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Journal of Urbanism: International Research on Placemaking and Urban Sustainability

ISSN: 1754-9175 (Print) 1754-9183 (Online) Journal homepage: http://www.tandfonline.com/loi/rjou20

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To cite this article: Dan Trudeau (2013) A typology of New Urbanism neighborhoods, Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 6:2, 113-138, DOI: 10.1080/17549175.2013.771695

To link to this article: http://dx.doi.org/10.1080/17549175.2013.771695

Journal of Urbanism, 2013
Vol. 6, No. 2, 113–138, http://dx.doi.org/10.1080/17549175.2013.771695

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A typology of New Urbanism neighborhoods

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This paper describes a framework for understanding the diversity of New Urbanism (NU) in practice in the United States. The framework is based on a nationally representative survey of NU developers that inventories characteristics of NU projects' built environments across categories of urban design, land use, street configuration, and size. Using cluster analysis, the paper resolves the diversity of NU in practice into three types: Mainstream Urbanism, Dense Urbanism, and Hybrid Urbanism. The paper elaborates on each type, including geographic and temporal aspects of constituent projects. It also considers the ways in which the framework contributes to scholarly understanding of NU and advances the discussion of NU in practice.

Keywords: New Urbanism; built environment; typology

Introduction

New Urbanism is an urban design movement advocating the creation of compact, mixed-use, and mixed-income human settlements. This movement emerged as a progressive intervention to the conventional form of car-oriented, low-density, separated-use sprawl development that has been transforming the urban fabric of cities in the US and elsewhere since the 1960s. The Congress for the New Urbanism's (1996) *Charter of the New Urbanism* identifies a set of unified design principles that prescribe ways to develop the movement's distinctive built form. Practitioners implement these principles at a variety of scales and thus have made an impact on the configuration of buildings, blocks, neighborhoods, and municipalities. With over 400 neighborhood-sized projects built or under construction in the US alone, this scale of development is arguably the most visible contribution of New Urbanism (NU) to the urban landscape.

New Urbanism also exhibits considerable diversity at the neighborhood scale, because developers implement NU design principles selectively and sometimes incompletely. Previous studies of NU have characterized the variation of NU in terms of "infill" and "greenfield" forms of development. Overall, however, these terms fail to capture nuanced distinctions between different types of NU neighborhoods. Consequently, our knowledge of the way NU is practiced, and why, might be limited. This paper addresses these limitations by developing a typology of NU neighborhood projects that is based on features of urban design, land use, and street configuration which characterize the form and content of the built environment. The typology offers a way to move beyond the infill/greenfield distinction and toward both an understanding of the particular design characteristics that constitute NU projects and a framework for evaluating the performance of NU projects.

This paper elaborates on the typology in four parts. The first part discusses the literature on the theory and practice of NU in order to explain the rationale for the typology.

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Second, the paper describes the empirical data and methodology on which the typology is based. Third, the paper develops the defining characteristics of the three types of NU projects identified in the typology and explores the differences between them. The fourth and final part examines the typology's usefulness for advancing our understanding of NU in practice.

From theory to practice

The architects of NU have created multiple ways to describe what a well-designed metropolitan area should look like. The *Charter of the New Urbanism* articulates planning, policy, and design strategies that affect the physical design of the landscape as well as promotes environmental and social agendas (Leccese and McCormick 2000). The charter elaborates these strategies through discussion of 27 design principles, which prescribe ways to develop distinctive built environments that make use of interconnected networks of streets and support multiple forms of transportation, diverse land uses, dense settlement, and a social mix. Duany and Talen (2002) introduced the transect method as an additional form-based approach to city building. The transect method offers a six-part categorization system for the design of urban environments corresponding to different densities of development, ranging from dense urban cores to small-town centers in sparse areas on the metropolitan frontier. Both the charter and the transect method thus offer normative design principles for implementation. Yet, the implementation of NU often only partially follows theory.

The practical application of NU design principles is ultimately affected by the contexts in which developers operate. On the one hand, the existing built environment shapes whether and how normative design principles are put into practice. For instance, the Kentlands, an early example of NU settlement, lacks effective public transit connecting it to other Maryland suburbs in metropolitan Washington, D.C. (Sohmer and Lang 2000). The existing discontinuous and low-density pattern of development in many suburban and exurban areas of North American metropolitan regions thus presents formidable barriers to NU designs for regional integration through public transportation.

On the other hand, financial and development regulations constrain planners', investors', and developers' interest in implementing select design principles. As Gyourko and Rybczynski (2000) showed, developers often confront financial regimes that label mixed-use development as too risky. Similarly, city officials may not approve of land use densities necessary to support affordable housing, which may explain why so many NU developers move forward without affordable housing in the design (Johnson and Talen 2008; Talen 2010). Garde (2004) also noted that existing regulations and restrictions that affect infill development in many suburban contexts encourage designers and developers to be selective about which NU principles to implement. More generally, Garde's (2004) survey of US-based NU development stakeholders showed a low level of support for implementing some regional-scale principles. Garde's (2004) respondents specifically indicated that efforts to promote affordable housing, restore existing urban centers within metropolitan regions, and reorganize sprawling suburbs into neighborhood districts were either infrequently or never applied in the development of NU projects. Talen's (2008) examination of the application of NU principles to rebuilding the Gulf Coast after Hurricane Katrina also underscored the effect of government commitment or indifference on the fidelity with which the movement's principles are implemented. In a study on NU in Canada, Grant (2009) also showed how differing development objectives among engineering and planning personnel in the same institution lead to selective implementation of NU princi-

ples. Given the discord that can surface between the normative principles of NU and the ways in which they are implemented, a different conceptualization is needed to evaluate how NU is put into practice.

Sohmer and Lang (2000) developed a framework that describes the ways NU is practiced at the neighborhood scale. Sohmer and Lang (2000, 756) explained that New Urbanism is really at least three different practices: an aesthetic style, an urban design practice, and a set of land use policies. The aesthetic style refers to neo-traditional, contextualized architecture. The urban design practice refers to New Urbanist–prescribed streetscapes, public spaces, and densities. New Urbanist land use policies include mixed-use, mixed-income, mixed-tenure, and transit-oriented development. This refraction of NU into distinct practices is tremendously helpful for examining the ways NU is actually implemented. The aesthetic practices of NU have, however, broadened to include modernist architecture as well (Mayo and Ellis 2009). Consequently, it is no longer accurate to say that NU produces only neo-traditional architecture. At the same time, NU's practices of urban design and land use policies to promote a social mix are distinct.

The typology advanced in this paper makes use of Sohmer and Lang's framework of NU as comprised of distinct practices. The typology specifically examines the different ways in which street configuration, urban design, and land use practices are combined to create NU projects. This way of seeing NU in practice stands in contrast to the dominant way of describing the implementation of the movement.

