New Urbanism and Sprawl

How homebuyers trade-off

higher residential density

against neighborhood quality.

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SO-CALLED NEW URBANISTS advocate higher residential densities as alternatives to sprawl. However, since the beginning of the twentieth century, market forces—assisted by government programs—have favored low-density suburban development. Given the strength of these market forces, and the popularity of the single-family detached house on its own lot, why should planners and developers now expect that a new urbanist design model can change the evolution of cities in such a fundamental way?

The spatial structure of cities is determined by households balancing commuting costs against housing costs in their search for optimal locations. Moving far-

ther from the city center increases a household's commuting cost by an amount that is independent of its housing consumption. As a result, the households that are willing to spend more on commuting gain even larger savings due to the lower land prices. Neoclassical economic models suggest that rising affluence flattens urban land rent gradients and density profiles and increases the rate at which cities spread outward. Although conventional suburban housing is disdained by many architects and planners, its attributes are in line with neoclassical economic theories of spatial structure and household preferences as revealed in the market place. How then, can New Urbanism, a development option that would increase density on the lowest priced land at the periphery of the city, be a viable and replicable substitute?

New Urbanism's main innovation is to use higher density, generally considered an "inferior" attribute in the economic sense, to create a "superior" asset: attractive, walkable mixed-use neighborhoods. Consumer preference surveys suggest that while many suburban residents like their detached houses, they do not like the "rest of the suburban package" and it is this "rest" that New Urbanism reconfigures. New urbanists claim—with little evidence—that homebuyers will willingly forgo the conventional detached house on a large lot to gain the neighborhood qualities made possible by sensitive urban design that brings out the attractive aspects associated with higher-density living.

Neoclassical economic models that focus on location as defined by commuting distance to a center usually ignore neighborhood characteristics. On the other hand, classical economists such as Ricardo tended to ignore location while showing how land rent profiles reflect the value of differences in fertility (quality) that can be interpreted in the urban setting as differences in neighborhood quality. Since there is no contradiction between the two theories of land value, it is possible to view land value and therefore the density profiles of a city as being determined by centripetal and centrifugal forces (the neoclassical theory), as well as by neighborhood attributes (the classical theory). Thus, new urbanist designs may generate the differential rents that overlay the neoclassical profiles developed through the commute/lot size tradeoff. The Ricardian model, on the other hand, provides the demand-side argument for the new urbanists' claim that their developments are an antidote to sprawl, by turning the net effects of higher density into a positive attribute. Research has shown that there is a price premium, or a capitalized Ricardian rent, attached to houses in some new urbanist communities. That is, some consumers appear to be willing to pay a premium for the neighborhood attributes made

possible by the higher density of new urbanist developments. The size of this clientele is disputed.

