A NEW COMMUNITY ON A PENINSULA

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Bachelor of Arts in Architecture
Stanford University, 1958

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology.

February 21, 1961.

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This thesis is an attempt to relate community form to social objectives. The community was designed for 110,000 people at a density of 55 families per gross acre on Rockaway Point, an 800 acre site of unique expressive potential in New York City. The community is a new urban center within the metropolis, for its own residents and for the populations of the surrounding "gray areas" and the suburbs. It provides a focus for many communal elements which now occur either in the central city or widely dispersed.

After a review of some common criticisms of the center city and the suburbs, general social objectives for the community were established. To promote growth and development of the individual, both in his private and social life, was taken to be the ultimate objective. Hence, the design should encourage communication at many levels among diverse people, enhance awareness of life, anticipate growth and change, and allow for individual intervention.

The environmental implications of these objectives were investigated for such elements as the structure of association and community activity, the ordering of the large scale form and the circulation system, and the initial growth and long range flexibility of development. Particular attention was given to the implications of these objectives for "mass housing for individuals."

The design creates a wall of high buildings on the northern, inlet side of the peninsula, a kind of man-made geography to articulate and give scale to the site, to shape the major communal spaces and provide a background for the rest of the community, and to keep the whole open to the sea and the southern sun. There are three major sub-communities, or districts, each with a semi-specialized community center. Level differences separate the several kinds of circulation so that they do not conflict but are intervisible. The residential design establishes a continuous structure of association from individual unit to total community.

Thesis Supervisor: Herbert L. Beckwith  
Professor of Architecture
ACKNOWLEDGEMENTS

I am grateful to the following people for their help, early and late:

Lawrence B. Anderson
Imre Halasz
Kevin Lynch
John Myer

The Members of the Thesis Committee
The Students

Carolyn, my wife.
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INTRODUCTION: THE METROPOLITAN DILEMMA

I, a stranger and afraid,
in a world I never made...

"Last Poems"
A.E. Housman.
Cities are all things to all men. This rich, catholic quality is the source of civic power and of civic romance. It explains why cities endure, despite endless change -- great monuments, not to an age, but to humanity. Any city is a focus of civilization, society organized for collective well-being, and of culture, civilization transcended for the pursuit of individual perfection. And therefore cities grow.

According to one of the common and awesome statistics of our time, the population of the world and of the United States will double in forty years. In this country, ninety percent of our doubled populace will come to live in cities. Under such human pressure, our urban environments, still rife with the untamed effects of industrialization, will undergo further enormous changes in shape and in character.

Looking backward, the growth of our great cities is generally comprehensible. The breakdown of the concentric formation of the city began as people pushed outward along the new axes of mechanized extension. Later, the tremendous mobility of the automobile and the truck, coupled with a communications revolution, made possible the further decentralization of people and functions, filling the interstices between the transportation routes and encouraging a broad dispersal of loyalties. Without knowing the shape of future growth, we can guess that the environmental attachments of city-dwellers will become still more widely
dispersed.

But for many, the choice between the central city and the suburbs is a dilemma. Even with the new highways which we are rapidly building to connect the two, the intensity of the old urban focus is too weak to compensate for the stupefying atmosphere of suburbia. The dull small town centers and the strictly commercial suburban shopping centers offer little relief from the continuous low intensity environment. A renewed central city with more high quality housing can probably provide an alternative way of life for only a relatively small urban elite. Between the center and the suburbs lie the endless "gray areas," the remains of early expansion. They offer no resolution of the dilemma with their minimum standard housing and their shabby commercial districts. As the processes of extension outstrip those of formation, we are abandoned to the increasing complexity, subjectivity, and isolation of our individual lives, seldom to be reassured by the direct and distinctly urban experiences of immediacy, mutuality, and community.

Let us therefore build new urban centers within the metropolis, each with all the appurtenances of a great city. Each with a life and atmosphere of its own could create a fine environment for department stores, specialty shops, and banks; theaters, hotels, clubs, libraries, and museums. As our great highways are the tools of suburban extension, these new centers would become the tools of urban formation.
They should, therefore, be skillfully integrated within the metropolitan web, easily accessible to the populations of the "gray areas" and of the suburbs. They should be closely related to highways and other transportation routes, probably at important joints, thus clarifying the circulation system, increasing accessibility, and increasing the potential of these centers as landmarks within the metropolis. With these small cities as new centers of gravity, we could begin to check the debilitating dispersal of communal elements while providing opportunities for new concentrations of commerce, industry, and housing.

This thesis is an attempt to formulate a broad set of objectives for such a new community and to determine their environmental implications. Further, it is a specific experiment in developing a design to satisfy these objectives on a site of special expressive potential. It is my hope that this hypothetical design research can further our insight into the qualities of a good, new, high-density community and into the potential of such a community as one resolution of the metropolitan dilemma.
PART I: OBJECTIVES FOR A NEW CENTER COMMUNITY

Men come together in cities in order to live; they remain together in order to live the good life.

Aristotle.
From the admirable Utopianism of Fourier and Ebenezer Howard, through the specific proposals of Garnier, Le Corbusier, and Wright, through the concrete attempts in Chandigarh and Brazilia and beyond runs the line of thought about modern ideal cities. The line is by no means straight. The general attitudes taken about city form have been nearly as varied and as dissonant as are cities themselves. Some of the specific architectural proposals like Broadacre City have been in the tradition of radical reform, while others, like Le Corbusier's *ville radieuse* have merely given rational form to already dominant characteristics.

Yet there is a common denominator which underlies these early modern proposals and most of those which have followed: that is, their professed social basis. The architect's concern with city form can in part be seen as a natural development of his more general concern about the social implications of his art. True, our current interest in urban problems may be primarily a Promethean urge to large scale form giving. Nevertheless, problems of social responsibility and expression are more clear-cut and compelling at the city or large site planning scale than at the level of detailing, surface treatment, or even individual buildings.

Too often the gestures of social concern are token ones. Architects dealing with city form are generally
content to follow a broad statement of social concern immediately with a specific design rationale or proposal. The general philosophy and major objectives behind the particular approach, while sometimes obvious, usually must be inferred from the design itself.

The formulation of such objectives, broad enough to be above the level of detailed design directives, but specific enough to be provocative and useful, is no substitute for the hard work of design. Principles do not directly produce architecture. But the effort to candidly expose and articulate one's objectives is a clear responsibility for anyone attempting to shape the large scale public environment. A statement of objectives provides a public document of intention, as well as a working check on the design.

The following is my formulation of such objectives. It is prefaced by a brief summary of common complaints about our central cities and our suburbs, from which I draw some of the clues for a positive proposal. I have attempted to keep my goals at the same level of "useful generality." Wherever I have illustrated a point by example, the example is not intended to indicate a preferred design solution.

These objectives derive from many sources and often represent an attempt to weave together, with a critical spirit, diverse strands of thought. This is not an exercise in pure imagination, but neither is it an exercise in pure research. Any partial synthesis I achieve may well be personal and ephemeral. But if so, I am consoled in my
quest for momentary clarity and order by my faith that despite this thesis, the future will remain uncertain.

Our time is part of an historical continuity. It has a definite relationship to the past and an even more definite relationship to the future. According to our best thoughts on the subject, this future is not determined but in the making: that is, effected by our choices.

To make choices about the urban future, we need many clear and concrete alternatives for the parts and for the whole. We must have real choices among possible environments suited to many styles of living. We do not have them. Neither our own cities nor the finer and older cities of the world immediately suggest such alternatives in terms appropriate for post-industrial democratic urbanism. We cannot learn from them how to live in peace with our mechanical slaves. Neither can we learn how to achieve a sense of place in the "city of a thousand designers," all democratically diverse and competitively expressing their diversity. Nor can we learn how to transform anticipation of rapid growth and future change from a source of anxiety into an asset. True, we are not fully in command of those impersonal social and economic processes which evidently shape our urban world. But do we know how to use the control we do have so that the city dweller can sense a continuity of city development and his potential individual and communal participation in it?
In the city proper (as distinct from the suburbs), our failures are spectacular. Congestion is so outrageous that the resultant common anguish has become one of the few elements of metropolitan unity. The automobile is a wonderful servant, in a certain way the machine age symbol of individual freedom; and yet through our highway policy we have allowed it to become an instrument of group coercion and urban fragmentation. In this sense, our cities are truly "over-mechanized." For when, under the guise of relief and heedless of the real cost to urban well-being, we thrust more highways into the heart of town, we only increase central congestion to temporarily please the commuter; and in the long run we increase our communal anguish. This endless proliferation of highways further suppresses that declining minority who would like to enjoy what delights the city does offer. At the other end of these roads, our nearly unlimited mobility further encourages that suburban isolation which has so debilitated urban social interaction.

Or, take downtown itself. In a democratic society, we might expect self-expression to be vigorous in the marketplace, becoming a visual affirmation of the strength and diversity of pluralism. Instead of such an enriching experience, we find a completely predictable and shabby commercialism. What little unique personal expression exists is subverted by the general abject conformity to the fierce demands of the profit motive. Profitable impersonality reaches its peak at the hundred percent corner, but it
extends in all directions. We cannot plan or legislate away the profit motive even if we wish to, but we ought to recognize that our unhampered right to realize profits can preclude our right to a good environment. The evils attributable to our uncritical worship of the profit motive may go deeper than commercial blight; so long as we are unwilling to better control the environmental expressions of that motive, the debilitating visual chaos of our cities will persist.

Worse yet, in the long run, may be the effects of our reluctance to take thought for the future. For while we ponder our inherited environment, the accelerating processes of growth and change continue to worsen the visual chaos. There is no doubt that by and large our cities have so far failed to respond to the changing life forms of their inhabitants. They have failed because of vested interests and the inherent rigidity of early patterns, but they have also failed because their inhabitants have had little appetite for change. We are grimly reminded of these failures by our environmental fossils -- our slums, vacant store fronts, and smoking industries in the center of the city. When growth and change have been irresistible, we know what a mockery they have made of our axial compositions and the 'streetscape' in general. When they have brought vigorous new forms (mechanization, the skyscraper, superhighways, suburban sprawl), these have been thought of (if at all) as necessary evils, and it is only later that
their positive potential has been recognized -- often too late. Individuals, being adaptable, have accepted their slums or their commuting or congestion with meek resignation, instead of actively enjoying the essential drama and sense of expanding horizons which could accompany growth and change in a more orderly world.

