AN ADDITIVE APPROACH TO THE DESIGN OF URBAN PATHS AND EDGES

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ABSTRACT

An Additive Approach to the Design of Urban Paths and Edges

by David Cylkowski

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The quality of public or shared space is something which has long been ignored in our environment. We design privacies and what is left over becomes public space. This thesis questions that attitude and suggests that public space be designed as a meaningful place for various kinds of positive communal activities. In a section of introductory observations two key issues which make a large contribution to the lack of quality in our public space are discussed. First, there is the mutually exclusive attitude we have toward the realms of public and private. Second, there is the effect of the automobile on small and large scale environmental organization. Comparisons with Italian hill towns are made pointing to correlation between use and physical form.

A type of urban organization which stresses high density, low rise privacies, active walkways, neighborhoods and mixed use is suggested. Overlapping definitions of public and private space are suggested together with an attitude toward public space that it function simultaneously as a path and a place. A context of roadways, patterns of use, and major pedestrian directions is set up on a large scale. At smaller scales an additive vocabulary of edge conditions, privacies, ground level changes, and roadway to walkway relationships is devised to make projections of the nature of the formal implications of this thesis. Public-private edges are defined reciprocally. The public space is defined positively by configurations of private edges. At the smallest scale a vocabulary of stairs, gardens, landings and entrances is developed to state more specifically the nature of implied public-private relationships.

The central point of this thesis is to draw attention to the connection between the way a projected environment is to be used and the need to develop a vocabulary of additive form to concretize these patterns of use.

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Introductory Observations

Public versus Private

A fundamental attitude apparent in the form of our physical environment is a strong separation between what is private and what is public. Our culture values privacy and individuals, denegrating what is public or shared. We view public and private as opposites and antagonists. Basic to our society is a contempt for and mistrust of the public or shared.

The relationship between public and private in our built environment is an accurate reflection of these societal attitudes and as such, is a good indicator of their implications and consequences. The separation between public and private is everywhere, but it finds its purest expression in the exclusive upper middle class suburb. The separation is carried out on many levels. On a regional scale, people are segregated into different communities on the basis of wealth and race. The city is zoned into large islands of single use zones. Zones of single family homes on large lots of land, single family homes on smaller lots of land, two and three family houses and apartment houses are separated from each other. All of the residential uses are then separated from the commercial uses, which are separated from industrial and manufacturing zones. Roadways are laid out providing access to individual plots of land. On the lots, individual houses are built conforming to various zoning requirements, among which are setback requirements. These requirements dictate the distance that must be preserved between the property line and the edges of the building. On the property line we often see a fence or a wall or plantings, and again adjacent to the house is often another ring of plants, ostensibly hiding the foundation wall or contributing in general to a more pleasing appearance.

Thus the typical suburban house is like a castle with its many defensive rings. The largest ring is the zoned area which separates private dwellings from public commercial areas. A small ring around each house is a property line, which is often reinforced by a fence, a wall, or plants. The setback requirements help to form another ring between the property line and the house; the lawn. Next a ring of plants surrounds the foundation wall, cutting off the potential of at least forming some connection with the lawn. Finally the building envelope cuts the inside off from the outside. A few small windows are placed in the exterior walls, which are covered by curtains and shades.

Because of the size of lots, the size of residentially zoned areas, and an absence of connection with anything near by, the only reasonable form of movement is the motorized vehicle. The street is abandoned by pedestrians further insuring minimal contact with the public or things public. In response to the needs of this kind of motorized environment, the suburban shopping mall has evolved. Sufficiently insulated from surrounding residential areas, the shopping mall is an island within an island. Having no connection with anything around it except a major motor artery, it forms an island similar to the private house. Instead of a lawn, it is surrounded by a sea of parked cars and parking spaces. A built edge offers little penetration, and minimal entrances lead into a completely internalized commercial world. As one looks elsewhere in our environment the situation is essentially the same. This applies to luxury apartments, low income apartments, garden apartments, office buildings, factories and schools.

The archetypal American building form is an object with a minimally penetrable edge placed on a piece of land which serves as a buffer zone between it and the rest of the world. The building has no formal relationship to anything around it and its only use relationship is with a system of roads for automobiles. It is effectively cut off from the rest of society except admitting only special technological forms of contact—automobile, telephone, television. Its relationships are almost all internalized, its contact with what is public is minimal and only of necessity.

This attitude toward public and private is related to an atomization of individuals in society. Contact between individuals and contact with society as a whole becomes difficult. Social relations break down. The individual having achieved unparalleled freedom, dependence on and contact with other people, is faced with the ironic circumstance of having nothing to do. Alienation and isolation are common experiences in our society, and there is no need to describe what they mean. What I would like to suggest, however, is that they are in some sense wished for in our extremist views about freedom, individualism, and privacy. Just as obligations to a group or society or a system are disruptive to our individualism, freedom and privacy, so is our dedication to individualism, freedom, and privacy disruptive to the positive associations we can derive from a group, a society or a system. While it is clear that absolute subordination to a system leads to shallowness, oppression and one-dimensionality in people, it is also becoming apparent that extreme individualism, privacy, and freedom may be the same thing in disguise. If this is true then values are clearly

inadequate. A pluralistic society in which it will be possible for each person to realize his own potential for happiness, creativity and dignity, requires that each individual subordinate a substantial portion of his resources and affections to other people, groups and society as a whole.

Although I have not heard convincing arguments that architecture can cause people to behave in certain ways; for example that it can cause people to interact with each other, it can be argued that architecture or the physical environment can make certain behaviors more or less possible. It takes a passive role in affecting human behavior, and in most cases is not as deterministic as many other stimuli. Like a stage set in a play, it is the context for human behavior, and though it may be at odds with a particular kind of behavior, it is more likely that people will change it to suit their needs than it is that the environment will change people to suit its implications. Nevertheless, a specific stage set is particular to a certain play, and the specific form of a physical environment is a concretization of a certain peoples' values, perceptions and behaviors. It is in this capacity that architecture is meaningful, and it is in this capacity that it relates to our more general cultural values.

In general I have stated that in America privacies are insular and internalized. The resulting public space is treated very negatively. Large, amounts of unusable land are wasted in buffer zones between public and private. Privacies make no attempt to relate to the larger physical context in which they are placed. Public space is planned for the movement of vehicles; contact with the larger physical environment occurs from within a rapidly moving sealed container. This form of contact is remote and

inadequate. Communication is difficult. Comprehension of the world one lives in is sketchy. Contact and communication with people around one is made extremely difficult by the extreme separation of public and private in our environment. As our desire for contact with the world, with people, and with things increases, as we desire greater variety in our cultural and social lives, it is important to explore the formal implications of these desires in architecture.

In many of the hill towns and medieval towns of Italy, a different attitude toward the relationship between public and private is evident. In these environments public space is a place of contact, communication and communal life. Public space is both valued and enjoyed. The street is a place to talk to one's neighbors, to see people, to sit and relax, to listen to music, to walk, to meet friends, to get a feeling of what is going on. Public space is a complementary extension of private space. It gives pleasure in itself and is one of the media where one's society and culture is accessible. It is a medium for knowing what is around one, promoting involvement in what is around one. It is a nice place to be.