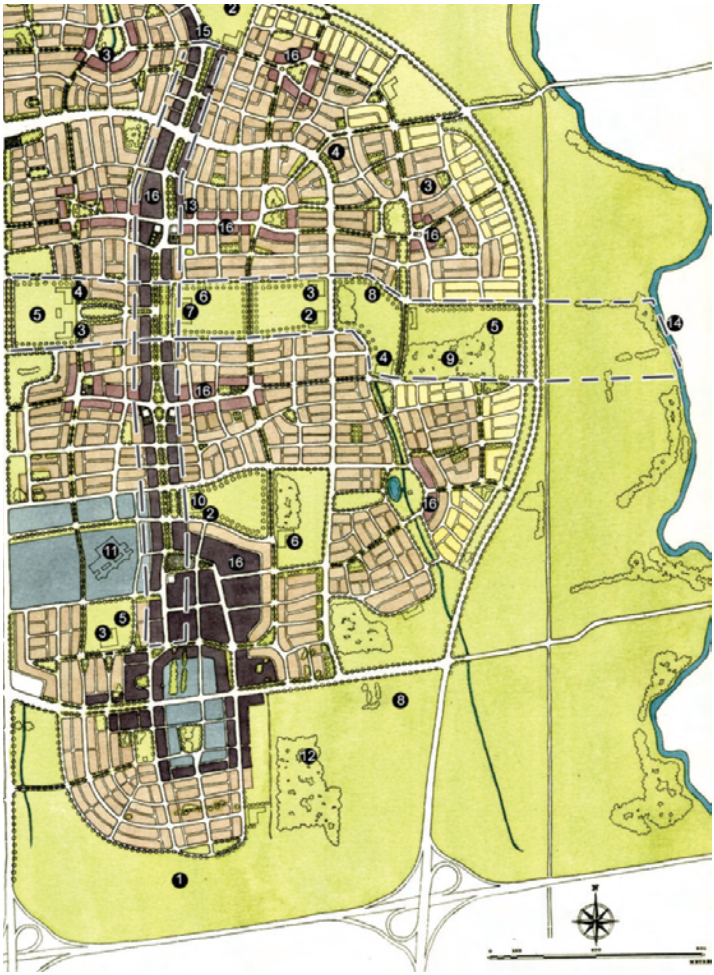
Neighborhood quality plays an important role in housing desirability patterns and real estate valuation, and neoclassical models are not contradicted by gentrification trends and the return to downtown phenomenon. Changing household formation, marriage rates, and fertility rates, coupled with increases in women's participation in the labor force, and global shifts in the nature of employment opportunities have increased the demand for higher-density housing and downtown locations. At the same time, demand by non-family households headed by both men and women for single-family suburban housing in the suburbs continues. The interest of this paper however is in the prospects for higher-density development on the lowest-priced land at the edge of a city. If we accept the neoclassical models, we would expect that new urbanist projects would be most successful as infill projects on vacant land produced by earlier discontinuous urban growth. This paper explores the demand for higher-density housing in the parts of the city that offer the greatest potential for developers to build and for consumers to buy the conventional detached house on a treed lot that forms the dream of most families in all parts of the world.

CORNELL

A homeowner survey was conducted in Cornell, one of eleven new urbanist planned communities totaling 45,000 units that have been built in Markham, a suburban municipality about a half-hour drive from downtown Toronto. In 1992, the Markham city councilors, anticipating a doubling of population to 225,000 over a ten-year period, commissioned the Miami firm of Duany Plater-Zyberk, a pioneer of New Urbanism, to design Cornell, a new planned community on a 1,500-acre site owned by the province of Ontario as a result of a 1973 expropriation for a second Toronto airport (that was later cancelled). The plan (Figure 1) houses 27,000 people in 10,000 dwellings and includes ten elementary schools, two secondary schools, three community centers, and 250,000 square feet of retail space as well as employment for 10,000. People began moving to Cornell in 1998. At the time of the survey in the fall of 2004, Cornell had just over 1,000 occupied dwellings; half of the 203 survey respondents had lived there for at least two years.

Gross residential densities in Cornell average eight units per acre, which is more than Markham's five to six dwellings per acre, and considerably more than the three to four dwellings per acre threshold that usually defines low-density development. This makes it sound as if Cornell is coun-

Figure 1: The Cornell master plan



1. Storm Water Management Facility
2. Place of Worship
3. Public Elementary School
4. Separate Elementary School
5. Neighborhood Park
6. Public High School
7. Community Recreation Center
8. Community Park
9. Heritage Feature
10. Separate High School
11. Hospital
12. Environmentally Significant Area
13. Community Library
14. Central Green Corridor
15. Spine Road (main street)
16. Ground Floor Retail

tering sprawl; however, there is a difference between the density that developers propose when applying for approval and what finally gets built, and some higher-density plans that have been approved in Markham have ended up as conventional low-density subdivisions. City planners hope that Cornell will be completed with higher-density housing and mixed land-use but there is no assurance of this outcome, and it is likely that market demand will determine Cornell's future density.

Cornell has a larger proportion (43 percent) of row and townhouses than either Markham (11 percent) or inner-city Toronto (10 percent). Thirty-seven per-

cent of Cornell's housing is detached houses (Figure 2), which is substantially lower than Markham's 76 percent, and lower than the metropolitan average of 43 percent. The median house size in Cornell (2,037 square feet) is smaller than in the metropolitan area (2,300 square feet), as is the median detached-house lot: 3,300 square feet at Cornell versus 4,000 square feet in the metropolitan area. Detached houses at Cornell sold in 2002 for C$240,000 to C$360,000, and townhouses for C$140,000 to C$190,000, compared to the average price in metropolitan Toronto at that time of C$343,000, slightly higher in Markham. Thus, Cornell, although located within a wealthy municipality, offers a range of house prices; unlike some of the early new urbanist communities, this is not a high-income enclave.