But perhaps our worst failure has been our lack of civic imagination. We have not directed our city building to focus and intensify our collective activity, to make it humanly comprehensible. We have not created the "city as theater" for the social drama of men in association. Nor have we created a rich, evocative, and personal city where individuals can easily discover in time their "private cities." If we notice that the city is neglected and its citizens apathetic, we must admit that there is little to be proud of or fond of, and little opportunity to participate in renewal.

It is not so much that our cities are ugly, for the ugly can generate affection. It is that they are so hopelessly mediocre: our downtowns essentially corridors and doors, our central residential areas obsolete and neglected, and our communal facilities mean and misplaced. No wonder the suburbs proliferate.

The suburban promises of renewal -- self-sufficiency, privacy, security, and identity (duly appropriated by Madison Avenue) -- are now the watchwords of urban alienation. Already, according to many of our sociologists and
novelists, we have developed in our suburbs a generation of men who have no love for the many-sided and challenging qualities of the city, men who live out their lives in conformity to institutionalized standards. While associations may be closer and participation in community affairs easier, life in the "world of sleep" is on the whole sanitized and cellophane wrapped. To live happily in these increasingly homogeneous and isolated neighborhoods, one must be properly "child oriented," socially gregarious, and politically conservative (or so we are told). With a privately owned piece of land and increasing leisure time, there is plenty of opportunity for tinkering and "do it yourself" activities; but these, although perfectly healthy, may not prove satisfying in the long run.

We may blame education, affluence, the corporation, or television for this, but part of the blame must fall on the stupefying qualities of suburbia itself. The pallid visual environment is both a symptom and a cause of the suburban malaise. Repeated similar units at low and uniform density narrow the range of association and produce the endless rhythm of monotony, a new departure, quite different from the interlude and variety of the finer old suburbs. Moreover, the high middle income builder's house has been reduced to an economic and cultural formula, so that there is little difference between suburbs. And yet the suburbs provide no compensating communal focus. The density is too low to support more than an occasional shopping center,
church, or school.

But even if we examine the suburbs in their own terms, we find them wanting. We discover that "self-sufficiency" refers to the burdensome gadgetry of the mechanically self-contained house rather than to self-reliance; that "privacy" is little more than a vague dream in the limited and self-conscious suburban neighborhood; that "security" is undercut continuously by the demands of competitive conspicuous consumption; and that "identity" is reduced to a matter of status symbols, usually derived from superficial differences among standard units.

But let us not be mistaken. These failings of the suburbs and of the central city are essentially social failings. They cannot be remedied merely by new forms of urban organization. Our collective salvation is worked out on many levels. Yet while it is well to keep this in mind, it is nonetheless possible that other environmental images may not only be better, but persuasively better than the status quo. In this conviction the designer should take courage and act upon it, for he is uniquely equipped to imagine tangible better worlds. And whatever the ultimate fate of his ideas, he will at least have provided one competing image of what might be -- an image conceived in his own special awareness of what is.

My attempt has been to focus on certain commonly mentioned criticisms of what is. For implicit or explicit in
them is an affirmation of the real or potential urban values in whose name the criticism is made. It is the suggestion of these underlying values and not the criticism itself which is important. We find that the city is over-mechanized, shabbily commercial, lacking developmental coherence, and humanly inexpressive; and in the same breath we find the suburbs gadget-ridden, status-ridden, visually antiseptic, and socially ingrown. What underlying positive values are implied by such a statement, and how can they be translated into objectives for a new community?

As I see it, the major concern underlying all of the minor ones I have mentioned is with the failure of both city and suburbs as places which further individual and social development. If this concern is proper, then the highest purpose of city organization ought to be to provide an optimum environment for individuals to mature, alone and in association with others. This "humanism" becomes the theme and the justification of the urban environment.

Let me briefly suggest the criteria for such an organization before developing them at more length. First, the urban environment should encourage communication or social interaction at various levels of intensity among varied people. Second, it should enhance the resident's awareness of life by reflecting both its diversity and its unity and by creating real choices among a variety of life states. Third, the urban environment should anticipate future growth and change over time. And finally, the urban world
should be structured to allow the individual to intervene visibly and to have a sense of participation in shaping his environment; and yet it should remain an ordered world.

It should be remembered that the detailed statements of these objectives apply specifically to a new center community of limited size and special function within the metropolis. It is also important to consider that this community would very likely be wholly built up in a period of a few years. While the stated objectives should apply to any such community, the possible ranges of association, variety in form, function, or population, and ultimate growth will be limited by the particular size chosen with its special inner and metropolitan potentials.
TO ENCOURAGE COMMUNICATION

The opportunities for communication increase with the number of contacts between people. Ordinarily, human contact increases with population density, so that, qualifications aside, it can be argued that high density is at least a necessary although not a sufficient requisite for a high incidence of social interaction. But once that it is said, we must immediately add the qualifications, for it is important to ask whether these contacts are voluntary or involuntary, personal or impersonal, simple or complex.

The objective of individual growth is best served if all these levels of social interaction can occur. There should be neighborly and repetitive (suburban) association as well as impersonal and complex (urban) association, and some gradient between. If these associations are to range from the familiar to the challenging, we need to encourage contact among people who are very different as well as among those who are similar. Clearly then, as well as high density, there ought to be a social, economic, racial, and religious mixture. The community should accommodate as wide a variety of people as can be encouraged to come together in one place. And withal, we must remember that the success of such a mixture probably depends on our success in protecting the privacy of the individual and his right to avoid contact altogether when he wishes.

Although many of the specific environmental implica-
tions of these refined objectives are by no means definite, certain principles or "guides for action" can still be suggested. Given a diversified economic policy on the part of the developer of the community and a site with inherent or realizable attractions for a variety of people, the designer's task is to create the proper structure of association to facilitate communication between people. This structure establishes both the general means of association (the forms of dwelling, congregating, and circulating) and the relationships between them.

It is likely that a broad range of interaction will be encouraged if the dwelling pattern is structured as a continuous system of well connected but distinct elements of association at many levels. These associative elements must be able to produce an appropriate equivalent for the familiar structural hierarchy: house, street, district, city. There have been a number of attempts to establish objective standards for the various elements of this structure, but so far there is little agreement about them. And it may well be that the hierarchical ideal which these standards embody is a perversion of the democratic ideal. A rather loose and overlapping structure more like that of present cities probably gives the individual more freedom to select alternative kinds of association, and is more in keeping with our age of mobility.

Within this structure, what is essential is that each associative element, whether at the scale of house, street,
neighborhood, district, or city, be clearly and strongly linked to something greater than itself. Each element maintains its own identity, yet is not self-contained; i.e., not wholly comprehensible except in relationship. In this way a sequence, or modulated continuum, can be established, each partly extroverted element leading to the next until one whole is built up. This is then an organization in which the individual feels that he can participate at all scales and associate with a variety of people, yet maintain a place of his own. For true identity, this place must provide privacy and be part of an element which is identifiable at the scale of the total community.

The question of the proper scale, or grain, of identity is important, particularly in a community with a real variety of family sizes, age groups, income levels, and housing types. In such a "balanced" community, too great a sense of variety and too fine a mixture may produce conflicts and a feeling of impersonality which will actually decrease communication. The central city suffers in part from this malady. Nevertheless, to create a fertile environment for association which challenges the individual, some variety and mixture is essential.

The scale of associative elements must be related to the size of the total community with care, as well as create a sense of identity and of mixture. A clustering of similar units around a common space may provide enough identity in a limited and mixed environment, but when incorpo-
rated into a network of similar clusters to create a large scale associative element in a larger community, the sense of identity may give way to feelings of monotony or segregation. One Louisburg Square on Beacon Hill provides beautiful identity for the surrounding neighborhood, but a proliferation of Louisburg Squares might be boring.

The major unit of identity most often proposed is the neighborhood, as defined by population in relation to services provided (e.g., grammar school education and local shopping). But this concept, looking backward as it does to the locational stability of the small town, is too rigid and out of date. For with physical mobility, associations become increasingly autonomous and the neighborhood more a matter of sensed identity than of physical relationships. The quality "neighborhood" in any particular case is influenced by the scale and character of the whole community, by visual grouping, and by the strength of connections between groupings. Accordingly, the neighborhood becomes a significant associative element and not merely a matter of numerical standards and a common center. The structure of the whole community should be a modulated continuum of associative elements in which these sensed neighborhoods play a critical role -- mediators between the specific and the general, the personal and the impersonal.

Of course, the total structure of association is not merely a matter of residential groupings and linkages. The provision of many activity focal points and particularly
focal points common to several residential groupings is an essential technique for furthering communication. If the means of association — public open spaces, meeting halls, clubs, coffee-houses — are generously provided and strongly expressed at these focal points, communication will be made still easier.

Perhaps the strongest element for furthering communication is the circulation system. The character of this system and the means of circulation available can overcome many deficiencies in the associative structure. Social mobility is in part related to physical mobility, that feeling of freedom of association provided by an individually owned automobile and a continuous, rather fine grain road system. For a maximum sense of mobility, this road system should be complemented by an interconnected and intervisible, but not conflicting, pedestrian system and by a system of rapid common transport. Then if the whole is visibly and positively expressed and clearly articulated by means of differentiation, dominance, and landmarks (e.g., the Back Bay gridiron), it will provide the cohesive framework for the continuous structure of association.

This structure, to sum up, is one means to further individual growth and development. Given the idea of a high-density, varied, and socially balanced community, the way of ordering it to encourage communication is by a sequential continuum of associative elements, beginning with the individual unit and ending with the city. The particu-
lar characteristics -- grain, neighborhood, and focal point -- which modulate this structure are strongly influenced by the specific qualities of the structure, and a sense of privacy may be the reward for achieving the proper grain of identity. It is most essential to the whole to achieve a nonconflicting integration of private and public mechanized circulation with pedestrian circulation and thereby to provide the strong but intricate mobility skeleton of the structure. The complete structure of association creates the essential fact of community.
TO ENHANCE AWARENESS OF LIFE

The city has always been particularly suited to the task of creating in us a healthy awareness that while a reassuring number of people lead lives similar to our own with similar tastes, a much greater number do not. I will not dwell on the implications of this awareness; I merely maintain that it contributes immeasurably to individual growth and development. Of course, awareness of life may be enhanced by many experiences other than urban ones, but the urban environment is capable of focusing and intensifying experience by sheer concentration. Beyond this, the urban situation may achieve the life-enhancing qualities of contrast, immediacy, and transparency that other environments cannot achieve. Underlying all these qualities and making them meaningful is the basic urban fact of diversity.

Variety and differentiation in the environment express human diversity and offer us a choice of worlds. Urban concentration results in proximity of these worlds so that we can move freely from one to another. This freedom of choice challenges us and furthers our awareness of the conflicts of life and of its potential richness. The tremendous power of New York City is directly related to the concentration of choice available.