This attitude is the antithesis in many respects to the American attitude toward public space. Public space is what we desire to have least contact with. It is a place of dirt, noise, ugliness, and in many places crime and danger. It exists to facilitate the movement of vehicles. The strong separation between public and private forces the street to be a space singularly for movement. Public space is little more than another necessary evil cared for by the Street Department or the Department of Sanitation of the municipal government.

Given this contrast in attitudes between the Italian culture and our American culture, one notices many corresponding differences in the physical form of that environment in contrast to our own. These differences are related to use and help to account for the qualitative differences between our American urban or suburban environment and that of the medieval or hill town of Italy.

At the largest scale the American city displays a system of streets based on an orthogonal grid. A grid facilitates movement from one place to another. In a grid it is possible to choose from among a large number of alternative routes to get from one place to another. Often, however, those options are meaningless. There is no reason to choose one over another. The grid in its complete uniformity lacks direction, focus, or the ability to differentiate one part of the environment from another. In this respect the grid lacks meaningful relationship to the way an environment is used. The grid does not respond to different kinds and intensities of use. For example, the grid does not recognize that some areas ought to be freer from traffic than others; that some areas will accommodate higher intensities of use that others; that cities support a range of different activities which require different relationships to streets and traffic. These differences cannot be answered by the uniformity of the grid. Hence when a pattern of use develops in an American city, it is clear that that pattern is not supported by the system of streets, rather it exists in spite of it and is hampered by it. The Italian city shows an evolved hierarchical pattern of streets in close relationship to the nature and intensity of use. A hierarchical pattern designates certain streets as main streets. They form main directions of

movement through a place. A secondary system of streets is connected to the main streets. The secondary street system will accomodate less intense kinds of uses. A third order of the hierarchy may include very narrow streets which may be related to residences only. The system may be continued by a system of paths. Essentially a hierarchical system of movement is like the movement system that we find in the veins of a leaf, or in a river with all its tributaries. The limitation of this kind of system in nature is that movement always proceeds in one direction- there is never any choice. The Italian town breaks with the strict hierarchical system, providing some choice while maintaining the hierarchy in general. In this way on the largest scale, the way in which the streets are laid out, or the way in which they evolved has a close relationship to the way the place is used, establishing the potential, at least, for an environment where there is a positive public private relationship.

In America there is by and large only one kind of street where public and private meet in an edge. That is a roadway from about twenty-five to seventy-five feet wide with a sidewalk five to twenty feet wide on both sides of it, a curbstone's height above it, with anywhere from seventy to over a hundred feet from the built edge on one side of the roadway to the built edge on the other side, and with a wide strip in the middle designated exclusively for motorized traffic. The potential for meaningful utilization of the public space is minimized, and the potential for association across the roadway made difficult. This is not to suggest that the typical American street is without useful applications: it can make sense, for example, in an intensively used area of stores. However, the ubiquity with which it is deployed

for all conditions, certainly contributes to the lack of quality in our public space. In Italy the dimensions from one side of the street to the other are generally quite smaller. Streets are often so narrow that cars have difficulty moving through them. The widest Italian streets are as wide as some of our narrower streets, and the narrowests paths in Italy are unthinkable in this country. What we gain with our wide streets is the free movement of motorized traffic at the expense of potential relationships between opposite sides of a street. We also lose the sense of human dimensions with which we can associate in the street itself.

In Italy the situation is reversed. At the expense of motorized traffic, the dimensions of the street are such that spatial relationships across the street are possible, and the feeling of the street as a place is enhanced. The dimensions of the streets have a relationship to dimensions of privacies. The width of the street is in general from twenty to forty feet. They are the next order of size above the dimensions of privacies which range in size generally from ten to twenty feet. Thus there is a tendencey to experience an Italian street as a continuation of private space at the next order of size. As such the street becomes an extension of private space, eradicating in this way what is in our environment a strong discontinuity between inside and outside. This element of dimensional relationship to privacies gives the street or public space part of its feeling of friendliness and hospitality and further enhances its potential value as a place for enjoyed human activity.

There is a wide range of kinds of streets in an Italian town. Significant variations in width occur with variations in use from public to more

private. Paths for pedestrians diverge from paths for vehicles. Streets to private dwellings are narrower than those where there is some commercial activity. Intersections of streets or changes in direction create spatial definitions for piazzas, outdoor cafes, markets, churches , and public buildings, and on a smaller scale, entrances to privacies and gardens. All of these places then become part of the street, reinforcing once again, the notion of the street as a place in addition to a path. It is this kind of overlap of place and path that is so strikingly absent in our own environment when one examines what is available in the Italian town. We even design our public parks the way we design privacies, tucked away in some corner of the city, separated from the street, used only by those people who deliberately go to use them.

In addition to a range of sizes of streets, the Italian towns and cities of the Middle Ages suggest a number of possible relationships between pedestrian traffic and vehicular traffic. As I have stated, we seem to know only one such relationship, a roadway flanked on both sides by a walkway at the same grade. In the Italian towns a variety of relationships between the different modes of movement are found. Walkways and roadways lose one to one relationships and each begins to define its own directions of movement. The systems run next to each other and independently from each other, crossing each other at the same level or at different levels. The city of Venice is the best example of this, its paths forming one system of movement and its canals forming the other. Exhibiting a large number of conditions relating paths to canals to buildings to piazzas, this city becomes richly suggestive of the possibilities for designing public space with a meaningful relation-

ship to privacies on small and large scales. All one has to do is imagine that the canals have become a system for vehicular traffic to see a wide variety of conditions embodying movement on the some level and in the same direction to movement on different levels and in different directions. It is possible then to imagine that such a system could be beneficial in designing public space and movement, bring together vehicular and pedestrian traffic where the use of the privacies is conducive to such a combination and separating it where that might be beneficial. The degree of coincidence or divergence can be affected by both the vertical relationship of roadway to walkway, if they are at the same level or different levels, or by the horizontal relationship of roadway to walkway, if they follow the same route or different routes.

The covered walkway, the arcade and the galleria are elements of Italian urban form entirely absent from America. These forms in themselves form another kind of overlap of public and private uses. The walkway under this condition becomes part of the privacy, and though next to the roadway, the walkway is partially separated from it as it is partially incorporated into the building. It becomes a place for street vendors, newspaper stands, sidewalk cafes. It brings the walkway into close contact with the edge of the privacy, which, if the privacy is a store, or some other place which ought to be accessible to the public, is a desirable result. In addition the covered walkway provides shelter from both the sun and rain.

The Automobile

The lack of quality of American public space seems to be inextricably linked to a problem which is not one of architectural form, namely an addiction to motorized private transportation. This has some crucial implications for the feasibility of a concept of public space which stresses the value of the walkway as the place for positive human activity and communal life.

