both subsidized and market-rate arrangements under home ownership and rental agreement. Kleit (2005, p. 1438) found that "homeowners and public housing renters have few overlapping relationships, and homeowners [are] more likely to know other homeowners." In their study of a multisite HOPE VI project in Chicago, Chaskin and Joseph (2011, p. 24) found similar results, noting that "social interaction has been limited, extremely casual, and (particularly with regard to instrumental exchanges) largely contingent on social (class) proximity." In this context, there are durable cleavages between residents of different housing tenure. These cleavages limit social interaction and are often cited by residents as important in defining the characteristics of negative interactions between neighbors. Moreover, Chaskin and Joseph found that nearly every resident, regardless of differences in income and housing tenure, reports fewer and less substantive relationships with their neighbors and engaged in fewer types of neighboring activities since moving to the HOPE VI neighborhood. Overall, these findings seem to contradict NU expectations, though there are important caveats to consider when figuring the significance of these studies.

Ultimately, HOPE VI projects exist as a particular approach to creating mixed-income neighborhoods under NU. Indeed, there are other approaches through which new urbanists have created mixed-income neighborhoods (Steffel-Johnson and Talen 2008; Talen 2010). Importantly, the circumstances surrounding the demolition and neighborhood re-creation of HOPE VI projects may create a particularly challenging context in which cross-class social interaction can form, especially in those situations where returning public housing residents may frame the HOPE VI project as a form of gentrification (Elliot et al. 2004). The findings on HOPE VI research should thus not be generalized to cross-class social interaction in *all* NU neighborhoods.

It is also the case that the microgeography of housing arrangement within the project influences social interaction. Indeed, Kleit (2005) found that proximity facilitates neighboring as does participation in common activities, such as gardening, rather than use of common facilities, such as a library. Kleit thus suggested that designers and policy makers should play especially close attention to ways in which housing for different tenures are spatially integrated—or not—in mixed-income neighborhoods. Looking beyond the particular experience of HOPE VI projects, there is cause for both further alarm and optimism.

The research on fostering social interaction among people of different racial groups is nascent, yet it does not cast a promising light upon NU's capacity to advance social sustainability goals. Day's (2003) study of the planning process for a NU neighborhood in Costa Mesa, California shows how planners initially failed to elicit participation from Latinos and Latinas in this socially diverse municipality. Day raises concern that planning processes for NU neighborhood design may result in de facto exclusions of non-White social groups. Further, González and Lejano (2009) found that NU design was used as a redevelopment strategy to redesign a Latino-dominant neighborhood of Santa Ana, California, as a luxury-oriented neighborhood that is supposed to attract national chains and likely alienate the Latino population.

Analysis of resident perceptions and behavior in a NU neighborhood in Portland, Oregon, offers a spark of hope in light of this research. Podobnik's (2011) study of Orenco Station shows that over time residents have become more supportive of adding affordable housing stock to the neighborhood. The residents have also expressed greater support for the belief that the neighborhood should be more ethnically diverse. For Podobnik (2011, p. 122), these results suggest "that more inclusionary attitudes with regard to ethic and class diversity seem to be emerging in Orenco Station as the community matures."

New Urbanism and Sustainability

A move toward urban sustainability most certainly involves behavioral change, both among the designers and the inhabitants of the city landscape. Proponents of NU frame the movement as a pathway toward urban sustainability. NU's manifestos and conceptual frameworks, including the *Charter*, *Canons*, and LEED-ND, represent the movement as dedicated to advancing social and environmental sustainability agendas. Examinations of how the movement's ideals are put into practice present an opportunity to check the official story with on-the-ground realities. Research on the implementation of NU principles complicates the sustainability narratives offered by the movement's boosters.

New Urbanism is associated with sustainable behaviors, such as walking and social interaction. However, the contexts in which these associations operate are clearly more limited than what proponents of the movement expect. Moreover, the experiences around pedestrianism and social interaction raise important questions about whether NU design enables or induces change in behavior as well as whether the high rates of social interaction found in some NU neighborhoods can work in places that are defined by demographic diversity. Questions on this later topic are especially acute since it appears that many NU neighborhoods, perhaps half of all NU neighborhoods in the US, lack any housing stock that is affordable to low-income households (Steffel-Johnson and Talen 2008; Talen 2010). Moreover, the marked lack of cross-class interaction in HOPE VI neighborhoods (Chaskin and Joseph 2011) raises additional questions about how NU may realize its social equity goals, since spatial planning strategies alone appear to be insufficient (Talen 2008). Figuring the extent to which NU can be relied upon as a pathway toward urban sustainability is thus currently fraught with uncertainty.

Finding ways to resolve this uncertainty is an important task for NU proponents, and researchers can make significant contributions to this task. I want to conclude this paper by encouraging additional research on NU in practice that identifies what about this movement furthers environmental and/or social sustainability. Although NU may not be a model form of sustainable development, NU is a movement that is rhetorically committed to addressing environmental and social problems associated with living in cities. Generating knowledge about the ways in which this commitment is realized or falters in development practice will therefore contribute to the larger project of promoting sustainable cities, both within and outside of the NU movement.

To understand better how NU contributes to sustainable development, it is important to examine the diverse ways in which NU has been put into practice. Indeed, one of the criticisms I have raised in this paper about research on NU in practice is that it has focused on a specific implementation of NU and thus cannot apply to the entire movement. Remembering that NU is an approach to urban development that brings together an eclectic mix of planning ideas, it is worth exploring how this diversity matters to sustainable development.