The literature on NU relies overwhelmingly on the categories of infill and greenfield development to differentiate NU in practice. For the most part, previous studies on the performance of NU have used (but not elaborated on) the infill/greenfield scheme to distinguish between different types of NU projects (Grant 2006; Grant and Bohdanow 2008; Berke et al. 2009; Song, Berke, and Stevens 2009; Stevens, Berke, and Song 2010; Trudeau and Malloy 2011). Indeed, there is common (yet unchecked) use of the infill and greenfield classifications in the literature that scholars use to describe distinct sets of development practices associated with NU (see e.g. Falconer Al-Hindi 2001; Grant and Bohdanow 2008; Johnson and Talen 2008; Stevens et al. 2010). Infill development refers to projects built on land that may or may not have been previously developed but is surrounded by developed land. Infill thus fills in vacant or unused land, and is often located in or near existing clusters of development. The infill category also includes brownfields and greyfields, which are types of land that have been previously developed for industrial or commercial uses but are not currently in use. Greenfield development refers to projects built on previously agricultural land or land that was never previously developed. Furthermore, it is a form of peripheral development that scholars have associated with sprawl (Lehrer and Milgrom 1996; Zimmerman 2001). These categories are thus further associated with distinct types of built environments. Consequently, these terms of distinction are used to represent more than a project's origin and geographic location in a metropolitan area.

New Urbanism researchers use the infill and greenfield labels to signify practical differences in NU developments. A priori, these categories separate the NU movement into putatively true (real) and inauthentic (nonconforming) versions. In the literature, "infill" suggests an environment that is more urban, while "greenfield" intimates an environment that is more suburban in character (see e.g. Marcuse 2000; Falconer Al-Hindi 2001; Ford 2001; Grant 2006; Grant and Bohdanow 2008). In particular, critics have observed the proliferation of greenfield development under the aegis of NU and suggested that it really represents a more aesthetically pleasing form of suburbanism (Scully 1994; Lehrer and Milgrom 1996; Marcuse 2000; Angotti 2002; Clarke 2005).

Evaluating the greenfield development in the Kentlands, one author has suggested that NU has actually built suburbs in disguise (Marshall 2001).

These differences are more perceived than real. Perhaps two decades ago, when there were fewer NU developments, the infill-versus-greenfield distinction accurately described practical differences among NU projects. Yet, these terms have continued to appear in the literature despite an incredible growth in both the number of NU developments and the diversity of practice. The typology presented in the next section moves beyond this dualistic and often misleading distinction of NU in practice. More significantly, the typology deploys categories that are based on a systematic analysis of the different ways urban design and land use practices combine to create built environments with distinct forms and content. Moreover, the typology accounts for more variation in the characteristics of NU neighborhoods than does an infill/greenfield dichotomy.

Methodology

The data used to create the typology draw on two sources. The principal data come from a survey of developers of 106 NU projects in the US that the author conducted in 2009. Following Sohmer and Lang's (2000) conceptual framework, the purpose of the survey is to describe the ways land use and urban design principles prescribed by NU are implemented in the US. The survey inventories 62 attributes of the projects' built environment. These attributes cover several definitive features of NU, including street configuration, urban design, and land use. The survey also collects information about where projects are sited and their areal extent. It was necessary to collect this information because no comprehensive rating system of NU currently exists. New Urbanism practitioners have moved toward the creation of such a system in LEED Neighborhood Design (LEED-ND); however, only a small proportion of NU projects are rated according to this system. The developer surveys thus provide a way to assess characteristics of the built environment across the diverse array of projects that constitute the movement. Data from the 2000 Census and the 2005–2009 American Community Survey were also consulted to characterize population, housing, and geographic attributes of the municipal contexts in which the clusters are located (US Census 2000, 2009). Before describing further the survey methodology and results, the paper discusses attributes that correspond to the geography of the projects and their features of street configuration, urban design, and land use.

Development size and location

The survey inventories information about three fundamental aspects of all NU projects: areal extent, density, and metropolitan location. Developers provided information for the total acreage of each project's footprint. They also indicated the acreage of all open spaces and undevelopable features, such as lakes, ponds, and protected wilderness, in the project. The developed area was thus calculated by subtracting the open space acreage from the total acreage. Using the developed area calculations, two net residential density figures are determined. Density is calculated as the number of residential units per developed acre of land. One density figure is based on the number of housing units completed to date in 2009 and the other is based on the number of housing units planned for the project at completion. Twenty percent of projects in the survey are complete and so these two measures are the same for such projects. Lastly, developers provided a street intersection or address for the project and also indicated whether the project was sited in an infill or greenfield context.

Street configuration

New Urbanism emphasizes built environments that are pedestrian oriented and conducive to walking and other non-automobile modes of travel. The configuration of street systems is thus important to realizing this emphasis. The survey gathers information that describes the design of street systems by having respondents indicate whether particular street features are present in a project's built environment. To gauge configuration, developers indicated whether a project's street system includes grid, cul-de-sac, and/or loop layouts. Projects were then coded as either grid, loop and cul-de-sac, or loop/grid hybrid system. The hybrid category was indicated where developers noted that a project contained both grid and loop or cul-de-sac features. The pedestrian orientation of projects was further assessed by inventorying whether a project includes alleys, sidewalks, and/or marked pedestrian crossings in roadways. In a minority of cases, the number of intersections per square mile (hereafter referred to as internal connectivity) and the average distance in feet between points of entry to the project (hereafter referred to as external connections) were calculated according to Aurbach's (2005) method[1].

Urban design

The design of how buildings meet the street is also a part of NU's focus on shaping built environments into places with public realms that can foster social interaction among inhabitants as well as supporting pedestrianism. Developers indicated whether residential and non-residential buildings in the project include a number of different design features that are thought to promote interaction. For non-residential buildings, the survey inventories whether these buildings feature a front façade adjacent to a sidewalk, off-street parking behind the front façade, and/or residential units located above street-level commercial space. The survey inventories whether residential buildings have a uniform setback to the front façade, porches and/or balconies, front- and side-loaded garages, and/or rear-loaded garages. Additionally, developers indicated whether non-residential and/or residential units in the project have received a third-party green certification, whether from national institutions (e.g. Energy Star, Earthcraft, LEED) or regional institutions (e.g. Built Green Colorado, Florida Green Building Coalition).

