

The Enduring Controversy of the Neighborhood Unit

Intense debate among prominent planners today has its roots in disagreements that go back more than a century – but recent research may point the way to resolving some old disagreements

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Abstract

The organization of modern city planning into “neighborhood units” – most commonly associated with the Clarence Perry proposal of 1929 -- in fact has deeper origins in City Beautiful, Garden City, and even European *quartier* planning. Controversies over neighborhood unit planning practices are almost as old, and moreover they continue unabated into the present day. New complexities include mitigation of vehicular traffic disruptions, maintenance of viable mixed pedestrian and transit modes, and related impacts on resource efficiency. We examine the history of this controversy up to the present day, and we discuss new evidence – including lessons from modern sciences of complexity -- that may point the way to resolving old disagreements.

Keywords: Neighborhood unit, Clarence Perry, City Beautiful, Garden City, Quartier, New Urbanism

Introduction

It may well be that within modern urban planning and design, no single practice has had greater influence – and at the same time, greater controversy -- than the use of the “neighborhood unit” as the fundamental increment of urban structure. An indication of this continued if controversial importance can readily be seen in vociferous contemporary debates among a number of internationally prominent planners, as we will discuss in more detail herein. But an illustrative example may be a recent (September 2010) exchange between New Urbanism co-founder Andres Duany and London urban designer Paul Murrain, Senior Fellow of the Prince’s Foundation for the Built Environment. Murrain blasted Duany for his continued promotion of Clarence Perry’s famous 1929 neighborhood unit model: “I condemn Perry because like you I observe, and I have observed the destruction of integrated urbanism across the developed world to a staggering degree courtesy of the model you promote.” (Murrain, 2010a) Duany, for his part, gave little ground: “Perry is a hero of mine. The most famous diagram in the history of planning! That is why I chose it. Learn from it. I modified it to best of my then knowledge, and modified it again...” (Duany, 2010a)

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This and other recent controversies reflect the enduring international legacy of neighborhood unit planning in general, and Perry's 1929 proposal in particular -- or at least its recently modified versions (as Duany suggests, and as we will discuss later). The intensity of the debate also indicates the high stakes involved for the participants, as they seek to respond more effectively to a daunting set of increasingly complex challenges: resource depletion, climate change, public health and well-being, social vitality, economic viability, ecological integrity, and other topics that are increasingly grouped under the heading of "sustainable urbanism." The debate, in this sense, centers on to what extent the neighborhood unit concept is part of the solution to this set of challenges, or part of the problem -- and on whether a modified neighborhood unit, or indeed some other alternate model, offers the most effective way forward.

However, as noted, there is nothing new about controversy over neighborhood unit planning. Indeed, as a number of authors have documented (e.g. Silver, 1985; Lawhon, 2009; Ben-Joseph, 2005) the history of neighborhood unit planning is long and complex, and with it comes an equally long and complex legacy of debate. Lewis Mumford, a major figure in 20th Century planning in his own right, noted in 1954 that while "during the last two decades the idea of planning by neighborhoods has been widely accepted," he also noted that "a counter-movement has come into existence" that has been "drawing up for battle" (Mumford, 1954). Nor does the story begin with Clarence Perry's model -- though his contribution is certainly seminal -- but as we shall see, neighborhood unit planning in some form, together with accompanying controversy, has roots far deeper in the history of planning. Before we can begin to sort out the current issues and opportunities, we must anchor the contemporary discussion within this complex legacy.

Neighborhood unit planning since Clarence Perry

In even a cursory examination of the history of neighborhood unit planning, one fact quickly becomes apparent: As Mumford noted, the model has had a profound effect upon the thinking and practice of planners since the early twentieth century. Lawhon, surveying historical US planning literature, cited the extensive record demonstrating that "the neighborhood unit has widely served as the primary design concept for new residential neighborhoods" (Lawhon, 2009). Nor has that influence faded: Solow, Ham and Donnelly, in a 1969 survey of American planners, reported that "half the [surveyed] group thought the neighborhood unit concept useful, valid, and ideal for public policy. Nearly 80% used the concept in practice" (Solow et al., 1969). Lawhon himself, in a much more recent survey of American planners active in smaller cities and rural areas, found that "fifty seven percent of those familiar with the neighborhood unit agreed or strongly agreed with the statement that 'the neighborhood unit is still a valid model to guide residential development design in my community and other communities'" (Lawhon, 2009).

The international literature also documents the pervasive global influence of neighborhood unit planning, as Murrain's observation to Duany suggests. Mumford, writing at mid-century, also pointed to the then-recent British New Towns as an

implementation of what he termed "planning by neighborhoods" (Mumford, 1954, p. 256). Azab, writing from Bahrain in 2006, noted that "the concept has proved to be the backbone for most practices within planning, design and policy making arenas." But as his paper made clear, he shared Murrain's misgivings about its global effects: "Scholars and professionals have widely used -or could we say, 'abused'- the idea without questioning its validity for both practice and/or education" (Azab, 2006). The next year -- and it would seem, with significant import in view of that country's rapid development -- the publication "Chinese Planner's Guide to Western Urban Planning Literature" presented and discussed the neighborhood unit, and did so uncritically (LeGates and Zhang, 2007).