Now the first principle of diversity is order. Until we discover or invent an order, diversity is chaos. This is as true for the city as for the symphony orchestra.
Manhattan is comprehensible largely because of its simple differentiated gridiron. But there are many possible orders, and if we hope to create an urban environment in which our perception of the diversity, differentiation, and many-sidedness of life is sharpened, we must first search for the appropriate ordering principle.

The basis for that ordering principle will in part be those elements of continuity which encourage communication. The question is, how does the objective "to enhance awareness of life" clarify or modify the structure of association already described? What kind of basic order for an urban community will foster or create those qualities of concentration, contrast, immediacy, and transparency which increase choice?

The major structure of the community will be created by buildings, open spaces, and circulation. The ordering of that structure must be obvious enough and at the proper scale to produce a strong man-made "geography" or evidence of over-all order, but it must be generalized enough (as is natural geography) to allow for self-expression, variety, and inconsistency in the minor structures within it or upon it. The major structure should establish the theme of the community as expressed in the relationships among the parts, but it should not completely dictate the specific forms of the parts. Manhattan, with all its faults, has such order.

However, the major structure should also establish the main variations or modulations of this theme in order that
specific groupings of elements which offer special opportunities for contrast, immediacy, or transparency can be given their proper emphasis. The articulations of the geographic order will give spatial shape and focus to the centers of activity in the community, and thus the structure will achieve its peaks of form intensity precisely where the community achieves its peaks of life intensity. From the subtleties and variations in this man-made geography will come the impetus for the creation in time of the "many worlds" of a truly complex city, a realization of the multi-directional, sequential, rhythmic character of urban life.

For instance: in a community in which residential uses provide the main volume of building, it is likely that the major housing elements -- say multistory slabs and point towers -- would, in combination with their service facilities and the major roads, provide the basic structure of the community. This structure would be modulated by varying the height and density of these buildings to give various activity centers. The dominance in a particular center of either towers or slabs with their respective connotations of busyness or repose could strongly influence the expressive use of that space.

In sum then, the structure of association in a community will be effected by the desire to enhance awareness of life in these ways: the order created should be a geographic order, powerful at the community scale but generalized
enough to allow for specific variety. The form of this geographic structure should be articulated at the large scale to reflect the activity structure of the community. And within this over-all articulation, there can be variations allowing for real differences to develop among similar centers of activity. Thus, true diversity (as distinct from small scale, contrived diversity or picturesqueness) is encouraged to develop over time, without forgetting that order is the means to diversity.
TO ANTICIPATE GROWTH AND CHANGE

From all indications, changes in life forms, patterns of association, and technology are accelerating. On the other hand, our powers of prediction have changed very little. We can, therefore, no longer indulge our static Utopias. We must take thought for the future. Somehow, in our city designing, we must develop not only an appetite for change, but also a technique of anticipating and preparing for it, even though it remains unpredictable. Change ought to become a positive determinant for form.

The related process, growth, is in theory easier to predict and to prepare for. When it creates serious environmental problems, it is usually because it is very rapid or accompanied by great change. Slow growth may simply follow existing patterns and be practically unnoticeable, as long as the circulation holds. Rapid, mushrooming growth which is discontinuous and takes new patterns (like our recent suburban growth) can bring severe disruptions in the normal interdependence of life and community structure.

From this perspective, the best kind of community is the one which is growing and changing well: growth and change are welcomed but kept orderly. This is a city in the making, which no longer puts its emphasis on unifying monumental accomplishments or on some hoped-for end product, but on the process itself. It is a challenging kind of city for the individual, in which more decisions can be
made by more people and personal involvement is great. The environmental intention can be constantly reevaluated in order that the city may make full use of the wisdom and techniques of the future.

The basic principles of community structure, established by the needs of association and modified by the need to recognize the complexity and multiplicity of life, can be made more explicit by the anticipation of growth and change. During the various stages of initial growth, the structure must provide continuity despite changes in program, available building types, designers, or styles. In the long run, the community must have some inherent adaptability to changes in knowledge, technology, occupancy, and even function (although adaptability is more important at the metropolitan scale). A "geographic" structure with its generalized quality of freedom and openness can, as the community grows, more easily change in scale and intention, accept discontinuity, and provide a unifying sense of order even when incomplete. Within this order, the over-all form of the community at any given moment will be a legible record of the pattern of growth and change.

To be more precise, the basic space, mass, and movement order of the design for the city must be so simple and powerful that it can be expressed by a three-dimensional zoning ordinance. This zoning structure would establish the circulation network and locations of major interchanges, vehicle entry points, rapid transit terminals, and perhaps
large public parking facilities as well as the general treatment of automobile storage. It would also specify various major levels of movement and service if there are level separations between pedestrian, vehicular, and rapid transit circulation. The general location of activity centers and main open spaces would also be established with some suggestions for the various functions of each center. The required height ranges and uses for the buildings surrounding the centers would also be indicated, perhaps with set upper and lower limits on floor-area ratios. The direction of the extension of these high intensity areas toward other centers would also be indicated. These decisions would provide the basic framework.

Schools, parks, and other local community facilities might be tentatively located, or some standards of distance relationship and size established, but with considerable flexibility. These would be placed as the specific neighborhood structure is clarified. In the areas between major focal points, probably mostly housing, it might be enough at first to set maximum heights plus densities or floor-area ratios, allowing considerable freedom for change in the actual patterns developed. It may also be necessary to establish some principle of open space pattern relative to circulation, such as a connected web of green squares or a certain type of clustering, in order to insure that there will be continuity of life, even when visual discontinuities of form, size, or appearance occur.
Thus, ultimate form becomes a record of development as it is in natural organisms. Growth adapts itself to varying conditions, but reflects an underlying principle. As the development proceeds, nodules, joints, and terminals mark its successive steps, and the highest form intensity is found at these points. Between these nodes are the generally textured areas at various, but similar, grains in which growth and change are most active. The lesser interest of these areas serves as a foil for the intensity of character expressed at the nodes or joints in the system, the general reticence increasing the impact of these important elements. The zoning structure may express rest and identity by emphasizing mass at the centers, or convey the idea of movement and purpose by creating strong spatial axes and extensions of mass. The tree with its strong identity expressed in its massive trunk, its sense of pulling toward the sun along a vertical axis, its general but varied and changing leafy texture, and its strong character expressed at every joint of limb, branch, or twig is a beautiful example of a natural record of development.

In the relatively small, special new-center community, the need for long time adaptability will be mitigated by legitimate desires for durability and continuity. There is no reason, given mobility, why every part of the metropolis must be highly adaptable. Formlessness would result. Nevertheless, unpredictability is such that even to insure the survival of the community, there should be a minimum
number of relative constants or determinants to make growth and change comprehensible. It may be enough to relate the zoning structure strongly to the dominant physical constants of the site, its favorable orientations or locations, and to the relative constants of the community (i.e., the circulation systems and the required major gathering places) without inventing any other determinants.

The likely to change elements, on the other hand, should be physically separated from those less likely to change or should be otherwise articulated within the major structure. That is, the parking, low-rise housing, certain community buildings, and mechanical services should be separated from the large scale structures involving high capital investment (highways, large apartment buildings, and major community facilities) so that they can be expanded, rebuilt, or replaced with minimum disruption to the overall structure. And finally, there needs to be some structural recognition and expression of important discontinuities, such as those corresponding to phases of growth or shifts in intention.

The community which is growing and changing well, then, is one which grows according to an often reviewed three-dimensional zoning ordinance. This zoning ordinance relates the major structural elements of the community to the major characteristics of the site, and separates the relatively changeable from the relatively permanent. By thus ordering and clarifying its processes of change and growth, the
urban environment achieves a higher level of comprehensibility. It shifts into a more direct relationship with its inhabitants. As a whole, it becomes plastic to their communal actions and decisions. The individual has something to look forward to. He has a hopeful link to his community, a community which is dynamic rather than stagnant.
TO ALLOW INDIVIDUAL INTERVENTION

Perhaps the most difficult question we can ask about the high-density urban community is, how can it be structured to allow the individual as individual to visibly intervene, express himself, or participate in shaping his environment? In an increasingly affluent society where less and less time, energy, and loyalty are devoted to work and formalized activity and more and more to informal leisure time pursuits (including self-indulgence), it is quite likely that the desire for a piece of the environment to control will increase. This desire for individual dominance, a house of one's own on a lot of one's own, is probably one of the deepest attractions of suburbia. There, so the myth goes, one can raise his children, paint his house, and tend his garden, and do it all himself and as he pleases. The fact that this ideal is so often perverted by the actual conditions in the suburbs does not seem to weaken suburban attraction. After all, where else can it even be partially realized?

For we live in an over-institutionalized society, and our need to be able to overcome feelings of regimentation is very real. We look in vain for some generosity and freedom in the urban environment, and not finding it, we escape hopefully to the suburbs. Our giant superhighways, symbols of our escapism, thrash blindly through the old downtown patterns and emerge as one of the few generous elements in
the city. But this mechanized generosity does not bring the individual into a more direct relationship with the city; it merely allows him to leave it behind faster. Instead of grand and brutal gestures, we really need more humble generosity in the everyday elements of the city, generosity of the kind which allows the individual to ignore the dominance of the institution and the crowd and to cultivate his own special habits, desires, characteristics, and personal visions.

On the most obvious level, this desire for a plastic place of one's own might be partially satisfied by bringing some of the suburban residential conditions into the high-density environment. For instance, row houses with small back gardens (at moderate densities) and various forms of terrace living (at higher densities) can provide a partial solution for the families who want some outdoor space for living, a small garden, and children's play. Even in high-density housing, the entry, rather than being an anonymous door in a businesslike double loaded corridor, might become one of a group clustered around some common space with natural light; and each one might offer the possibility of self-expression, or status expression, providing some transparency for display, individual control of color, planting, and so on. The extreme of such efforts would be to build, for certain well-to-do and particularly individualistic members of the community, a few platforms for living. These would be "major" floors, perhaps every two stories, in a multi-
story arrangement which would provide all services, a floor, and a roof on which individuals would build their privately owned town houses with considerable flexibility in planning and freedom in facade.

None of these conciliatory measures, however, will create an environment which can compete with the suburbs on suburban terms in opportunities for individual dominance. While such efforts may improve the quality of urban living and make all the difference for certain people, it would be folly to hope that any high-density urban environment will tempt the die-hard exurbanites who are at heart yearning for the small town or village way of life. The deeper personal appeals to the individual which an urban community might make must be in terms of compensating qualities which suburbia cannot offer.

