RETURN TO TRADITIONAL TOWN PLANNING (A CRITICAL ASSESSMENT)

by

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OUTLINE OF THE THESIS DOCUMENT

Abstract

Acknowledgements

Introduction

Chapter 1
Background History
- The Olde American Town
- Jeffersonian Agrarianism
- Origins of the Grid

Chapter 2
The Reform Movements
  A. The Olmsted Reform/The Progressive Era
  B. The Garden City Movement
  C. The New Urbanism

Chapter 3
Street Patterns
  A. Streets and Neighborhood Livability
  B. The New Urbanism Gridiron Street
       • Connectivity
       • Hierarchy
       • Rectilinearity
  C. Olstedean Curvilinear Streets
       • Connectivity
       • Hierarchy
       • Rectilinearity

Chapter 4
Professional Voices on Livable Neighborhoods
  • Melvin Weber
  • Bender Thomas
  • Ebenezer Howard
  • Lewis Mumford
  • Philip Langdon

Chapter 5
Conclusion
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ABSTRACT

The New Urbanism, also known as the "New Traditionalist movement" is a new paradigm shift in physical planning, whose main agenda is to overhaul land use patterns in the suburbs and neighborhood development. Contemporary suburbs, evolving since the end of World War II abandoned planning concepts and themes, that created livable neighborhoods such as identity, neighborhood character, mixed use development, pedestrian accommodation and provisions for organized growth. The result for the lack of consideration in integrating these qualitative attributes that makes a suburb or neighborhood livable is haphazard, sprouting and sprawling developments leading to nowhere.

The New Urbanism believes that the qualities and attributes characteristic of a livable neighborhood are inherent in the street pattern of the traditional neighborhoods. The traditional neighborhoods featured gridiron street pattern, mixed use development, open space and proximity of public amenities within pedestrian range. The New Urbanism therefore echoes a return to traditional neighborhood planning as a cure to suburban sprawl. The New Urbanism asserts that the gridiron street pattern featured in the traditional neighborhood delivered a more livable neighborhood than the curvilinear street pattern or the cul-de-sac.

This thesis examined the assertions of the New Urbanism, comparing the livability of the traditional neighborhood delivered by earlier suburban movements featuring the curvilinear street pattern and the cul-de-sac.

Frederick Law Olmsted suburbs, such as Riverside, Illinois, where the curvilinear pattern was prevalent and the Garden City suburb of Radburn, New Jersey, which featured the cul-de-sac were compared against Seaside, Florida, and Kentlands, Maryland. Seaside and Kentlands are the most notable examples of New Urbanist towns.

The conduct of the thesis relied heavily on a literature search as well as on empirical studies. Comparative analysis of neighborhood street patterns (Michael Southworth and Peter Owens) and Neighborhood Livability Survey (Appleyard and Lintell) are key to the empirical research. The cul-de-sac street pattern was withdrawn from further consideration hence its principal proponent Clarence Stein yielded to the superiority of the grid in delivering a more livable neighborhood.
Between the gridded street pattern and the Olmsted curvilinear street pattern, the thesis uncovered that though low connectivity, low hierarchy and disorientation is a real problem with the curvilinear street, it could be mitigated through design. The Olmsted curve fostered rural appeal and created aesthetically pleasing vistas. The grid however is highly connected and flexible in supporting hierarchy. Through traffic, cost in installation and maintenance of infrastructure, and environmental pollution are major problems associated with the grid.

Expert opinions vary as to which street pattern delivered a more livable neighborhood. Moreover, both the grid and the curve were utilized as tools at different times in history to solve different problems. It is a matter of aesthetic judgement to choose one over the other. Equally, there is a significant population who support the Olmsted design approach as well as the New Urbanists.

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This thesis is dedicated to the loving memory of my parents, Albert and Roselyn Nibo who motivated, inspired and supported my ambition for excellence and accomplishments.
INTRODUCTION

This thesis investigated the assertions of the New Urbanism that suburbs and subdivisions designed with a gridiron street pattern deliver a more livable neighborhood than do suburbs and subdivisions featuring a curvilinear street pattern or cul-de-sac, the New Urbanists evoke the pastoral ideals of the Olde American Town. The Olde American Town was designed around the gridded street pattern. That pattern supported pedestrian life and great sense of community: household needs or family driven activities were located within walking distance. Some of the ideals featured in the Olde American town which seem to have promoted sociability and livable neighborhood include safe streets, usually narrow and rectilinear, moms and pops stores at street corners, municipal, civic and institutional building located at street intersections and distributed within walking distance of the neighborhood. It also featured playgrounds, ball parks and city centers such as public squares and open spaces.

The New Urbanism also known as the "neo-traditional movement", in its suburban planning echoes the pastoral ideals featured in the Olde American town as its preference for a livable neighborhood. New Urbanists contend that the gridded street pattern supported or nurtured pastoral ideals, thereby delivering more livable neighborhoods than does any other suburban street pattern.

This thesis examines the claims of the New Urbanism by comparison with selected early American suburbs having street
patterns contrasting with the grid. Frederick Law Olmsted's early suburban subdivision featuring the curvilinear street pattern, and the Garden City early suburb featuring the cul-de-sac, were used as models for test and comparison. Before describing that test, a background history of the targeted American suburbs was explored. The movements in which these suburbs and their street patterns evolved were scrutinized. Equally important the significance of the leaders of these movements and the essence of the movements were reflected upon.

The thesis conducted its investigation of the New Urbanist's contentions chiefly through literature search. It compared the merits and the demerits of the street patterns in supporting the virtues of a livable neighborhood. The thesis also considered the opinion of distinguished and pre-eminent planners on the subject of livable neighborhoods. Empirical studies conducted by Michael Southworth and Peter Owens were crucial to comparing measurable elements in street patterns, in particular connectivity, hierarchy and rectilinearity. Another empirical research that assisted the analysis and conclusions of this investigation was the street livability survey by Donald Appleyard and Lintell. He has conducted several studies on the subject of streets and neighborhood livability. The Appleyard and Lintell Street livability study was conducted in San Francisco, which is hardly "suburban". However, the degree of bias or error which that introduces is assumed to be small at the level of "light street" where most residential development occurs. The cul-de-sac street
pattern was withdrawn from further investigation, midway in the course of this research hence its chief proponent in the United States, Clarence Stein, admitted early that the Olde American town which featured a simple main street and the grid supported more neighborly activities than the cul-de-sac.

After a rigorous analysis and unbiased intention to be fair to the contentions both of the New Urbanism and the Olmsted design approach on street patterns, the following were found to be true. (a) There are important differences of intentions between the New Urbanists and Olmsted design approach.
(b) That it is a matter of aesthetic judgement to choose one ideology over the other.
(c) The findings of this research did not penalize the New Urbanism. There are problems with the Olmstedean curvilinear street pattern, such as disorientation for travellers. However, the problems are not fundamental, so could be mitigated through design.
(d) That this topic is filled with ungrounded assertions and inconclusive theories.
CHAPTER 1
BACKGROUND HISTORY

To understand the passions of the New Urbanism, one needs to understand American urban history. As the physicality of urban history transcends, we can see the revolt and sometimes revolution in plannerly actions to reject the precedent and replace with something new. Coincidentally, all the reformers have something dreadful to spite about the city, thus the urge for something new. First, let us examine the virtues and the innocence of medieval pastoralism. Humans lived in simple villages or communes and labored the land. Of course, there is no question that there is dignity in labor. Agriculture, the preoccupation of human beings at the time returned bounty. If you hunt, there were rewards in the games and if you farm the benefits of harvest. It goes beyond simple argument that mere contact with nature is a grace for spiritual, social and economic security. In nature, we find rich biodiversity, solitude, calmness, naturalness, beautiful scenery, the majesty of the mountains, the ferocity and gentleness of the river, pretty meadows, blossom wild flowers, nice plant ecology, ponds and shallow streams. As a young boy scout from the city, it was civilizing to go camping, to visit with nature, occluded from the city. There was joy and splendorous encounter in pursuit of nature. To wet my feet in the stream, breath the clean fresh air, play with grandma's livestock; the sheep, the hens etc., the healthy fear of the nights and understanding the limits of human
psychological sensibilities are some of ideals that draws us to nature. I am a fan of Tarzan the story book and Mark Twain's Huckleberry Finn. These were encounters and true adventurers with nature, they are captivating and intrigue the wondrous mind. No wonder, as we shall see in the claims of the reform movements, that nature played a pivotal role in the thesis of their plannerly actions. Once wrote J.B. Jackson, that in no part of the world are people happier than the farmers of New England. He also wrote that in taming the wilderness, the American farmer was cultivating civilization. The ideal that rural life is best for the soul as it minimizes the opportunity for the individual sin, and was expressed through the democratic structuring of the small agrarian community that allows for face to face interaction.\(^1\)

As the new world, the United States of America evolved however, the immigrants brought with them values virtuous with nature but, with a radical departure from European feudalism. Key to their romanticizing nature was the pursuit of reason, equality and freedom symbolized by agrarian values. Agrarianism, celebrated privacy of rural life and simple forms of living. It was synonymous to productivity and provided status and dignity to the individual. When Thomas Jefferson coined the phrase "in pursuit of freedom, liberty and happiness in the constitution, he turned to pastoral images for ideas because he believed that in nature lay the repositories of wisdom. (Thoreau) Thoreau, a product of a small New England Village and graduate of Harvard University joined

\(^{1}\) Muller, Peter: Contemporary Suburban America, p.21.
Jefferson in the long chronicle of the American Distrust for the city. To Thoreau, there is an essential distinction between town and country; to take it a little further, between town and wilderness. In search for the discoveries of the virtues of nature, Thoreau wrote that "the farmer in short is guilty of a serious offense, of failing to see himself as part and parcel of nature."

Agrarianism undoubtedly dominated the early frontier American urbanism. Thomas Jefferson never hid his dislike of the City. It was under this crucible of antiurban society oppressed by wealth and corruption that the grid was born. Jefferson looked for ways to abate social inequalities and dignify the rights of man, by guarantee that every settler must be afforded the right to six to eight acres of land to labor on. Jefferson saw the grid as the most effective and efficient way to establish this process. By 1785 a national survey inspired by Jefferson decentralized powerful governments centered in cities and promoted the small rural land owner. Some elements of the survey included formation of town sites with school section in the center, independently autonomous with their own local governments. Thus the great majority of American towns of the nineteenth century evolved and developed on the grid plan. Not necessarily because it was Jeffersonian but because it was easy to layout in survey, simple to understand and supportive or adaptable to market speculation. The grid primarily established the main axis of most towns and subdivided them into

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2 Landscapes: Jefferson, Thoreau and After. p. 3.
villages. It expanded outwards from the least denomination, the single family lot to the block, the neighborhood, the town, the city, the region, etc. The entire nation was gridded as a matter of fact. It is obvious then that the grid is a very flexible tool in land subdivision. Typical Jeffersonian grid was six acres square at the Homestead. They provided for an orderly arrangement of uniform lots often focuses about a public square with no particular function. It promoted the idealism of agrarian, equalitarian society which assumed that humans when given rights to land wanted to be active in the democratic process. Further it was seen as a device for advancing virtuous citizenship as well as a means of realizing human perfectibility. For the record, under Jefferson's tenure the grid was made a national land policy. Jefferson strongly believed that subservience suffocates virtue and that the grid beyond providing a methodized way of achieving enlightenment and the ideals of American democracy asserting rights for ownership of property to individuals provided impetus for the morals of ambition; ambition between liberty and ownership, between ownership and virtue and ambition between virtue and value. Ownership of land asserted Jefferson was the best collateral for democracy and the grid forestalls all these ideals. No wonder Andres Duany and the neo-traditional urbanists in search to solve the antecedents of urbanism caused by suburban sprawl looked back to history to evoke the agrarian, Jeffersonian almighty grid.

Before going into the history of the reform minded new urbanists, let me introduce the threshold of change that
transformed the pristine pastoralism of the arcadian old American town, its consequences and evolution of a new urban fringe called the suburb. That threshold was the industrial city.