Much of this modern influence can indeed be traced -- often explicitly by name -- to Clarence Perry, the proponent of the landmark 1929 proposal developed for the Russell Sage Foundation (Figure One.), the one that Duany described to Murrain as "the most famous diagram in the history of planning" (Perry, 1929a). Perry did not simply offer his model, but promoted it in a dizzying number of tracts, touted its many benefits as he saw them, and offered refutations of criticisms (e.g. Perry, 1926, 1929b, 1930). In just one such publication he argued for the traffic mitigation benefits of the neighborhood unit interior, its social cohesion (and what we would term today "social capital"), its ability to support a local school within walking distance, its usefulness as a model for slum rebuilding, and its profitable mix of amenities offered to buyers, among other benefits (Perry, 1929b).

As his writings make clear, one of Perry's overriding concerns was to accommodate the automobile by creating a separation between fast vehicles and much slower pedestrian-dominated residential areas. As he writes:

The automobile is working a great change in our city maps. To accommodate the ever growing stream of cars the engineers, in practically all our large cities, are building boulevards, parkways and super-highways. These wide, deep channels are cutting up residential sections into irregularly-shaped islands around which raging streams of traffic will soon flow. Should we not take some steps to formulate the size and the contents of these residential islands? If we permit highway specialization in the interest of the motorist, why should we not insist upon equal municipal care and forethought in the interest of the pedestrian and the resident? (Perry, 1929b, p. 99)

As we shall see, this advanced concession to the coming "raging streams of traffic" is very much at the core of contemporary controversies. But Perry clearly conceives here that the conflict is an inevitable one, and the only alternative is to segregate these two functions by creating functionally demarcated "residential islands." In this sense Perry was promoting segregation by function, a hallmark of early modern planning, and a central feature of use-based or "Euclidean" zoning codes. Drawing from his own words, we can even conclude that Perry's intent was to complement traffic engineers' hierarchical automobile-oriented road planning with its pedestrian-oriented residential precinct complement, a reformist approach that aims at confirming the underlying assumptions of the former.

Lewis Mumford also saw this functional segregation as inevitable: “Perhaps the first question of importance is what degree of isolation should be accorded the neighborhood, apart from the inevitable separation made by major traffic arteries.” (Mumford, 1954, p. 267). No surprise then that Mumford’s partners in the Regional Planning Association of America, founded in 1923, Henry Wright and Clarence Stein, developed their influential super-block based layouts for Sunnyside (1924) and Radburn (1929) as a clear anticipation of Perry’s diagram under the label of “The Motor Age Suburb”. On a wider ground, this was clearly an accommodation to the realities of modernity: “Neighborhood unit organization seems the only practical answer to the gigantism and inefficiency of the over-centralized metropolis.” (*op.cit.*, p. 266)

Functional and social segregation in Perry’s Neighborhood Unit

Nor was this functional segregation to be limited to that between automobiles and residential neighborhoods. As Mumford argues, the neighborhood unit is the centerpiece of a wider strategy of zoning by segregated use. “Perry’s concept of the neighborhood unit carried further the earlier notion, first used in Germany, of dividing a city into specialized zones.” Perry establishes the neighborhood unit as one kind of “nuclear” domestic zone: “Treating the domestic quarters of a city as a functional zone, to be differentiated in plan, because of its different needs, from the commercial and industrial zones, he established likewise the need for a nuclear treatment of the domestic zone... All this seems like such elementary common sense that one wonders that anyone should seriously challenge it.” (*op.cit.*, pp. 263-264.)

But challenge it they did, and Mumford was eager to rise to Perry’s defense. In one example he makes note of “a Mr. Reginald Isaacs,” and “one of his attacks on the neighborhood unit principle” – specifically, the need of a typical family to seek services much farther afield than a neighborhood unit can provide. Mumford responds that a large number of these services can still be provided within the neighborhood unit: “the health clinic, the library, the movies, a church, a park, a playground, a variety of shops... there is not one of these activities that could not, with benefit, be relocated in a neighborhood unit” (*op.cit.*, p. 264). (But as we will see below, more recent critics have continued to question whether such an internalized concentration of shops, clinics, libraries and other amenities could be viable for such a small population.)

Nor did Mumford accept criticisms that suggested that neighborhood units can be identified with “segregation by race or caste or income,” which he argued “have nothing whatever to do with the neighborhood principle” (*op.cit.*, p. 256). Unfortunately, one of the people who apparently disagreed with him on this point was none other than Clarence Perry:

[The neighborhood unit scheme] illustrates a method of producing homogeneity. When the real estate plan is dangled before the public, automatically it draws together a group of people of similar living standards and similar economic ability to realize them. McKenzie has pointed out that the segregation of a city population "along racial, economic, social and vocational lines" is a normal process and one which is constantly at work. Already

cooperation in housing schemes is being taken up by various occupational groups. There are also signs of racial and religious ventures in the same direction. The use of a neighborhood formula in suburban building and slum rebuilding schemes is going to promote this grouping process. (Perry, 1929b, p. 99)

Whether we favor this tendency or not, Perry concluded, it is a fundamental social phenomenon and one we need to accommodate, much as we accommodate the inevitability of “raging streams of traffic” that will be “cutting up residential sections.” Hence for him the neighborhood unit is once more the logical response to an inevitable demand.