Land use

A mix of land uses is a hallmark of NU. The survey asks developers to provide information on residential and non-residential land uses for each project, current to 2009, to gauge the extent to which it exposes inhabitants to a diverse array of people and activities. The survey inventories several different dimensions of residential land use, including types of housing, the number of units planned and built to date, and the tenure of those units. For housing type, respondents indicated whether a project includes units built as single-family structures, duplex or multifamily structures, row houses, apartment or condominium buildings, and accessory dwelling units. The number of housing types included in each project is calculated from these responses, which gives a basic measure of housing diversity. Furthermore, developers clarified how the total number of built and planned housing units are distributed across ownership and rental categories and, in turn, the number of ownership and rental units that currently qualify and will qualify in the future as being affordable to low-income households. Developers were instructed to follow the US Department of Housing and Urban Development's (HUD 2008) approach to affordable housing.[2]

Developers indicated whether or not 14 different non-residential land uses are currently included in the project or directly adjacent to it. Adjacency in this case is defined as being directly accessible to pedestrians who would cross no more that one roadway via marked crossings to reach destinations associated with a particular land use. The non-residential land uses include civic buildings, commercial and retail, education, entertainment, government services, light industrial, lodging, medical, office, open space and parkland, private clubs, religious, social services, and transit. Responses also allow calculation of the number of land uses included in and adjacent to each project, which gives a basic measure of land use mix.

Developer surveys

Developers of 219 NU projects in the US were contacted and invited to complete the survey online. These developers were randomly selected from a comprehensive list of NU projects. This list collates records of NU project locations in the US kept by the Congress for the New Urbanism and *New Urban News*. The list also includes other records of NU projects kept independently by the Town Paper, SmartCode, and the LEED-ND pilot project. The list documents a total of 614 projects, which represent developments at a variety of scales, from the block level to the regional plan, and at various stages of completion. The sampling frame was narrowed to the 374 projects that are either partially constructed or complete and developed at the neighborhood scale, which is defined as covering at least 10 but no more than 5000 acres of land. Records for these projects were organized into two sets, one listing infill and the other listing greenfield locations. Projects were then randomly selected from these two sub-lists to create a proportional sample of infill and greenfield development that follows the national distribution of neighborhood-scale NU projects in the US (56% infill and 44% greenfield) as determined by Trudeau and Malloy (2011). Maintaining a comparable proportion in the study sample provides a way to determine its representativeness and enables an assessment of the typology deployed in this paper compared to the approach of distinguishing NU projects by their location in either infill or greenfield sites.

The survey was administered according to Dillman's (2007) tailored design method for surveying organizations. Developers were first approached to find the most appropriate person in the organization to contact about completing the survey for a particular NU project. In this case, contacts with persons holding direct knowledge about the NU project in question were sought out. This strategy yielded preferred contacts for most, but not all, developers. In many cases, city agencies acted as the developer and so a city planner responded to the survey. Furthermore, in 18 cases, multiple developers and government agencies were contacted in order to fill out different parts of the survey for a single project. This strategy was employed in an effort to reduce inter-respondent variability. Yet, as with all methods that rely on self-reporting, accuracy limitations will persist. In all, developers for 116 projects responded, a 52.9% response rate. After removing some unusable records, this survey yielded results for 106 NU projects located in the US that have been planned for the neighborhood scale.[3]

The survey responses provide a representative sample of neighborhood-level NU projects in the US. Comparing select characteristics of the survey respondents with the same characteristics of the 374 NU projects from which the sample was selected demonstrates the representativeness of the sample. The comparisons in Table 1 show close similarities between the two groups – none of the differences proved to be statistically significant. In terms of geographic location, the survey population represents

Table 1. Comparison of project characteristics.

Characteristic	NU population	Survey respondents
Number of states	37	30
Most represented states	FL, CA, CO, NC	FL, CA, GA, NC
Development site type		
Greenfield	44%	42%
Infill	56%	58%
Project status		
Completed	23%	20%
In progress	77%	80%
Development size (acres)		
Range	10–6200	11.3–3300
Median	76	91
Mean	272.9	289.3

projects located in 30 states, compared to the 36 states and the District of Columbia covered by projects in the sampling frame. Moreover, three of the four most represented states in the sampling frame are also the most represented states in the study population. The proportions of projects located in infill and greenfield locations are quite similar between the study and survey populations, as are the proportion of projects under construction and the mean footprint size. Overall, there is concordance between several characteristics of projects in the survey and study populations, suggesting that analysis of the survey responses can be generalized to the US population of NU neighborhood-scale projects.

Cluster analysis of New Urbanism projects

The 106 projects were grouped according to 12 attributes that correspond to NU's prescriptions for land use, urban design, and street configuration. Seven land use attributes were included: presence of detached single-family housing in the project, number of housing types in the project, number of land uses in the project and number adjacent to the project, proportion of affordable housing in the project, and presence of third-party green certification of residential and commercial structures. Three urban design attributes were included: planned net residential density of the project, presence of front-loaded garages in residential buildings, and placement of residential units above commercial structures. Finally, two street configuration attributes were included: presence of alleyways and type of street system (i.e. grid, loop, or hybrid). These attributes were chosen from the larger set of 62 because they are independent of one another, which is an assumption of cluster analysis tests. The remaining attributes were excluded from the cluster analysis because they were correlated with one or more of the 12 attributes that were used for grouping. Nevertheless, the full range of attributes is considered in the next section, in which the three types of projects are compared and contrasted.

Researchers have used cluster analysis techniques to cohere diverse communities into discernable groups that further urban analysis (see e.g. Orfield 2002; Talen 2006; Garde 2010). However, it seems this approach has not been brought to bear on describing practical differences among NU projects. This paper uses the TwoStep Clustering procedure in the SPSS software package to sort the projects into distinct groups or clusters. Like

other clustering procedures, the TwoStep method sorts observations so as to minimize the differences within groups and maximize the differences between them. Furthermore, the TwoStep approach does not predetermine the number of clusters generated in the grouping process. Unlike other clustering methods, however, TwoStep is designed to handle both continuous and categorical variables, making it ideal for the survey data generated for this study. A full comparison of the groups along the 12 indicator attributes used in the cluster analysis is listed in Table 2.

Three types of NU projects emerge from the cluster analysis. The author selected names for each cluster in an effort to capture how each one represents a distinct approach to implementing NU principles. *Mainstream Urbanism* describes medium-density and large-area residential neighborhoods that resonate well with NU's call for socially diverse, environmentally conscious, pedestrian-oriented, and mixed-use neighborhoods. Indeed, the projects in this cluster exemplify many of the different features prescribed for NU development. Moreover, as Table 2 shows, these projects stand out for green certification of their residential and commercial buildings. I'On (Mount Pleasant, South Carolina) and Northwest Crossing (Bend, Oregon) are examples of Mainstream Urbanism projects. *Dense Urbanism* distinguishes projects that are planned for high residential net density, as Table 2 illustrates. Projects in this cluster display a connection with a distinct segment of NU principles, in particular the interest to create vibrant urban places through compact mixed-use design that culminates in a well-defined district. However, the housing options in Dense Urbanism projects, such as Gateway 101 (East Palo Alto, California) and Liberty Harbor North (Jersey City, New Jersey), are limited primarily to apartment and row house structures and therefore constrain the likelihood of generating a social mix based solely on housing. *Hybrid Urbanism* describes a host of low-density projects that implement select attributes of NU in conjunction with other design features that typify conventional forms of development. Indeed, Hybrid Urbanism projects are emblematic of the selective implementation of NU design principles. In particular, Table 2 shows there are several aspects of the NU package – urban design and housing diversity in particular – that are well represented in this cluster. At the same time, there are also several aspects, namely land use diversity and gridded street configurations, which are poorly or underrepresented in comparison to other projects in the sample. Some of the projects in the Hybrid Urbanism cluster represent new towns, such as Cline Village (Catawba County, North Carolina). Other Hybrid Urbanism projects represent suburban subdivisions built as traditional neighborhood developments, for example Avalon Park, located at the edge of the Orlando, Florida, metropolitan area.