Ivan Illich has argued[1] that our society creates institutions and industries which while ostensibly satisfying some need of society, actually create demand for their service or product, at a rate that is faster than it can be satisfied. Illich makes this point with respect to education and medicine. It is clearly true of the automobile and road building industries. The automobile, once a luxury, is now a necessity. Years ago when the automobile was the possession of the wealthy few, the average citizen had no need for a car. The places where he bought his food and clothes were around the corner. He was able to walk to work or public transportation was available. The physical environment was organized around the assumption that most people did not use cars. In an environment where the places one has to go to every day are close by, the automobile is not a necessity. The automobile is useful for making occasional trips to a distant friend, to go somewhere you would not ordinarily go, but it is not indespensible. As we built more roads and bought more cars, a number of things began to happen. It became possible for more people to live farther away from their place of employment. The suburbs were developed. Since everybody in the suburbs had a car, it was possible to open large shopping centers. New roads were built ,

making transportation between once distant points easy. Seeing that they could now move more easily between distant points in their automobiles, people could live farther than ever from where they worked, shopped and where their children went to school. These developments had certain results. Large shopping centers with ther lower prices forced smaller stores out of business. Better roads, rather than to decrease congestion only produced more traffic. New roads to alleviate further congestion destroyed large parts of cities. Cities themselves became clogged with the traffic of people who had moved away from the city to escape noise and traffic. Cities had to give over large areas to accommodate all the cars driven by people who had bought the cars to free themselves from the problems of noise and traffic that their cars had produced. Thus our need for automobiles today is not so much a part of a better way of life, as it is the result of the much greater distances between places.

Noise, pollution, traffic, highways and parking lots are the visible obvious results of a society based on the automobile. More than that, the automobile has done much to break down local scale social and economic relationships in favor of large scale centralized economic and social relationships. People work in large office buildings, office parks,and large factories. They shop in large supermarkets or large shopping centers. Their houses are located in large, low density residential areas, their places of employment are in large commercial areas. Their friends live a few miles apart. With singular uses over large areas, and with the necessity for the average citizen to go to a number of these places each day, it becomes apparent that a vast system of private transportation,

automobiles and roadways is now a necessity. Without them the economic and social structure could not function.

It may be desirable to build viable pedestrian environments whose public space has some of the quality of the Italian hill town, both in form and in use. If these kinds of environments are to be designed, it is necessary to both reduce reliance on the automobile, and to re-establish decentralized, local networks of social and economic interdependence. If we establish a density of fifty housing units per acre and we assume one car per unit, at the rate of four hundred square feet per parking space, half of the land area of our acre must be used to provide parking spaces. Besides providing limitations on the densities realizable, that amount of parking is liable to consume just about all available public space for the singular and unproductive use of car storage. And even if by some kind of magic we could shrink the size of cars to one fifth of their present size, and could design an adequate pedestrian environment providing one parking space per unit of housing, we would find that the pedestrian public space would become a sort of recreational space. It could not serve as a path from one place to another because the large distances in a centralized economy of scale type of environment rule out walking as a way of getting around. Cars would still be the primary mode of movement. Thus it is my contention that for a reasonable pedestrian environment to work, the primary modes of movement must be walking coupled with some kind of public transportation.

Essentially the public space in a pedestrian environment must retain its capacity as path in addition to its quality as place. It must be the

way to get somewhere, not merely a decoration. For this to happen, large shopping centers and supermarkets will have to be replaced by small shops beneath housing. Large office buildings will have to be replaced by small offices, and these uses will exist side by side with housing. In other words, the logic which made the automobile from a luxury into a necessity will have to be reversed.

There are some indications that this change can happen. The most obvious circumstance that will force us to decrease our reliance on the automobile is the energy crisis. As costs of fuel go up and as fuel becomes unavailable, the need for an alternative means of transportation will become more urgent. The option of public transportation is the one most often discussed, but the option of developing land use patterns which reduce distances between places by means of high density mixed use neighborhoods will also be considered. The energy crisis may also push us to construct multi-family attached buildings over detatched single family homes for the sake of efficient heating and cooling. The need to control noise and pollution detracts further from the automobile as the essential component in a future transportation system.

In addition to energy shortages and pollution, the cost an automobile is on the average $1,800 per year including capital costs, operating costs, road costs and insurance. An environment in which most places are accessible without a car would cut the cost of transportation. On those occasions when a car was necessary, taxis, rented cars, or shared cars could be engaged at a substantial savings. All in all it could mean a savings of $1,000 per year. This in itself might be more than enough to offset higher prices paid to smaller

stores. Thus the imminence of scarcity will move us away from reliance on the private automobile.

As our society reaches higher so-called "standards of living," we also reach higher levels of inefficiency. In order for a capitalist economy to expand, more goods have to be produced and consumed. As our levels of production become higher and more efficient, our levels of consumption must also become higher but, however, after a certain point which we reached many years ago, less efficient. For example, a once sufficient quarter pound hamburger is no longer enough; we must eat half pound hamburgers. To make up for a two fold increase in the efficiency of hamburger meat production, we must respond with a two fold decrease in the efficiency of our consumption of hamburger meat. Increased productivity must be met with increased comsumption. Efficiency must be met with inefficiency. If it isn't, a depression ensues. Inventories build up, sales drop, and money becomes idle.

Thus far we have chosen to spend the money surpluses generated by technological progress and efficiency on private possessions, in one of the grosser expressions of individualism, conspicuous consumption. Conspicuous consumption of private housing, cars, appliances, lawns, swimming pools, and all sorts of garbage--this is the kind of inefficiency we have chosen in response to our greatly increased productivity. This kind of consumption entails the greatest expense with the least visible benefit, either material, emotional, or spiritual. Indeed, it reinforces the extreme privatism which plagues our society. There is no good reason why in a wealthy suburb each of five houses needs a swimming pool rather than to build one large shared pool. It makes no sense to spend $5,000 extra on a car for the

marginal benefit of a "smooth ride" and a prestige name.

Our society lacks a reasonable way to use the surplus capital generated by our technological advances. So far it has been used largely to accrue marginal material benefits and to encourage private inefficient consumption over more efficient kinds of consumption. This tendency of our economic system to promote rampant inefficiency at the consumption end in proportion to the efficiency at the productive end is certainly one of the contradictions of our economic system. It has been partly responsible for the particular circumstances which begin to account for the lack of quality of our larger environment-the vast inefficiencies in land use, the lack of shared amenities, and our wasteful dependence on automobiles. We notice in places in the world which have not been suddenly overwhelmed by greatly increased productive efficiencies, places such as the Italian hill towns and old farming villages, that the efficiency of consumption is far greater. The absense of waste and careful planning of the whole leads to a built environment which at a large scale is qualitatively much better than our own. In present day Italian hill towns reasonable urban pedestrian environments exist. Small stores abound. There is a feeling of neighborhood and civic pride. Not everybody owns a car and dwellings are often crowded and below our standards, but they achieve a large scale quality which we desparately lack.

It may be that our patterns of consumption are at the root of our problem, fertilized, as it were, by the dynamics of an expansive industrialized capitalist economy. Perhaps socialism is a necessary precondition to establish efficient modes of consumption. It certainly seems possible.

A key to reversing our dependence on automobiles is in developing an attitude of efficient consumption of the resources of our physical environment. Sharing is one significant means to that end, and the sharing of built structure and outside space can be much more efficient in an urban environment if the automobile is not a necessity, but a convenience which can be rented every other weekend.

If values change from belief in privacy and private ownership to a recognition of sharing or community, then it is possible to imagine that people will be willing to spend more surplus capital on those shared facilities and on the creation and care of a neighborhood.