The neighborhood unit before Perry.

While in the history of planning the neighborhood unit is firmly associated with Clarence Perry’s diagram for the First Regional Plan of New York in 1929, there is abundant evidence that Perry’s contribution to this idea was offered on a solid ground of previous experiences and a whole stream of debate since the turn of the century.

Architectural historians Donald Leslie Johnson (2002) and Eran Ben-Joseph (2005) have traced the neighborhood unit concept to several Chicago planners associated with the City Beautiful movement, as well as to the Garden City movement and the raise of city planning as a professional discipline at the turn of the century. They have documented the contemporary influence of Daniel Burnham’s 1909 Chicago Plan (completed with planner Edward H. Bennett), a seminal document of City Beautiful planning. Johnson documents heated contemporary controversy over Burnham’s proposals from several quarters. Social reformers of the day, including Jacob Riis, George B. Ford, and Benjamin C. Marsh, were bitterly critical of what Marsh termed the plan’s “gigantic cost” for “civic vanity” and “external adornment.” Designers were no less critical: architect Cass Gilbert dismissed the superficiality of the plan and noted “if it is to be city beautiful it will be one naturally.” Prominent landscape architect Jens Jensen slammed the plan as “a show city” and “a city of places” (quoted in Johnson, 2002, p.229, 230). Moreover, Burnham’s plan had not specifically addressed the needs of “local community commerce, housing and related amenities” – and these critical elements were “left by Burnham and Bennett to small business, private agencies, philanthropy, charity” (Johnson 2002, p. 228). On the other side, Howard’s Garden City proposal was no less the subject of intense debate in its day, including criticism of its “environmental determinism” – the naïve belief that planned physical changes in the built environment can determine the desired outcome of social processes. Eugenie Birch, writing in 2002, argued for a close evolutionary link between Howard’s Garden Cities and contemporary New Urbanist neighborhood planning practices -- both of which have been the subject of equally fierce criticism for their alleged environmental determinism (Birch, 2002).

According to Eran Ben-Joseph the neighborhood unit has probably been the heart of the then emerging discipline of urban planning: “The concept of a neighborhood as the unit for planning and design appealed to many experts at the turn of the twentieth century. Based on the goals of social reformers and on utopian visions of community-oriented yet integrated hygienic cities the neighborhood was envisioned as the way to improve residential conditions in cities plagued by slums and uncontrolled speculative growth” (Ben-Joseph, 2005, p.61). It was a specific goal of the emerging discipline of scientific

city planning to subject private speculative initiative to the control of public authority throughout extensive use of regulations and prescriptions for street and building layout which included standards for the provision and location of public amenities such as schools and parks. This effort had two faces: on one side the aim was to rule out poisoning factories from the city centers, on the other to sanitize residential living areas by their suburbanization and “naturalization” around the new lines of public transport. Reference for these two goals were found in the recent Prussian (German) tradition of municipal “zoning” and in the work of community-oriented social reformers such as Howard (1898) and Riis (1902) who advocated urban communities organized – even physically – around schools and other public services. In the early XXth century that vision of community-centered scientifically-grounded urban reform was restlessly investigated and debated across many occasions of international confrontation. Just as an example, the idea of the neighborhood unit around a public building (school or police station) as the basic building block for harmonious residential areas was mature enough to frame the City Plan for St. Louis as early as in 1907. The lack of concern for residential design in the Burnham’s Chicago Fair design was an omission that the City Club of Chicago resolved to address through an open planning competition announced in 1912. As partner in the competition, the Illinois chapter of the American Institute of Architects drew up the design program, which noted the need to address chaotic suburban development and to provide “the essentials for good housing and for neighborhood institutions” (quoted in Johnson, 2002, pp. 231-232). The first-place winner of the competition, architect Wilhelm Bernhard, offered a neighborhood unit diagram that was strikingly similar to Perry’s later diagram (Figure Two). Like Perry’s later diagram, it featured an inward-turning site bounded by major streets, without significant connectivity of cross-streets. At its core was a public square, a park, playgrounds, and (in a feature that departed from Perry) shops and services. Johnson noted that Bernhard’s plan was “loosely based on British Garden Suburbs of the immediate past” (Johnson, 2002, p. 232). In its non-winning submission for this competition, entitled “The Neighborhood Unit Plan” (fig. ...), architect William Drummond proposed a series of standardized units that could be repeated throughout the entire city: “In a series of units [there would be] an alternate disposition of centers of activity which would remove as far as possible the operation of one function from that of the other” (Quoted in Johnson, 2002, p. 235). Significantly, he wrote: “The unit is intended to compromise an area which will permanently exist as a neighborhood or primary social circle. Each unit has its intellectual, recreational, and civic requirements featured in the Institute which is located approximately at its centre and its local business requirements featured at its corners” (Yeomans, 1916, quoted in Ben-Joseph, 2005, p.63). Drummond’s proposal was later published and circulated widely, and Johnson concludes that Clarence Perry “appropriated” Drummond’s model: “Perry’s prescriptions of 1924 and those now well known of 1929 almost duplicated the City Club’s 1912 competition programme, Drummond’s explanations, terminology and synthetic vision” (Johnson, 2002, p. 239).