Between 1890 and 1900 was a new world order. The industrial city was born. This paradigm shift brought with it industrial capital; money, knowledge and application. There were wonders and incredible discoveries in the arts, science and technology. Productivity was up as manual production process was replaced by machine. There were however, significant consequences in this new found order. On the one hand, profit was up, wages were up and improved social benefits. On the other hand, immigration, pollution and densification overwhelmed the city. There was inadequate infrastructure in transportation, communication and housing to support the excesses of explosion of urban industrial output. The overcrowding and poor industrial waste management resulted in poor sanitary, poor health and sometimes death; cases of epidemic were occasionally reported, yet migrants seeking employment were keen to agglomerate and concentrate population there.

A.F. Weber in his book, The Growth of Cities in the Nineteenth Century attempted to explain this phenomenon through the use of statistics as a social scientific tool to understand the growth patterns of the city. In his study, he established two theories regarding urban migration, (1) the social liberal theory which argues that the urban population concentration is a function of industrial output. Cities such as Manchester, Birmingham,
Liverpool and Lowell in the United States were known to attract immigration because of their industrial output. The theory further elaborate that the promise for economic freedom which provided access to social goods and services was strong enough a reason to link spatial relations of humans and community to the industrial city. (2) The second theory dealt with the high moral, conservative traditionalist pastoralism of the agrarian community peculiar to the old American town. It was no secret that the Jeffersonian rural ethic was a powerful, popular image against living in the cities, which were viewed as symbols of corruption with their class division, social inequities and disorders. This ethic of antiurban sentiment would go a long way to support the cultural bases for the transformation of a new urban fringe; the American suburbs. In any case, Weber argues that the high moral ethics of the agrarian country village was formidable a reason why the old towns depopulated, faced destitution, and inevitably sought migration to the city which gave way for the urban-rural transformation and the establishment of the urbanism of the suburbia.

I must contend that the tension between the exigencies of the industrial city and the secularized community romanticized, gave way to suburbanism. As a matter of fact, the lack of choice conservatism driven by the religious farmers who settled the new world in search of a secularized utopia in an effort to establish an Eden or religious paradise stimulated the reformation of the industrial urbanism to proximity to nature. It was known that the
influence of leading evangelists like Henry George, Cora Richmond and Robert Ownes influenced the 19th century social utopia led by Ebeneezer Howard, Frederick Law Olmsted and at a later date Clarence Stein and Henry Wright. Inadvertently, however, the goodness of fit of the industrial city itself added to the foundation of the reformed movement. It is therefore important that we understand the diachronic physicality of the industrial city from the anthologies of experts; most of whom were social philosophical theorists interested in plannerly actions. Their observations of the industrial city would enable us to understand the wave of the reform movements that followed; especially the Frederick Law Olmsted reform and the Garden City Movement. Richard Sennett who edited a series of articles on the culture of cities in which the authors focussed resolution on the 19th century industrial urbanism, the search for understanding in social theory of what constituted the definition of the industrial city argued that the evolution of the nineteenth century industrial city and explosion in urban life that followed was made possible by the surge of industrial capital. He also contended that the escape from the milieus of the industrial city to some occlusion of wilderness intimate with nature was also possible of which only the wealthy can afford. Drawing from this analogy one can conclude that the Olmsted reform movement excluded the middle class until the Chicago great fire of 1871; afforded its rebuilders to take full advantage of the disaster and create a more dispersed city in

a garden. Characterized by the basic elements of middle class suburban housing in the search for a singular and more orderly social environment. It was under the perplexity of this abbreviation that Riverside was born. In further discussion regarding the lack of confidence about the industrial city. Michelle Fucalt observed that the industrial city was de glamourised by densification, slum, shit, stench and smell. The industrial city had gotten a bad rap. Other critics crucial to these observations were the German School and the Chicago School. Whereas the observations of the German School were synonymous with the Olmsted reform. Those of the Chicago School laid foundation for the Clarence Stein Garden City movement. Max Webber, one of the leaders of the German School wrote an opinion contrary to most observers of the industrial city which concluded that the 19th century industrial urbanism was dilapidating and dismal. Weber on the inverse argued that the 19th century urbanism created a positive place for common living. His observation that reinforced support for Olmsted reform was his characterization of the industrial city as an impersonal place environment driven by interdependency of activities which negates America's solemn pattern of living; individualism and independence. Other scholars of the German School observed the industrial city a little differently. George Simmel, a disciple of Max Webber wrote that the 19th century industrial urbanism was a psychological wreck.

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11
He posited the point of view that the 19th century industrial city was a place of excessive excitement of psychic stimulations upon which men react against and build defense mechanisms. Simmel portrayed the city as a sad place, often hysterical and paranoid. It was the agglomeration of these negative observations, cumulative over time that led to the rejection of the industrial city. They set the tone and foundation for the early suburban reform movements in search of arcadian ideals to transform the urban fringe into model villages of as urban countryside that offered occlusion from the city, greenery, simple pleasures and the quietude of social detachment. The way the reformers applied solutions to the replacement urbanism of the newly founded urban fringe differed and varied. Included in these paradigm shift is the New Urbanism which, just as the wave of movements before it calls for the rejection of the pristine urbanism and replace with something new. We would now advance insight into the wave and peculiarities of these movements. First, the Frederick Law-Olmsted Reform.
CHAPTER 2
THE REFORM MOVEMENTS

A. THE OLMSTED REFORM

The nineteenth century industrial urbanism was marked by much good and much harm. On the positive note was growth, increased productivity, advancements in science and technology and the availability of industrial capital. Richard Fogleson once remarked that, "the growth of cities which was itself the product of advances in technology, posed problems, problems that threatened the civilizing influence of the city, yet this threat only confirmed the need to apply technology to the problems of urban life. Olmsted saw his work as a step in this direction."5 On the other hand though were the dismal failures of the revolution underpinned in socio-economic inequities and environmental degradation. Consequently reform movements emerged to remedy the 19th century slum city. The wake of this movement was universal and reactionary. In London, was the formation of the British Royal Commission in 18856 to tackle the problems of hygiene and housing for the Laboring Class.

In America, the wave of the movement was not benign. Elitist reformers, notably Sir Andrew Jackson Downing, Charles Loring Brace, Horace W. Cleveland, Frederick Law Olmsted, Charles Elliot and some numerous others led the Progressive Era, a movement in

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5 Fogleson, Richard E.: Planning the American City. p. 97.
plannerly action with social control objectives in response to the 19th century slum city. The wave of the movement was possible because of the failure of the marketplace to produce a socially adequate urban form. Significantly also was the fundamental contradictions of anachronism which existed between capitalism and democracy; contributing to the view in practice of planning, a method of technical decision making removed from the institutions of popular control. Crucial to this endeavor was the attempt to insulate government intervention in the built environment from popular participation. 7 Ultimately, the realism of the progress era was the elitist reformation of social and physical action planners by collaboration through volunteerism driven by ideology in public interest, independent of the government.

The leading idealism of America intellectual life driving the progressive era was anti-urban bias. However, the thrust of Olmsted's philosophy was undoubtedly proactively urban but with an agenda to achieve "urbane", a naturalized urbanity by bringing tamed wilderness to the city and taking the city to a domesticated wilderness. In this dualism laid the vision of Olmsted's Suburbanism; pastoralism of urban America. Olmsted believed that rural life as fostered by Agrarian principles failed America because it was dreary and unable to take advantage of the advances in culture and technology. 7 If you have ever had part in the working up of some of the rare occasions in which stands for

7 Fogleson, Richard E.: Planning the American City, p. 89, p. 96.
(rural) festivity is attempted, you will hardly think that the ardent desire of a young woman to escape to the town is wholly unreasonably." Obviously, it was Olmsted's vision to heterogenate the urban and the rural. I would suggest while reading anthologies about the Olmsted reform that his interventions in plannerly action fell short of suburbanization but rather developed neighborhood subdivisions or urban villages.

The reform movement of the progressive era were further clarified into two distinctive ideologies, the romantic generation led by Loring, Charles Brace of New Haven, Connecticut, a naturalist and philanthropist and the factual generation whose main ideas were driven by pragmatic practicalism and rational reasonableness. Olmsted belonged to later. He sought for moderation and balance between town and country unlike the Jeffersonian communitarian agrarian principles, romanticizing the purity and sanctity of the rural, Olmsted was not scared by the city in as much as he loved nature. He believed though that the rural should be occluded or detached from the city within reasonable proximity. He once argued wrote Bender Thomas that "large towns should be marked by movements in two opposite directions, one to concentrate business and social purposes, the other to dispersion for domestic purposes." It was his initiative to separate domestic life from commercial life. There were other influences in lieu of 19th century industrial urbanism

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8 Fogleson, Richard E.: Planning the American City. p. 96.
9 Bender, Thomas: Towards an Urban Vision. p. 182.

15
that led Olmsted to cultivate his theory of town and country separation. For one thing, his younger brother, a student at Yale University died of tuberculosis, and environmental borne disease. The mentorship of Horace Bushnell, a preeminent Hartford social reformer whose "intellectual style provided Olmsted with the example of a man seeking to accommodate growth and change to a romantic perspective." Further was his association with Sir Andrew Jackson Downing, a reformer and philanthropist and publisher of the horticulture magazine who exposed Olmsted to farming and direct contact with nature. The association with Downing led Olmsted into meeting with Calvert Vaux, a famous New York City architect and business partner of Downing. After the death of Downing in 1858, Calvert Vaux invited Olmsted to collaborate with him in business." This marked the beginning of the life of Frederick Law Olmsted as a landscape architect and a great one too. The collaboration with Vaux exposed Olmsted to the World's Columbia Exposition, held in Chicago in 1893 in which he was a major spokesman. The exposition sought solution to the decline of the nineteenth century urbanism and inevitably crowned Chicago as the impetus and stimulus of City Planning movement during the Progressive era.

Olmsted’s conversion to naturalized urbanism did not stop at this point. Born April 26th 1822, his mother died when he was young. His father was a prosperous merchant who loved the beauty

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of nature. His sensitivity to pretty nature and wilderness obviously rubbed off on Olmsted, "like father, like son". Bender Thomas wrote, "I see, Olmsted recalled that the unpremeditated and insensible influence which came to me from him was probably the strongest element in my training." More, the success of his Staten Island farm after a barrage of unsuccessful attempts in varied occupations in the city taught him tenderness sensitivity and the physical and psychological nurturing power of nature. Bender Thomas also observed that the rowdyism and ruffianism among the common people of the North made him very melancholy; yet upon return from his tour of the South between 1853 and 1857, he was uneasy to accept the Southern critique of urban industrialism characteristic of the industrial city. In summation, Olmsted was driven by nature, spontaneity and the encouragement of democratic sympathies.¹²

Frederick Law Olmsted's social philosophical ideals did not stop at intellectual theories romanticizing the urban aristocrat. The physicalities realized were urban forms, neighborhood subdivisions, cityscapes and landscapes. They were all social symbolisms in remedy of the dilapidated industrial city. His attitude to suburbanization was total detachment and absolute withdrawal from the city in search of an oasis for residential life; a resting place of relief and occlusion from the hustle and bustle of the city. He believed however, that suburbs would clearly be likened to the urban centers. City centers are better equipped to handle

¹² Bender, Thomas: Toward an Urban Vision. p. 185.
the pressures of enterprise and the marketplace and Olmsted would like the suburbs benign of these activities. Separation of business premises from domestic premises was distinctly central in Olmsted's version of the suburb. He envisioned domestic premises to be picturesque, sylvan and rural; a captivating place for family dwelling, social intercourse and charm of scenery. One of his mentors, Jackson Downing once argued that the American City ought to afford the working man, the same level of enjoyment with the men of leisure and accomplishment. In romanticizing the Suburbs, Olmsted had the genuine sympathy for the plight of the working man.