At the time of the civil rights movement a new set of values began to take hold of people. Stated in one way, this set of values stresses commitment to people and productive work over commitment to wealth, prestige and power. It stresses the importance of human relationships and human values: love, friendship, concern for others, kindness, a respect for life, a desire for peace, an appreciation of nature and the creativity of work, an openness to people and things. It is essentially an affirmation of living, an alternative to a world which seemed to offer a sort of mindless pursuit of money and progress while perpetrating violence and injustice. The new values stress a need for cooperation and understanding between people. Concurrent with the growth of this attitude has come an increased dissatisfaction with the quality of the built environment. In many respects the form of the built environment is at odds with these values. The extreme separation of public and private is one of these areas of conflict. There is a need for social units of neighborhood size to provide the individual the sense of identity and

belonging he loses when confronted with alienating governmental and corporate institutions. This implies a pedestrian scale mixed use environment. If these cultural values continue to gain in their influence, they will find expression in the physical form of the built environment just as the values of wealth, competition, violence, and privacy find expression in the buildings which have gone up for most of this century. The pressure of these values trying to find expression in physical form coupled with the pressure of a scarcity of energy and other natural resources and a new consciousness of the nature of our economic system may begin to spell the end of our dependence on the automobile.

Toward an Urban Pedestrian Environment

The general intention of my thisis is to devise a way of designing public space at a large scale so that it is both active and meaningful. For this to happen public space must simultaneaously have qualities of path and place. To function as a path it must be a reasonable way of getting from one place to a number of other places. This requires as a precondition for the use of a walkway as a path that most of the places one regularly frequents must be accessible by walking alone or by some combination of walking and public transportation. This, in turn, implies that social and economic relationships between people will have to function primarily on a local, decentralized scale rather than the present centralized regional scale. The neighborhood becomes the important social unit. Commercial and residential uses have to exist side by side. Most stores and offices have to be small and densities would have to be high. All these are preconditions to making walking a reasonable way of getting around.

To say that the path must also have qualities of place means that the path must be more than a singular corridor designed for efficient movement only. It must also support a range of activities which can be viewed as ends in themselves. Thus the relationship of the pedestrian path to both motorized traffic and to privacies assumes great importance. It is clear that motorized traffic is disruptive of many kinds of activities. It is noisy, smelly, polluting, dangerous, and it takes up a lot of room. Except where motorized traffic is compatible with pedestrian activity or where it is absolutely necessary, the two modes of movement ought to be separated either by placing them on different levels or giving them different routes or by a combination of both. If the pedestrian way is going to support other

activities, those activities will have a strong relationship to the privacies --commercial or residential--which are accessed by the path. For example, if the path is also going to be a place where children play, it will be desirable if parents can have easy visual access to the path, and it will also be desirable if the path is easily accessible from the dwelling unit. The path becomes an extension of the privacy if a shop owner wants to sell his goods outside. The walkway should have some kind of physical definition which will accommodate his goods. If the walkway is to become, for example, a place for occasional outdoor concerts, plays, or fairs, balconies, landings, and terraces in privacies could be places from which to view these events. Physical definitions creating entrances and small private gardens and terraces should be partial definitions implying accessibility as well as separation. Thus the pdedstrian can have some contact with people living next to the walkway and vice versa. The walkway, entrances, and gardens can have regions of overlapping definitions. The path becomes an extension of the privacy, making each more accessible and hence usable by the other. An additional ingredient of the path as place is dimension. If the path is to become more than a singular path, it must take on dimensions which are greater than minimal path dimentions. If it is going to accommodate a range of activities, it must display a range of different dimensions. Some places will be narrow; others for light and gardens will be wider. These dimensions should have a close relationship to the potential use of the path as place. A variety of local spaces which are part of the path and extensions of the path must be defined. Thus in addition to a certain kind of public-private edge, the path must take on the

variety of dimensions which will suit different parts of it to different kinds of activities. It cannot be the same everywhere.

To summarize, in an urban environment public space can be a place for communal life, a place to have contact and involvement with the people, artifacts, culture, life styles and other activities of a society. It is my belief that certain preconditions are necessary for this to happen, both in the physical form of the environment and in the cultural attitudes of the society. To accommodate meaningful activity the public space must function simultaneously as a path and a place. It must be a path in a mixed use environment whose economic and social networks must be neighborhood oriented and small scale. The pedestrian mode must be the primary mode of movement, supplemented by public transportation. It must be high density. As a place it must function as an extension of the private definitions, be they commercial or residential. In general the public-private edge must be soft, permitting overlapping and reciprocal use definitions. The dimension of the public space must have the kind of spatial variety that is implicit in the range of uses to which it can be put, and finally vehicular traffic must be dealt with in such a way that it is not disruptive of the place quality of the public space.

Present outdoor open space in our society is divided into public and private uses. The public space is divided into roadways and walkways. The roadways are overrun with cars and do not admit any other use than movement and storage of vehicles. The walkways are uniformly narrow and singular and what potential use they have other than walkways is often hampered by the proximity of cars parked or moving. Private outdoor space is exclusive and

underutilized. It is my hope that by decreasing the amount of private outdoor space, and decreasing the size and intensity of roadways and increasing the quality and quantity of shared pedestrian space, the physical environment outside of the privacy can become used more positively for more kinds of activities. Higher densities can be achieved. Public space becomes the complement of the privacy, extending privacies into a larger, shared realm of overlapping uses and definitions, making much more efficient the use of outdoor public space. As an extension of the private realm into the public, the public realm ceases to be alienating. It becomes valuable. It becomes something. In becoming a place for meaningful activity, it assumes a value that it previously did not have. It becomes personalized and communal, [illegible] indicative perhaps, of an integration of the individual and society. In this way the shared public space more than makes up in a new set of amenities what is lost by limiting automobile traffic and absolute privacy. It is a process which takes from the private realm and gives to the public realm, not simply to effect equality, but out of the new efficiency of multi-use shared space more will be available to all.

Since the context of a local decision is as important as the local decision itself, the design of urban paths and edges has to be approached on a number of scales. I have chosen three scales at which to view paths and edges. At the largest scale I have examined to some extent the issue of street layouts and block sizes. At an intermediate scale I have developed a notion of defining paths and edges as an assemblage of an additive piece of private organization with a number of possible relationships to the ground. Public and private are defined reciprocally. At the smallest scale the specific nature of the public to private relationship is stated. The physical definition of the edge, and the nature of vertical movement from the walkway to the privacy with its capacity to form a link between public and private is explored. I am striving for,among other things, a way to approach the problem of setting up a large scale context out of which varieties of local decisions at different scales can be made. At larger scales I will look at walkways, public open space, street edge conditions and at smaller scales I will look at entrances, gardens, stairs, landings and balconies.

A layout of streets and blocks is the important larger context because it sets, as it were, the ground rules. It is only in relation to a larger context that the variety of paths and various edges can make sense and not seem arbitrary.

It is one of my intentions to deploy a pedestrian system which exhibits a variety of relationships to the vehicular system. To do this without first exploring what kinds of roadways would be conducive to an independent walkway might place dubious value on the idea of doing it at all. It would appear arbitrary and forced. It would be difficult to propose a field of roadways

and walkways which were determined purely ad hoc. One would have such difficulty explaining the larger context that it would not be clear if the local conditions generated were actually useful. Thus I made some assumptions about the larger environment. Because most cities today are built on flat or nearly flat land, a flat site was assumed. This condition was more difficult to deal with than a sloped site, and perhaps because of this more fruitful. A hilly site implies ground level changes, level changes which are advantageous for generating a variety of use conditions. The flat site does not imply level changes, hence the ground must be more creatively manipulated.