In any case we can safely say that during the first quarter of the twentieth century, concepts of Garden Cities, City Beautiful and neighborhood planning theory were widely disseminated and discussed. Indeed, Johnson notes that Raymond Unwin and other

Garden City leaders had been invited to lecture at the Chicago City Club in 1912, and Clarence Perry himself attended the National Housing Conference in Chicago in 1913. Lewis Mumford, in his 1954 paper on the neighborhood unit, testified to this common lineage, and to an even deeper foundation in the European and American social reform movements that were associated with Garden City planning: the “community center” movement, the “Social Unit” movement and others. Mumford also made an explicit link between Perry and the earlier Chicago activities: “Perry himself was perhaps aided in his inquiry by the publication of the results of a now almost forgotten competition, held by the Chicago City Club, for the planning of a quarter-section... a remarkable group of designs...” (Mumford, 1954, p. 261). Johnson documented the involvement of Drummond and other City Club members in a dizzying number of social and planning movements, joining with noted planners of the time, including John Nolen, Werner Hegemann and Elbert Peets: “the Playground and Recreation, the Community Center (a pet project of Perry’s), Settlement, Garden City, Civic League, or other reform-minded movements, and/or with national associations, forums and conferences such as those on sociology, housing, social work, charities, municipal parks, education, transportation or city planning” (Johnson, 2002, p. 204) Mumford described the related influential thinking of Raymond Unwin, Barry Parker, Clarence Stein, and even himself, and went on to conclude, “though Perry no more discovered the neighborhood unit than Le Corbusier discovered modern architecture, the work of each of them has had a dramatic value in crystallizing many diffuse efforts” (Mumford, 1954, p....).

In terms of urban form, clearly elements of Perry’s neighborhood unit were “in the air” everywhere in those times: the Perry’s diagram, pretty much as Drummond’s and many others’, are for example laid out in a very “Garden City” fashion, presenting all the “signatures” of Unwin’s first realizations such as Letchworth (1903) and Welwyn (1920), with special reference to the enlarged urban block (the direct parent of the modernist super-block), the dead-end service street or “close”, and the extensive use of the back-on-street cottage building type. According to Samuels et al. (Samuels, Panerai, Castex, & Depaule, 2004) though very often seen in juxtaposition, as for their focus on the neighborhood as a design unit, the two streams of modern planning ideology stemming from Howard’s Garden City and Le Corbusier’s “Towers in the Park” actually tell the same story: Le Corbusier’s plan for Chandigarh, conceived since 1951, is entirely based on residential islands bounded by urban arterial roads on a 1,200x800mts grid called “sectors” or “neighborhood units”, but the concept was already fully established in the “Ville Verte” (1930) and “La Ville Radieuse” (1935).

It should not come to any surprise then that when the first criticism of orthodox modern planning started to emerge in the early Sixties, the neighborhood unit was shortly brought to the centre of the battlefield: the neighborhood unit is in fact the constituent backbone of modernist urban planning discipline since its earliest process of formation.

Jane Jacobs’ critique

One of the most vociferous critics of the segregated logic behind the neighborhood unit was the widely influential journalist-urbanist Jane Jacobs – a figure whom Duany and many other New Urbanists cite regularly as a key influence (e.g. Duany, 2011). Her

arguments against functional segregation, and for mixed use, have been widely influential since the 1961 publication of her landmark book, *The Death and Life of Great American Cities*. Less well recognized was Jacobs' argument for reversing social segregation – in a notable contrast to Perry's cheerful fatalism.

Jacobs for one did not pin responsibility for the neighborhood unit and its flaws solely upon Perry's 1929 proposal – indeed, she did not even mention him by name – but went further back to Garden City and City Beautiful sources. She traced the American influence from Englishman Ebenezer Howard, the pioneer of Garden City planning, and through “a group of extraordinarily effective and dedicated people,” among whom was Lewis Mumford himself (Jacobs, 1961, p. 19). For these “Decentrists,” as she termed them, “the basic unit of city design is not the street but the block, and in particular, the super-block... The Decentrists also pounded in Howard's premise that the planned community must be islanded off as a self-contained unit” (*op.cit.*, p. 20).