Comparing three types of New Urbanism projects

Moving beyond an analysis of indicator variables, this section provides an in-depth comparison of the three clusters using the full suite of 62 attributes documented in the survey. The comparisons address questions about the ways in which each type of NU neighborhood is distinct as well as how the three types are similar across themes of geography, housing, land uses, urban design, and street configuration. The analysis presented in this section thus explores the proposition that there are substantive differences in the built form and assemblage of land uses across each type of NU neighborhood.

The comparisons are supported by tables, which provide a full list of the attributes inventoried by the survey. The tables also show results of analysis-of-variance comparison of means and proportions. Clusters that are significantly different are marked in bold, and asterisks denote the degree to which the differences are statistically significant (at

Table 2. Characteristics of project clusters.

	Land use							
	Number of projects	Projects with detached single family housing units	Mean number of housing types in project	Mean number of land uses included in project	Mean number of land uses adjacent to project	Mean proportion of affordable housing	Presence of green-certified commercial structures	Presence of green-certified residential structures
Mainstream Urbanism	23	100%	4.39	8.09	8.26	18%	91.3%	87%
Dense Urbanism	29	0%	1.93	6.17	8.07	13%	24.1%	20.7%
Hybrid Urbanism	54	100%	4.19	5.87	5.15	20%	0%	5.6%
All projects	106	73%	3.61	6.43	6.62	17%	27%	26%
	Urban design				**Street configuration**			
	Number of projects	Mean planned net residential density (units/acre)	Presence of front-loaded garages	Placement of residential units above commercial uses	Presence of alleys	Loop and cul-de-sac	Grid	Loop/grid hybrid
Mainstream Urbanism	23	10.77	30.4%	91.3%	95.7%	8.7%	47.8%	43.5%
Dense Urbanism	29	27.99	0	96.6%	58.6%	3.4%	58.6%	37.9%
Hybrid Urbanism	54	6.29	44.4%	64.8%	94.4%	11.1%	22.2%	66.7%
All projects	106	13.22	29.2%	79.2%	84.9%	8.5%	37.7%	53.8%

$p < .10$, .05, and .01 levels). Superscript notations of M, D, or H are used to indicate whether the differences apply to the Mainstream Urbanism, Dense Urbanism, and/or Hybrid Urbanism clusters, respectively. The discussion in this section focuses only on the comparisons that are statistically significant.

Geographic characteristics

Among the three clusters, Dense Urbanism projects stand apart by covering a smaller area and exhibiting higher net residential density. Table 3 shows clear differences between the average size of Dense Urbanism projects, their developed footprint, and their current and planned net densities compared to the other two clusters. These attributes

Table 3. Development size.

Characteristic	Number of responses	Mean	SD	Min	Max
Total area (acres)*					
Mainstream Urbanism	23	413.06	692.64	14	3300
Dense Urbanism ^{H}	29	91.73	161.02	10	720
Hybrid Urbanism	54	345.85	557.68	18.5	2700
All projects	106	290.91	529.34	10	3300
Open space (acres)*					
Mainstream Urbanism	23	160.74	323.06	–	1386
Dense Urbanism ^{H}	29	17.77	39.98	–	200
Hybrid Urbanism	54	102.72	213.61	–	1100
All projects	106	92.06	219.21	–	1386
Developed area (acres)*					
Mainstream Urbanism	23	252.33	389.72	12.0	1914
Dense Urbanism ^{MH}	29	73.97	124.62	8.5	520
Hybrid Urbanism	54	243.14	384.68	12.0	2200
All projects	106	198.85	341.47	8.5	2200
Net density ***					
Mainstream Urbanism	23	3.79	6.06	–	26.32
Dense Urbanism ^{MH}	29	12.58	12.07	–	42.93
Hybrid Urbanism	54	3.74	4.64	–	24.29
All projects	106	6.17	8.55	–	42.93
Planned net density***					
Mainstream Urbanism	23	10.77	12.06	1.9	52.63
Dense Urbanism ^{MH}	29	27.99	32.84	0.78	180.0
Hybrid Urbanism	54	6.29	4.46	0.76	27.8
All projects	106	13.20	20.36	0.76	180.0
Start year					
Mainstream Urbanism	23	2000	4.49	1985	2006
Dense Urbanism	29	1997	5.47	1983	2007
Hybrid Urbanism	54	1997	4.77	1986	2005
All projects	106	1998	5.02	1983	2007

*p < .1; **p < .05; ***p < .01
^{M} different from Mainstream Urbanism; ^{D} different from Dense Urbanism; ^{H} different from Hybrid Urbanism

describe the types of projects that compose each of the clusters. Both Mainstream Urbanism and Hybrid Urbanism clusters tend to include large residential neighborhood projects that feature retail strips, mixed-use marketplaces, and/or town centers, such as the 500-acre Northwest Crossing and the 700-acre Carothers Crossing (Antioch, Tennessee), which are members of the Mainstream and Hybrid clusters, respectively. These two clusters of projects are distinct in their form and content, as the following discussion shows, but they have comparable footprints and large collections of open space. In contrast, the Dense Urbanism cluster features smaller-area commercial-district projects associated with town centers, projects that anchor entertainment districts, and transit-oriented development (TOD), such as the 18-acre mixed-use retail hub Market Common Clarendon (Arlington, Virginia). As Table 3 also demonstrates, the average start year for the three clusters is similar, which suggests that the distinct implementation strategies associated with each cluster are contemporaneous.

Given these areal and compositional differences, it is not surprising to note there are also different metropolitan distribution patterns among the three clusters. The figures in Table 4 describe where projects in the three clusters are located within metropolitan areas. GIS was used to calculate the distance between each project's street address and the center of the nearest urban area with a resident population of 50,000 or more as identified using 2000 Census figures. This measure shows that Dense Urbanism projects are significantly closer to centers of urban areas than the other clusters. Dense Urbanism projects are also built on infill locations at a disproportionately high rate, which is significantly higher in comparison to the Hybrid Urbanism clusters only. In sum, the clusters demonstrate a geographical pattern: projects in the Hybrid Urbanism cluster are disproportionately sited on peripheral greenfield locations; projects in the Mainstream Urbanism cluster reflect the distribution pattern of the larger population of NU projects; and projects in the Dense Urbanism cluster are disproportionately sited on infill locations near the urban center.