The question of block sizes and configurations was also considered. A typical block laid out in a typical grid was assumed to have a width of 200' and a length of 200', 400', or 600'. In the cases where the block was 200' x 200' or 200' x 400' the frequency of the roadways was such that an independent pedestrian system was at once too elaborate and unable to define any directions independently of the system of roads. The roads went everywhere. Only when the block size reached a 200' x 600' size, a 400' x 400' size, or larger could a system of movement for pedestrians be generated which did not have a one to one relationship with the roadway. At this point it would have been possible to pursue the notion of an additively assembled pattern of blocks given two or three block sizes and a reference to some general directions of movement. Analogous to Hertzberger's insurance building in the Netherlands, some general use attributes of the block could be defined together with various ways of deploying those attributes, creating a rich

suggestive framework within which to work. The beginnings of one such framework were explored. (Drawing #1). However, a committment had already been made to utilize a framework which was not rich and suggestive, one which was, in fact, the very opposite, to see how well one could work in a more confined and limiting situation

In formulating a pattern of streets there were a number of intentions. I wanted block sizes which were larger than 200' x 400'. A hierarchical traffic pattern was intended in which some roads would be used more intensely by traffic than others. Over short distances the secondary roadways could be used, but over slightly longer distances they become very indirect. In this way all except local traffic is forced out to the main roadway. This allows for pedestrian paths independent from roadways, which would clearly provide a more direct line of movement from one place to another over short distances. The system of roadways was to have a reference to some of the worse qualities of the real world, because those qualities were thought of as more challenging and because more likely than not those would be the given conditions in a real world design situation. The street pattern is derived from an orthogonal grid.

As I have stated earlier, a problem with the grid is that in allowing movement in all directions it tends to lack specific organization with respect to use. One can proceed in any number of ways to any point without any clear reason why one way would be preferred over another. In this way it postpones, or doesn't deal with the need to define major directions through places. In its neutrality it fails to provide important points of reference for the organization of movement and uses.

A pattern of roads was developed from a 200' x 400' street grid with a main street running through the middle of it along the short direction of the grid. 200' sections of the grid were then rubbed out. Every 600' an ancillary roadway connecting the main roadway with local and less intense roadways is found. Movement on the ancillary and local roadways is possible but it is indirect. Thus a hierarchical system of vehicular movement was established.

Next the distribution of uses--commercial, mixed use, and residential--was considered in conjunction with alternative attitudes to the specific nature of the main street. The two issues, the use patterns and the nature of the main street seemed to be interrelated. Three versions of the nature of the main street were postulated.

In the first version the main street is at grade level. (Drawing #2). The land around the main road because of its proximity to traffic is suitable for commercial uses but not for residential use. This, as is explained in the caption on the drawing forces commercial uses to locate themselves along the main roadway and separates residential from commercial areas. Since an interpenetration of commercial or mixed use areas is desirable for a large scale environment oriented toward pedestrians, this scheme is of limited value.

A second scheme has the main roadway partly at grade and partly below grade. (Drawing #3). Where the main roadway is at grade level, there is a concentration of commercial uses. Where it goes below grade there is an area of public open space beneath which it could be possible to accommodate a parking garage. This open space would link adjacent commercial areas and

provide a buffer zone between the traffic of the main roadway and the residential areas at the edges of the open space. With significantly less commercial frontage along the major roadway, the commercial uses could penetrate into the residential areas in mixed use form. The interpenetration of mixed use zones and residential zones begins to provide a context for a network of meaningful pedestrian paths independent of the roadways. The existence of mixed use zones and their interpenetration with residential zones begins to place enough different uses within walking distance of each other that walking can be a reasonable mode of getting around.

A third scheme (Drawing #4) completely submerges the main roadway below grade. As the ancillary roadways emerge from a grade of -15 to 0, the mixed use zones are located at centralized zones a distance in from the main roadways. Opposite sides of the main roadway are linked by pedestrian bridges which are related to main directions of pedestrian movement. In this scheme the main roadway is for traffic only. It also serves to separate opposite sides of the roadway into neighborhoods.

In commenting about the first scheme, we notice that it is very similar to a typical American "Main Street" organization. It has a tendency to separate residential and commercial uses more than the other schemes. Most pedestrian movement would be perpendicular to the direction of the main road- with less meaningful movement parallel to the main roadway except at the main roadway itself. The separation of commercial and residential and the difficulty generating pedestrian movement parallel to but removed from the main roadway are the chief limitations of this system.

The second scheme seemed to be the most promising scheme. It provides interpenetration of mixed use zones and residential zones, establishing a

context for pedestrian movement. It also relates positively to the major roadway providing a zone of intensive commercial use for short portions of the roadway. This allows for a type of commercial activity in some places which is qualitatively different from smaller commercial uses in a mixed use zone. A range of commercial intensities is implied by closeness to or distance from the major roadway. A link across the major roadway is formed at the commercial zones and a boundary is formed along the public open space. Thus the major roadway is not singular in its relationship to what is around it.

The third scheme provides a context for pedestrian movement, but it lacks a positive relationship to the major roadway. Subsequent deployment of housing along this edge becomes something of a problem for this reason. There is not as wide a range of conditions in this scheme as in the second, but it does provide a kind of interpenetration of mixed use and residential use which, it seems, is an important factor in determining the viability of a pedestrian oriented environment.

Though the second scheme seemed the best, by the time I had worked out its implications I had already committed myself to exploring the third scheme at a smaller scale. Aspects of the third scheme were worked out in more detail in subsequent stages of the exploration.

Doubling the size of layout of streets and adhering to the pattern of uses and major directions of the third scheme described above, I began to lay out non-specific 20' x 40' pieces of private space. These pieces were intended to correspond roughly to row house dimensions, but they were not meant to correspond in every case to that type of building. (Drawing

#5). They were intended to begin to create configurations of pedestrian paths and shared space. Thus, the public space comprising paths, open space, and changes ir direction is generated by additive configurations of privacies and corresponds to the implications of the general scheme. At this scale the relationship of walkway to roadway begins to be explored. In commercial and mixed use areas the privacy has a stronger relationship to the roadway than in residential areas. Definitions implying covered walkways and gallerias relate to mixed use areas. Major walkways are distinguished from less intensively used walkways. Relatively large open spaces are seen at the intersection of major walkways. There is an attempt to develop a range of relationships between walkways and privacies. There is some suggestion of different ways rows of privacies can change direction with respect to walkways, and there is some suggestion of how walkways can penetrate privacies.

The deficiencies of this scale of definition were a difficulty working with local ground level changes and a lack of enough specificity about the nature of the walkways. There is also no indication that the 20' x 40' notation for privacies differ from each other in any way. The additive result lacks a range of sizes and reminds one of a game of "Go." In spite of these deficiencies, this state of definition is useful in establishing a range of various directional changes of walkways with respect to privacies and in setting up a number of possible relationships between a roadway, a walkway, a privacy, and open space.

At the next scale, the ground begins to take on some real form (Drawing #6). Levels of walkways, private gardens, ground floors of privacies, road-

ways, and public open spaces are all defined, which begin to suggest different kinds of public-private relationships. Garden levels of residential privacies are generally lower than walkways providing access to those privacies. Vertical relationships of roadway to private gardens and walkways are shown. Changes in direction are often accompanied by changes in level. Areas of covered walkways and stepped back buildings are shown.