The resulting suburb in this regard were democratic communities with settlements distributed in a hierarchical fashion. Olmsted preached social democracy. However, in contradiction to his philosophy of social democracy, the design of Central Park, the symbol for a democratic community was surrounded by elegant private villas. Olmsted argued that the elegant villas "would exact elevating influence upon the masses who visited the park." Riverside, like the villas of Central Park was designed for exclusive class, the more intelligent, affluent and fortunate class. For one thing though, Olmsted's suburbs regardless of social class or income enclave had a central theme of strong rural presence in their surrounding without any sacrifices of urban convenience. They encouraged experience harmonious with nature

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13 Bender, Thomas: Towards an Urban Vision.
14 Bender, Thomas. Towards an Urban Vision. p. 199.
which provided choices of residence to the city dweller embattled with dirty factories and social routine. Olmsted's suburbs were intended to soften the hard city life and to inspire and educate about the moral and social influences of civic beauty. Significant in Olmsted's suburb's was the uniqueness and peculiarity in character of each of the neighborhoods; unlike the endless look like neighborhood prevalent in Planned Unit Development. The subdivisions also promoted strong community ties, bonded by intimate relationship and interdependency between families. The suburb Olmsted argued should be designed to "stimulate sociability. The private house and private family should not be actively self-sufficient because this would cut off awareness of sympathy with fellow members of the community." He also reiterated that it was not necessary for every house to have sweeping panoramic views of the neighborhood, but rather have standpoints and niches of social rendezvous along the course of the road geometry. This Olmsted believed would entice dwellers out of their homes and stimulate the propensity for social interaction; a good mental health. The significance of this neighborhood sociability intent was the basis or foundation for the curvilinear street. I would also like to point out that Olmsted desired that suburban neighborhoods be limited in size for the reasons of cleanliness, health, comfort and civilization.
B. The Garden City Movement

Evolving from the reform movements to solve the undesirable impacts of the Mill villages such as Manchester and Lowell in the United States were plannerly apostles singing the credo of dispersion of the industrial city into remote rural areas with a symbiotic community to support its capital/production venture while benefiting livelihood from it. The typical production centers such as Liverpool, Manchester and Birmingham had grown too large, pestilence and epidemic resulting from overcrowding. Sir Raymond Unwin one of the leading disciples of this credo wrote, "there is nothing gained from overcrowding." 15 Other disciples of this wave of urban crusade included Sir Patrick Geddes and Sir Ebeneezer Howard. Incidentally, Ebeneezer Howard similar to Olmsted losing a sibling to tuberculosis, lost four of his siblings to the distress and disease that plagued the nineteenth century industrial city. It must be something greater than coincidence that both men were committed to sanitary reform of clearing the slum and overcrowding created by industrial urbanization.

By 1872, however, Ebeneezer Howard in collaboration with the avant-garde, noble and elite reformers, perceived community consensus for change and embarked on a grand ambitious commitment to eradicate the slums created industry and provide improved living quarters in the labor colonies. Emerging from this crusade, the Garden City movement was born. In England some other notable

15 Stein, Clarence: Towards New Towns for America.

20
reformers such as Stanley Abercrombie, Frederick Osborn and Barry Parker joined the reform movement. In America however, Clarence Stein, Henry Wright, Lewis Mumford, Clarence Perry, John Nolan and Henry George and Cora Richmond had precipitated the United States version of the Garden City appeal. They would go ahead and form "The Regional Planning Association of America (RPAA); a pre-eminent group of distinguished professionals of diversified discipline; notably architects, planners, sociologists, economists, and religions. Their primary motive was to effect the realization of public policy, framework for decentralization, industrial dispersal, building new towns, and regional reconstruction. By the way, their movement albeit fraternity and private action was strongly supported by President Woodrow Wilson and then Governor of New York, Franklin Roosevelt. Unlike their British counterpart which was state sponsored the Garden City movement in the United States was totally private initiative that was supported informally by government provisions. Key to the significance of this movement was the birth of public-private partnership. As a matter of principle, the Regional Planning Association of America, the frontier reformers of the Garden City movement credo in the use of power and wealth of State to coordinate all the forces that create communities and to make them serve public rather than private and selfish ends even though enterprise itself was privately financed. Lewis Mumford in one of his anthologies, narrating the physical, social and economics of the movement argued that it was crucial to
the Garden City objectives "to build on open land, in order to eliminate wasteful street patterns, provide open spaces, reduce density and drain of sufficient populations from central areas to lower these grossly inflated land value, based on anti social standards."\textsuperscript{16} It was their ultimate agenda wrote Clarence Stein, "to follow Aristotle's recommendation that a city should be built to give its inhabitants security and happiness."\textsuperscript{17}

Retracing the diachronic physicality of this paradigm shift to its origin, the English Garden City Movement, Ebeneezer Howard had anticipated a meso-urbanity in the form of a city-country for modern society. He conceived this meso-urbanism to function in the image of a complex biological cell of many discrete settlements occupying a regional garden and kept apart by the opposing forces of marketplace economics and law. "His ambition was to dissect the swollen industrial city into many self-sufficient, spatially identifiable, railroad-linked, finite, community owned and cooperatively-administered towns."\textsuperscript{18} These Utopian economic sustainable towns would however be limited to 30,000 maximum in population. They were in essence miniaturized industrial towns with limited size capacity separated from each other by greenbelts; dualism of production and harmony with nature. Howard had hoped that his intervention would have reasonably dispersed industry,

\textsuperscript{16} Stein, Clarence: \textit{Towards New Towns for America.}

\textsuperscript{17} Stein, Clarence: \textit{Towards New Towns for America.} p. 41.

abated population, density and overcrowding in major metropolis as well as providing the laboring class with a decent, livable community to call home.

Back to the United States, the business of creating moderate capacity towns for industry and living had gone amuck because of a popular notion for the movement "Build new towns on new sites." The embracing government's flavor for it was its orderly related dispersal of workers and working places in limited sized communities surrounded by open country. Another ideological construct that favored the Garden City was the resettlement of the G.I.'s returning from World War I in which the government embarked on mass housing production and redevelopment. The Great Depression of 1929 was both a boom and a bust for the movement. Radburn, New Jersey, the showcase for the Garden City movement blossomed and died as a result. The whole idea of public-private partnership worked well at its best but given the depression, the investor equity failed to yield bounty and thus the requiem of a great idea.

The movement itself parallels the romantic suburbs in social action planning but radically departs from it as well as from the New Urbanism in that its actions were more of total overhaul of the housing industry and getting a national agenda for group housing for low and moderate income families. Majority of its leader were social critiques especially Patrick Geddes, Lewis Mumford and Walt Whitaker. Inadvertently they presented strong manifestos for housing reform. Their points of view were compelling both to the
public and legislators alike because the speculative market failed to deliver housing at a reasonably affordable rates to the middle class. In articulating to their doctrine of social action reform RPAA contended that "Housing must be provided by some agency operating without speculative profits, under public control with money of low rate of interest, guided by the exercise of the power of condemnation, producing on a large scale with efficient organization and management". Also emerged as premiere significance to this movement were establishment of local housing boards in communities of over 10,000 people, federal and state land banking in support of mass housing production, tax exempt bonds for low cost housing construction, enactment of constitutional amendment permitting the extension of credit on a large scale to construct public financed moderately priced homes and the passage of the enabling act to allow cities to acquire land and if necessary, to construct publicly financed housing.19 It is a safe argument then to assert that the Garden City movement in America was not about eradicating or controlling sprawl like the New Urbanism, nor was it about solving unsanitary environment by escaping from it to some picturesque wilderness like the romantic suburb; it was about a democratic solution to providing housing to the laboring class.

19 Shaffer, Daniel: Garden Cities for America. p. 45.
B. The New Urbanism

The commonality of the early suburban movement was to solve the industrial city. One picturesque and romantic, the other community centric amidst public green. Regardless of their merits and attributes, superblock subdivisions were typical in their organizing framework. As a matter of inference, they were planned communities; yes planned by noble and pre-eminent leading professionals in their carriers. Contrasting from the pioneer suburbanism, the contemporary modern suburbia sometime faced unexplained initiative resulting in sprawling or overly regulated by cumbersome bureaucracy resulting in homogenous communities without propinquity. Propinquity, wrote Alex Kreiger of Harvard Graduate School of Design is the most important criteria for true civility.

The New Urbanism seeks to reconcile the inadequacies of modern suburbia. Andres Duany and Elizabeth Plater Zyberk who are at the forefront of a group of neo-traditional planners and architects argue that, since many suburban subdivisions are conceived at a scale that exceeds the size of historic towns, that they should turn to the principles that have always governed town design to design new suburbs. In so doing they assert, we might harness runaway development in the service of more sociable, manageable and urbane living, town life instead of housesitting, street strolling instead of strip cruising, front porches in addition to the
backyards, I would argue however, that there is no novelty in the claims of the New Urbanism. It is rather reinventing of old planning tools such as zoning because of its enormous capacity to control growth, regulate land use, define street patterns, pedestrian and traffic networks, etc. Central to the theme Duany/Plater Zyberk are propagating is that, there is something flawed in contemporary suburban codes and ordinances and as a result we have sprawl, individualism and antisocial unreliable communities masquerading as suburbs. To make things worse they contend that the new suburbs are too automobile driven and traffic invasive. It is their vision that simplification of the codes and ordinance documents focused on peculiar items with specificity and clarity would advance the suburbs to a more livable standard. They differ quite a bit from the pioneer movements in this regards. They are quite emphatic about the notion of overwhelming zoning regulations and codes in other to realize utopia in middle town America. Quite unlike the movements of the Progressive Era and the Garden City which were direct interventions, original in conception and emerged definable street patterns; the curve and the cul-de-sac, the new urbanist concept planning lacked originality for the most part. It seem to borrow some virtuous attributes that worked well in the early suburban movements, agglomerate and use them as guiding principles behind their theory. The "grid" which is their principal banner can be traced as far back as the Jeffersonian

agrarian community. In a differentiated comparison, the use and belief in the 'grid' sharply contrasts them from the other movement. Exploiting the "borrow" theory a little further, Alex Krieger wrote that the point of origin of the neo traditionalists movement was the British Garden City movement. He clearly articulated that the impacts of the extrapolation of ideas turned out to be a nemesis for the work of Duany and Plater Zyberk.\textsuperscript{21} The work of Ebeneezer Howard, the originator of the Garden City idea however, fell short of achieving ultimate success. His ambition which the neotraditionalist's planning principles parallels was to "dissect the swollen industrial city into many self-sufficient spatially identifiable, railroad-linked, finite, communally owned cooperatively-administered towns. There is no more compelling vision of a universe of towns in the annals of planning theory. Unfortunately, instead of self-sufficient towns, it begat the parasitic garden suburb which many of Howard's disciples unwittingly produce.\textsuperscript{22}

I must point out though, that not all of Howard's ideas were manifest in the neo traditionalists planning theory. Railroad linkage had been replaced by roads and automobiles, the pastoral green belt by formalized parks and open space. The cul-de-sac was also replaced by the flexible and almighty grid. The impetus and machine qualities of the grid i.e. its expansiveness and

\textsuperscript{21} Duany, Andres and Elizabeth Plater-Zyberk. \textit{Towns and Town-Making Principles}.