Cornell has attracted young families with an average adult age just under forty, as compared to forty-eight for the metropolitan area. The average household size is 3.1 compared to 2.8 for the metropolitan area. The demographic profile of Cornell does not support the claims of some researchers that new urbanist developments attract mostly single adults, with or without children. More than half of the survey respondents were first-time homebuyers, and most of the households came from the surrounding suburbs, suggesting that Cornell is not competing with the downtown condominium market. Since

Figure 2: High-density detached housing at Cornell

more than a third of respondents said that they had considered moving outside the greater Toronto area, Cornell also appears to keep households from moving farther outside the urban boundary.

CHOOSING NEW URBANISM

Half of respondents said that a desire to buy their first home was one of their main reasons for deciding to move, and half also said that they moved because they wanted to live in a new urbanist community. No association (p-value=0.83) was found between the decision to buy a first home and the decision to move to a new urbanist community. Changes in household size and changes in income were the other main stated reasons for moving.

Most respondents considered either the dwelling or the neighborhood as being the most important general factor affecting their housing decisions. Of the location attributes, "proximity to friends and relatives" was identified by more than half as being one of the three most important in their decision to come to Cornell. "Proximity to work" was important to more than 40 percent (availability of public transport mattered to less than 15 percent), while "proximity to people with similar lifestyles" attracted more than a third. More than a third also valued access to parks and community facilities; contrary to new urbanist theory, access to theaters and restaurants was not considered important.

More than two-thirds of respondents considered that the "quality of the neighborhood design" attracted them to Cornell, and more than half identified the project's "general appearance" as an attraction. More than a third liked the wide range of housing available and the same proportion said they considered investment value as one of their three main reasons for buying their dwelling. A quarter of respondents expressed the importance of the pedestrian and park networks. The developer's reputation, the transportation network, the project's prestige, the mixed land-use, and ease of parking do not appear to have been major considerations. For the dwelling attributes, the floor plan helped more than 80 percent of respondents decide on their present dwelling. Cornell has garages accessed by back lanes (Figure 3), and these lanes were positively appreciated by almost a half of the respondents, but less than a third of the respondents valued porches and balconies, perhaps because their small size reduces their utility.

The main statistically significant differences across the dwelling types were due to the people in the higher-density options being more inclined to stress the importance of cost considerations and proximity to work. Since "downtown" for these households is Markham rather than

Figure 3: Back lane at Cornell

Toronto, neoclassical arguments for a declining density gradient have to be adjusted to recognize the multiple peaks within the growing polycentric urban region. These households may not be sacrificing commuting time for lower land prices, but they are accepting the higher-density to be nearer their work. For most respondents, neighborhood attributes played a major role in their decisions to move to Cornell, and most were aware of the new urbanist features and expressed their appreciation of them. Thus, there is a basis for believing that new urbanist attributes encourage households to accept higher-density living.

CHANGES IN BUILDING TYPE

The substitutes to Cornell can be inferred by looking at households' previous housing, by examining the other options they considered before choosing their current dwellings, by comparing the type of housing they would have selected had Cornell not been available, and by examining the option they would most likely choose if they were looking for a new place to live. Our research shows that a household's previous building type does not predict the dwelling type they buy in Cornell. For example, only 39.1 percent of the households that came from detached houses bought detached houses, and only 22.7 percent of the households from semi-detached houses bought semi-detached houses. More than a half (56.3 percent) of the households that were living in townhouses bought a detached house in Cornell. This suggests that the survey population is heterogeneous—as many are moving up as down in their housing purchases.

A high proportion of the semi-detached and townhouses occupants (86.1 percent and 67.9 percent) "seriously considered" buying a single-family detached house but most also considered a semi-detached (83.3 percent) and a townhouse (55.6 percent). The small proportion (11.3 percent) of households that considered an apartment suggests that suburban multi-family housing types are not a substitute for Cornell, and that the main effect on the market of higher-density housing is a trickle-down process: one out of every four Cornell households left an apartment unit behind for others to occupy.