Howard himself did indeed argue for the benefits of strong centralized neighborhood units separated by large traffic arteries, in his landmark 1902 book *Garden Cities of Tomorrow*: “Six magnificent boulevards—each 120 feet wide—traverse the city from centre to circumference, dividing it into six equal parts or wards. In the centre...are the larger public buildings—town hall, principal concert and lecture hall, theatre, library, museum, picture-gallery, and hospital.” (Howard, 1902, ch. 1)

In turn, Jacobs argued, the proponents of City Beautiful planning in the US (who were known to be inspired by Garden City concepts, as we will discuss below) had also begun to segregate elements of the city into units, with a particular focus on civic districts, “the whole being treated as a complete unit, in a separate and well-defined way” (Jacobs, 1961, p24). This practice was closely related to the segregating habit of Garden City planners -- and indeed of “Radiant City” planners, too, such as the highly influential Swiss architect Le Corbusier: “The idea of sorting out certain cultural or public functions and decontaminating their relationship with the workaday city dovetailed nicely with the Garden City teachings. The conceptions have merged, much as the Garden City and the Radiant City have merged...” (Jacobs, 1961, p. 25)

For Jacobs, social diversity and diversity of economic uses went hand in hand: “Self-diversification of a population is reflected in diversification of commercial and cultural enterprises” (Jacobs, 1961, p.186). In turn, this social and economic diversity expressed itself in the physical diversity that was a key ingredient of thriving, successful parts of cities; she cites the example of Rittenhouse Square in Philadelphia: “In short, Rittenhouse Square is busy fairly continuously for the same basic reasons that a lively sidewalk is used continuously: because of functional physical diversity among adjacent uses, and hence, diversity among users and their schedules” (*op.cit.*, p. 97).

But this inter-locking social, economic and physical diversity could be all too easily destroyed by the techniques of segregation used by modern planners, such as those in the disastrously planned “projects” of the day: “One of the unsuitable ideas behind projects is the very notion that they *are* projects, abstracted out of the ordinary city and set apart.”

This was not a matter of environmental determinism, she argued, but of understanding the dynamics of city use, and the benefits of physical integration over isolation: “The aim should be to get that project, that patch upon the city, reweven pack into the fabric – and in the process of doing so, strengthen the surrounding fabric too” (*op.cit.*, p. 392).

One way this could be done, she argued, was by encouraging through traffic by outsiders, along well-connected through routes – a notable contrast to Perry’s insular prescription. Indeed, her famous argument for small blocks was at heart a strategy for greater neighborhood permeability, and opportunity for interaction with outsiders (*op.cit.*, pp. 180, 395).

Closely related was Jacobs’ caution against “the curse of border vacuums,” created by the abrupt edges of large single uses – including residential “superblocks.” The challenge for urban designers was to convert these edges into “seams” which would serve to connect the two sides, creating greater cross-movement of diverse populations, and “normal city cross-use of their territory by people from outside it” (*op.cit.*, pp. 257-269; p. 394).

Nor did Jacobs see these failings as unique to inner-city “projects;” rather, they were part of a deeper flawed thinking about neighborhoods – the notion that they can turn inward on themselves:

Unfortunately orthodox planning theory is deeply committed to the ideal of supposedly cozy, inward-turned city neighborhoods...[This is] the point of departure for nearly all neighborhood renewal plans, for all project building, for much modern zoning... This ideal of the city neighborhood as an island, turned inward on itself, is an important factor in our lives nowadays [but] it is a silly and harmful ideal... Whatever city neighborhoods may be, or may not be, and whatever usefulness they may have, or be coaxed into having, their qualities cannot work at cross-purposes to thoroughgoing city mobility and fluidity of use, without economically weakening the city of which they are a part. (Jacobs, 1961, p. 114-115)

Jacobs, writing in 1961, made her acerbic view clear of the responsibility for Garden City and City Beautiful planning in the later failures of neighborhood planning: “From beginning to end, from Howard and Burnham to the latest amendments on urban-renewal law, the entire concoction is irrelevant to the workings of cities.” At the heart of this “concoction,” as she stressed, was the Perry-like practice of creating rigid planning units that “sort out” the functions of the city: “The principles of sorting out – and of bringing order by repression of all plans but the planners’ – have been easily extended to all manner of city functions, until today a land-use masterplan for a big city is largely a matter of proposed placement, often in relation to transportation, of many series of decontaminated sortings” (Jacobs, 1961, p. 25).

Of course these criticisms did not go unmet by defenders of the neighborhood unit. Mumford in particular was equally scathing in response to Jacobs’ criticisms, titling a review of her book in *The New Yorker* “Mother Jacobs’ home remedies for urban cancer” (Mumford, 1962) The debate, then as now, could become acrimonious.

Older origins of neighborhood unit planning

Silver (1985) also anchored neighborhood-based planning in a much older tradition of social reform, and noted that “interest in the neighborhood idea and in enhancing its potential through planning has been an enduring feature of American thought for at least the past 100 years” – i.e. since at least 1885 (Silver, 1985). As Lewis Mumford pointed out in his 1954 defense, the neighborhood unit in particular was at no point a wholly new invention; there are clear parallels to European *quartier* planning. “Paris, for all its formal Cartesian unity, is a city of neighborhoods... the sense of belonging to a particular *arrondissement* or *quartier* is just as strong in the shopkeeper, the bistro customer, or the petty craftsman as the sense of being a Parisian.” Likewise, he said, Venice “is a city of neighborhoods, established as parishes in relation to a dominant church or square; and by its very constitution it reminds us that the medieval city was composed on the neighborhood principle...” (Mumford, 1954, pp.256-257)

Why, then, Mumford asked, is it necessary to introduce a new concept into planning practice? Why did spontaneous neighborhood grouping, “so well defined before the seventeenth century,” as he put it, tend to disappear in more recent plans? Mumford gave two reasons: “the segregation of income groups under capitalism,” and “the increase of wheeled vehicles and the domination of the avenue in planning.” As new arterials cut through “urban tissue that had once been organically related to neighborhood life,” as he puts it, “the city as a whole became more united, perhaps; but at the cost of destroying, or seriously undermining, neighborhood life” (*op.cit.*, p.258-259).