\textsuperscript{22} Duany, Andres and Elizabeth Plater-Zyberk. \textit{Towns and Town-Making Principles}. 27
flexibility allowed the New Urbanism choices such as mixing land use and expanding the subdivision at will. Drawing from the virtues of the grid, Duany was able to frame the theme foundation of the New Urbanism's agenda: "residential and commercial life must coexist within reasonable mix." In this assertion, Mom and Pop stores are significantly ubiquitous at the intersection of street corners, fostered by the grid, earlier movements separated landscape. At my visit to Swampscott and Marblehead, inasmuch as the wilderness appeal, scenery and beauty were breathtaking and majestically civilizing, there was clear separation of land use. Commercial and residential life did not mix. Civic life such as religious, social and institutional endeavors were commingled to some degree but falls short of the rigor that Duany/Plater-Zyberk would qualify as acceptable for the New Urbanism. Moreover, the Olmsted curvilinear street would not possibly support commercial engagement amidst the residential subdivision because the roads are two winding such that a consumer or business patron would go nuts from the confusion of getting lost. I was lost several times myself trying to get back to Route 129 or 1A and I had been there twice. The Radburn experience also separated land use. There is a definable commercial strip, a hierarchy of road system which defined the boundaries and limits of each functional use; the homes were distinct from the businesses. The distribution of civic amenities and convenience however, collaborates the New Urbanism, churches, schools and playgrounds were located within reasonable distance from the homes. Amidst the veracity of these differences,
there is a commonality that binds all the movements. "It is the belief in the scale and spatial organization of the traditional town as the basic building block for human settlement." 23

Contrasting from the other movements the physical response of the Garden City movement went beyond neighborhood subdivision and extended itself to the scale of regional planning. Its ambitious intent was to establish wilderness for living, recreation and industry across the Appalachian Trail. The argument according to Mackaye was that providing permanent employment in the Appalachian by developing industries that utilized the natural environment would significantly diffuse urban migration in the already crowded Northeast. However, back to comparisons at the neighborhood scale the Garden City sought to build balanced community cut to human scale, where the beauty of ordered buildings, of trees and flowering plants and open greens are surrounded by low density buildings so that children may scamper over them, to add to their use and aesthetic loveliness. This virtue of contact with that natural environment at sparing density argued Mumford offered the user/land occupant, a freedom not possible, incidentally on land occupied at a density of over a hundred persons to the acre where the green exists only to be looked at, not used. 24

The resulting urbanism therefore was superblocks with central open greens forming a continuous chain of parks towards which the


buildings face, and specialized types of paths and roads completely separated from one another. I would like to point out this conceptual frame in organizing space was precipitated from the menace and nuisance of the automobile. It was coined as the Radburn Idea, however, nobody can describe it better that than the originator himself, Clarence Stein. Thus the Radburn Ideas:

1. The SUPERBLOCK in place of the characteristic narrow, rectangular block.

2. SPECIALIZED ROADS PLANNED AND BUILT FOR ONE USE INSTEAD OF ALL USES: service lanes of direct access to buildings; secondary collector roads around superblocks; main through roads, linking the traffic of various sections, neighborhood and districts; express highways or parkways for connection with outside communities. (Thus differentiating between movement, collection, service, parking and visiting.)

3. COMPLETE, SEPARATION OF PEDESTRIAN AND AUTOMOBILE or as complete separation as possible. Walks and paths routed at different places from roads and at different levels when they cross. For this purpose overpasses and underpasses were used.
4. Houses TURNED AROUND. Living and sleeping rooms facing toward gardens and park.

Central to the separation of antagonizing street use theory was the cul-de-sac. Cul-de-sacs are dead-end lanes originating from the English villages. The merits of their effects are impressions of peacefulness, solitary and economy for roads and utilities. As a matter of fact Charles McKearnin, P.E., the Borough Engineer of Fair Lawn in Bergen County, the municipality under whose administration Radburn belongs elaborated profusely, the economic efficiency of the cul-de-sac during one of my meetings with him. He regretted though that access and connectivity for fire truck engines is still a major problem. This in turn raised the question whether cul-de-sac negates the safety, it was meant to provide for in the first place.

It appeared though that the argument for the cul-de-sac for the purpose of this thesis has been weakened significantly. Clarence Stein, the head proponent of the Garden City movement/cul-de-sac in America as well as the author of the text "Towards New Towns for America" has this to say about the cul-de-sac.

"Cul-de-sac had been used occasionally in our colonial villages. But the typical early American arrangement of houses was along the main, and sometimes only road. This was more neighborly and it was easier to shovel snow every winter."\(^{25}\)

\(^{25}\) Stein, Clarence: *Towards New Towns for America*. p. 44.
The street in a physical sense defines community. Often, the functional activities produced by land use occur within the street and its immediate environment. If we are logging lumber or mining some mountain for instance, the street takes a form tuned with the activity. Winding roads may be a response to difficult terrain/geomorphology for easier access and penetration. If the activity is manufacture/industry, a rectilinear, uninterrupted, high-speed movement artery may respond, providing some quickness and directness to and from destination.

The same line of argument is true downtown, where civic and commercial activities aggregate, and disperse movements to a multiplicity of locations, depending on relative proximity to them. The reasonable road system that would mesh the agglomeration of these complex activities, would depend on connectivity and the directness of rectilinearity.

The effectiveness and efficiency of land use is dependent on the geometry of the street patterns. (Michael Southworth and Peter Owens, 1993). Southworth's empirical research indicates that certain street patterns support community activities better than others. As reported appendix 1, the findings of that study provide data for concluding whether or not there is a merit to the claims of the New Urbanism "that the gridiron street pattern of the olde
American town which supported mixed use development delivered a more livable neighborhood than the early suburban curvilinear street pattern and the cul-de-sac."

First, the phrase "livable neighborhood", as ambiguous as it might be, could be collapsed into some reasonable catalogue of activities that impact domestic life. A few of which have been measured and weighted by Donald Appleyard, Professor of City Planning at the University of California at Berkeley. Some of these categories include biking, walking, likeliness to know who lived next door, noise levels, leisure, time spent waiting for traffic lights at intersections, aesthetic appeal of the surroundings, freedom and choice in choosing routes of travel, easy ingress and egress, level of human contact or lack of it, well-being of individuals, families and community, children playing, adults visiting, adolescents and teenagers able to explore life beyond the boundaries of their immediate neighborhood, shared open spaces, pedestrian links to activity centers, length of blocks, use of corners, identity, culture, dwelling and nature. (Appleyard, Lintell; Appendix 2, page 23)

The geometry of street patterns has impact on the level of these activities that impact the livability of a neighborhood. There are key elements in the road system that impact the qualities associated with the livability of a neighborhood, regardless of the pattern described by the street geometry: gridiron, curvilinear, or cul-de-sac. These elements are:
- Hierarchy
- Connectivity
- Rectilinearity

B. The New Urbanism (Gridiron Street)
Connectivity and Hierarchy

The New Urbanist grid is profusely connected. As a matter of fact, it surpasses the curvilinear street pattern and the cul-de-sac in connectivity by a ratio of 2:1 and 3:1 respectively (Southworth and Owens, Appendix 1, page 3). Consequently, it outnumbered the same comparables in the number of access points by 3:1 and 5:1 ratio respectively (Southworth and Owens). The degree of connectivity and level of intersections of a neighborhood street pattern impacts the livability of that neighborhood.

The conclusions of the Southworth, Owens research implied that the higher the connectedness of a street pattern and the higher the number of intersections which support it, the more likely it would deliver a better neighborhood. An inference from the Southworth, Owens article reflects the following: "The number of intersections in a given unit defines the route options available when moving through the area. Degree of connectedness is also significant. Few connections with the larger community create an insular district and possibly a sense of isolation or disorientation among its residents."

The curvilinear street pattern and the cul-de-sac have significantly fewer street connections and intersections than has
the gridiron. The gridiron street pattern therefore delivers a more livable neighborhood in this regard, because it offers a wider range of alternative routes to reach destinations.

In the city of Cambridge, for instance, where the virtues of the traditional town is also manifest, lower activity streets like Albany and Portland feed into Massachusetts Avenue, a high intensity artery which in turn takes one straight through to Mass Pike or, if desired, to Memorial Drive or Storrow Drive, all primary connector arteries leading to outer communities. Alternatively, one might choose to reverse direction and go through Broadway or Cambridge Street in lieu of Massachusetts Avenue. The choiceness to alternative routes, relative ease, direct and uncumbersome access (ingress or egress) to outer communities and within communities are some of the strong virtues of the grid; gradations of hierarchy driven by road systems connectivity.

Choicefulness of routes and ease of access rank with strength in the matrix of what makes livable neighborhoods. Philip Langdon in his book "A Better Place to Live" (p. 27-61), noted that access and freedom of choice in movement are vital concerns in the livability of a neighborhood. "After settling in the old, grid-planned part of Herndon, Virginia, Michael and Christine Dodd discovered that their movement was hindered by the new cul-de-sac developments on the community's edge. Their dead ends made it difficult for the Dodds to drive their daughter Annie directly to the field at the edge of town where she plays soccer." 26

26 Langdon, Philip: A Better Place to Live, p. 46.

35
One of the merits of hierarchy in the grid is that the higher order streets could be turned into boulevards and commercial strips, thus bringing leisurely enjoyment and business within walking distance from the residence. In Upland California, a traditional American town, Euclid Avenue is main street, heart of town and holds a series of important functions for the community. Philip Langdon wrote that the boulevard is a park – a safe and attractive one, a part of the daily experience of large numbers of people with a median broad enough that people using it feel sheltered from the vehicles going past in the street. It also holds parades of all sorts for the community. Parades, carnivals and bazaars, are the climax of community activities and neighborliness.

Philip Langdon notes a high school girl having this to say regarding Euclid Avenue. "I feel safe when I walk my dogs or go jogging in the median; there are always cars on either side of the street, so I feel nobody would attack me because there would always be witnesses."27 Another student observed that the boulevard was a place where the high-school track and cross-country team practice and where many others run, walk or bike. These neighborly activities that entices one intimate with a settlement are beneficiaries of the flexibility of the grid. Further, the Southworth/Owen research concluded that the grid better supported pedestrian activity such as walking more than the curvilinear street pattern or the cul-de-sac (Appendix 1, page 2)

connectedness and hierarchical road system described not only stores, moves or routes vehicles; it also offers the community choices in functional use. These choices, when creatively and rationally mixed, can produce satisfaction, local attachments and livable neighborhoods.

Keller Easterling wrote of Seaside, the New Urbanists' best known example, that "a hierarchy of streets and thoroughfares descends in size from the main street. From alleys to boulevards, each street is cast as special kind of space according to its function and position within the town. The street hierarchy furthers the dialogue between public and private space by extending public territory from major streets into minor streets. The flexible hierarchical network allows a variety of routes to filter traffic through the town better than a single large artery." 28

The grid as well as the hierarchy it nurtures has shortcomings, too. The grid results in about 30% more road length per unit area of land than either curvilinear street pattern or the cul-de-sac (Southworth and Owens). The length of streets relates directly to infrastructure cost. The longer the street, the more the cost in utilities and infrastructure to service the neighborhood. However, there is no correlation between increase in cost in providing infrastructure and the livability qualities of a neighborhood. The grid therefore may not have delivered a lesser valued livable neighborhood than its comparables because of this

impact. This suggests that it costs more to develop a gridded subdivision than a curvilinear or the cul-de-sac based one.

The larger a streets' capacity to take traffic, the lower the residential livability index. According to the street livability study conducted by Appleyard and Lintell, heavier travelled streets are polluted, noisy, stressful to live in, prone to traffic hazard and discouraged neighborly sociability. (Please see response to surveys in appendix 2). The New Urbanists however, argue that the existence of hierarchical structure in the gridiron street pattern allowed mixed use development along heavier travelled streets thereby insulating from the nuisance of automobile traffic, the light travelled street where most family residences are located. The moderately travelled streets provided opportunities for mom and pops stores at street corners and intersections. Such streets also opened many possibilities for location of institutional civic buildings and open spaces at will as desirable. Appleyard and Lintell concluded that on a lightly travelled street, households or family units felt a greater sense of safety, less likely to experience invasive noise levels, pollution, or stress emanating from traffic. The research also concluded that families or household units who live on light travelled streets are very friendly and visit with each other quite often; a significantly strong criteria for neighborliness. Hierarchy allows the grid to provide as much light travelled streets as possible in the gridded subdivision.
C. Olmstedean Curvilinear Street

(connectivity, hierarchy and rectilinearity)

Olmsted streets were graceful for convenience. They served the delight and pleasure of the traveller. They were absolutely nonhierarchical. This is not to say that the neighborhood they supported were not neighborly; however, the benefits of hierarchy in the grid eluded the Olmsted use of the curvilinear street. In a letter dated September 1, 1868 to the prospective citizens of Riverside,²⁹ Olmsted had these ideas about how their streets or roadways should function. First they should be for walking, second for riding, third for pleasure - driving, and fourth to give convenient access to houses to be built on the route and to accommodate heavy freighting, without inconvenience to the through pleasure travel. He proposed the street to have thorough drainage and windbreaks with continuous lines of villas and gardens adjoining in such a way that an hour's drive through it in order to reach one's property would neither be tedious nor fatiguing. "At certain intervals upon the route," wrote Olmsted, "it would be desirable to provide openings with some special decorations, and here should be sheltered seats and watering places."³⁰ Drawing inferences from the writings of Olmsted's letter of proposal for street/roadway layout for the city of Riverside, it does not appear that Olmsted intended to use the vitals and attributes of the

²⁹ S.B. Sutton: Civilizing American Cities, A Selection of Frederick Law Olmsted's Writings on City Landscapes, pp. 292-305.