When asked about the housing that respondents would have chosen had Cornell not been available, only two would have chosen a multi-family building, and more than half (56.2 percent) said that they would have chosen a detached house, a proportion that is not much larger than the 41.8 percent currently living in detached houses. At most, Cornell drew 14.4 percent of its households away from the suburban single-family detached house market, a number that only moderately supports the claim that New Urbanism reduces sprawl by conserving land. Since only 21.9 percent said they would have chosen a townhouse had their Cornell option not been available, the project either enticed people into the higher-density option, or many of the townhouse occupants who said they would have chosen a detached house were engaging in wishful thinking. Most households did not change housing types when they moved to Cornell. Most (80.8 percent) of the households moving to detached houses would have moved to a detached house elsewhere had the new urbanist option not been available. However, the distribution is even for households moving to Cornell's townhouses and it is possible that the option deflected them into a higher-density building type. This tendency is supported by the semi-detached occupants, half of whom said that they would have bought a single detached house had Cornell not been available.

Most of respondents (86.6 percent) said that they would move to a single-family detached house if they were looking for a house now. Most (82.8 percent) also said that they would choose a new urbanist community if they were to move now; only 3.4 percent said that they would not, and the rest did not know. Cornell's current mix with 37 percent detached houses falls almost 50 percent short of satisfying the demand for detached houses that is likely to be generated by its aging population. Nevertheless, of the households that would select a detached house now, 82.3 percent say that they would choose one in a new urbanist community. Apparently, the demand for a detached house does not lessen the respondents' interest in New Urbanism. These results support the find-

ings in the literature that suggest suburban households like the detached house but are dissatisfied with the "rest of the package."

CHANGES IN LOT SIZE AND HOUSING DEMAND

Respondents were asked if their previous lot was bigger, about the same, or smaller than their Cornell lot. The same proportion moved to a smaller lot (47.8 percent), as moved to a larger lot (45.8 percent). Most of the people coming from detached houses (76.4 percent) moved to a smaller lot, while most of the rest moved to a larger lot. More than a half (58.3 percent) of the households currently living in townhouses moved to smaller lots, compared to a much smaller proportion (31.3 percent) of the detached house occupants. These statistics support the argument for more townhouse suburban developments to help contain sprawl. However, the fact that many households stayed in detached houses but accepted smaller lots suggests that they are either giving up lot size to gain the attributes of New Urbanism, or are decreasing their housing consumption due to changes in household composition or income.

Comparing the current dwelling type with the type that households would select if they were to move now shows that detached house occupants would stay with detached houses and would not move to a higher-density type such as a townhouse. On the other hand, most of the occupants of the higher-density buildings—semi-detached and townhouses—would move to a lower density dwelling. About a half of all of the Cornell households would increase lot sizes and a half would stay with their current building type. Only two households would decrease their land consumption by moving to a more dense building type. Our research suggests that Cornell's most permanent effect on land consumption is through its supply of detached houses on small lots, encouraging some people who are expanding their housing consumption to accept smaller lots in exchange for higher neighborhood quality.

Households may move to larger lots because of increased household size, and the survey suggests that at least half of the moves to Cornell were due to changing housing needs. The birth of a child increased the size of 15.8 percent of the households. New households were formed by the 12.3 percent of the people who moved out from their parents' home. Almost the same proportion got married (7.4 percent) as separated or divorced (6.9 percent) canceling their net effect on aggregate housing demand. Empty nesters, however, were not attracted to Cornell. The households that did not change size are randomly distributed across the three building types. Three out of every four of the households that did not change in size

increased their dwelling size but only half moved to larger lots, suggesting that some Cornell households reduced lot size despite increasing their house size.

The distribution of Cornell building types by household changes offers no surprises: households decreasing in size tended to move to townhouses (56.3 percent), while growing households move to detached houses (55.3 percent). Households that decreased in size tended to decrease both house size (66.7 percent) and, more often, lot size (77.1 percent). Of growing households, 38.3 percent moved to smaller lots, while only 23.8 percent moved to smaller houses. Many of the households that could have been expected to move to conventional suburbs accepted smaller lots and higher densities in Cornell. Evidently, New Urbanism encourages some people to trade lot size for neighborhood quality, but the numbers are not impressive.

The net effect of Cornell depends also on the extent to which the availability of below-average-priced units lets people move to larger houses at an earlier date. Since most respondents saw themselves as having had either a "wide" (67.0 percent) or, at least, a "narrow selection from which to choose" (26.7 percent), most could have found a dwelling elsewhere. Since a high degree of choice tends to be positively correlated with satisfaction, we infer that no one was pushed into Cornell by adverse market conditions. Indeed, a sizable proportion did cite their desire to live in a new urbanist community as a reason for moving from their previous and often less land-consuming dwellings.