Population and housing statistics from the Census and American Community Survey further show that the different clusters are associated with different metropolitan contexts. Projects in the Hybrid Urbanism cluster are associated with smaller cities. Indeed, Table 5 shows that cities in which Hybrid Urbanism projects are built have significantly lower average numbers of housing units in both 2000 and 2009. In contrast, the Dense and Mainstream Urbanism clusters are associated with mid-sized cities, but the cities for each are facing different growth trajectories. Table 5 again shows that cities in which Dense Urbanism projects are located experienced lower growth rates in housing units in the last decade, which was not the case for the other clusters. Given the close proximity of Dense Urbanism projects to the built-up areas around the urban center, it is not surprising to see

Table 4. Metropolitan location of the projects.

Project cluster	Mean distance from city center (miles)	Infill (%)	Greenfield (%)	Total
Mainstream Urbanism	14.91	14 (0.61)	9 (0.39)	23
Dense Urbanism	5.62^{**MH}	$25\ (0.86)^{***H}$	$4\ (0.14)^{***H}$	29
Hybrid Urbanism	12.48	23 (0.43)	31 (0.57)	54
All projects	12.61	62	44	106

$^{**}p < .05$; $^{***}p < .01$
^{M} different from Mainstream Urbanism; ^{D} different from Dense Urbanism; ^{H} different from Hybrid Urbanism

Table 5. Housing and income characteristics of cities in which New Urbanism projects are located.

	Mean housing units, 2000	Mean housing units, 2009	Mean change in housing units, 2000–2009 (%)	Median household income, 2009	Mean change in median household income, 2000–2009 (%)
Mainstream Urbanism	134, 644	148, 826	26.9	55,185	20.2
Dense Urbanism	126, 410	138, 170	11.6^{*MH}	58,947	19.0
Hybrid Urbanism	60, 381^{*MD}	67, 054^{*MD}	23.3	53,802	23.3
All projects	95, 091	104, 826	21.1	55,510	21.4

$^{*}p < .1$

^{M} different from Mainstream Urbanism; ^{D} different from Dense Urbanism; ^{H} different from Hybrid Urbanism

that Dense Urbanism projects are associated with cities that experienced low growth rates over the last decade. While the clusters are associated with cities of different size and growth trajectories, there are no differences in the cities' median household incomes or changes in household income over the past decade.

Street configuration

Each cluster of projects demonstrates a comparable degree of overall commitment to NU prescriptions for a pedestrian-oriented street configuration. Nearly all projects include sidewalks, marked pedestrian crossings, and streets configured in a grid pattern. Further, Table 6 shows there is little variation in these features across the different clusters. However, distinctions among the clusters are evident when considering other street design features. Dense Urbanism projects are largely built on a grid street design that is well connected to the surrounding street systems. Yet, many of these projects, including Excelsior and Grand (St. Louis Park, Minnesota), contribute to the grid system with a superblock design, which explains why there is a significantly lower incidence of alleyways in this category of project. Lastly, the significantly higher use of cul-de-sac and loop features in Hybrid Urbanism projects, such as Beachwalk (Michigan City, Indiana), demonstrates the unorthodox street system design among projects in this category. While the street configuration of the Hybrid Urbanism cluster offers the basic infrastructure necessary for walking, the urban design characteristics of this cluster may attenuate pedestrianism.

Urban design

Non-residential buildings in all three categories of projects are to a large extent designed to meet the street in ways that give consideration to pedestrians and allow for casual interaction in the public realm. However, projects in the Hybrid Urbanism cluster, including the Easter Hill HOPE VI project (Richmond, California), exhibit two urban design practices – placing the front façade adjacent to sidewalks and placing residential units

Table 6. Configuration of project street system.

Characteristic	Number of responses	Percent of projects with characteristic
Grid		
Mainstream Urbanism	23	91
Dense Urbanism	29	97
Hybrid Urbanism	54	89
All Projects	106	92
Cul-de-sac*		
Mainstream Urbanism	23	17
Dense Urbanism	29	7
Hybrid Urbanism D	54	28
All projects	106	20
Loop***		
Mainstream Urbanism	23	57
Dense Urbanism	29	34
Hybrid Urbanism D	54	72
All projects	106	58
Alley***		
Mainstream Urbanism	23	96
Dense UrbanismMH	29	59
Hybrid Urbanism	54	94
All projects	106	85
Sidewalk		
Mainstream Urbanism	23	100
Dense Urbanism	29	97
Hybrid Urbanism	54	96
All projects	106	97
Pedestrian crossing		
Mainstream Urbanism	23	91
Dense Urbanism	29	93
Hybrid Urbanism	54	94
All projects	106	93
Internal connectivity**	Number of responses	Intersections per square mile (standard deviation)
Mainstream Urbanism	14	312.3 (171.6)

(*Continued*)

Table 6. (*Continued*).

Characteristic	Number of responses	Percent of projects with characteristic
Dense Urbanism^{MH}	10	153.7 (84.8)
Hybrid Urbanism	23	308.5 (181.3)
All projects	47	276.7 (172.1)
External connections	Number of responses	Mean distance from entrances/exits to project (standard deviation)
Mainstream Urbanism	12	1988.53 (1363.43)
Dense Urbanism	10	1087.7 (686.45)
Hybrid Urbanism	19	1576.1 (1060.3)
All projects	41	1577.7 (1110.7)

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

^{M} different from Mainstream Urbanism; ^{D} different from Dense Urbanism; ^{H} different from Hybrid Urbanism

above street-level shops – to a lesser extent than the other clusters, as noted in Table 7. These features further animate the notion that projects of the Hybrid Urbanism cluster incorporate some aspects of NU alongside conventional automobile-oriented design strategies.

Residential buildings in both Hybrid Urbanism and Mainstream Urbanism clusters are designed to meet the street in ways that favor pedestrianism and support casual interaction. Indeed, because both of these types of projects are low-to-medium-density residential neighborhoods, the use of uniform setbacks, porches, and rear-loaded garages is commonplace. The situation is different for Dense Urbanism projects, as shown in Table 7. The compact nature of these projects and their focus on incorporating apartment and condominium units mean that regular setbacks, porches, and garages of any orientation are incorporated to a significantly lesser extent in this cluster than in the other two. This difference may be attributed to the fact that many Dense Urbanism projects reuse existing buildings in older CBDs, which can have irregular setbacks, such as in the Kansas City Power and Light District (Missouri).

The use of green design technology in both residential and non-residential buildings is present to a far greater extent in the Mainstream Urbanism cluster than in the other clusters. The green strategies evident in the projects considered in this paper include a diverse set of agendas. For instance, Sonoma Mountain Village (SOMO, in Rohnert Park, California), which is part of the Mainstream Urbanism cluster, puts into practice strategies that aim to minimize the ecological footprint of human settlement. These strategies include efforts to achieve zero net carbon use and zero waste production, which are reinforced through use of locally sourced food and building materials that are themselves sustainably produced. SOMO's efforts have earned an endorsement from the One Planet Communities program; it is also a part of the LEED-ND pilot program. SOMO is an extreme example, though; other projects in the Mainstream Urbanism cluster exhibit environmental commitments that are lighter shades of green. I'On demonstrates its green agenda through stewardship of land serving as habitat for plant and animal wildlife. In contrast, Northwest Crossing focuses only on the use of green building technologies.