³⁰ S.B. Sutton: Civilizing American Cities, A selection of Frederick Law Olmstead's Writings on City Landscapes, p. 292-305.
curved street to make a case for convenient neighborhood. He was more interested in the picturesque properties of the curve especially in a wooded rural landscape. He was interested in the leisure, tranquility and the fascination of characteristics of the curvilinear street to recreate, relax and reunite the experience of the traveller with the beauties of nature. He addressed the issue of social intercourse and neighborliness in a different way than the New Urbanist. The curvilinear street however, was not an instrument for achieving neighborliness. He appreciated roads and walks in the suburb. He believed that they must be "pleasant to the eye within themselves, and having at intervals pleasant openings and outlooks, with suggestions of refined domestic life, secluded, but not far removed from the life of the community." 31 Again, pleasure, scenery and civility are emphasized, with community life subordinated. Facilities for business were absent or minor consideration in Olmsted roadways. Domestic premises should separate from business premises, Olmsted once wrote, and this theory sharply contrasts what the curvilinear street was envisioned to achieve i.e. domesticity and pleasant abode, from the inherent qualities of the grid to support business life as well as residential life, and to support mixed use development as necessary and as desired. Further, the flexibility of the grid was able to integrate social class and mixed income groups through housing. The curvilinear street, with all its good intentions, emphasized

31 S.B. Sutton: A selection of Frederick Law Olmstead's Writings on City Landscapes, p. 298.
homogeneity and singular objectives. It only supported domestic life effectively and single socio-economic class. It's debatable whether the curvilinear street can support neighborhood business. Maybe the very affluent and the famous need the kind of community and neighborhood Olmsted effected through the mystifying and pastoral powers of the curve. Many Olmstedean neighborhoods are of that kind: like Bel Air in Beverly Hills, California, Malibu, the Palisades and Marin County in Northern California. They all have something in common, curvilinear winding roads. It is unlikely that mom and pops stores would locate along the curvilinear street intersections or corners. Neighborhood business is an essential mesh that makes a traditional neighborhood more livable for the poor and the middle class. The pastoral curve alienates this group as a result. The frustration from being lost just looking for some cleaners or coffee shop within reasonable proximity, yet with ambiguous and indirect access leading to it, is critical and unpleasant.

Philip Langdon has this to write about the pastoral curve in Riverside; "the pastoral curves, one looking much like another, make it hard for anyone except an established resident to maintain a sense of orientation. Tradesmen assigned to work in Riverside are known to leave a job site at lunchtime and be unable to find their way back half an hour later. If you ask anyone in Chicago whether he's been to Riverside, he'll say, "Once - I got lost," says Edward Straka, a Riverside architect. "For the first six
months people get lost," Straka says. "You can never completely conceive the plan."³²

Professional/expert opinion on what constitutes a community and invariably a livable neighborhood varies quite a bit. Authors like Melvin Weber argue that a good community should not be evaluated on physical attributes alone. There are other considerations, such as social factors that impact the qualities of a good community. Lewis Mumford also argued along the same direction through the lenses of Plato. Plato did not subscribe to the theory that physical patterns are essential basis for realizing good communities. His sense of community was quite in abstract terms, not by geographical location or geometric patterns defined by the street or road systems. Other authors such as J.B. Jackson who argue on the physical merits of realizing a good community go far back into medieval ages. The thrust of J.B. Jackson’s argument is that regardless of street patterns, good communities would form if there is the need and the essences are right.

Since expert opinions vary, the contentions of the New Urbanism, that the gridiron street pattern (a non abstract, physical attribute) delivered a more livable neighborhood than its comparables, might have been weakened quite a bit. The following are reflections of the differing opinions.
In this extract, Weber argues that community is not determined by spatial structure alone. A sense of community which is a key influence on the livability of a neighborhood could be influenced by other considerations such as communication patterns, Cyberspace and Internet are such examples. Weber also makes the case that one type of physical pattern or aesthetics cannot be the only basis for determining neighborliness or community.

"One of the planner's major tasks is to delineate the probable range of real future choice -- the envelope within which goal-directed actions are likely to pay off. I read the evidence concerning the qualities and magnitudes of some uncontrollable aspects of future change to say that many of the spatial forms to which we have aspired are no longer within that envelope."

"Moreover, I contend that we have been searching for the wrong grail, that the values associated with the desired urban structure do not reside in the spatial structure per se. One pattern of settlement and its internal land use form is superior to another only as it better serves to accommodate ongoing social processes and to further the nonspatial ends of the political community. I am flatly rejecting the contention that there is an overriding universal spatial or physical aesthetic of urban form."

"Throughout this essay I have laid heavy emphasis upon the communication patterns that bring people into contact with others and that have created our traditional settlement patterns. I have done so because communication is a very powerful influence that has scarcely been studied. But it is not my view that this is the only important factor affecting urban spatial structure, or that the criteria for planning the spatial structure for complex urban communities stem from this relationship alone. No simple cause-and-effect relationships are likely to be uncovered in this field, for the maze of relationships within such complex open systems as urban societies are such that a change in one part of the web will reverberate to induce changes throughout all parts of the web. The problem of planning for the optimum utilization of urban space is far more complex than our present understanding permits us to even realize."
Langdon testifies on spatial forms crucial to neighborliness and sense of community. The park when integrated in a subdivision is crucial, Langdon argues, to the qualitative essences of a good community development. Both the New Urbanism and the Olmstedean curve supported public open space; and appropriately earned credit for neighborhood livability.

"For centuries, informal gatherings places helped people to find out what was on their neighbors' minds and begin to form a consensus on issues that needed to be tackled. On the basis of informal discussions, people sometimes decided how to handle problems -- without requiring the involvement of government agencies and other formal institutions. In small towns, many problems have customarily been handled in an informal way, by people who know who is out of work and whose children are making trouble or which park could use some sprucing up. Not every problem needs to be forced into the agenda of a town council or referred to a department of social services. When problems do require decisions by governments or other organized bodies, the existence of a vigorous informal community life helps ensure that the problem and the possible solutions will be thoroughly understood. A place that lacks an informal community life is like a ladder with a rung missing. The formal institutions will serve their purposes poorly when everyday connections in the neighborhood are lacking. One of the prerequisites is a place where those connections can flourish."

"In the neighborhood where I live, the favorite gathering place is a park where many people take their dogs to run during the late afternoons. People arrive individually and leave individually, but from 4:30 to 5:30 in the winter, later in the summer, there is nearly always a cluster of people talking with one another while trying to keep the dogs out of mischief. Participants gradually learn a set of implicit ground rules: An individual should refrain from drawing too much attention to what he or she does for a living. An individual should keep the social atmosphere casual. Sometimes a dog owner in the park for the first time tries to introduce himself by shaking hands with everyone and giving his full name. The last time I saw this happen, a woman member of the group remarked in a cheerful manner that "we don't
know each others' last names." She was warding off a cocktail-party decorum that none of the park regulars wants."

"Sometimes an intense two-person conversation develops. There is an unspoken understanding, however, that private conversations are less appropriate than talk that anybody can join in. A number of the dog owners instinctively steer the group toward topics of common interest. In the last three months these have included the weather, dogs, the condition of the park, good local pizza, books, movies, auto racing, home improvements, trips, musicians, computers, atrium hotels, youthful rebellion in the 1950's, the deterioration of the local newspaper, and a newly divorced member's extended visit from a Frenchman. An individual can gripe now and then, but if so, the griping should be done concisely or -- even better -- entertainingly. Humor is guaranteed an appreciative response. The group frequently and boisterously criticizes a fastidious local garden club that has been campaigning to restore the park to a landscape plan drawn up in 1909, a campaign that includes cutting down trees that have grown up where the plan did not specify them. The group of dog owners finds joy -- and humor -- in opposing the starchy garden club. For a circle of people who hang out together, there is a delicious pleasure in having a villain, especially a villain which, it is agreed by the circle of friends, lacks common sense. Perhaps because the park regulars have many differences, they savor their common bonds."
Lewis Mumford described livable neighborhoods or good communities through the lenses of Plato. According to Plato, the vitals of a good community is underpinned on individual performance and function. The New Urbanists as well as the Olmstedean design approach stressed non abstract responses as criteria for creating good community. Mumford's interpretation of Plato left no choice between the two.

"How big is Plato's community, how are the people divided, what are their relations? Now that we have discussed the layout of the land, and have inquired into the physical basis of this utopia, we are ready to turn our attention to the people; for it is out of the interaction of folk, work, and place that every community -- good or bad, real or fancied -- exists and perpetuates itself."

"To Plato, a good community was like a healthy body; a harmonious exercise of every function was the condition of its strength and vitality. Necessarily then a good community could be simply a collection of individuals, each one of whom insists upon some private and particular happiness without respect to the welfare and interests of his fellows. Plato believed that goodness and happiness -- for he would scarcely admit that there was any distinct line of cleavage between these qualities -- consisted in living according to nature; that is to say, in knowing one's self, in finding one's bent, and in fulfilling the particular work which one had the capacity to perform. The secret of a good community, therefore, if we may translate Plato's language into modern political slang, is the principle of function."

"Every kind of work, says Plato, requires a particular kind of aptitude and training. If we wish to have good shoes, our shoes must be made by a shoemaker and not by a weaver; and in like manner, every man has some particular calling to which his genius leads him, and he finds a happiness for himself and usefulness to his fellows when he is employed in that calling. The good life must result when each man has a function to perform, and when all the necessary functions are adjusted happily to each other. The state is like the physical body. 'Health is the creation of a natural order and government in the parts of the body, and the creation of disease is the creation of a state of things in which
they are at variance with the natural order.' The supreme virtue in the commonwealth is justice; namely, the due apportionment of work or function under the rule of 'a place for every man and every man in his place.'"

"Has any such society ever come into existence? Do not too hastily answer No. The ideal in Plato's mind is carried out point for point in the organization of a modern symphony orchestra."

"Now Plato was not unaware that there were other formulas for happiness. He expressly points out however that in founding the Republic he does not wish make any single person or group happier beyond the rest; he desires rather that the whole city should be in the happiest condition. It would be easy enough 'to array the husbandmen in rich and costly robes and to enjoin them to cultivate the ground only with a view to their pleasure,' and so Plato might have conferred a spurious kind of felicity upon every individual. If this happened, however, there would be a brief period of ease and revelry before the whole works went to pot. In this Plato is a thoroughgoing realist: he is not looking for a short avenue of escape; he is ready to face the road with all its ups and downs, with its steep climbs as well as its wide vistas; and he does not think any the worse of life because he finds that its chief enjoyments rest in activity, and not as the epicureans of all sorts have always believed, in a release from activity."
J.B. Jackson, a strong supporter of physical remedies for community development drew inspiration from the past. Jackson recommended co-existence of pristine solutions and modernism. Destroying one in an attempt to establish a new form does not necessarily create a good community. The New Urbanism however relied/borrowed quite a bit from history in order to constitute its movement, likewise did the Olmsted design approach. Whenever the New Urbanism evoked Ebenezer Howard and Emilio Costello. Olmsted echoed Piranisi.

"The image of the contemporary city, the sign or logo which all of us know how to interpret, is a blend of cartographic abstraction and aerial view. It is a grid pattern of streets on a plain background, a criss-cross of lines, for that is all of the city we need recognize."