Yet in the recent attempts at creating new cities in Chandigarh and Brazilia, as well as in our own urban renewal projects, certain qualities recur which seem to be positively inimical to the individual. These are over-human scale, a feeling of dry regimented and undifferentiated order, and a kind of starkness due to the complete lack of transitions (between high and low buildings, between high buildings and pedestrian spaces, between the size of the unit and the vast spaces created, between the automobile and the unit). In such an environment, the individual may have little sense of adequacy. He is at one moment on trial in the trackless waste, and at the next, one among an
undifferentiated many, isolated in his mail slot unit. In these projects, the institution, not the individual, is dominant.

But the situation is not hopeless. In the moments of great scale, great order, and great contrast can be found the genesis of a highly evocative environment. Within the dynamic order suggested by the previous objectives, the individual designer will be free to explore these evocative potentials. It will require individual creative decisions to find the right scale, the right sequence, and the right relationship in each specific case. But if transitions can be created where they are needed, the juxtaposition of highways and buildings at the technological scale with buildings and spaces at the human scale, or of sharply defined order with nature brought into the city, or of very busy urban spaces with quiet areas offers a rich palette of potential images. In their diverse daily movements, the residents and visitors to this vivid landscape experience a wealth of visual material with which to structure their personal sequential "image of the city."

Thus the total ensemble, bringing together vigorous and varied but complementary elements, does more than express the personal vision or prejudices of its designer. By bringing a broad scale of differentiated elements into harmonious play, the strongest appeals of urbanism are exploited. Rather than just over-human scale, the individual experiences many scales; rather than repetitive units of
order or one giant symmetry, a cooperative order of comple-
mentary and distinct districts; and rather than harsh con-
trasts, a well modulated complex of structures, each expres-
sive of its most powerful characteristics. The visual stim-
ulus of such a purposefully differentiated and imageable
urban landscape offers a real perceptual challenge. It is
in meeting such a challenge and not in suburban acquies-
cence or in the corporate reassurance of a giant symmetry
that we grow and develop as unique individuals.

The meaning of individual intervention in a truly
urban environment will be somewhat different than in the
suburbs. Although certain advantages of the suburban
dwelling can be incorporated in modified form in high-
density housing, the major attractions of the dense commu-
nity will be urban ones. Within the over-all dynamic order
of the community, there should be a rich harmony of differ-
entiated and contrasting elements. If this harmony is
achieved with vigor and clarity and if the transitions are
good enough, the environment will achieve high symbolic po-
tential. Individuals will discover that they are immersed
in a "plastic" medium with which they can create in time
their own sequential configuration of images, their own
domain.
CONCLUSION

As Albert Guerard puts it in *Fossils and Presences*, "There are two essential facts which our puny edifices of thought should never be allowed to blur: the infinite variety of unique individuals and the fundamental unity of the human race." Great cities reflect these essential facts with special clarity and emphasis. In this sense and in many others, the city performs an educative function. The highest aspiration of the new center community according to the objectives I have chosen is to contribute to this general educative function of the metropolis.

But the new center community, as I have outlined it, would also contribute to the metropolis if we took a less lofty and more definite objective, that of increasing choice. For although the present metropolis offers a variety of working and cultural opportunities, it fails to offer a comparable variety of unique living environments. I have sought the basis for a unique living environment by choosing individual growth and development as my single point of reference. In doing so, I may have ignored or underemphasized other reasonable objectives for the public environment, but I have established a positive environmental intention for one part of the metropolis. By the proper exploitation of the inherent richness of a high-density mixture of people and activities, on a well defined, well placed, and powerfully expressed site, the community can
become a unique new center, effective at the metropolitan scale. And stimulated by its inner richness and over-all coherence, the residents of the new center may in time create their own domain as individuals and as community.

However, the foregoing analysis and statement of objectives is by no means complete. Many human motives for disliking the central city or for moving to the suburbs are not brought to bear in formulating the objectives. Also missing are the necessary biological, technical, and functional goals for the community, such as provision for adequate sunshine, forestation, or road widths. Nor is there any mention of minimizing first and continuing costs. In any real project, these are primary objectives, and it is not my intention to ignore them. "Livability" and "realizability" are strategic criteria, but if they are placed uppermost in the designer's mind, only tried and true solutions can be considered. I will therefore attempt to invoke these criteria mostly after the fact, as useful but not necessarily decisive checks on the design.

Without introducing the complications of other objectives, the goal system as stated is internally vulnerable. There are conflicts among some of the objectives which must be resolved by the careful adjustments of design. A strong structure of association may be difficult to accomplish while creating a truly flexible structure for growth. Our sense of life in certain instances could be enhanced by the immediacy of a complete mixture of elements in sharp con-
contrast to one another, whereas the opportunities for individual creation of a personal world will be furthered by a more apparent structure and a careful softening of contrasts by transition.

And finally, certain objectives might be more specific. Although it has not been stressed, the relationship of the goals of life enhancement and personal intervention to the quality of "imageability," as defined by Kevin Lynch in *Image of the City* is obvious; and it is therefore unnecessary to repeat his development of specific principles for attaining imageability. Little indication has been given of the types of activities which will create the centers of life in the community, although a general discussion of these will appear in the program. And especially, in this type of residential community, we need to be able to relate the general objectives to the specific problems of high-density housing. The general attitude adopted toward housing will particularly effect the structure of association and the possibilities of individual intervention. An addendum to this section will summarize this attitude.

A community that is designed to encourage communication, to enhance awareness of life, to anticipate growth and change, and to allow individual intervention does not guarantee formalistic success in the realization of a specific, predictable form. In the time required to build such a community, conditions will change, the designer himself will change, or other designers will be brought in.
But if these objectives are true guides for the process of city building rather than a formal recipe for urbanism, there may arise an environment with such a unity of spirit that each new part may be evaluated and designed in terms of its potential contribution to the life of the whole.
ADDENDUM: MASS HOUSING FOR INDIVIDUALS

The familiar term "mass housing" gives an accurate clue to what evidently have been our typical attitudes about large scale high-density housing. Since we have thought of people in the mass, we have been basically totalitarian in our concepts. From Le Corbusier's *Unite D'Habitation*, through Lake Meadows in Chicago, down to the pallid West End in Boston, we have been creating an environment perfect in concept and execution for the anonymous mass man (a statistical fiction). This is the environment of the huge building on the vast plane.

It is an environment diabolically suited to worsening the two main social problems of our time: conformity and isolation. By their physical and financial character, these projects sort people out into broad areas of social and economic homogeneity within the city. The individual has little sense of adequacy or identity in the vacuous public open spaces which these projects create. Faced with this incomprehensible scale, we are weaker, less vigorous, less individual. Any relationship with other indwellers is likely to be superficial and formalized.

There is no transition from these vast open spaces to the mail slot units. We approach secretively by elevator, corridor, and numbered door. There are no effective groupings of units which might give identity or further neighborliness; instead, the individual feels himself one
among an undifferentiated many. Once inside the unit, he is isolated in a perfectly self-sufficient, insulated, relatively sound proof world. Such self-contained units contribute nothing to each other.

Inside the apartment, the sense of constraint is heightened by the memory and view of the vast space outside. As an observer, the individual is no more in scale with it than he was as a participant. Feelings of constraint are also worsened by the lack of adequate light in the inner reaches of even through units. For families, constraint is worsened by the child-adult conflict. This conflict can be solved by a nursemaid or by play groups, depending on income, but not satisfactorily. And finally, there is little chance for release by contact with the natural elements.

But even when the resident goes down in the elevator to put foot on the ground or to let the children run, he must face the omnipresent automobile. Since multi-level parking is generally not provided by the developer, large open areas which should belong to the residents are given over to automobile storage. Further, the movements of the large numbers of cars involved usually conflict with those of the pedestrians.

Needless to say, these housing projects are not well suited to fostering individual growth and development for children or for adults. Except for accessibility and view, there are few of the advantages of urbanity. These are package environments, out of scale, and offering no real
choice or subtlety. For the small child, there are few secrets to learn and few intriguing places to play. For the young mother, there is the constant constraint of nurse-maidding the children. And for the husband, there is little opportunity for relaxation, constructive leisure, or self-expression. In short, these projects neither offer comparable "livability" to the suburbs nor compensating urban qualities.

What then should be the criteria for "mass housing for the individual"? The general goal of individual development is the same. Then, to be consistent, the same objectives which were derived for the whole community can be applied to the housing itself, yielding somewhat more specific results.

I. TO ENCOURAGE COMMUNICATION.

A. Residential Structure of Association.

1. Continuity: Relationship and Transition.

a. From low-rise to high-rise.

Low, small buildings, such as walk-up housing, may be used to create a tight-knit architectural landscape, giving enclosure and a sense of shelter at the pedestrian scale, and providing a well developed visual foreground for the high apartments.

The high apartments may rise generally in the background, creating large scale unity, focal areas, or marking points of concentration.

Larger scale community buildings, shopping, and perhaps multi-level parking structures may be used at the base of the high-rise buildings to form communal spaces.
b. From collective to private spaces.

The neglected transition between the large public space and the small private space of the unit can be accomplished by a more generous attitude toward the general problem of entry.

In the high-rise apartments, there should ideally be a large public lobby or reception space joined under cover to the parking and related directly to a communal pedestrian space surrounded by shops or other activities.

The elevator trip should terminate in a gracious upper-level entry space, common to a number of units, with some dimension (not a corridor) and with natural light. The unit entries might be connected to this common entry by means of transparency.

In the low-rise apartments, the transition is usually easier since the related open spaces are ordinarily more in scale with the individual units.

c. From the automobile to the apartment.

The very important transition between the technological scale and speed of the car on the highway and the human scale and quiescence of the unit should be mostly accomplished before the resident leaves the automobile.

A gradient reduction of speed accompanied by a gradual increase in awareness of the residential destination can be accomplished by the appropriate gradient of channels from the major highway to the local road or parking lane.

When the automobile is parked, the individual should feel well related to his particular building or cluster of buildings and should proceed directly to it with only a short walk through parked cars.

2. Identity: Neighborliness and Clustering.

a. The individual and the small group.

The unit ought to be recognizable in some other way than by name and number, perhaps expressing its organizational idea and size on the exterior.

The individual should feel himself one of a small group sharing certain common services provided by the building or the immediate grouping of buildings.
He should, however, feel that his unit is articulated within the grouping and gives him privacy.

b. The individual and the cluster.