Table 7. Urban design characteristics.

Characteristic	Number of responses	Percent of projects with characteristic
Front façade adjacent to sidewalk (commercial)***		
Mainstream Urbanism	23	100
Dense Urbanism	29	97
Hybrid Urbanism MD	54	81
All Projects	106	90
Off-street parking behind front façade (commercial)		
Mainstream Urbanism	23	91
Dense Urbanism	29	93
Hybrid Urbanism	54	80
All projects	106	86
Residential units above commercial space ***		
Mainstream Urbanism	23	91
Dense Urbanism	29	97
Hybrid Urbanism MD	54	65
All projects	106	79
Uniform setbacks to front façade***		
Mainstream Urbanism	23	83
Dense Urbanism MH	29	62
Hybrid Urbanism	54	94
All projects	106	83
Porches (residential)***		
Mainstream Urbanism	23	96
Dense Urbanism MH	29	38
Hybrid Urbanism	54	98
All projects	106	81
Front- and side-loaded garages***		
Mainstream Urbanism	23	30
Dense Urbanism MH	29	0
Hybrid Urbanism	54	44
All projects	106	29
Rear-loaded garages***		
Mainstream Urbanism	23	100
Dense Urbanism MH	29	62
Hybrid Urbanism	54	91
All projects	106	85
Green certification – commercial buildings***		
Mainstream Urbanism DH	23	91
Dense Urbanism MH	29	24
Hybrid Urbanism MD	54	0
All projects	106	26

(*Continued*)

Table 7. (*Continued*).

Characteristic	Number of responses	Percent of projects with characteristic
Green certification – residential buildings***		
Mainstream Urbanism [DH]	23	87
Dense Urbanism	29	21
Hybrid Urbanism	54	6
All projects	106	27

*p < .1; **p < .05; ***p < .01
[M] different from Mainstream Urbanism; [D] different from Dense Urbanism; [H] different from Hybrid Urbanism

Housing

The profile of housing characteristics is similar in both Mainstream Urbanism and Hybrid Urbanism projects, but Dense Urbanism projects stand out as distinct. Projects in this last cluster average only two housing options, which is significantly fewer than the other clusters. Interestingly, there are no Dense Urbanism projects that include single-family units. Furthermore, only a small proportion of these projects include duplex or accessory dwelling units. A part of the dissimilarity between Dense Urbanism and the other clusters can be attributed to differences in the projects' developed area and net density. Mainstream and Hybrid Urbanism projects are large-area and medium-to-low-density neighborhood projects; in comparison, Dense Urbanism projects are smaller and more compact. These features can be seen as development constraints which explain the absence of single-family units and the preponderance of apartment units. Looking beyond the types of housing in these three clusters, Table 8 also shows that affordable housing is present at comparable proportions across all three clusters.

Land use

The numbers and types of non-residential land uses are unevenly distributed across the different types of projects, adding to the distinctions between them. Profiles of land use both within and proximate to projects are examined. Examining first which land uses appear within projects, Table 9 indicates that there is an average of 6.4 different types of non-residential land uses across all NU projects considered in the study. The average number of land uses for the Dense Urbanism and Hybrid Urbanism clusters are comparable to the sample mean. However, Mainstream Urbanism projects have a significantly higher average number of non-residential uses. A slightly different pattern is evident when considering the average number of non-residential land uses that are adjacent to NU projects. As Table 10 shows, both Dense and Mainstream Urbanism projects have comparable average numbers of adjacent land uses, but the figure for Hybrid Urbanism projects is significantly lower.

Beyond the distribution of non-residential land uses across the types of projects, there are also differences in the composition of non-residential land uses present within the different clusters of NU projects. To envision the differences between the three clusters, it is instructive to review the composition of land uses within and adjacent to each category. As Table 9 shows, a significantly higher proportion of Mainstream Urbanism projects include civic buildings, light industry, and private clubs. And Table 10 illustrates that

Table 8. Housing characteristics.

Characteristic	Number of responses	Number of housing types
Housing types***		
Mainstream Urbanism	23	4.39
Dense Urbanism MH	29	1.93
Hybrid Urbanism	54	4.18
All projects	106	3.61
	Number of responses	Percent of projects with characteristic
Single-family units***		
Mainstream Urbanism	23	100
Dense Urbanism MH	29	0
Hybrid Urbanism	54	100
All projects	106	73
Duplex/multifamily***		
Mainstream Urbanism	23	78
Dense Urbanism MH	29	34
Hybrid Urbanism	54	83
All projects	106	69
Townhouses***		
Mainstream Urbanism	23	87
Dense Urbanism MH	29	52
Hybrid Urbanism	54	89
All projects	106	78
Apartments/condominiums		
Mainstream Urbanism	23	96
Dense Urbanism	29	93
Hybrid Urbanism	54	83
All projects	106	89
Accessory dwelling units***		
Mainstream Urbanism	23	78
Dense Urbanism MH	29	14
Hybrid Urbanism	54	63
All projects	106	53
Affordable housing		
Mainstream Urbanism	23	52
Dense Urbanism	29	41
Hybrid Urbanism	54	39
All projects	106	42
Affordable housing ratio	Number of responses	Percent of all housing that is affordable
Mainstream Urbanism	12	34
Dense Urbanism	12	32
Hybrid Urbanism	21	51
All projects	45	42

(*Continued*)

Table 8. (*Continued*).

Affordable housing ratio	Number of responses	Percent of all housing that is affordable
Measures to continue affordable housing		
Mainstream Urbanism	12	83
Dense Urbanism	12	83
Hybrid Urbanism	21	76
All projects	45	80

$^{***}p < .01$
^{M} different from Mainstream Urbanism; ^{D} different from Dense Urbanism; ^{H} different from Hybrid Urbanism

Mainstream Urbanism projects tend to locate adjacent to education land uses to a greater extent than do projects in the other categories. Furthermore, projects in this cluster are also frequently proximate to all of the other land uses considered in this study. This exposure to diverse land uses is achieved despite the fact that about 40% of Mainstream Urbanism projects are built on greenfield sites.