SATISFACTION

The most important features attracting households to Cornell are the result of neighborhood design (Figure 4); the proximity to friends, relatives and work; the house plan; and the back lanes. The importance of the urban design in both the residents' decisions to move out of their previous dwelling and in their decisions to come to Cornell is in accord with other research of new urbanist communities.

In response to the question "In general, how does your experience living here compare to the expectations you had when moving in?" 91.4 percent of the 199 respondents felt that their experience was at least as good as their expectations and almost a half (43.3 percent) felt that it was better or much better (12.0 percent) than the expectations they had when moving in, and only 17 respondent (8.6 percent) felt it was worse. When asked what they disliked about Cornell, 30 percent mentioned the traffic on local streets, 18 percent the lack of commercial development, and 12.4 percent (mostly the occupants of detached houses) complained that their houses were too close together. The 8.6

Figure 4: Compact neighborhood street at Cornell

percent whose expectations had not been met were twice as likely (29.4 percent) to complain about density or small lots, and three times more likely to complain about the lack of commercial facilities. When asked in an open question what they "particularly liked," the responses were consistent: community spirit (58.2 percent), neighborhood design (57.2 percent), location (21.9 percent), and open space (18.9 percent). The households whose expectations were not met were less likely to mention community spirit and much more likely to appreciate the open space. In all of the housing surveys that I have conducted or been involved in over the last thirty years, a small percent of respondents always express their dissatisfaction with their conditions, but we did not find a core group of households that were dissatisfied with the higher densities or with any of the attributes of New Urbanism. Overall, the survey points to a very satisfied clientele.

CONCLUSIONS

Almost all of the Cornell respondents expressed satisfaction with their housing and their community. The quality of the neighborhood design was an important factor attracting most households to Cornell and it appears to be accepted in exchange for higher density. These findings are in accord with the Ricardian model of land value based on quality differences. The more cost-conscious households are in the smaller units in the higher-density housing and their somewhat higher concern for proximity to work is in accord with the neoclassical theory. The story told through the survey research suggests that some households are making the lot-size/neighborhood-quality trade-off that is needed for the new urbanist option to have a small net effect on the region's density and slightly help to reduce sprawl.

The survey shows that half of Cornell's households increased the size of their lots when moving to the new urbanist community, and half decreased it. We concluded that Cornell attracts households destined to live in the suburbs and is not competing with the high density condominium market. Most of Cornell's residents will either stay in their detached houses or eventually move to a detached house. Although the density in Cornell is twice as high as in some of the surrounding conventional suburbs, its net effect on urban density is not nearly as high on account of the differences in the kind of households that the two options attract. Many of Cornell's residents are first-time buyers of lower-priced, higher-density houses who would not have been able to buy a conventional suburban house. Had Cornell not been available, they would have moved to some other townhouse community. We conclude, therefore, that the availability of the new urbanist option did reduce sprawl in the urban region slightly by placing detached houses on smaller lots, but the reduction is much smaller than indicated by a simple comparison with the density of a conventional subdivision.

The Cornell dwelling mix is not replicable across suburban development. One half of Cornell's current population cannot be satisfactorily housed over their housing life cycle within a development like Cornell: 88.6 percent say they would move to a detached house if they were to move now, but Cornell's mix contains only 37 percent detached houses. Some older households do move to smaller houses but not nearly at the rate at which young households in a growing city move to larger ones. The transitions that could occur within Cornell as the population ages will not free enough of the larger units for the younger households who are now living in Cornell's row or townhouses, and who want to move to larger houses.

With increasing income, more households will be able to buy detached houses and we can expect this trend to continue. Given the finding that most of Cornell's residents plan on being in a detached house at some future date, and that almost all of these same households want to live in a new urbanist community, the future for detached house subdivisions incorporating new urbanist principles appears very good. By increasing the proportion of detached houses within its projects, the application of new urbanist principals in the design of suburbs can help reduce sprawl. New Urbanism's greatest contribution toward increasing suburban densities can be made by capturing the market for single-family detached houses on smaller lots.

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