The small grouping of units should be an obvious part of a larger cluster or building which the individual can recognize at the scale of the total community.

This connection to a larger "associative element" may be accomplished by visual groupings (massing), by a sequence of spaces, or by attachment to a common and visibly expressed vertical or horizontal means of access (e.g., a street or stack of elevator lobbies).

3. Relationship: Clustering and the Community.

a. The cluster and the neighborhood.

There should be a strong connection of these large clusters to some even larger truly communal element (e.g., the neighborhood) which provides gathering facilities such as local shopping, social rooms, meeting rooms, playgrounds, etc.

These connections should probably occur in several directions in order to offer the individual a choice of affiliation. These "neighborhoods" should therefore be organized by focal points rather than by sharp boundaries or green belts.

b. The cluster and other clusters.

The connections between clusters of the same type of housing or between different types should encourage movement in many directions. Such movement offers the possibility of various casual associations rather than associations which occur only at one or another community focus.

B. Interdependence of Communal Activity, Circulation, and Housing.

1. Life Intensity: Density and Activity.

a. High density and activity.

Since high-rise apartment buildings will provide the highest density (as well as dominant forms), they should be located in immediate relationship with the major communal facilities. The residents of these buildings will then contribute to the life of the public spaces and will be able to associate with all
people in the community.

b. Low density and activity.

Since there is a conflict between low-rise living, with its noise and visual privacy problems, and high-activity public space, the low-rise housing should be somewhat removed from these spaces (and from the high-rise).

The low-rise areas, if they are well integrated in the whole, can provide the community with small green public spaces for children's play, quiet strolling, and the more intimate and casual associations of the small scale world.


a. High density and circulation.

If high-density housing is concentrated in one area, it should be clearly related to the highest capacity channels of the road network. Not only will these carry off the peak loads generated with less annoyance to the community, but they can more easily be related to the scale of large buildings and to high apartments which look over them.

A more even distribution of the high-rise housing implies a less differentiated road system.

b. Low density and circulation.

Traffic will be kept to a minimum and accessibility increased if there is a rather fine grain road net in low-rise areas.

This easy relationship with the car may be appropriate to living close to the ground, but there are conflicts with pedestrian circulation, children's play, etc., which are very difficult. The cul-de-sac is not a wholly convincing solution to this problem.

II. TO ENHANCE AWARENESS OF LIFE.

A. Relationship of Housing to Geographic Order.


The "geographic" sense of community structure will allow significant variation to occur in the relation-
ships between the buildings of different scales, between private and public space, and between the technological (automobile) and the human (dwelling unit) elements. Gradient transition need not be the only means of relationship employed.

Juxtaposition or intermixture may be used to create qualities of contrast and immediacy in certain parts of the community.

2. Identity: Articulation and Clustering.

Both at the small scale of clustering and at the community scale of clustering, there should be meaningful variations within the over-all geographic structure.

Whatever the housing elements may be (towers, slabs, row houses), they can legitimately be grouped in various arrangements and combinations to reflect special site conditions, special relationships to each other and to special elements of the city.

B. Relationship of Housing to Communal Activity and Circulation.

1. Life Intensity: Housing Types and Activity.

The placement of high-density housing around activity centers will give three-dimensional emphasis to them.

Variation in the character of these high-density buildings will reinforce and foster variations in the type of the activity surrounded.

Low-rise housing should be related to less intense activities (schools, parks, etc.).

2. Mobility: Distribution of Types.

To increase the general awareness of the resident, all types of housing and their typical large scale inter-relationships should be visible from several strategic points or centers of orientation in the circulation system.

III. TO ANTICIPATE GROWTH AND CHANGE.

A. Relationship of Housing to "Zoning Ordinance" Structure.

The zoning structure already described is intended to provide for growth and change in the housing over the
course of initial development.

The location of the high-density housing elements would be specifically determined, subject to revision.

The placement of low-rise housing would be more generalized, and therefore changing housing requirements could be most easily met by changes in these areas.

The apartments themselves should be simple enough to be adaptable to a variety of living habits.

B. Adaptability of Housing to Changes in Communal Activity and Means of Circulation.

Changes in individual structures for communal activity will not much affect the zoning structure, because it will be based on the general relationship of the high capital investment housing structures to the large scale characteristics of the site and to the large communal spaces.

Long term changes in roads or vehicle storage requirements can be anticipated by articulation or separation of roads and garages from major housing.

IV. TO ALLOW INDIVIDUAL INTERVENTION.

A. Relationship of Housing to Environmental Plasticity.


A successful residential environment at several scales will have transitional elements between the vertical face of high-rise buildings and the ground, or it will embody other architectural techniques for integrating high and low buildings.

A residential environment with the sense of a cooperative order of interdependent and varied districts will require strong boundary transitions between districts (e.g., interlocking, sharp change, etc.).

Within districts, an ensemble of uniquely expressive buildings can be created by searching for the complementary qualities of various types of buildings rather than by suppressing all differences.

2. Identity: Plasticity and Scale.

The individual could visibly intervene at the neighbor-
hood scale as a member of a small group by effecting the character of small common open spaces.

Individual identity can be more easily expressed at the unit scale if the plasticity of high-density housing is increased by introducing certain "suburban" amenities (outdoor terraces, more personal entries).

Private space might spill over into public areas or be partially transparent to them. (Ideally each unit should relate to public, semi-private and private outdoor space -- entrance court, backyard, protected terrace: not easy in high-rise housing.)

The units might allow some individual arrangement of partitions or facade.

Units in high-rise housing should at least have some strong evocative theme, perhaps some vertical space related to the vertical theme of the building and offering something for the individual to respond to in the creation of his own domain.

B. Relationship of the Apartment to Communal Activity and Circulation.

1. Life Intensity: Apartment and Environment.

Housing should provide real alternatives in terms of relationships to the ground and ground activities. As we get higher in the building, we become more of an observer and less of a participant, with a strong break coming at the sixth to ninth floors. Above this level, we cannot easily call to the ground, recognize a friend, etc.

One expression of this break would be terraced, ground-oriented housing up to, say, the ninth floor with smaller, more urbane, less outgoing units above.

In the higher apartments, the total environment can be visually grasped, particularly when units go through the building, giving two orientations.

2. Mobility: The Distribution of Automobiles.

Since there is a conflict between the large areas needed for automobile storage at high density and the creation of an urban environment with intensity and concentration, other alternatives than parking adjacent to the building should be considered:

a) Common ownership, maintenance, and central storage:
"rent a car."

b) Central storing with public transportation and parcel pick-up delivery.

c) Central storing with pick-up and delivery of cars.

d) Central storing with local circulation by very small cars (hovercraft or motorcycle powered, coin or key operated). This does not solve the storage problem unless there are relatively few of these "bugs."

e) Central storing with taxis.

f) Dispersed parking, but collected for larger units than a single building, say, under the roads or in large garages. Local circulation, from parking to housing, is difficult.

Obviously, these solutions offer various levels of convenience at various first and operating costs. Decisions would have to be made in terms of the financing of a particular development.

There may, moreover, be feasible solutions in some situations which will bring the automobile quite close to the unit in multi-level parking structures, and still not interfere with the urban quality of the environment. Considering our attachment to our cars, this might be best of all.
PART II: THE SITE

Go visit the Prairies in June, when for scores on scores of miles you wade knee-deep among Tiger-lilies---what is the one charm wanting?---Water---there is not a drop of water there! Were Niagara but a cataract of sand, would you travel your thousand miles to see it? Why did the poor poet of Tennessee, upon suddenly receiving two handfuls of silver, deliberate whether to buy him a coat, which he sadly needed, or invest his money in a pedestrian trip to Rockaway Beach?

Moby Dick
Herman Melville.
POSITION IN THE METROPOLIS

Rockaway Point, the site for the new community, is on the southwestern tip of the Rockaway Peninsula in the Borough of Queens, New York City (see accompanying map and aerial photograph). The site already has visual significance at the metropolitan scale. It is clearly visible from the Shore Parkway, a main artery skirting Brooklyn, and from Coney Island. It is dramatically seen from most of the flight patterns of airplanes leaving Idlewild International Airport. And it is the first part of New York City to be seen from the Ambrose Channel by all ships entering New York Harbor.

Rockaway Point is well within the metropolis, only thirty minutes driving time from the lower tip of Manhattan via the Shore Parkway (and less than thirty minutes as soon as a projected expressway is completed). It is easily accessible to the large population of the "gray areas" in Brooklyn and Queens and to the very large and growing suburban population farther up Long Island in Nassau County. It is twenty minutes from Idlewild Airport and thirty minutes from the close portions of Nassau County.

The site has one of the finest ocean beaches in the metropolis and an excellent potential for all kinds of public and private marina activities on Rockaway Inlet. These special advantages make the site particularly attractive for housing, and of a total eight hundred acres, some five
hundred-fifty to six hundred could be allocated to residential use. At fairly high densities (fifty families per gross acre), the site would accommodate approximately 100,000 residents, if this were otherwise feasible. It has, therefore, the necessary area to become a new center of significant size within the metropolis, capable of supporting the appurtenances of a city as well as offering its recreational advantages to its own residents and to the surrounding populations.

The entire site is presently under single ownership, and was recently offered for sale for $18,000,000. In a report to an interested team of developers, the economic consultant, Chester Rapkin, had this to say about "The Potential Demand for Rental Housing, Rockaway Point, New York":

Rockaway Point is located near one of the rapidly expanding sections of the New York metropolitan area. Close to lower Manhattan as well as to the growth areas on Long Island, it is currently within reasonable commuting distance of 900,000 jobs and will be easily accessible to 1,100,000 employment opportunities by 1975. If the proposed community at Rockaway Point includes accommodations covering a wide range of rents and provides cooperative units as well as conventionally financed structures, it can expect to draw from a minimum potential demand group of 5,000 families each year. It does not seem unreasonable that 40 to 50 percent of this potential could be realized and that the development could achieve an average marketing rate of 2,000-2,500 units a year. This assumes that the development will be attractive and well planned and will possess the necessary community facilities and services.

In addition to this demand, based only on the position of the site in the metropolis, there is potentially a further
demand for summer accommodations and potentially an increase in basic demand for year-round homes, due to Rockaway's special combination of the amenities of a shore resort and the accessibility of a typical inlying residential area.