"To the men of the Middle Ages, the most familiar image of the city was a conventionalized cluster of towers and bastions and roofs, vertical in feeling, so tightly compacted that there was no indication of the streets and spaces within it."

"The gradual supplanting of the essentially architectural image (with its flatland, upwards-directed view) by our own remote view down from outer space is one measure of how our perception of the city has changed. It is also a measure of how, over the centuries, the city itself has changed, by the creation of public spaces -- roads, streets, avenues, squares -- to give it a new form and articulation."

"To us an obvious difference between a rural and an urban environment is the density of the road or street network. If we perceive the city less in terms of architecture beauty as a mere by-product of its practical and symbolic concerns. But the city was no more innocent of intentional aesthetic order than it was of geometric order, though its discipline was pliant enough to allow for the new, the spontaneous, the different."

"As a result, the same 'medieval' town plan could, by the eighteenth century, hold together Romanesque, High Gothic, Florid, Renascence, and Baroque structures, often jostling together on the same street, without any dulling of the aesthetic moment: indeed, with just the contrary effect. The aesthetic mixture corresponded
with the historical social complex. This was a mode of planning that met the requirements of life, and yielded to change and innovation without being shattered by it. In the deepest sense of the words it was both functional and purposeful, for the functions that mattered most were those significance to man's higher life."

"Under such a canon of planning, no one was tempted to deny either the old form that still served well, or the new form that represented a new purpose; and instead of wiping out buildings of different styles in order to make them over wholesale in the fashionable stereotype of the passing moment, the medieval builder worked the old and the new into an ever richer pattern. The bastard estheticism of a single uniform style, set within a rigid town plan, arbitrarily freezing the historic process at a given moment, was left for a later period, which valued uniformity more than universality, and visible power more than the invisible processes of life."

"We, who live in towns and cities where the system of streets not only provides an armature for the whole built environment but affects much of our view of the world, cannot easily recognize the extent of that medieval revolution. Its most fundamental result was the destruction of the former arrangement of self-contained neighborhoods and precincts and the integration of every dwelling, every resident into the life of the town or city. The house or workshop now had direct and permanent contact and communication with the public and was related to a public space. It created a new kind of community."
Bender Thomas emphasized on the abstractions and other considerations such as modern urban politics as the basis for community. The New Urbanism echo for livable neighborhood is on non abstract terms. Olmstedean design approach is equally on non abstract terms. They both exhibit physical responses. Bender Thomas through projecting the work of Charles Loring Brace did not feel that physical patterns alone ought to determine neighborhood livability.

"An emerging urban culture in America led all manner of men and women to reformulate their relationships to the community. Artists, writers, and academics were redefining their own and others' connections to institutions and to society at large. The focus of the traditional professions was being shifted from the local community toward metropolitan and national organizations. Immigrants were developing the sense of political community that provided the foundation of the urban 'boss' system. And various utopian groups were seeking an entirely new basis of community."

"More important for our purposes, however, an older sense of community as a nonabstract, direct, personal experience was being abandoned. It was replaced in time by the more abstract and formal conception of community that provides the basis for modern urban politics. Although it is tempting to assume a uniform progression from the first to the second view of community, it would imply a historical inevitability and an absence of alternatives that is unwarranted by the historical record. In fact, a complex version of community standing between these two poles but distinct in itself emerged in the middle of the nineteenth century."

"By mid-century, the characteristic tendency of the industrial city to segregate rich and poor into separate residential and social spheres had forced the problem of community to the center of urban thought. Two points became apparent to urban thinkers: The total rejection of urban industrialism seemed out of the question and the older view of community inherited from colonial New England was evidently inadequate to the demands of urban-industrial society. Yet many of these thinkers were not willing to sacrifice that heritage entirely to the emerging organizational society. They sought to preserve opportunities for organic and natural
relations within the new social order. They attempted to link spontaneity and a commitment to organic forms of community with an acceptance of the increasingly constraining formal structure of organizational society. For a brief period of the nineteenth century, this approach seemed to offer possibilities of significantly improving the quality of urban life."

"Charles Loring Brace provides an illustration of this response. Using New England community life as his standard, Brace judged urban society to be unnecessarily fragmented. The nineteenth-century city, it seemed, was divided by geography, class, and feelings. The poor were isolated from the other half of society. The 'better classes' of New York, he complained, do not even suspect that in a city 'so prosperous and wealthy as this there should be multitudes of people without the very first conditions of civilization.' Brace, whose philanthropic goal was the absorption of the 'multitude of the unfortunate into the community,' felt that both the fortunate and the unfortunate suffered in their different ways from this fragmentation of community."
Ebenezer Howard saw the virtues of a good community in the rural. There is something mystifying about the small town village - contact with nature, the public green; the appeal to pedestrian experience. Both the New Urbanism and Olmsted design, approach considered pastoralism as key element in subdivision development.

"We should have a cluster of cities, not of course arranged in the precise geometrical form of my diagram, but so grouped around a Central City that each inhabitant of the whole group, though in one sense living in a town of small size, would be in reality living in, and would enjoy all the advantages of, a great and most beautiful city; and yet all the fresh delights of the country -- field hedgerow, and woodland -- not prim parks and gardens merely -- would be within a very few minutes' walk or ride. And because the people in their collective capacity own the land on which this beautiful group of cities is built, the public buildings, the churches, the schools and universities, the libraries, picture galleries, theatres, would be on a scale of magnificence which no city in the world whose land is in pawn to private individuals can afford."
CHAPTER 5
CONCLUSIONS

The movement of the New Urbanism have raised intense debate among the physical action planners. It is important that the planners sometimes stop and think about what planning actions should be taken in light of designing a subdivision. Are there unintended consequences that would negate good and well grounded conceived intentions. Planning by its nature of problem solving embodies reaction to history, at times for the good and sometimes for the bad. The discipline unfortunately falls short of "provision" if there is any such thing. Circumstances, technology, and values as well as their consequences are quite ephemeral. Ameliorating the milieu of these consequences with appropriate contemporary remedies is even more ephemeral. The dynamics and the transitory nature of planning solutions to the problems of society have undermined the claims of the New Urbanism. The New Urbanism contends that the gridded street pattern featured in the Olde American town, delivered a more livable neighborhood than the early suburban approach to subdivision layout; such as the Frederick Law Olmsted curvilinear street pattern and the cul-de-sac featured in the Garden City movement.

This thesis found that given the ephemeral nature of history/planning solutions, that there were differences in intention in all the movements. The Olmsted curvilinear street pattern was responding to the overcrowding, slum and poor sanitary
conditions of the industrial city. The Olmsted design approach, intended to rehabilitate and revive the lost psychological relief absent in the industrial city. At that period in time the curve responded well to the pastoral appeal, aesthetics and changing vistas for the reconditioning and resocialization of human sensibilities. The curve was good and effective to supporting its intended use. J.B. Jackson wrote following about community and planning.

"The aesthetic mixture corresponded with the historical social complex. This was a mode of planning that met the requirements of life, and yielded to change and innovation without being shattered by it. In the deepest sense of the words it was both functional and purposeful, for the functions that mattered most were those significance to man's higher life." (J.B. Jackson/ Professional Voice p. 10)

The cul-de-sac equally responded to a different time in history. The Garden City movement intended that the cul-de-sac solve the nuisance of the automobile, thereby providing a safe environment where kids can play, walk to school, church, ball parks without encountering vehicular conflict. As J.B. Jackson eloquently put it, "it is function and purpose that matters."

Along the same line of argument, the New Urbanism is responding to a different period in time and to a different problem -- unorganized growth and suburban subdivision influenced by the ubiquitous automobile. The nexus of the new suburbs to the freeway, the shopping malls and dead end streets discouraged
pedestrian function. Social isolation and loss of community identity are often manifest in the new suburbs. The New Urbanism identifies and seeks solutions to these problems. However, to claim that their design approach, primarily, return to traditional town planning which featured gridded street pattern, delivered a more livable neighborhood than the Olmsted curvilinear street pattern or the Garden City cul-de-sac in contemporary times is simply not true. The three design approaches were reacting to a different time in history and to a different set of problems. In addition, the solution the design approaches employed are each equally effective in addressing the context and concerns of their time.

Basically, all the three movements relied on pastoral ideals to solve contemporary problems. They believed that some element of nostalgia was missing in modernism. Common to all the three movements was the simplicity of the rural, and the arcadian culture which evolved around it. Olmsted unabashedly looked towards nature for solutions, he evoked the work of Piranisi, a great landscape painter during the medieval ages. Simple and creative manipulation of the natural environment, Olmsted believed would create points of social rendezvous needed for neighbors to bond with one another.

Ebenezer Howard, the father of the Garden City movement also reacted with revulsion to the industrial city. He too, drew inspiration from the pastoral nature of the rural in creating the Garden City Community. In his book Garden City of tomorrow, Howard wrote:
"We should have a cluster of cities, not of course arranged in the precise geometrical form of my diagram, but so grouped around a Central City that each inhabitant of the whole group, though in one sense living in a town of small size, would be in reality living in, and would enjoy all the advantages of, a great and most beautiful city; and yet all the fresh delights of the country -- field hedgerow, and woodland -- not prim parks and gardens merely -- would be within a very few minutes' walk or ride." (Extracts from Professional Voices p. 14)

The theme of the New Urbanism at the same token, echoes the virtues of pastoral nature. The New Urbanism calls for a return to the traditional small town America, believing that there was a sense of community and neighborliness in the rural village.

The key question is, given the ephemeral nature of changing times, how well do each of these approaches serve in addressing the context and concerns of the end of the 20th century.

After a careful analysis of the literature, careful scrutiny of expert opinion, as well as the empirical studies on neighborhood street pattern (Southworth and Owens) and the Street Livability Survey (Appleyard and Lintell), the thesis did not justify its claims of the New Urbanism. No evidence was found to sustain to being uniquely able to serve this period, the New Urbanism claims that its gridiron street pattern featured in the Olde American Town delivers a more livable neighborhood than does the Olmsted design approach, or the Garden City cul-de-sac in contemporary times.
During the prevalence of rural town America, society was more simple and egalitarian. Individuals, profoundly depended on one another for mutual existence. Automobiles, mass transit, air planes and modern communication instruments were non existent. As a result there was a need for people and amenities to locate within reasonable proximity - walking distance at least. It is true that human contact was more frequent, though not intentionally to promote friendliness or neighborly bonding but to facilitate function and performance. Lewis Mumford reflected on Plato’s community:

"The secret of a good community, therefore, if we may translate Plato’s language into modern political slang, is the principle of function." (Professional Voices p. 6)

The New Urbanism in an attempt to solve the problems of contemporary suburbanization by evoking nostalgia of the rural village may have skewed reasonableness in what constitutes a community. Melvin Weber in a contrasting opinion noted that neighborly propinquity in contemporary modernism are forming around communication patterns rather than around the physical traditional settlement patterns. To reinforce this trend, new subdivision developments by multinational corporations such as Weston development, Mobil Land Development corporation, Disney Development are now marketing subdivisions through abstractions that imply community and image of the hometown.

Abstractions through high powered advertisement such as children frolicking in the sunshine or waving flags at a Fourth of
July parade, Boy Scouts, patio parties and cozy classroom scenes are some of the emerging psychological imprints insinuating a sense of community to the prospective home owner. (Wall Street Journal, May 10, p B2 and B6.) The Mobil Land Communities advertisement further highlights that "the best foundation for a home is solid community. It can't be built with bricks and mortar. Because communities are built from people."

This idea of building community through abstractions and advertisements suggests that communities are built on the will of the people, other than by physical responses such as the grid, the curvilinear street pattern or the cul-de-sac.

Equally important, Weber argued that no single physical pattern can ultimately define a sense of community more than the other. He wrote the following extract in the article, community without propinquity.