As we saw, Perry himself did not seem troubled by the first problem, the segregation of income groups, which he identified not as a flaw of capitalism but a “normal process;” but as we saw, Perry was certainly troubled by the “raging streams of traffic” (Perry, 1929b, p. 99). Thus, Mumford reconfirms Perry’s key rationale for the neighborhood unit as a mitigation of the problems of wide vehicular arterials and fast, dangerous traffic. Such units in this sense serve as a kind of sanctuary from the raging torrents -- what Perry had termed a “protected residential cell” -- allowing the natural formation of neighborhoods to proceed within appropriately designed containers. “What Perry did was to take the fact of the neighborhood; and show how, through deliberate design, it could be transformed into what he called a neighborhood unit, the modern equivalent of the medieval quarter or parish...” (Mumford, 1954, p. 262).

European planners have been no less enthusiastic about a modern version of *quartier* planning. Luxembourg traditional architect Leon Krier has promoted the concept of the “urban quartier” as a largely self-contained “city within a city” and applied the concept to a number of prominent projects (Krier, 1998). Hanson and Younes (??) described Krier’s definition of an “urban quarter” (or “quartier”) in familiar terms, as a neighborhood area sized with “a diameter of 10 minutes’ walk, possessing a clear centre, containing a range of residential, work and other services, and organically linked to other, similar quarters” (Hanson and Younes, ??, p. ??)

Perhaps Krier's best-known project was his masterplan for Poundbury, in Dorset, UK, where the *quartier* structure is readily seen. However, as Murrain has noted, in Poundbury the connections between quartiers is not "organically linked" but in fact separated by a fast arterial street – much closer to the Perry model and its accommodation to a "torrent of traffic." Engineer Stephen Marshall has made a similar critique. (Marshall, [GET REF...](#))

Modern controversies: Perry's diagram revisited

As we have seen, the neighborhood unit was closely associated by both Perry and Mumford with the protection of residential neighborhoods from modern vehicular traffic. As Perry argued, if it is inevitable that modern arterials will "[cut] up residential sections into irregularly-shaped islands around which raging streams of traffic will soon flow" then we must "take some steps to formulate the size and the contents of these residential islands" (Perry, 1929b, p. 99).

Evidence from recent research in complex networks applied to networks of streets and intersections (Hillier, [...](#); Porta et al, [...](#)) reveals that the vision of residential islands surrounded by arterials that underpins the neighborhood unit concept is indeed countering some of the most universal dynamics in the relationship between space and service/shop location in cities. Though it is true that Perry's diagram locates elements of community shops on border arterials, the whole concept is about separating community services, positioned at the centre of the island, from those thoroughfares. However, evidence increasingly shows that community services and shops reinforce each other in urban systems of all kinds and ages quite effectively whenever they are spatially associated with main streets and thoroughfares, i.e. when they can take advantage of the movement economy, while they struggle or fail altogether whenever they are not.

Recent critics argue that the old arterial models, rooted in the logic of tree-like "functional classification," are no longer viable, and the new models follow the diffusion logic of networks. ([REF](#)) Today's transportation engineering is focused less on "mobility" as an absolute goal, and more on balancing mobility, creating diffusion, and offering alternate transportation choices. ([REF](#)) They point to the phenomenon of "induced demand" – research that shows that the more engineers widen roads or build fast arterials, the more residents drive, and use up those same new roadways, resulting in a comparable level of congestion. ([REF](#)) In short, efforts to "build our way out of congestion" are likely to fail. The answer to Perry's "raging streams of traffic" is therefore not to turn our backs on them, but to engage them, and convert them into a diffusion network of much calmer, narrower, pedestrian-friendly streets. At the same time, residents need to be offered multiple travel modes, a range of nearby everyday uses, and [...?...](#)

A key problem for Perry, note critics such as Chip Kaufman and Shelley Poticha, is in creating viable public transit service. By not centering neighborhoods on arterials, Perry and its variants create a fragmented series of isolated areas that cannot be serviced cost-

effectively. The impact of this failure on a viable public transit system, and on the ability to reduce carbon emissions from urban transportation, they argue, is profound. (REF)

We suggest here (and space only allows the suggestion) that the impact may in fact be much more far-reaching. As our own survey research has concluded (to be reported in a forthcoming research paper) the urban sources of greenhouse gas emissions related to urban morphology are much more significant than is usually recognized. Moreover, they are inter-locking: phenomena such as “path dependence” and “lock-in” cause feedback cycles that greatly amplify the effects of urban features such as the isolated patterns of neighborhood unit planning. As other research suggests as well, those residents who are removed to neighborhood islands surrounded by fast arterials may still be locked in to a largely car-dependent lifestyle – and moreover, with impacts far beyond the tailpipe, but affecting many other patterns of consumption and emissions.