It is important to mention, however, that Rapkin's report does not discuss suburban competition. His estimates are based primarily on accessibility to employment opportunities and do not take into account the phenomenal flood of middle to high income families to the low-density living of the far suburbs. This movement in New York City is thoroughly described by Raymond Vernon in Anatomy of a Metropolis, by the population figures of the New York Regional Plan Study, etc. The only significant amount of high-density, high income housing currently to be found in New York City is on Manhattan itself. In light of the steady outward expansion of single family housing, a high-density community on Rockaway Point will have to offer more than the natural advantages of the site in order to successfully compete with the suburbs.
PHYSICAL CHARACTERISTICS

Rockaway Point is surrounded on three sides by water and is adjoined on its fourth boundary by Fort Tilden. Including the narrow strip of land adjacent to Fort Tilden, the site is approximately three and one-half miles long. Since at no point is it over one-half mile wide, every section has easy access to ocean or bay. Although Fort Tilden is old and institutional, it is generally pleasant in appearance, particularly in the virtually unused portion near the body of the site. Beyond Fort Tilden is 242-acre Jacob Riis Park, with golf and swimming facilities; and beyond the park is the best residential section of Rockaway Peninsula.

Despite the excellent general accessibility of Rockaway, the actual physical access is poor relative to the traffic volumes which a high-density residential development would generate. There is no rapid transit station adjacent to the site, although bus connections could be provided to the Rockaway terminus of the rapid transit system (Beach 116th Street, about five miles up the peninsula) and to the transit system in Brooklyn (somewhat farther away). Since such transportation, with its changes and delays, is unpleasant and relatively slow, it can probably be assumed that most residents would want to make their journeys by car.

A population of 30,000 families could easily generate
a peak traffic load of 8,000 cars per hour. The Marine Parkway Bridge, the main connection to Brooklyn and to the Shore Parkway, is a four lane toll drawbridge (infrequently drawn). Beach Channel Drive, the main road along the inlet side of the Peninsula, although four lanes wide, has unlimited access and therefore is not a good alternative to the Shore Parkway for trips to Queens or Nassau County. At best (assuming no other traffic and no toll gate), these could carry off 4,000 cars per hour. It is therefore clear that the first physical problem of the site is access.

The internal conditions of the site area, on the whole, are less difficult than the access conditions. The site is sandy and flat. It never rises to more than twelve feet above mean sea level, and the average elevation of the higher areas is ten feet. Beneath the surface, the soil is compact sandy gravel with a general bearing capacity of seven tons per square foot. It is, therefore, presumably suitable for high-rise and other construction on spread footings, although specific deep borings would need to be made. The soil is evidently capable of supporting vegetation of various kinds, as there are some moderate sized trees in the older, built-up portions of the site and in Fort Tilden. There is ground water generally five feet below the surface, and some of the low lying areas at both ends of the site are quite marshy.

The mean tidal change is approximately five feet, with normal extreme high some three feet above mean high. How-
ever, during the disaster conditions of a bad hurricane, maximum tides six feet higher (fourteen feet above mean low water) have several times been recorded. Under these conditions, the entire site is awash, and therefore some measures must be taken to protect residents from flooding.

Since high sea walls would cut the residents off from the water, the most desirable solution would require filling the land or using construction to raise the general pedestrian level and lower floors of buildings four to six feet above the natural ten foot elevation. A rough calculation on the basis of trucked-in fill (at $2.00 per cubic yard) yields a cost ($20,000 per acre) which about doubles the cost of the land. Since the land is priced cheaply (fifty cents per square foot) for such a location, and since undoubtedly most of the fill could be pumped from Jamaica Inlet, even the maximum amount of filling seems to be within reason.

Because it is surrounded by water, the micro-climate of the site is generally a few degrees cooler in the summer (slightly less than eighty degrees monthly average from June to September) and a few degrees warmer in the winter (a little above thirty degrees monthly average from December to March) than the rest of New York. Its exposed position allows the site to benefit from southwesterly summer breezes blowing across Rockaway Inlet but places it at the mercy of winter winds and storms from the west and northwest. Since New York City has a very high annual average
wind of fifteen miles per hour (probably higher on Rockaway), it will be essential to create a continuous sense of shelter for the pedestrian. Rainfall is about three and one-half inches per month, distributed fairly evenly throughout the year, and snowfall is thirty inches a year. Hence, it is reasonable to propose that continuously covered pedestrian circulation be provided in high-density public areas.

The present use of the land for small, low quality cottages (see photograph, page 65) would not create a long term problem for the new community since they could easily be razed. However, the rent from these houses and from the two beach clubs on the site could provide some helpful revenue during the first years of development. In the short run, though, the presence of these cottages and the image they create might be detrimental to establishing a "prestige" community on Rockaway. It would have to be carefully considered whether or not a proper beachhead could be established while they remain. If development were to begin immediately, they might constitute a serious problem, since most of the present tenants have ten year leases. For the purposes of this thesis, I have assumed that these cottages could be cleared at the discretion of the developer.
EXPRESSIVE POTENTIAL

Rockaway Point is uniquely favored. Standing isolated across the water, like a medieval town across the fields, the new community would have great expressive and symbolic potential. To realize this potential and to be a dramatic gateway to New York Harbor, the new community will need to create a powerful three-dimensional image, in scale with and giving scale to its site. As with the medieval town, the skyline itself should express the simple dominants of the community. The skyline should have the continuity of the medieval city wall and fabric of roofs; it should also have the articulation of the medieval gateways and cathedral spires to reveal its entrances and focal points.

The present entrance to the site is just next to the gate to Fort Tilden, medieval in implication perhaps, but lacking the strength of character of medieval fortifications. Ideally, arrival at the Peninsula from across the water should be rewarded with a near view of the site, one expressive of its linear extent and its relationship to ocean and inlet. This could be accomplished by some kind of vista or by raising the road level at the entrance to give a view.

The community design should exploit the pure linear power of the six hundred foot wide crescent beach, developing a strong sequential theme from end to end. Movement to and fro across the width of the peninsula can counter-
point this theme by contrasting it with nondirectional sheltering spaces and the play of sea edge against quiet inlet edge. The beach also gives the site its dominant orientation, and this should be expressed in the placement of high-rise elements. At the same time, the high buildings must respect the winter sun coming from the beach side of the peninsula and must not separate the rest of the community from the beach.

Finally, the general development of the community should fully exploit the seaside atmosphere. Recreation, shopping, community facilities, motels, etc. should all be adjacent to or give views of the water. Dense urban areas will be strongly connected to the water if natural edge conditions are allowed to penetrate into them as significant elements of water, beach, or forestation. These elements will further provide articulation, contrast, and areas of rest in the urban scene. Thus, the community responds to its surroundings while achieving large scale singularity.
PART III: THE COMMUNITY

A city rises about me; I am in a theater prepared for me as if by ancient usage and rehearsal. At such times I like to believe that architecture may indeed resume its forgotten importance as outward frame and envelope of a communal life, being shaped once more by the commerce of a society that is civilized, polite, and urbane.

Architecture and the Spirit of Man
Joseph Hudnut.
PROGRAMMATIC ASSUMPTIONS

This thesis is an attempt to relate community form to social objectives within a framework which allows for growth and change. It would have been gratuitous to quantitatively predetermine all the elements; and thus, I began the design work without a quantitative program.

Given the stated objectives, the site, and the idea of a high-density urban atmosphere, the first step was to establish the density range. The quantity of residential accommodations and the percentage distribution of several basic types were varied within fairly wide limits in a series of rough studies until the implications of the different alternatives for the community atmosphere became clear. A narrow working range of densities was set, based on my judgment of environmental values, rather than on practical economics.

In developing the complete design, however, it was necessary to make working assumptions about the elements of the community and (more specifically) about housing. Estimated quantities were derived from rough calculations or from various standard reference works (especially the Harvard Housing Study). These assumptions and quantities are detailed in the following:

RESIDENCE

Because of the unique attractions of the site, housing
will be the major land use in the new community. To encourage a heterogeneous mixture of residents and to increase the potential demand for housing in the community, accommodations should be offered in a wide range of rents and a wide range of housing types. Accommodations should range from $35.00 per room cooperatives to $70.00 per room luxury apartments, with over one-half in the middle ranges ($4,000 to $7,000 income: good housing is scarce in this range). To encourage a population diversified in family size, age composition, and living preferences, housing should range from two or three story walk-ups to very tall apartment buildings. The full requirements of families with children under twelve favor ground-related housing. On the other hand, many people (including some families with children) in a diversified and dense community would want to live in high apartments, either to enjoy the view, a sense of freedom from the ground, or lower rents.

It was assumed that average family size could be as large as 3.6 persons if enough large units and enough community facilities could be provided. It was further assumed that fifteen percent of the families would have children

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1High-rise housing with some private outdoor space related to each apartment will suffice for very small children, but growing youngsters need large amounts of interconnected public space for their expanding investigations. Technically, this kind of space can be provided above the ground, but there is no good reason for such an extravagant solution on a generous and near-suburban site.
between three and twelve years old. Therefore, to be conservative, a minimum of fifteen percent of the housing should be ground-related. Eighty-five percent of the housing could, therefore, be in high-density, high-rise buildings. On this basis, a working density range of fifty to sixty-five units per acre was established. (This is a gross density, inclusive of roads, parking -- one car per family, parked on several levels -- and integrated public space and nonresidential uses, but exclusive of large recreational open areas, beach, etc.) On six hundred acres, this density range will produce a total population of 30,000 to 39,000 families, or 110,000 to 140,000 people (3.6 people per family).

OFFICES AND INDUSTRY

It is likely that the prestige value of a location such as Rockaway would eventually attract some office use, particularly the same type of "self-sufficient" offices which have been migrating in small numbers to Nassau and Westchester Counties. The visibility, pleasant environment, and proximity to housing are all attractions. It was decided, therefore, to include office buildings in the design (providing for a long range estimated demand for 1,000,000 square feet). These offices would increase opportunities

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2 Design considerations involving the scale and nature of the site also favor high buildings.
for local employment; and their high use intensity would support other local facilities, such as shopping and recreation.

Industry, however, was not provided for in the design. Although industry would offer local employment, Rockaway is such a prime residential location that allocating the minimum one hundred to one hundred-fifty acres required for a good industrial development is highly questionable. Moreover, there are no rail connections to the site, and heavy truck traffic would aggravate an already serious traffic problem.

SHOPPING

Since there are no attractive shopping areas near-by, and since Rockaway shopping can take advantage of a waterfront location, it was assumed that retail shops on Rockaway Point would draw on a considerable population, including part of Brooklyn, Queens, and Nassau County as well as local residents and employees. There should, therefore, be a community shopping center of regional size as well as local neighborhood shopping centers.

A rough calculation of shopping requirements was made on the following conservative assumptions:

1. Average annual family income for residents is $6,500.
2. Sixty-five percent of family income is spent in shopping areas.
3. Residents would do fifty percent of their
shopping on Rockaway.