"Moreover, I contend that we have been searching for the wrong grail, that the values associated with the desired urban structure do not reside in the spatial structure per se. One pattern of settlement and its internal land use form is superior to another only as it better serves to accommodate ongoing social processes and to further the nonspatial ends of the political community. I am flatly rejecting the contention that there is an overriding universal spatial or physical aesthetic of urban form." (Professional Voices p. 1)

The New Urbanism relied heavily on the contention that grid iron street pattern featured in the traditional village delivered
a more livable neighborhood. The Weber argument and Plato’s postulation for function and performance as instruments of evaluating good community may have impeded or watered down the claims of the New Urbanism.

Further, the findings of this research did not discredit either the Olmstedean design approach featuring the curvilinear street pattern, nor the Clarence Stein design solution exhibiting the cul-de-sac. The findings did not discredit the New Urbanism neither. The thesis uncovered that there are problems with each of the three approaches, as well as benefits.

In the Olmsted curvilinear street pattern, disorientation for travellers is a real issue. However, the problems are not fundamental, so could be mitigated through design. In the grid iron street, the problem of through traffic is a real problem. The grid during construction requires the removal of more earth, causes environmental problems and consumes a lot more natural vegetation, a significant problem for biodiversity in suburban ecology. The grid cost more to build and cost more in installation and maintenance of infrastructure. (Southworth and Owens, Appendix 1, p. 3)

In as much as the Olmstedean design approach and that of the New Urbanists have shortcomings, the shortcomings are minor. Both design approaches significantly benefit society. The Olmstedean neighborhoods still enjoy a lot of support from the public, likewise the New Urbanism. There are qualitative differences between both design approaches. However, after an extensive
literature search, grounded evidence to support the appropriateness of the New Urbanism over the Olmsted design approach for contemporary application was not found. Instead, what was found was a popular topic widely discussed in planning, but filled with ungrounded assertions.
APPENDIX 1
Neighborhood Street Patterns


"The second scale of the urban edge examined in this study was the neighborhood. Several aspects of street patterns contribute to the quality and character of a neighborhood: the length of streets and the number of intersections, cul-de-sacs, and loops in each unit of land. The amount of land devoted to the streets relates directly to infrastructure costs. The number of intersections in a given unit defines the route options available when moving through the area. Degree of connectedness is also significant. Few connections with the larger community create an insular district and possibly a sense of isolation or disorientation among its residents.

"This section draws its examples from the Pleasanton and Livermore areas of Alameda County, yet the observations are representative of broad dramatic changes in residential design over the past fifty years. As at the larger community scale, there has been a widespread tendency for neighborhood street patterns to become increasingly disconnected (more cul-de-sacs and loops, fewer through streets), curvilinear, and organized in self-contained units with few points of access. The following five topologies describe these changes (see Figure 13). Future research should look at street patterns in other types of specialized districts, such as office parks, multifamily developments, and shopping malls."

"The Gridiron (Livermore)

"The quintessential open grid forms the structural core of hundreds of American towns and cities. It is a simple system of two series of parallel streets crossing at right angles to form a pattern of equal-sized square or rectangular blocks. In its purest form this type of nonhierarchical (democratic), strongly interconnected, readily expandable, and offers a wide variety of possible routes through it and of access points in and out.

"The illustrations show that this pattern has more land devoted to streets, as well as more blocks, intersections, and points of access than the other four patterns. Although the grid maximizes infrastructure costs, this pattern offers the shortest trip lengths and the largest number of route choices of any of the patterns. It also creates the pattern predominated in the pre-World War II era when pedestrian travel was high, auto ownership was relatively low, and street construction standards were less automobile oriented than they are today."
"Warped Parallels (Livermore)"

"The long, narrow blocks, T intersections, and L corners of the fragmented parallel pattern are warped here into a parallel curvilinear pattern in an apparent effort to create a more rural character and to shorten the visual length of the street. The curving streets are not a response to topography since the site is flat. Leftover spaces are filled in by occasional cul-de-sacs. The degree of connection, route choices, and access points are similar to the fragmented parallel pattern, but the curving streets make user orientation more confusing in these neighborhoods. The transition to an automobile subdivision becomes more pronounced in this pattern with significant reductions in intersections, street length, blocks, and access points. As a whole, the pattern seems more unified and reflects a clearer conceptual basis than the fragmented parallel approach."

MICHAEL SOUTHWORTH AND PETER M. OWENS

<table>
<thead>
<tr>
<th>Street Patterns</th>
<th>Gridiron (c. 1900)</th>
<th>Fragmented Parallel (c. 1950)</th>
<th>Warped Parallel (c. 1960)</th>
<th>Loops and Lollipops (c. 1970)</th>
<th>Lollipops on a Stick (c. 1980)</th>
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<tbody>
<tr>
<td>Intersections</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lineal Feet of Streets</td>
<td>20,800</td>
<td>19,000</td>
<td>16,500</td>
<td>15,300</td>
<td>15,600</td>
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<tr>
<td># of Blocks</td>
<td>28</td>
<td>19</td>
<td>14</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td># of Intersections</td>
<td>24</td>
<td>22</td>
<td>14</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td># of Access Points</td>
<td>19</td>
<td>10</td>
<td>7</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td># of Loops &amp; Cul-de-Sacs</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>24</td>
</tr>
</tbody>
</table>

Note: This table refers to the 100-acre unit of analysis illustrated in the diagrams. Intersections were defined as junctions of two or more through routes. Junctions with cul-de-sacs were not treated as intersections because cul-de-sacs do not lead anywhere outside the immediate area.
"Loops and Lollipops (Pleasanton)"

"Here the parallel structure is eroded further by greater emphasis on loops and cul-de-sacs. This creates a non-directional pattern of streets that tend to loop back on themselves. Interconnection is limited to several through streets not readily apparent in the plan. Blocks tend to be odd-shaped and frequently penetrated by street stubs. Increased privacy is accompanied by limited route choices and few access points, and the maze-like pattern is disorienting. This pattern, with its higher percentage of lots on short streets, succeeds, however, in creating quiet streets that are relatively safe for children. The almost total reliance on loops and cul-de-sacs reduces pedestrian access to anywhere but a neighbor's house and the local school. All these factors combine to increase auto trips and concentrate them on the few existing arterials, which result in unprecedented traffic congestion in many younger urban edge communities. Thus, at the community scale this pattern is proving undesirable for both the automobile driver and the pedestrian."

"Lollipops on a Stick (Pleasanton)"

"This pattern is the antithesis of the open gridiron. Dead-end cul-de-sacs branch off a few easily recognized through streets. Privacy is maximized, but interconnection is very limited. Blocks are few and large. A repeated parallel pattern of penetrating street stubs provides access to block interiors. Intersections, route choices, and access points are all very limited. The residents of this limited-access maze, which maximizes the number of house lots on short dead-end streets, are hard put to find a block around which to walk the dog."

"Urban Design Implications"

"The transition from open and interconnected street patterns to more closed and discontinuous ones has reflected certain historic shifts. First, an increasing concern for personal security and privacy and for safe streets for children has resulted in the development of physical environments that emphasize control and separation over openness and interaction. Second, curving streets have been perceived as more rural or natural and, thus, less citylike by potential home buyers. Third, communities have adopted public planning standards promoted as progressive and beneficial by the planning and engineering professions. Fourth, responsibility for street layout has shifted from the municipality (which may be more sensitive to connection) to the private land developer (who is more concerned with the internal site). Fifth, the new patterns, which allow more land area for lots and lower street and infrastructure construction costs, are more economically advantageous for developers."

"The pattern of neighborhood streets has strong implications for the quality of the urban environment. Residential neighborhoods at the urban fringe are suffering a steady degradation of pedestrian accessibility and of perceptual coherence as a result of increasingly disconnected and closed street
patterns. Urban designers need to devise legible street patterns that provide pedestrian, bicycle, and transit access without sacrificing privacy and safety."

"Community Land Use Patterns"

"The separation of land uses at the urban edge has been generally spurred by improvements in transportation and communication that have increased the supply of land over which to distribute uses. Land use patterns vary with time of development. Land use maps, however, reveal little about the character and quality of places, even though they have been the fundamental tool of community planners since World War II, especially in the burgeoning urban edge."

"Strip Commercial/Continuous Residential"

"Older suburbs, such as Richmond and San Lorenzo, reveal similar patterns of land use. Continuous neighborhoods of residential streets are located between linear bands of commercial streets. Richmond, the older of the two suburbs, has a more coherent community center and a finer network of commercial streets defining its neighborhoods. Its older neighborhoods also seem to be sprinkled with more small parks and schools. San Lorenzo's postwar neighborhoods have fewer and larger schools and parks. This probably reflects the larger scale of subdivisions and the perception of reduced need for pedestrian accessibility in these automobile suburbs (see Figure 11).

"San Lorenzo also illustrates the tendency of commercial activity to begin to concentrate in shopping centers rather than stretching out along neighborhood shopping streets. Richmond, however, retains a clear town center that mixes park, civic, and commercial activities within a contained area. Both communities are ringed by industrial uses and have little open space."
"Contained Commercial/Fragmented Residential"

"Two newer communities, San Ramon and Moraga, show extreme variations of what appears to be a related pattern. In both cases, the commercial areas are consolidated into a single main zone and a few minor zones. They tend to be self-contained islands weakly connected to surrounding neighborhoods. The obvious difference between the two communities is a relative size of their commercial areas. San Ramon's larger commercial area reflects the town's function as a regional job center employing residents of surrounding bedroom communities. Moraga's small center reflects the town's limited function as a local retail and service center where most residents commute elsewhere to work. Park and civic uses do not play an important role in either community center. In contrast to the clear expression of civic spaces in many older gridiron communities, civic uses in these developments have all but disappeared into faceless malls. While this pattern suggests some success in overcoming the problems of strip development, it further erodes pedestrian accessibility of neighborhoods to jobs and shopping (see Figure 12).

"The residential areas that are scattered about the commercial centers tend to be fragmented and bounded by extensive areas of open space. If the open space is not developed with interconnecting pedestrian and bicycle paths, this land use pattern can further separate the different parts of the community. The interweaving of open space areas and the incorporation of such private open space amenities as golf courses are notable features of the residential areas developed over the past decade, which emphasize cluster site planning. The pronounced topography at the periphery of both communities probably limited further residential development.

"These kinds of communities almost completely lack the neighborhood parks typical of older suburbs. Local school sites are not only more isolated, but seem to be fewer and larger, reflecting a combination of lower neighborhood densities and increased size standards for school sites. All of these changes result in proautomobile and antipedestrian environments."
"Urban Design Implications

"One of the biggest challenges for planners and designers working at the urban fringe is to introduce a mixture of uses in close proximity to residential areas. Development at the urban edge has tended to separate and divide uses as it filled in the neat magic market drawn zones of colored land use maps. The growing congestion created by people driving back and forth between zones is grounds for a major rethinking of planning principles. A finer grained separation of uses within buildings, neighborhoods, and communities can help support a more time- and energy-efficient life-style and can create more vital and diverse places to live. The design of open space reserves as part of an integrated community system can result in a more efficient use of finite land resources. As residential density increases at the urban fringe and land uses become increasingly intermingled."
Traffic

The major environmental differences between the streets were their traffic levels. The first street, which we shall call HEAVY STREET, was a one-way street with synchronized stop lights with a peak hour traffic volume (At the evening rush hour) of 900 vehicles per hour. The second street, MODERATE STREET, was a two-way street with a peak traffic flow of 55 vehicles per hour, the third street, LIGHT STREET, had a volume of only 200 vehicles at peak hour.