One can certainly detect in Paul Murrain’s criticism of Perry, cited in the introduction, the echo of Jane Jacobs’ attack on functional segregation and “decontaminated sortings.” Moreover, Murrain has re-stated Jacobs’ harsh criticism of the reactionary social concepts behind neighborhood unit planning, stated so clearly by Mumford: “No matter how differentiated and directed the life of a great metropolis finally became there remained, at the core of its activities, the same processes and loyalties one discovers in the village” (Mumford, 1954, p. 259). Nonsense, said Jacobs: cities offer the opportunity for self-improvement and social growth, *precisely* because they offer very different, fluid and energetic economic relationships: “This energy and its effects – so different from immemorial peasant life – are so obvious in great cities, and so much taken for granted, that it is curious that our planning fails to incorporate them as a major and salient reality” (Jacobs, 1961, p. 288).

Silver (??) also argued that New Urbanists have not taken into account the historical debate over the reactionary environmental determinism of the Perry unit: “Perry’s social agenda was not only aimed at protecting residents from the deleterious effects of the automobile but also from the social diversity inherent in dynamic urban environments” (p. xx)

Indeed, Perry’s naked effort at social engineering, and his use of an exclusionary homogeneity to achieve it, is shocking by today’s standards:

In the past we have been limited to direct attempts at persuading people to associate. We have tried, by precept and example, to lead them into new attitudes and relationships. That method we shall always need to use, but, hereafter, we shall not be making full use of our opportunities if we do not bring also to our aid help of another sort. The great foe to community life is heterogeneity. The new method to which I refer produces homogeneity. Put like people together and give them common facilities to care for and associations among them are bound to spring into existence. (Perry, 1930)

We can also note that there is intense debate over environmental determinism in Jacobs’ own recommendations (e.g. the well-known criticisms of Gans and others); indeed, such criticisms are common within the field of planning in general. Paul Murrain, for his part,

argues that this debate often suffers from a misconception: it is not that the environment *determines* behavior, but it certainly determines the *limits* of behavior -- and thereby its design can indeed cause isolation and exclusion. "If you don't believe that, try walking through a wall" (Murrain, xx).

Yet another fundamental criticism of Perry and its variants comes from retail specialists, who point to what they regard as the essential conditions for successful mixed-use commercial centers. These must have a "catchment" or surrounding residential area of sufficient size to support their uses. If they are located internally within a neighborhood, it is very unlikely that they will be viable. If they are located on fast arterials, then they will not likely have the pedestrian character of a neighborhood commercial area, but may take on the car-friendly characteristics of a conventional strip mall. This is indeed a criticism of many New Urbanist projects, in which residential areas are poorly integrated with otherwise conventional neighborhood commercial centers.

Murrain... etc

Ultimately, criticism to the Perry's diagram and indeed the concept of the neighborhood *as a design unit* has come from the point of view of urban morphology. Mehaffy et al. (Mehaffy, Porta, Rofè, & Salingaros, 2010) raised the argument that since its very initial conception the neighborhood unit fostered a fundamental flaw in *the scale* of the city, which informed the construction of the modern city contributing to many of its failures. The neighborhood unit size has always been tailored around the size of a pedestrian catchment area, i.e. the typical 5 minutes walk or 400mts., by fixing this distance as *the radius* of the circle inscribed in the unit's boundaries. As a consequence, major urban arterials placed at the borders of the units are set 800mts apart. The problem is, so the argument goes, that cities in history have always been built at half that scale, i.e. their main streets have always been set around 400mts apart. The scale of the city has impacts on a number of profound factors influencing urban life and dynamics such as accessibility to shops and services, density, navigability and identity, so that doubling this measure can be understood as a decisive step towards automobile dependency and anti-human urban spaces, which in fact undermine urban livability in most contemporary cities.

Beyond Perry: Learning from Portland and London

Like both Perry and Mumford, Andres Duany points to the inevitability of modern suburban traffic and the pragmatic reality of an "arterially bounded" neighborhood unit as a way of creating viable residential neighborhoods. Yet for all his vociferous debating with Murrain on the issue, he has developed a series of diagrams that do seem to reconcile the inward-turning Perry concept, turning away from the arterial, with a Transit-Oriented Development concept that centers on its arterial (Figures three, four). Though he offers this as a tool in his toolkit, Duany argues that it is simply impossible to maintain continuous walkable urbanism, and therefore an inward-turning Perry diagram, or even an outright superblock, may be appropriate.

However, Baird et al (Baird, Feeley, Russell, & Wong, 2010) argue that it is exactly the continuity of the urban fabric that has enacted the self-organized, and in fact continuously changing and adapting, formation of neighborhoods in historical cities up to the advent of Professional Theories of Urban Design in at the turn of the XXth century. Because the neighborhood is essentially a social construct made of ever-changing and layered systems of personal and collective links within and across cultural boundaries, what space can indeed be used to contribute to neighborhood is fundamentally the continuity of accessibility in welcoming environmental conditions. That continuity is in fact essential to enable the purely social dynamics of neighborhood happening, and can't be dismissed altogether without fundamentally undermining the social cohesion of urban communities, their identity and place attachment, and ultimately the same notion of city.