4. Average yearly sales per square foot of gross area would be $50.

On this basis, a resident population of 35,000 families requires some 1,500,000 gross square feet of shopping area. Rockaway employees, plus the populations of surrounding areas, increase this to a working figure of 2,000,000 gross square feet. This total should include at least two large branch department stores of 150,000 to 300,000 square feet and might be broken down as follows: One major center of 1,300,000 square feet, two minor centers of 250,000 square feet, and several neighborhood centers of 60,000 square feet, each centering on a super market. Since local public transportation is provided, a parking ratio of 2:1 should be allowed for the main centers and a ratio of 1.5:1 for the others.

COMMUNITY FACILITIES

The objectives for a new center community require that it have as many of the appurtenances of a great city as possible. These would include the following:

- A main library (50,000 square feet)
- At least two branch libraries
- A museum, including an art gallery and teaching space (100,000 square feet)
- A civic auditorium (50,000 square feet)
- An exhibition hall (30,000 square feet)
- An open air theater
- Several large social and sport clubs (150,000 square feet each)
- A legitimate theater
- Six or seven movie theaters
- Six banks
Municipal offices, including a city hall (150,000 square feet), and fire stations, police stations, post offices, etc.
Several community centers, including meeting and social rooms
A three hundred bed hospital (250,000 square feet)
Several small health centers
Ten to twenty churches (one or two acres each)
A complete school system.

Many of these facilities can and should be absorbed into the shopping areas; therefore, they were not given close analysis. The location of certain other buildings (city hall, civic auditorium, museum, main library, exhibition hall, open air theater, clubs, hospital, and churches) deserves special attention.

Of all these facilities, schools and play areas require the most space, and therefore need closet analysis. The number of schools required was calculated on the following assumptions:

1. Twelve percent of the total population will be five to eleven years of age and will attend elementary schools from the kindergarten through sixth grade.
2. Five percent of the population will be twelve to fourteen years of age and will attend junior high school.
3. Four percent of the population will be fifteen to seventeen years of age and will attend senior high school.
4. Eighty-five percent of all the children would attend public school; the rest would attend private and parochial schools.

Calculations based on the total population (125,000) yield the following public school requirements:

Thirteen elementary schools of 980 pupils each for a total of 12,600 pupils (60,000 square feet each).
Three junior high schools of 1,750 pupils each for a total of 5,300 pupils (160,000 square feet each).

One senior high school of 4,500 pupils (450,000 square feet).

In addition, there would be a large number of nursery schools (possibly fifty) distributed throughout the community.

The following assumptions were made regarding play areas:

1. Play areas for pre-school children would be located in the immediate vicinity of the apartments.

2. The general population would not require park space within the neighborhood due to the special advantages of the site (beach and inlet) and the proximity of Jacob Riis Park.

3. Playgrounds (for children five to eleven) and playfields (for older children) in association with the schools must be provided.

The calculations regarding the size of these latter areas were based on the following considerations:

1. Rockaway will be an urban community; therefore, somewhat lower than suburban recreation standards will be used.

2. The schools would use double shift recesses. After school demand for play space would therefore be greater than in-school demand.

3. After school sixty-five percent of the children between five and eleven might want to use the playgrounds at one time.

4. Thirty percent of the children between twelve and seventeen might want to use the playfields.

Some two thousand pupils would attend one or two local parochial schools, through the junior high at least.
at one time.

On this basis, there is a total of thirty-nine acres (200 square feet per child) of playgrounds for elementary school children, or three acres for each of thirteen elementary schools. There should also be a total of fifty acres (750 square foot per child) of playfield for junior high and high school children, or approximately twelve acres for each of three junior high schools and eighteen acres for the high school.4 (Large scale field games require a twelve acre playfield.)

RECREATIONAL FACILITIES

Rockaway Point has the potential to be a high quality recreation and amusement center for a large area. Obviously it should not compete with Coney Island, but rather provide appropriate and widely used commercial amusements in an atmosphere of its own. These will include the public beach, beach clubs, extensive public and private marina facilities, summer and transient accommodations, fine restaurants, and one or two nightclubs.

It may be possible to retain the existing beach club near the tip of the peninsula; it is new, large, and inoffensive in appearance. At least one more of comparable size should be provided near the other end of the beach.

4The private and parochial schools require an additional ten acres.
These could combine with social and sport clubs and include a sea-view nightclub to become modern equivalents of Roman baths.

It is likely that Rockaway could become a significant boating center in competition with Sheepshead Bay across the inlet, although Rockaway can't provide as protected a mooring. The marina facilities should include boat yards, launching ramps, and automobile parking (one car for each two boats). Assuming there would be two thousand boats from the community (fifteen boats for each one thousand residents) plus one to two thousand boats of all types from elsewhere, the marinas would require fifteen to twenty acres (primarily for automobile parking). This area should be distributed along the waterfront and should also be adjacent to apartments or shopping.

Transient accommodations should probably be in low-rise elements related to beach or marinas rather than large hotels; they would primarily be used by families for rather long periods of time. With no basis for decision except available land along the beach, it was decided to provide about eight hundred such units. They would require their own parking facilities at a ratio of one car per unit.

SPECIAL INSTITUTIONS

A Junior College or other educational institution would be welcomed on the site because of the added life it would bring to the community. Thought has been given,
therefore, to a possible location for a college for two thousand students (800,000 square feet total area). No other special institutions were considered because of their size and low intensity use.

To sum up, this working program establishes the basis for a balanced residential community with all the necessary communal facilities for daily life as well as many other activities and special opportunities. Although all of these figures are approximate and were not considered binding, the final design follows them fairly closely. Below is an outline summary of the estimated areas of elements specifically located in the design.
OUTLINE SUMMARY OF ESTIMATED AREAS

<table>
<thead>
<tr>
<th>Main Elements</th>
<th>Units</th>
<th>Area</th>
<th>Total Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>35,000</td>
<td>1,000</td>
<td>35,000,000</td>
</tr>
<tr>
<td>Parking</td>
<td>35,000 cars</td>
<td>350</td>
<td>12,250,000</td>
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<tr>
<td>Offices</td>
<td>10,000 employees</td>
<td></td>
<td>1,000,000</td>
</tr>
<tr>
<td>Parking</td>
<td>3,000 cars</td>
<td>350</td>
<td>1,150,000</td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
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<tr>
<td>Major Center</td>
<td>1</td>
<td></td>
<td>1,300,000</td>
</tr>
<tr>
<td>Parking</td>
<td>2:1 ratio</td>
<td></td>
<td>2,600,000</td>
</tr>
<tr>
<td>Minor Centers</td>
<td>2</td>
<td>250,000</td>
<td>500,000</td>
</tr>
<tr>
<td>Parking</td>
<td>1.5:1 ratio</td>
<td></td>
<td>750,000</td>
</tr>
<tr>
<td>Neighborhood Centers</td>
<td>3</td>
<td>60,000</td>
<td>180,000</td>
</tr>
<tr>
<td>Parking</td>
<td>1.5:1 ratio</td>
<td></td>
<td>270,000</td>
</tr>
<tr>
<td>Community Facilities</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Main Library</td>
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<td></td>
<td>50,000</td>
</tr>
<tr>
<td>Museum</td>
<td>1</td>
<td></td>
<td>100,000</td>
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<tr>
<td>Civic Auditorium</td>
<td>1</td>
<td></td>
<td>60,000</td>
</tr>
<tr>
<td>Exhibition Hall</td>
<td>1</td>
<td></td>
<td>30,000</td>
</tr>
<tr>
<td>Clubs</td>
<td>3</td>
<td>150,000</td>
<td>450,000</td>
</tr>
<tr>
<td>City Hall</td>
<td>1</td>
<td></td>
<td>150,000</td>
</tr>
<tr>
<td>Hospital</td>
<td>1</td>
<td></td>
<td>250,000</td>
</tr>
<tr>
<td>High School</td>
<td>1</td>
<td></td>
<td>450,000</td>
</tr>
<tr>
<td>Junior High Schools</td>
<td>3</td>
<td>160,000</td>
<td>480,000</td>
</tr>
<tr>
<td>Elementary Schools</td>
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<td>60,000</td>
<td>780,000</td>
</tr>
<tr>
<td>Playgrounds</td>
<td>13</td>
<td>3 acres</td>
<td>39 acres</td>
</tr>
<tr>
<td>Playfields</td>
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<tr>
<td>Parking</td>
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<td></td>
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<tr>
<td>Parking for Beach</td>
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<td>50 acres</td>
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<td>Marina and Parking</td>
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<td>500</td>
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<tr>
<td>Parking</td>
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<td>280,000</td>
</tr>
<tr>
<td>College</td>
<td>1</td>
<td></td>
<td>800,000</td>
</tr>
</tbody>
</table>

5 Certain of the community facilities (exhibition hall, auditoriums, etc.) will be in use primarily in the evenings and on Sundays and can use shopping center parking facilities. The quantity listed is that required above this borrowed parking.

6 Area equal to one-half of the total beach area.
DESIGN STATEMENT

The interdependence of communal activity and the large scale form of the community should be apparent. The three-part division of the linear theme corresponds to the social division into three sub-communities and, therefore, meaningfully articulates the length of the peninsula. The dominant height of the central structures indicates the major sub-community, which contains the regional shopping center, the city hall, and the main library. The two other sub-communities have their own smaller shopping centers and special activities. The sub-center nearest Fort Tildon (probably to be built last for that reason) contains the largest educational facilities: the high school and the college. The sub-center near the tip of the peninsula contains many of the cultural facilities: the museum, the civic auditorium, the exhibition hall, the open air theater, and the main hospital (since it is the quietest of the centers). The center community, which contains the most essential facilities, would presumably be built first -- the beachhead might be established by the towers around the bay. The major breaks occurring between the three sub-communities allow for discontinuities in design or building types and give entry to the whole.

In cross section, the heights grade down to the sea, recognizing the dominance of the ocean frontage, opening all major communal spaces to the southern sun, and providing
protection from the wind blowing across the inlet. The high wall of buildings on the city side (inlet edge) creates a powerful image of continuity and intensity and relates to the scale of approach and the speed of the major highway. Once this wall is penetrated, the scale becomes much smaller and the whole atmosphere progressively more leisurely. Thus, the community is gradually connected to the sea and abruptly related to the inlet.