Speeds on all streets could rise to 45 mph or more but only on HEAVY STREET was the speed controlled by the synchronized lights. Traffic volumes had increased on HEAVY and MODERATE STREETS ten years earlier when they were connected to a freeway at their southern terminal. Through traffic was dominant on MODERATE and HEAVY Streets, and traffic composition included more trucks and buses on HEAVY STREET than on the others.
<table>
<thead>
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<th>Street Characteristics</th>
<th>Heavy Street</th>
<th>Moderate Street</th>
<th>Light Street</th>
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<tr>
<td>Peak hour traffic flow (vehicles/hour)</td>
<td>900</td>
<td>550</td>
<td>200</td>
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<tr>
<td>Average daily traffic flow (vehicles)</td>
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<td>Traffic Flow direction</td>
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<td>two-way</td>
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<tr>
<td>Vehicle speed range (m.p.h.)</td>
<td>30-50</td>
<td>10-45</td>
<td>10-35</td>
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<tr>
<td>Noise levels (percentage of time) above 65 decibels at the sidewalk</td>
<td>45%</td>
<td>25%</td>
<td>5%</td>
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<tr>
<td>Accidents (per annum over a four block length)</td>
<td>17</td>
<td>12</td>
<td>-</td>
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<tr>
<th>Land Uses</th>
<th>Residential (apartment blocks, apartments)</th>
<th>Residential (apartment blocks, apartments, single family homes)</th>
<th>Residential (apartments, single family homes) Corner store, One Person Business</th>
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<tbody>
<tr>
<td>Street width (feet)</td>
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<td>69</td>
<td>69</td>
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<tr>
<td>Pavement width (feet)</td>
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<td>41</td>
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<td>Sidewalk width (feet)</td>
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<td>15</td>
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<tr>
<td>Average building height (no. of stories)</td>
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<tr>
<td>Mean household size (no. of people)</td>
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<td>2.6</td>
<td>2.7</td>
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<tr>
<td>Mean household income ($1,000's)</td>
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<tr>
<td>Mean number of school years completed</td>
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<td>13</td>
<td>15</td>
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<tr>
<td>Mean length of residence</td>
<td>8.0</td>
<td>9.2</td>
<td>16.3</td>
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<tr>
<td>Mean rents ($/month)</td>
<td>140.00</td>
<td>120.00</td>
<td>103.00</td>
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STREET USABILITY STUDY: A SURVEY OF HOW RESIDENTS VIEW THEIR STREETS

Figure 1

TRAFFIC HAZARD
By social class and income the streets were relatively homogeneous. Contrasts, however, occurred in family composition, ownership, and length of residence.

LIGHT STREET was predominantly a family street with many children. Grown-up children are even returning to live on the street to bring up their own children there. One-half of the people interviewed were homeowners, and the average length of residence was 16.3 years. HEAVY STREET, at the other extreme, had almost no children on its block. It was inhabited mostly by single elderly women on the block. Average length of residence on HEAVY STREET was 8.0 years, and people were nearly all renters. Rents were also somewhat higher on HEAVY STREET, averaging $140.00 among our respondents, whereas those on LIGHT STREET, average residence 16.3, averaged $103.00 a month. MODERATE STREET stood in between. Average length of residence here was 9.2 years and average rents were $120.00. So, although the people were of the same type on all three streets, there was quite a difference in their age and family make-up.

Environment

The three streets were typical San Francisco streets with terrace houses or apartments built up to the building-line, very few front yards and very few gaps between the houses. The architectural style ranged from Victorian to modern. They were either wooden, stucco or brick finish, of white or light colors. They were pleasant-looking blocks. The streets were each fairly level, with a slight gradient to the south where they ran up a steep hill. They were close to various shopping and community facilities.

TABLE 2: Mean Ratings of Traffic Hazard
Rating: 1 = very safe, 5 = very unsafe

<table>
<thead>
<tr>
<th></th>
<th>Heavy</th>
<th>Moderate</th>
<th>Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is traffic like on this street, how would you describe it? Does it bother you at all?</td>
<td>3.7</td>
<td>3.2</td>
<td>2.2</td>
</tr>
<tr>
<td>Is it ever dangerous on your street and around your home? (traffic accidents, incidents, etc.)</td>
<td>3.8</td>
<td>3.0</td>
<td>2.5</td>
</tr>
</tbody>
</table>
TABLE 3: Mean Ratings of Stress, Noise, and Pollution  
Rating: 1 = low stress, 5 = high stress

<table>
<thead>
<tr>
<th></th>
<th>Heavy</th>
<th>Moderate</th>
<th>Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there anything that bothers you or causes you nuisance on and around this street?</td>
<td>4.5</td>
<td>3.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Are you ever troubled by noise and/or vibration?</td>
<td>3.7</td>
<td>2.5</td>
<td>2.4</td>
</tr>
<tr>
<td>Are you bothered at all by dirt, pollution, smells, glare? Does it to your knowledge cause any ill health?</td>
<td>3.4</td>
<td>2.9</td>
<td>2.0</td>
</tr>
<tr>
<td>Is there adequate street lighting?</td>
<td>1.4</td>
<td>2.0</td>
<td>2.4</td>
</tr>
<tr>
<td>Is the street too wide or too narrow?</td>
<td>2.1</td>
<td>1.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Are the sidewalks too wide or too narrow?</td>
<td>2.5</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>do you have adequate local services; garbage collection, street clean?</td>
<td>2.2</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>What physical qualities of the street do you like most? What physical qualities of the street do you find least attractive?</td>
<td>2.7</td>
<td>3.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Is your street well maintained, are front yards, planting, sidewalks, etc., well kept up?</td>
<td>1.5</td>
<td>1.8</td>
<td>1.9</td>
</tr>
</tbody>
</table>
Appleyard, Lintell

STREET LIVABILITY STUDY: A SURVEY OF HOW RESIDENTS VIEW THEIR STREETS

The street is well maintained. There's usually someone repairing.

The sidewalks are big enough to ride down on a bike and not knock down any people.

I'm sometimes troubled by noise of heavy trucks.

I keep front windows closed. Even then the noise gets in.

I feel uneasy at traffic... dust is constantly coming in a fine powder.

I am bothered by traffic noise at night—cows screening.

All the cars in the world are going by but I can't hear.

People have moved because of the noise.

There is too much noise from traffic. It's a wasting of air. They all honk louders at traffic lights and then roar off when the lights change.

NOISE, STRESS AND POLLUTION

73
TABLE 4: Mean Ratings of Neighboring and Visiting

Rating: 1 = high, 5 = low

<table>
<thead>
<tr>
<th>Question</th>
<th>Heavy</th>
<th>Moderate</th>
<th>Light</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think this is a friendly street? Do you think there is a feeling of community on this street?</td>
<td>3.2</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Where do people congregate on this street if at all?</td>
<td>4.4</td>
<td>3.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Where do children play if at all?</td>
<td>4.5</td>
<td>3.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Where do teenagers gather if at all?</td>
<td>4.7</td>
<td>4.1</td>
<td>3.0</td>
</tr>
<tr>
<td>Where do adults casually meet and chat outside if at all?</td>
<td>4.1</td>
<td>2.5</td>
<td>2.7</td>
</tr>
<tr>
<td>Do you have any friends and relatives who live on this street?</td>
<td>4.2</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Which people on this street do you know by sight?</td>
<td>3.5</td>
<td>2.8</td>
<td>1.8</td>
</tr>
<tr>
<td>Do you belong to any social organization or any form of local group?</td>
<td>3.6</td>
<td>3.4</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Quotes:
"It's getting worse. There are very few children, even less
than before -- The only people I have noticed on the street are an
older couple in this building who stand outside every night,
otherwise there are only people walking on their way somewhere --
It's not a friendly street, no one offers help -- Everybody on
(HEAVY) is going somewhere else, not in this neighborhood --
Friendly neighbors, we talk over garden fences -- It's not a
friendly street as people are afraid to go into the street because
of the traffic." (HEAVY STREET)

"Friendly street, many people related -- Friendly street,
several families have lived here a long time -- There are no longer
any of my friends around here any more - dislike most about street.
I don't know neighbors any more. I feel helpless not knowing
anyone in case of emergency -- Doesn't feel that there is any
community any more. However, many say hello -- There's nobody
around." (MODERATE STREET)

"Friendly street, people chatting washing cars, people on
their way somewhere always drop in -- The corner grocery is the
social center. I get a kick to go up there and spend an hour
talking -- I feel it's home, there are warm people on the street,
don't feel alone -- All family people, very friendly -- Kids used
to play in the street all the time, but now with a car every two
minutes, they have to go the park -- Everybody knows each other." (LIGHT STREET)
STREET LIVABILITY STUDY: A SURVEY OF HOW RESIDENTS VIEW THEIR STREETS

NEIGHBORING AND VISITING

LINES SHOW WHERE PEOPLE SAID THEY HAD FRIENDS OR ACQUAINTANCES
A series of questions asked inhabitants about the friendliness of the street, the numbers of friends and acquaintance they possessed, and the places where people met (Ellis, 1968). Each respondent was shown a photograph of the buildings on the street and asked to point out where any friends, relatives and acquaintances lived.

On LIGHT STREET, inhabitants were found to have three times as many local friends and twice as many acquaintances as those on HEAVY STREET. The diagrammatic network of social contacts in Figure 3 shows clearly that contact across the street was very much more rare on HEAVY STREET than on LIGHT STREET. The friendliness of LIGHT STREET was no doubt related to the small amount of traffic, but also to the larger number of children on the street and the longer length of residence of the inhabitants. The statements of the inhabitants corroborate this. They considered it "definitely a friendly street."

On HEAVY STREET, there was very little social interaction. With few if any friends (0.9 per respondent) the residents considered it not a friendly street. While it might be argued that this was primarily a consequence of the life style of those living on HEAVY STREET (Keller 1969), the sense of loneliness came out very clearly especially in the responses of the elderly. As for MODERATE STREET, there was a felling that the old community was on the point of extinction. "It used to be friendly; what was outside has now withdrawn into the buildings. People are preoccupied with their own lives." Some of the families had been there a long time, but these were diminishing. As other respondents put it, "it is a half-way from here to there," "an in-between street with no real sense of community." There was still a core of original Italian residents lamenting that "there are no longer any friends around here." The average number of friends and acquaintances per respondent was only a little higher than on HEAVY STREET.

From the notations of street activities drawn by the subjects on the map of the streets (Figure 3), it can be seen that LIGHT STREET was the most heavily used, mostly by teenagers and children, yet even here "children used to play on the street but now with a car every two minutes they go to the park." MODERATE STREET had lighter use, more by adults than by children, and HEAVY had little or no use, even by adults. The few reports on HEAVY STREET were of middle-aged and elderly people on the sidewalks, walking to or from somewhere and seldom stopping to pass the time of day with a neighbor or friend. Reports on MODERATE STREET indicated that the sidewalks were more heavily used by adults, especially a group of old men who frequently gathered outside the corner store. Children and some teenagers play more on the eastern sidewalk, probably because most of their homes were on the eastern side and they didn't like to cross the road except at the crossings. As for LIGHT STREET, though people continued to use the sidewalks more than any other part of the street, often the whole of the street was in use with children and teenagers playing games in the middle of the street. The sidewalks were also extensively used by
children, especially because of their popular gradient and width. Again, a corner store acted as a magnet for middle-aged and elderly people, and a tennis court across the road attracted a small group of young adults. Front porches and steps on LIGHT STREET, and to a certain extent on MODERATE, were used for sitting on, chatting with friends, and by children playing. The lack of them on HEAVY STREET was regretted.

In conclusion, there was a marked difference in the way these three streets were seen and used, especially by the young and elderly. On the one hand, LIGHT STREET was a lively close-knit community whose residents made full use of their street. The street had been divided into different use zones by the residents. Front steps were used for sitting and chatting, sidewalks for children playing, and for adults to stand and pass the time of day, especially round the corner store, and the roadway by children and teenagers for more active games like football. However, the street was seen as a whole and no part was out of bounds. This full use of the street is paralleled by an acute awareness of the physical environment as will be described in the section in identity and interest.

HEAVY STREET, on the other hand, had little or no sidewalk activity and was used solely as a corridor between the sanctuary of individual homes and the outside world. Residents kept very much to themselves so that there was no feeling of community at all, and they failed to notice and remember the detailed physical environment around them. MODERATE STREET again seemed to fall somewhere between the two extremes. It was still quite an active social street, although there was no strong feeling of community and most activity was confined to the sidewalks where at that time a finely sensed boundary separated pedestrians from traffic. The ratings reflect the differences between the three streets as mentioned above, particularly the perceived lack of meeting places of old people and play places for children on HEAVY STREET, where mean response ratings usually exceeded 4.0.
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