Duany's colleagues in New Urbanism argue that the mobility demands of modern cities *can* be met even as they maintain a continuous fabric of diverse walkability – what Jacobs termed “thoroughgoing city mobility and fluidity of use.” As evidence, they point to several empirical examples of successful modern cities that do a reasonably good job of the latter. An intriguing example – and a darling of many New Urbanist planners on both sides of the Perry debate – is Portland, Oregon. By accident of history, by virtue of visionary planners inspired by Jacobs, or by a combination, Portland has managed to achieve many of Jacobs' key generators of diversity: mixed use, small blocks, 400mts apart main street layout, a mix of old and new buildings, and (at least by US standards) concentration of population and activities. It does so while maintaining a relatively successful modern economy.

Portland has also managed, to a remarkable degree, to maintain a continuous walkable urban fabric, even across the kinds of barriers that Jacobs warned against: rivers, freeways, large parks, schools, industrial areas, even shopping malls and hospitals. By continuing the walkable small-block grid through these uses – and often allowing them to span the grid with bridges and tunnels – the city demonstrates that large-use specialist functions can be accommodated within small-grained urban areas, thereby avoiding what Jacobs called “border vacuums.” The most challenging uses, freeways, are submerged in key neighborhoods, while the street grid continues overhead. (Figures xx)

Murray, for his part, has brought to Duany's attention the example of London, which also maintains continuous walkable fabric in one of the most modern and economically successful cities in the world. Instead of being cut up into tiny residential islands, London manages to submerge the more damaging uses – again, freeways, railroads, subway lines – and maintain a remarkably small-scale, fine-grained urbanism in many areas. As Murray notes, he is able to walk from his home in Southwark to many parts of the city – and does so frequently -- without encountering any significant pedestrian barriers. (Figures xx)

Another example of fine-grained street layout being prioritized over high-rank urban arterials can be found in Barcelona, where this result has been achieved as a specific strategy for the reconnection of the city after the construction of the urban motorway

system (fig...), a strategy that can and must be extended to other infrastructural barriers, such as railways, in all cities that have constructed them prior to the successive expansion of the urbanized land, like for instance in most UK cities.

Conclusion

As we have seen, debate over the neighborhood unit in some quarters is perhaps as fierce as ever, while the stakes have clearly risen for practitioners. Climate change and rising energy prices have placed a new emphasis on walkability – now seen as an essential characteristic of an urban fabric that offers a optimally efficient mix of ordinary amenities, and ready access to other transit modes.

For New Urbanist planners, as we have seen, the controversy threatens to provoke a major schism within the movement, between those who accept as inevitable, if not desirable, the segregated and nuclear concepts of Perry and his antecedents, and those who believe a more progressive “Jacobsian” approach is now feasible, and moreover imperative. New achievements from research seem to sustain the Jacobsian camp in firmly maintaining the idea that urban community centers should be closely related in space with major urban thoroughfare “tamed” to be fit for a diversity of urban uses and users by a systematic application of traffic calming techniques. Moreover, evidence is growing that solutions exist, which indeed have been ordinarily practiced for decades, to reconcile the uninterrupted continuity of the city fabric, acknowledged as a fundamental feature in city history, with top hierarchy infrastructural system such as motorways or railways. What remains to be seen is whether these two perspectives can achieve a new consensus. We see the outlines of such a consensus in the most recent debates, but at the same time, we suspect that to achieve it, significant work remains.

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Problem:

The “Neighborhood Unit” model continues to serve as a dominant model for planning, even as controversy continues over its use. New sub-problems include mitigation of vehicular traffic disruptions, maintenance of viable pedestrian and transit modes, and related impacts on urban resource efficiency.

Purpose:

To examine the history of the “Neighborhood Unit” and anchor the current discussion in a wider historical legacy.

Methods:

We surveyed the existing literature on neighborhood unit planning and its historical debates. We also conducted interviews and acquired additional documentation (including emails) from a number of internationally active planners in the US, UK and Australia.

Results and conclusions:

We conclude that one overriding issue has come to prominence: the boundary between pedestrians and vehicles, at the quarter-section scale of the Perry unit, overwhelmingly favors vehicles. This is because the quarter-section, by virtue of its large scale, creates what Jane Jacobs termed “border vacuums” around it – zones that are not permeable to pedestrians. This has the effect of segregating neighborhoods into isolated pedestrian islands, and further damaging the vitality of pedestrian-based activities such as use of transit,

Takeaway for practice:

A new consensus on neighborhood unit planning may be anchored in two principles: 1) to make the link between vehicular and pedestrian modes, through vehicular streets within the neighborhood must be more fine-grained than previously thought – at the scale of ¼ mile on center instead of the ½ mile of the Perry unit; 2) “neighborhoods” as such are not planner constructs, but must be allowed to grow and change on the framework created by planners.

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