In a related drawing projected locations of commercially used buildings and mixed use buildings are shown in conformity with the original scheme of street layout and use areas (Drawing #7).

In a drawing originally at 1/16"=1" scale, I have attempted to develop a vocabulary of access to privacies and of external vertical movement into privacies. This drawing is an enlarged section with a few variations of the drawing which comes before it. In it, public -private relationships implicit in previous drawings become manifest. For example, the private gardens are partly visible from the walkway. Covered walkways along commercial edges bring the pedestrian in close contact with what is inside. Terraces and balconies are extensions of landings in the stairs which lead directly from the walkways to the housing units. Entry zones to privacies have visual access to the walkway. The walkway displays habitable edge conditions. Entries to commercial privacies become extensions of the walkway. Almost all dwellings are given some direct contact with the outside either as a balcony with access to the walkway or additionally by the system of vertical movement which leads directly outside. Vertical movement systems connect privacies in adjacent buildings, so that they work horizontally as well as vertically. Living units directly above one unit may be accessed by a

different system of stairs. Some living units of the same building are accessed from one side and some from the other side. Stairs go across walkways, involving people above with people below.

The openness of the vertical movement system is a key to setting up the potential for rich public-private relationships. This mode of movement is usually internalized in housing. In that way it protects those walking up from the elements, and to some extent preserves the outside of the building for window openings. It also serves the function of removing the unit from the public world. If the public space has some intrinsic quality, however, the logic of forming the separation between public and private does not hold together. By strategic placement of the external stairs, utilizing breaks in rows of buildings and the variable edge as well as detaching the stair from the building edge it is possible to build stairs which interfer only minimally with window openings. The entrance to privacies and vertical movement systems provide the link between public and private on the smallest scale.

While this particular drawing may be criticized on the grounds that the context of these systems of vertical movement does not always make sense--for example, there is too much access to the buildings, and that one of the commercial edges is out in "left field,"--it does begin to show how an external system of vertical movement can work with ground level changes and entry conditions to create a qualitatively different public, private relationship that the one that we have been used to.

A transformation of public-private relationships in the physical form of the urban environment requires deliberate intervention on a number of

scales. First in the pattern of streets and uses. Here the potential for an urban environment geared to a pedestrian scale starts. The potential for a variety of roadway to walkway relationships begins here, as does the kind of distribution of uses which will make walking a reasonable way of getting around. At the second scale some of the ground level qualities, particular paths, direction changes, public open space, in brief, the spatial quality of the public space begins to be developed. At the final scale the local decisions which link public and private, the partial definitions which will create zones of partial privacy, extend the privacy into the public space making it a communal possession of the privacies.

Finally there are the dwelling units themselves. One of the goals of these units is that they should have contact with the ground and the public space. This is achieved in a number of ways. First, there is the external stairway. Stair landings can become habitable balconies which are partially shared. Walking out into the vertical movement system, one immediately knows where one is with respect to the ground. One is given visual contact with it. A variable edge in section creates terraces, where the building steps back, and partially covered grounds spaces, where the building projects forward. The variable edge creates both terraced areas and cantilevered sections. The cantilevered section can function reasonably in three ways. They can provide cover for an arcaded walkway related to a commercial edge. They can extend out above garden areas, provided they do not extent out too far. In a building with internalized vertical movement and with the walkway on the northern side of the building the cantilever can bring one inside the building to the point where the stairs begin. Terraced areas provide

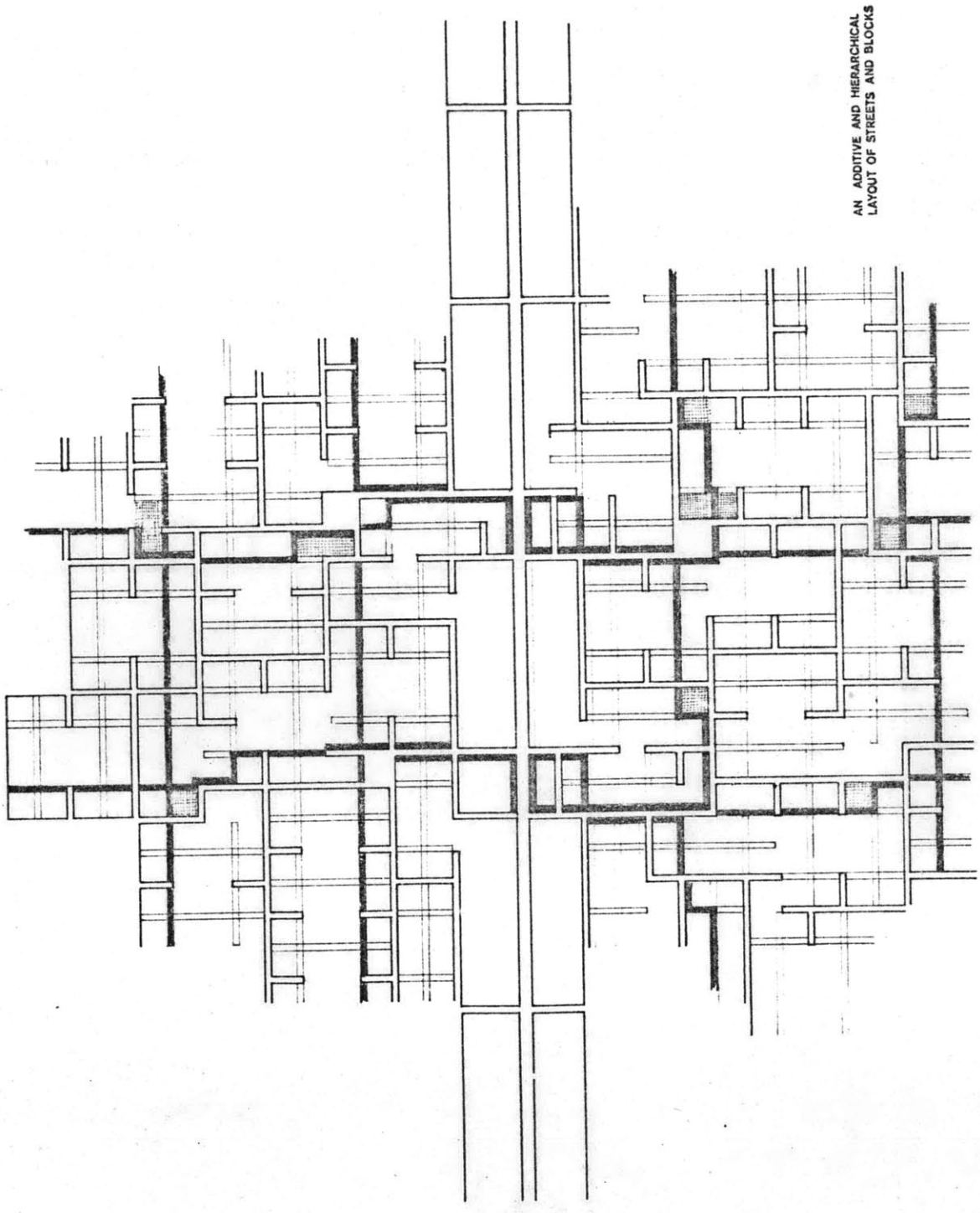
large outdoor areas for dwelling units two and three levels above the ground. Roof areas are to be accessible either from an adjacent building or from within a smaller top floor of the same building. As a general rule all flat roofs should be useable.