The building types themselves are intended to have an expressive relationship to the spaces they surround. The very long linear apartment buildings are used to shape the communal spaces and give continuity from one center to the next, reinforcing the sequence of major spaces. The actual forms and interlockings of these buildings allow the community to face both directions. In the major center, one of the linear elements is replaced by a grouping of very high towers to express the busy character of that center, to make it distinct from the others, and to visually open it to the whole community. Towers are primarily used to mark the locations of the major spaces but also to terminate axes of movement and to give a sense of beginning and end to the whole composition. At the base of the towers and slabs are platforms and buildings which contain shopping, parking, and communal facilities and which create the smaller scale pedestrian spaces.

The network of low-rise elements creates a multidirectional web of sheltering spaces in contrast to the
linear arrangement of larger communal spaces. The many focal points of the community, marked by large buildings and open spaces within the web (neighborhood centers, schools and playgrounds, centers of beach activity, etc.), are connected by many alternative paths. Minor axes of pedestrian movement are created between the beachfront neighborhood shopping centers with their related junior high schools and the main shopping centers.

The two edges of the site are developed in a contrasting manner to reflect the different water conditions and to give alternative forms of release from the urban environment. The wide beach is punctuated along its length by the clusters of towers on axis with the main entries to the community. Here are located the main points of visitor access to the beach, transit terminals, and beach clubs. At the major and minor axes of the community and neighborhood centers, the open space of the beach penetrates into the dense community, connecting the two. On the inlet side of the peninsula is a continuous esplanade of quiet parkland with marinas. The continuity of this park is broken once at the main center, where a large bay is brought in to further differentiate that center and to connect shopping and water. This park penetrates into the community where the major roads enter.

The circulation design provides the basis for the structure of association and the main connections to the
metropolis. A new connection to the mainland is proposed to solve the automobile access problem. This would be built in the later stages of development and would require a new interchange on the Shore Parkway midway between the existing ones, a filled causeway, and finally, a bridge across the channel. The community would then be approached directly toward the main center rather than tangentially, and the motorist would have an over-all view across the community as he came down off the bridge. A monorail would be associated with this new highway to connect the local monorail with the Sheepshead Bay terminal of the subway system. Manhattan would then be only twenty minutes distant. For "long haul" connections, space for a future heliport is provided.

As the metropolitan web is continued by the new connection across the inlet, so Beach Channel Drive should be continued as the main highway on the inlet side of the peninsula. It would become an eight lane, raised, limited-access highway, with pedestrian crossings under it to the esplanade park. The entry roads branch from this road at two interchanges. These connect the highway with the three main streets running the length of the community. These longitudinal streets are graded in intensity of use and in size. The largest one is under the highway and gives access to the parking for the high linear apartment buildings and for the shopping centers. The second street runs between the high- and low-rise areas and gives access to the
parking for the tower and linear terraces. With its related pedestrian way and overhanging trees, it forms a kind of spine for the community. The most important community events occur along this spine and are visible to the motorist. The third street runs through the low-rise areas connecting the neighborhood shopping centers and the beachfront towers with their beach clubs. There is also a street near the beach, but this is discontinuous at the towers in order to discourage through traffic. The narrower cross-town streets connect the three main streets and create a medium grain gridiron of residential blocks ranging from four hundred feet square to four hundred by seven hundred feet. All streets are open to service and emergency vehicles.

The monorail could not easily be placed underground because of ground water and flooding. It is given an upper level corresponding to that of the main highway, high enough to clear the pedestrian level. It parallels the main highway and runs between it and the parking garages. It has two spurs which go across the community to the beachfront towers. There are two stations for each sub-community (corresponding to the two major spaces in each), a station at the beginning and at the end of the whole community, and one at each of the beach towers. Small busses will provide neighborhood public transit and will connect with the monorail stations.

The pedestrian level is raised sixteen feet above the
general automotive circulation (high enough to clear trucks). The two are completely separate; the pedestrian platform is independent of the streets and is made continuous by bridges across them. The automobiles are in canyons, shallow and wide enough to allow the motorists to glimpse the trees and buildings of the pedestrian level above. This traffic separation can be accomplished by lowering the road grade two feet and raising the pedestrian platform eight feet above the six feet already required by the flooding conditions.

Over most of the site, the area under the pedestrian platform can be used for parking. In many places, and particularly in the low-rise areas where less parking is required, large sections are filled so that large trees can be planted on the platform level. The grassy, tree-shaded courts in the low-rise areas are lowered slightly below the circulation to set them off as semi-private. There is another semi-private level on the roofs of the shops and garages to provide play lots for pre-school children, various game courts, and other paved surface uses for the residents of the high-rise buildings. Trees in tubs are provided on that level. In general, the playgrounds and grammar schools are on the general pedestrian level; and the playfields, junior high schools, and high schools, as well as the malls connecting beach with shopping, are at existing grade, some two feet above the roads.

There are two general kinds of locations for residential parking. The parking for the terraced walk-ups is
directly under each building with immediate access to the central entry space. The parking for the high-rise buildings occurs in four-level garages (one and one-half levels below and two and one-half levels above the platform). These are immediately adjacent to the lobbies of the buildings, but separated from them. The first level of this parking generally occurs just above the original grade, three feet above the roads, to provide more protection from flooding. The parking for recreational facilities such as the marinas and the beach is in the open, on grade. A large area for beach parking is provided at the Fort Tilden end of the community and is connected to the beach by monorail. Guest parking for the high-rise apartments is provided in their garages, and an access road for taxis comes directly to the lobby level. On street guest parking is allowed on the cross streets in the low-rise areas.

The housing design follows closely the stated objectives. It can be placed in two general categories: units which step back with broad outdoor terraces and units stacked vertically with balconies or recessed open terraces located above, below, or to the side. The terraced housing can be further subdivided into that which occurs in three- and four-story (from the parking) ground related walk-ups (thirteen percent of the total housing) and that which occurs in the linear buildings or in the bases of towers (twenty-three percent of the total housing). The latter is
a transitional form of living, approached by elevator but
with side-lighted, semi-interior collective play-space re-
lated to it. It is here that floor space for privately
built town houses would be created, visually related to the
main spaces of the community. The vertical housing can be
subdivided into that which occurs in the linear slabs
(thirty-eight percent of the total housing) and that which
occurs in the towers (twenty-six percent of the total
housing). Most of the large units in the slabs would be
through apartments, and most of the tower units would be on
the corners and have two orientations. The forms of life
possible in the slabs and towers is, however, essentially
similar.

The terraced housing occurring in the bases of the
high-rise buildings provides a transitional element between
the vertical building faces and the ground and an element
of formal transition to the low-rise terraces. The ter-
races for these units are a little less wide than the low-
rise terraces, and the units themselves are sometimes two
stories high. As a purely formal expedient, such terraced
buildings might have been used exclusively throughout, but
aside from the problem of the expensive interior volume, a
single form of living limits choice and would create a
sense of social homogeneity and uniformity of life.

Although the four housing types I have described are
shown throughout the design, they could easily be varied
from sub-community to sub-community and, at least in the
case of the low-rise terraces, within sub-communities. On the assumption that these same types of housing are used throughout, the total population of the community (including six hundred summer units) is 32,000 families, or 115,000 people. This gives a gross density (including roads, schools, playgrounds, and playfields, spaces between buildings, etc., but excluding beach and inlet esplanade) of fifty-five families per acre. (The net density would vary considerably over the site.) The breakdown by sub-communities is 32,000 people in the one near Fort Tildon, 47,000 people in the central one, and 36,000 people in the one at the tip.

Each type of housing has its own appropriate form of grouping. The clustering of the low terraced units around their green courts creates identity and shelter and makes a richly textured foreground for the high-rise views. In each of these low terraced buildings, there is a central, street-like entry space with large skylights, which contains the stairs. The towers also cluster in small groups with common local shopping. Within each tower, the units typically cluster around a vertical entry space which goes through five levels and is lit from the side at the third level. This level is wholly given over to open recessed terraces for the units above and below. These recessed floors will give exterior articulation to the entry grouping system. In the straight sections of the bent buildings (which in plan shape the large community spaces),
several elevator cores are related to a common ground-level lobby, which has local shopping to serve the group. The elevator lobbies, which occur on every third floor, get diffused side light from recessed terraces belonging to the units closest to the elevators. The units to each side of the elevators are generally two-level, through apartments and are served by short double-loaded and interconnecting corridors in a skip-stop arrangement. In these straight portions of the long buildings, because of contrast between the recessed terraces, which occur only next to the elevators, and the balconies projecting from the other units, the elevator lobby stacks can be identified from the exterior. Groupings of the stacks at the larger scale (that of the common, ground-level lobbies, represented by the straight portions of the building) are articulated from each other by the curved portions of the building. These curved portions are double-loaded and therefore have shallower units, which result in less distortion of the room shapes due to curving. These have recessed balconies to differentiate the curved from the straight portions of the building. Hence, in all housing types, each unit is visually and functionally related to a cluster of similar units, then to a court, tower, or elevator lobby stack, then to its particular group of like courts, towers, or elevator lobby stacks, and then to its neighborhood of many courts, the neighboring groups of towers, or the total building. These various sizes and types of "neighborhoods" are then spatially
and visually related to one whole sub-community, and this sub-community is, then, part of a total community with a continuous structure of association.
CONCLUSION

The final design for this community is only one interpretation of the environmental implications of the stated social objectives. Many specific architectural forms could result from taking the promotion of individual growth and development as a main objective.

Although this design establishes a basic order which indicates that a variety of elements can be brought together into one whole, it fails to indicate the fourth dimension, the effects of time. If the basic order described in plan and section can truly be the basis for a "three-dimensional zoning ordinance," development over time could considerably enrich the life and form of the community. Further development of this basic idea would involve finding a graphic technique for suggesting the effects of growth and change or, more probably, developing alternative schemes for the sub-communities and their parts which illustrate the same general principles of activity distribution, circulation, and large scale form. Further work would also be directed to the problem of creating better transitions between low-rise, semi-private areas and high-rise, large scale public areas or, alternatively, finding a good technique of integrating low-rise and high-rise elements. A corollary study could be devoted to typical perceptual sequences of pedestrian and motorist in the community, since the urban environment is primarily comprehended in sequence.
A third study might further develop the principles of housing, specifically applied to the design of a variety of individual housing units.

The design of a large scale urban community is particularly appropriate to our time; it focuses many of the most typical problems of creating humanly sympathetic environments in a technological age. But the most serious difficulties in our urban environments cannot be overcome by starting from zero as this design has done. The problems of the existing city and creating new worlds more closely integrated with the old are at once more challenging and more to the point. However, experience gained from a free experiment like this one may be useful in facing these greater responsibilities of the metropolis.
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