Toward this end, two attempts to describe the street-level variation in NU development serve as significant resources. Moore's (2010) study of the interpretive practices of developers, designers, financiers, and planners in the greater Toronto metropolitan area sheds light on how distinct constellations of development and planning actors form to create different types of NU neighborhoods.[9] Trudeau's (2013) typology of NU neighborhoods identifies three distinct types of NU, which vary in terms of their urban form, density, land use patterns, and where they are located within metropolitan areas. This research sheds light on ways to understand the diversity of NU in practice that look beyond the terms of distinction that proponents of the movement have developed (e.g., infill/greenfield and TND/TOD; Brain 2005). Such a perspective enhances the ability to generalize from empirical study of NU projects, for knowing where a particular case study sits amidst different types of NU neighborhoods gives researchers a greater understanding of the case's representativeness. Moreover, it improves the capacity to make analytically meaningful comparisons between NU projects. Understanding the variation of NU in practice imparts clarity and precision to identifying the circumstances under which the implementation of NU succeeds or fails to move toward urban sustainability. Ultimately, consideration of the heterogeneity of NU in practice will help researchers to understand whether and how the strategies and experiences associated with NU add up to a way of life that is both good and sustainable.

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Short Biography

Dan Trudeau is an urban social geographer with research interests in urban political economy, the cultural politics of landscape production, and citizenship. His work on these topics as well as the connections between them has been published in *Cultural Geographies*, *Environment and Planning A*, *Geoforum*, *Political Geography*, *The Professional Geography*, *Society and Space*, *Urban Geography*, *Urban Studies*, and *A Companion to Social Geography*. His current research focuses on the new urbanism in practice and examines the relationship between urban political economy and variation in the structure of new urbanist neighborhoods. He is also investigating the ways in which social equity concerns of the movement are understood, implemented, and experienced by developers and residents across different types of new urbanist neighborhoods. He holds a BA in Anthropology from the University of Minnesota, an MA in Geography from the State University of New York, and a PhD in Geography from the University of Colorado. Trudeau is presently an associate professor of Geography at Macalester College where he also directs the urban studies program.

Notes

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[1] *Our Common Future*, better known as The Brundtland report (WCED 1987, p. 245), defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

[2] Today, however, New Urbanism is no longer just an American phenomenon. The movement has been used to shape new development in cities of 25 countries distributed across six continents. Most of these developments are located in North America, with the US hosting a large majority. Beyond North America, NU has made its largest imprint in Europe, with developments or proposals for them in Belgium, France, Germany, Greece, Italy, the Netherlands, Portugal, Sweden, Turkey, and the UK. Outside of Europe, Angola, Australia, Bahrain, Bhutan, Guatemala, India, Jamaica, Japan, Lebanon, Panama, the Philippines, and Saudi Arabia host NU projects or proposals for them (CNU, n.d.; Thompson-Fawcett 2003; Grant 2006; Pories 2012). At the same time, firms with roots in the US have designed a majority of these projects. Though, the hegemony of US-based designers in NU may be changing as NU-oriented design firms have emerged in Australia, Canada, Germany, Italy, Norway, Panama, Spain, and the UK (Duany, n.d..; Thompson-Fawcett 2003).

[3] To be sure, there was and continues to be a transatlantic exchange of ideas, particularly between the CNU and the Urban Villages Group in the UK, about how to best approach urban development in ways that address enduring problems (McCann 2009; McCann and Ward 2010). Nevertheless, Thompson-Fawcett (2003) acknowledged that NU originated in the US.

[4] Léon Krier also contributed to the development of neotraditionalism and even suggested the creation of CNU, though he declined to join as a signatory member (Thompson-Fawcett, 2003).

[5] There were diverging interests among the founding members of the CNU about whether the organization should emphasize infill development or promote its approach to development at the urban periphery and thus influence the shape of the expanding metropolis (Bressi 1994). While these diverging interests were never fully resolved, the members agreed to establish the movement's charter and advocate its principles. This lack of resolution also begins to explain why there is an uneven application of NU principles across space.

[6] Though, CNU is taking a step toward such a system in creating an accreditation program for architects, which it did in 2011.

[7] New Urbanism projects are certainly located in urban areas, including historic urban cores (Sohmer and Lang 2000; Bohl 2000; Deitrick and Ellis 2004; Larsen 2005). Yet, many of these are block-scale projects, as built-up cities often prove to be challenging contexts for developers to obtain the larger areas necessary to develop neighborhoods.

[8] Since 2003, with the release of form-based codes, such as Smart Code, there has also been a precipitous increase in land use plans that seek to apply NU principles at a regional scale. Indeed, in the US, municipal, county, and state governments have brought NU ideas into the fold of their comprehensive planning, so it remains to be seen whether the distribution of NU projects in the future may reproduce or alter the three dimensions.

[9] Findings from Moore's (2010) Toronto case study are further substantiated through empirical work that shows how risk-averse tendencies among developers and financiers, in particular, lead to a decidedly conservative and restrained embrace of NU in which only some design principles are implemented (Mayo and Ellis 2009; Gyourko and Rybczynski 2000; Garde 2004; Veninga 2004). Research also describes how NU developers seem to favor design elements that are seen to enhance the marketability of the neighborhood to prospective affluent residents (Garde 2006; Grant 2009). Consequently, there has been uneven support for the inclusion of affordable housing in NU neighborhoods (Talen 2008; Garde 2009). These studies point to the importance of understanding how the interpretive practices of development actors contribute to the array of outcomes in the implementation of NU.

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