The stepping back and the stepping forward of the building can be seen as an attempt in certain cases to let more light reach the ground in areas where buildings across paths are closer to each other than the norm. They also provide outdoor ground area to dwelling units which are above the ground level. The surface area of the building is increased in order to make it more useable.

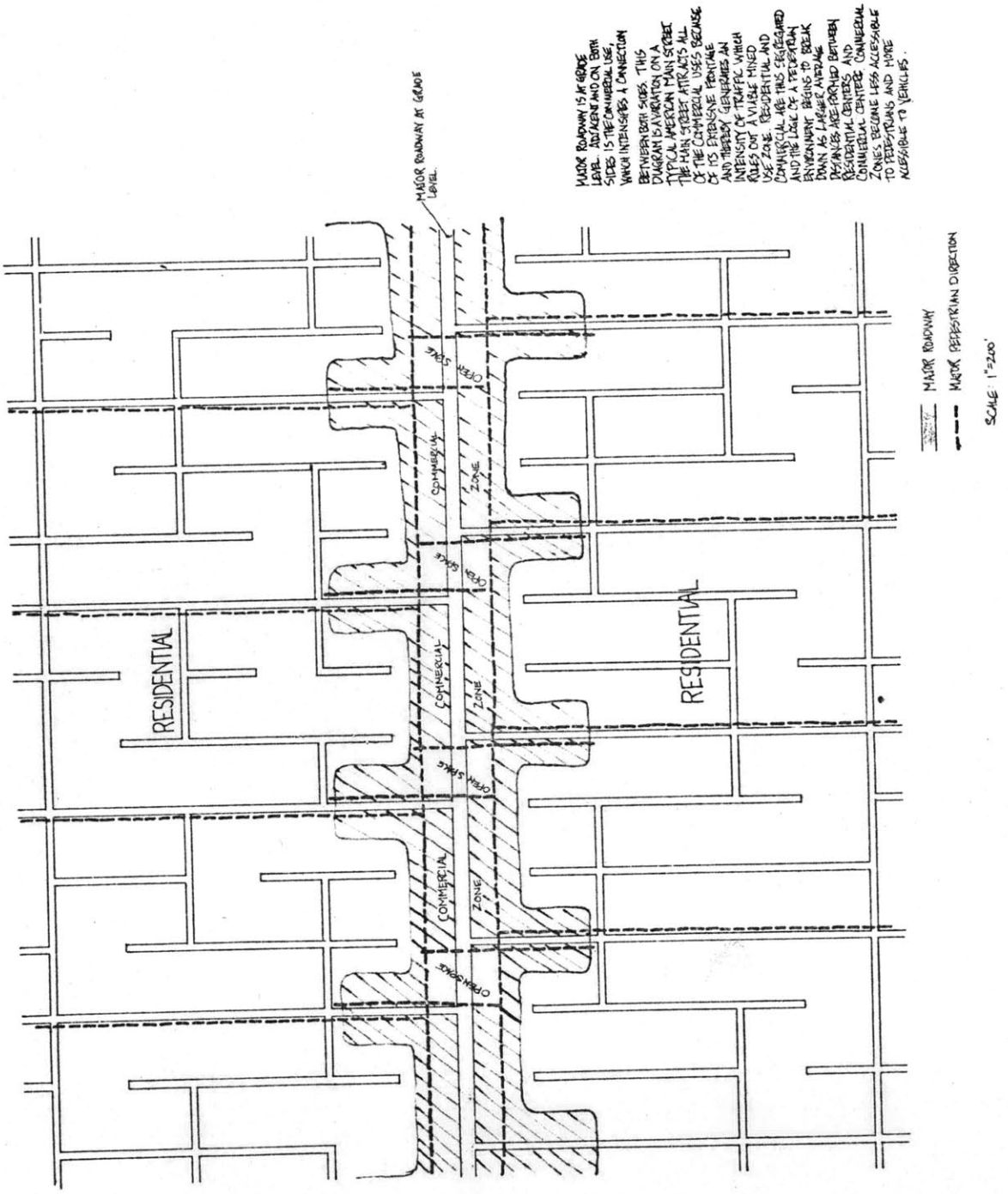
A potential problem with some of the privacies occurs on the ground floor where one end of the privacy is buried, excluding natural light at that end of the space. In these cases, which occur whenever the walkway is a whole level above the bottom level of the privacy, a duplex unit is intended comprising the bottom two floors of the building. Those uses which don't require natural light, such as kitchens, dining areas, bathrooms and to some extent living areas, can be located on the darker portions of the buried floor.

Over the past fifty or sixty years, continuity of indoors and outdoors in modern architecture has relied on the use of glazing. Continuity of this kind is primarily visual. The kind of environment I have projected will require that glazed areas be reduced, both to ensure adequate privacy in a high density environment and to accomodate external systems of vertical movement. Rather than rely on visual continuity primarily, I am hoping to reinforce it with a continuity based on continuity of use and dimensions from inside to outside. This is another version of the concept of extending the privacy

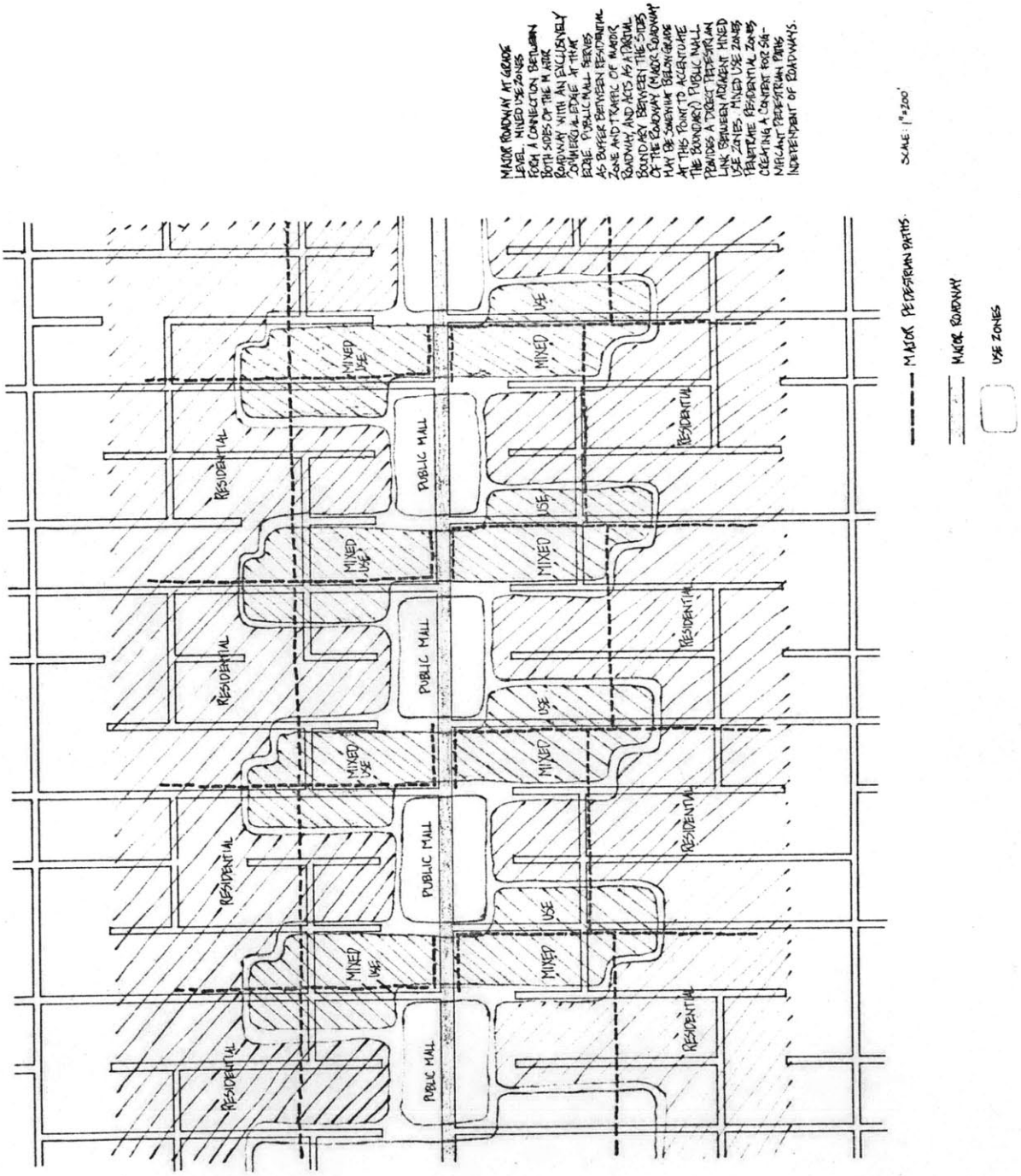
outward. The outdoors in a high density environment of this sort will be accessible to use in a more direct and positive way from the privacy. This, I believe, is a kind of continuity which can be meaningful in a high density environment of this sort.