The land use mix in Dense Urbanism projects is characteristic of the downtown entertainment districts, new town centers, and TODs that populate this cluster. Dense Urbanism projects frequently include commercial and retail, entertainment, lodging, office, and transit land uses as well as open space and parks. But as Table 9 shows, there are significantly fewer instances of Dense Urbanism projects that include civic, education, light industrial, and religious land uses. Indeed, the education and religious land uses are present to a significantly lesser extent in this cluster compared to the others. Because 86% of Dense Urbanism projects are built in an infill location, it is also the case that these projects are adjacent to a diverse set of land uses. As Table 10 reveals, Dense Urbanism projects are frequently adjacent to all of the land uses evaluated by the survey except for light industrial. Moreover, Dense Urbanism projects are adjacent to transit land uses to a greater extent than Hybrid Urbanism projects. On this same point, respondents estimated the time it would take to walk from the center of the project to a transit stop. Due to the compactness and built-up location of most Dense Urbanism projects, it is not surprising to note that the average time to walk to transit stops was lowest for this cluster, a statistic that is significantly lower than the average time reported for Hybrid Urbanism projects.[4]

In contrast, the Hybrid Urbanism cluster exhibits the least diverse mix of land uses. Consequently, commercial and retail, entertainment, lodging, and transit land uses are all present to a significantly lesser extent in the Hybrid Urbanism cluster, as recorded in Table 9. Despite the statistically significant differences, commercial and retail land uses still appear in 81% of Hybrid Urbanism projects. Considering the high proportion of Hybrid Urbanism projects in greenfield locations, it is not surprising to see in Table 10 that these projects are adjacent to a significantly lower average number of different land uses compared to the other clusters. Again, there are also patterns in the types of land uses that are absent in this cluster compared to the others. Specifically, civic, entertainment, government services, lodging, medical, office, and transit land uses appear adjacent to Hybrid Urbanism projects to a significantly lesser extent, compared to the other categories. Despite this divergence, Hybrid Urbanism projects should still be associated with mixing a particular array of land uses.

Table 9. Land use types included in project boundaries.

Characteristic	Number of responses	Average number of land uses
Total land uses***		
Mainstream Urbanism DH	23	8.09
Dense Urbanism	29	6.17
Hybrid Urbanism	54	5.87
All Projects	106	6.43
Characteristic	Number of responses	Percent of projects with characteristic
Civic buildings***		
Mainstream Urbanism DH	23	83
Dense Urbanism	29	37
Hybrid Urbanism	54	59
All Projects	106	58
Commercial and retail**		
Mainstream Urbanism	23	100
Dense Urbanism	29	97
Hybrid Urbanism MD	54	81
All projects	106	89
Education**		
Mainstream Urbanism	23	61
Dense Urbanism MH	29	31
Hybrid Urbanism	54	61
All projects	106	53
Entertainment**		
Mainstream Urbanism	23	61
Dense Urbanism	29	58
Hybrid Urbanism MD	54	31
All projects	106	45
Government services		
Mainstream Urbanism	23	39
Dense Urbanism	29	31
Hybrid Urbanism	54	35
All projects	106	34
Light industrial**		
Mainstream Urbanism DH	23	26
Dense Urbanism	29	7
Hybrid Urbanism	54	7
All projects	106	0.11
Lodging*		
Mainstream Urbanism	23	61
Dense Urbanism	29	55
Hybrid Urbanism M	54	35
All projects	106	46

(*Continued*)

Table 9. (*Continued*).

Characteristic	Number of responses	Percent of projects with characteristic
Medical		
Mainstream Urbanism	23	61
Dense Urbanism	29	48
Hybrid Urbanism	54	48
All projects	106	51
Office		
Mainstream Urbanism	23	91
Dense Urbanism	29	79
Hybrid Urbanism	54	74
All projects	106	79
Open space and parks		
Mainstream Urbanism	23	96
Dense Urbanism	29	86
Hybrid Urbanism	54	96
All projects	106	93
Private clubs**		
Mainstream Urbanism [H]	23	69
Dense Urbanism	29	48
Hybrid Urbanism	54	35
All projects	106	46
Religious***		
Mainstream Urbanism	23	61
Dense Urbanism [MH]	29	10
Hybrid Urbanism	54	57
All projects	106	45
Social services		
Mainstream Urbanism	23	30
Dense Urbanism	29	21
Hybrid Urbanism	54	30
All projects	106	25
Transit***		
Mainstream Urbanism [DH]	23	65
Dense Urbanism [DH]	29	93
Hybrid Urbanism [MD]	54	37
All projects	106	58
Time to walk to transit stops*		Mean travel time (minutes)
Mainstream Urbanism	19	3.52
Dense Urbanism [H]	28	2.21
Hybrid Urbanism	37	6.89
All projects	84	4.57

*p < .1; **p < .05; ***p < .01

[M] different from Mainstream Urbanism; [D] different from Dense Urbanism; [H] different from Hybrid Urbanism

Table 10. Land use types adjacent to projects.

Characteristic	Number of responses	Average number of land uses
Total number***		
Mainstream Urbanism	23	8.26
Dense Urbanism	29	8.07
Hybrid Urbanism MD	54	5.15
All Projects	106	6.62
Characteristic	Number of responses	Percent of projects with characteristic
Civic buildings***		
Mainstream Urbanism	23	74
Dense Urbanism	29	72
Hybrid Urbanism MD	54	37
All projects	106	55
Commercial and retail		
Mainstream Urbanism	23	73
Dense Urbanism	29	79
Hybrid Urbanism	54	61
All projects	106	69
Education***		
Mainstream Urbanism DH	23	87
Dense Urbanism	29	48
Hybrid Urbanism	54	54
All projects	106	59
Entertainment***		
Mainstream Urbanism	23	52
Dense Urbanism	29	65
Hybrid Urbanism D	54	29
All projects	106	44
Government services***		
Mainstream Urbanism	23	61
Dense Urbanism	29	69
Hybrid Urbanism D	54	35
All projects	106	50
Light industrial		
Mainstream Urbanism	23	48
Dense Urbanism	29	34
Hybrid Urbanism	54	26
All projects	106	33
Lodging***		
Mainstream Urbanism	23	52
Dense Urbanism	29	62
Hybrid Urbanism D	54	28
All projects	106	42

(*Continued*)

Table 10. (*Continued*).

Characteristic	Number of responses	Percent of projects with characteristic
Medical*		
Mainstream Urbanism	23	56
Dense Urbanism	29	58
Hybrid Urbanism [D]	54	35
All projects	106	46
Office***		
Mainstream Urbanism	23	78
Dense Urbanism	29	83
Hybrid Urbanism [MD]	54	52
All projects	106	66
Private clubs		
Mainstream Urbanism	23	52
Dense Urbanism	29	45
Hybrid Urbanism	54	33
All projects	106	41
Religious		
Mainstream Urbanism	23	74
Dense Urbanism	29	62
Hybrid Urbanism	54	50
All projects	106	58
Social services		
Mainstream Urbanism	23	48
Dense Urbanism	29	38
Hybrid Urbanism	54	29
All projects	106	36
Transit***		
Mainstream Urbanism	23	69
Dense Urbanism [H]	29	89
Hybrid Urbanism	54	44
All projects	106	62

*$p < .1$; **$p < .05$; ***$p < .01$
[M] different from Mainstream Urbanism; [D] different from Dense Urbanism; [H] different from Hybrid Urbanism

Discussion and conclusion

There is considerable variation in the form and content of NU, and the typology outlined in this paper offers a way to conceptualize it. Indeed, this typology makes three distinct contributions to the literature on the New Urbanism, which are discussed in turn. The first and perhaps paramount contribution is that the typology offers an improvement over the status quo of classifying NU according to infill and greenfield distinctions. This is evident in two ways. For one thing, the categories of Mainstream, Dense, and Hybrid Urbanism recognize more variation in the built environment of NU projects than the labels of infill and greenfield. In fact, the typology described in this paper is associated with statistically significant differences in 42 built environment attributes. A comparison-of-means test for the same 106 NU projects sorted into infill and greenfield categories

was also conducted, which identified statistically significant differences in only 32 built environment attributes.[5] Furthermore, the infill and greenfield classification scheme belies more nuanced distinctions among the projects that comprise the movement. This is primarily because the classification scheme associates projects on the basis of their location in the metropolitan area. While it appears that there are real differences in the layout, design, and composition of NU projects at infill and greenfield sites, the diversity of NU in practice cannot reasonably be reduced to these categories alone. Instead, a typology that considers differences in the form and content of built environment alongside location must be used to comprehend this diversity. The categories of Mainstream, Dense, and Hybrid Urbanism begin to do this.

Secondly, this typology presents a framework with which to evaluate the representativeness and generalizability of research about NU in practice. Investigation into the movement over the last decade or so has generated a sizable body of scholarship in which intensive case studies of particular projects predominate (though several extensive surveys have recently emerged, e.g. Grant and Bohdanow 2008; Johnson and Talen 2008; Stevens et al. 2010). Case study research is vital to the discussion of NU because it offers important perspective concerning the ways NU principles, when implemented, can inform everyday life (see e.g. Ford 2001; Day 2003; Lund 2003; Deitrick and Ellis 2004; Larsen 2005; Dill 2006; Markovich and Hendler 2006; Kim 2007; Grant 2009; Moore 2010). At the same time, however, the case studies have disparate research agendas and do not add up to a comprehensive or a systematic view of the ways in which NU is implemented and its societal effects. To this point, Bjelland et al. (2006) have called for more research on NU as it is practiced in locations beyond the East and West Coasts. Also, many of the case studies concentrate their examinations on high-profile projects such as Kentlands, Maryland, Laguna West, California, and Celebration, Florida, which are not representative samples of the movement or its implementation (Ellis 2002). There have also been recent efforts to acknowledge the diversity of NU in practice (Grant 2009; Moore 2010), but these have focused on a handful of cases, some of which concentrate on a single metropolitan area and thus cannot be generalized to describe the movement in a definitive way. The typology presented in this paper thus begins to address these limitations by offering a comprehensive view of the types of NU in practice. Furthermore, the categories of NU offered in this paper can advance the state of scholarship on NU because they can be used to contextualize research as applying to specific forms of NU and enable meaningful comparisons of the seemingly disparate collection of case studies that populate the literature. Moreover, these categories allow the field to move beyond the simplistic categories of infill and greenfield.

A final contribution consists in the application of the typology to stimulate new inquiry on NU and enhance existing research. For instance, one emerging thread in the scholarship of NU focuses on the political economy of its development. The typology described in this paper suggests that there are multiple New Urbanisms, which may entail different processes and politics for their origination and siting. Environmental conservation, social equity, urban design theory, and other sustainability interests may inflect the shape and content of how NU is implemented (Bohl 2000; Al-Hindi and Till 2001; Rees 2003; Bjelland et al. 2006; White and Ellis 2007; Johnson and Talen 2008; Moore 2010), but this movement is firmly situated in the constellation of growth interests (Gearin 2004; Veninga 2004). To this point, Mayo and Ellis (2009) have constructed a framework to analyze how capitalist development interests interact differently with the design, environmentalist, and social equity principles of NU. Their framework conceptualizes points of connection and disconnection between capitalist finance and the principles of NU which

affect how it takes actual shape. It would be instructive to use Mayo and Ellis' framework to trace the processes and politics of developing the different types of NU identified in this paper. Such an evaluation would shed further light on the question of what accounts for the fact that each cluster is associated with a distinct metropolitan context. Thus, one hypothesis to investigate in this regard is that there are distinct constellations of urban development actors that elect to implement specific NU principles. A second hypothesis is that locale-specific features shape the development process. Indeed, given that the different types of NU are associated with different contexts (i.e. built-up inner-city areas, fast-growing large suburban areas, and slow-growing small suburban areas), it may be that there is a specific assemblage of land use regulations and political will to innovate the built environment in each context that favors the implementation of particular NU principles over others. Research with regard to these hypotheses will begin to uncover why the different forms of NU are associated with different metropolitan contexts. Doing so will advance in substantive ways our understanding of the political economy and siting of NU development.

In conclusion, the central insight of this paper is that multiple built forms constitute NU in practice. Indeed, NU is a pluralist movement and it ought to be treated analytically as such. The categories of Mainstream Urbanism, Dense Urbanism, and Hybrid Urbanism begin to describe this multiplicity and can be used to analyze and situate empirical claims about the landscapes of NU. At the same time, there are opportunities for further research to apply, test, and refine the typology in an effort to extend further our understanding of New Urbanism as it actually exists.

Acknowledgements

This paper has benefited from the comments of three anonymous reviewers. Thanks to Stephen Filmanowicz and Robert Steuteville for their help acquiring data from the Congress for the New Urbanism and New Urban News Publications, respectively. Thanks also to Nolan Levenson for his assistance with the research informing this paper. All remaining errors are mine alone.

Notes

1. These measures were calculated by examining the street system within a project's boundaries. Google Maps was used to count intersections, dead ends, and entrance points for projects. The ability to calculate these measures was further contingent on the availability of a few pieces of information. First, the boundaries of the project in relation to the street system needed to be clear. This matter was typically clarified through detailed site plans provided by developers. Second, developers needed to provide the total area of the development. Finally, the project needed to have been under construction or completed one or more years before 2009. Those projects for which the aerial photographs and street maps depicted in Google Maps showed no evidence of a street system were removed from consideration.
2. HUD defines low-income households as earning less than 80% of the local-area median income and considers housing affordable to a household if it can rent or make mortgage payments on the unit for less than 30% of its monthly income. The survey also inventories whether projects have policies in place to ensure that such housing continues to be affordable to low-income households over time.
3. Records were removed if they described NU projects that were too small (less than 10 acres) or too large (10,000 acres, which is essentially a small town) to be considered part of the study population.
4. There are also statistically significant differences between Hybrid Urbanism and Mainstream Urbanism clusters when one takes into account that about one-quarter of Hybrid Urbanism projects do not have access to transit.
5. The tabular results of the comparison between infill and greenfield projects are not reported in this paper due to length constraints.

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