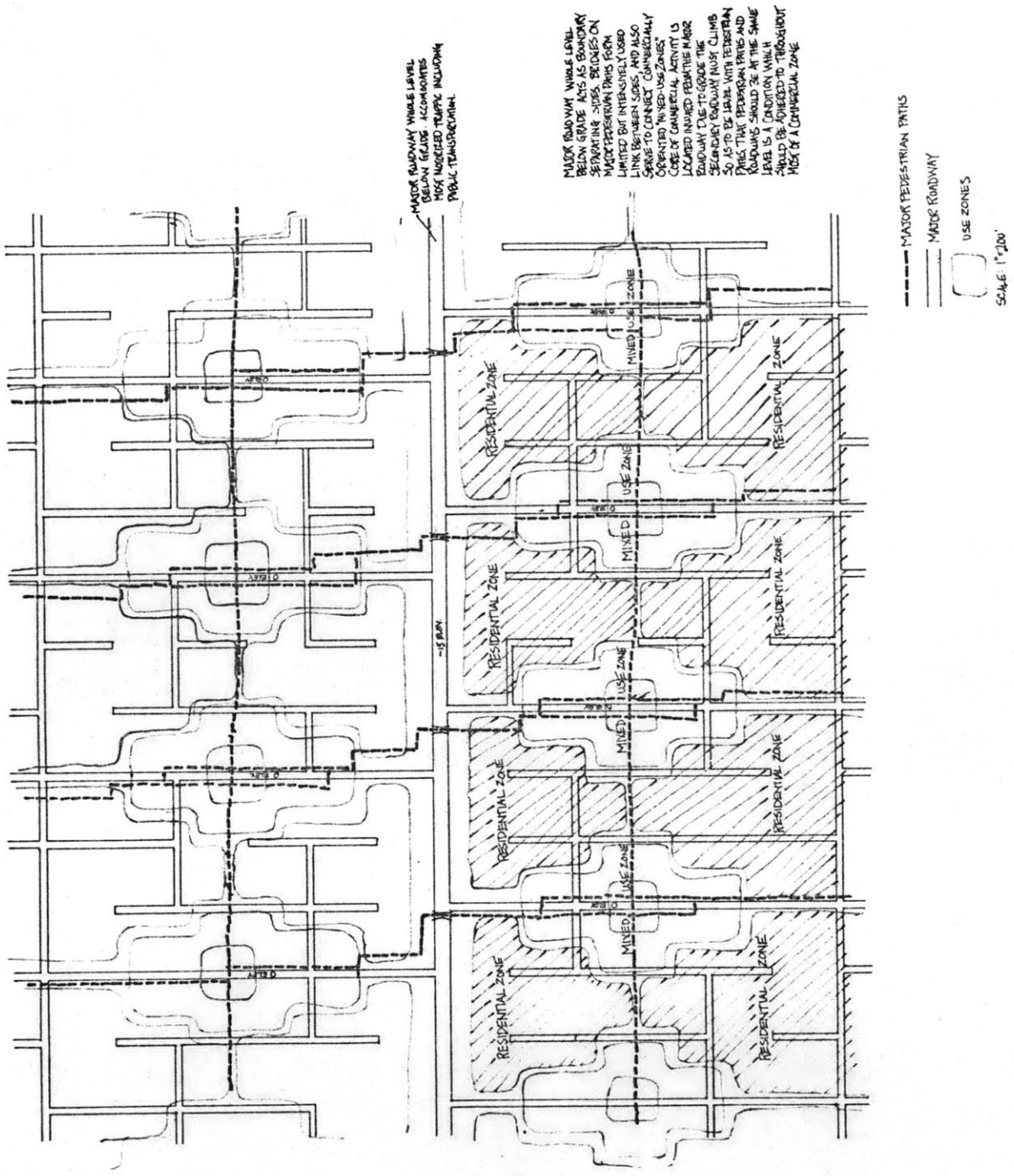
Drawing #1


MAJOR ROADWAY 15 M GRADE LEVEL. ADJACENT AND ON BOTH SIDES IS THE COMMERCIAL USE, WHICH INTENSIFIES A CONNECTION BETWEEN BOTH SIDES. THIS DIAGRAM IS A VARIATION ON A TYPICAL AMERICAN MAIN STREET THE MAIN STREET ATTRACTS ALL OF THE COMMERCIAL USES BECAUSE OF ITS EXTENSIVE FRONTAGE AND THEREBY GENERATES AN INTENSITY OF TRAFFIC WHICH RULES OUT A VIABLE MIXED USE ZONE. RESIDENTIAL AND COMMERCIAL ARE THUS SEGREGATED AND THE LOSS OF A PEDESTRIAN ENVIRONMENT BEGINS TO BREAK DOWN AS LARGER AVENUE DISTANCES ARE FORCED BETWEEN RESIDENTIAL CENTERS AND COMMERCIAL CENTERS. COMMERCIAL ZONES BECOME LESS ACCESSIBLE TO PEDESTRIANS AND MORE ACCESSIBLE TO VEHICLES.
MAJOR ROADWAY AT GRADE LEVEL
CREEK
COMMERCIAL ZONE
CREEK
RESIDENTIAL
COMMERCIAL ZONE
CREEK
RESIDENTIAL
COMMERCIAL ZONE
CREEK
MAJOR ROADWAY
MAJOR PEDESTRIAN DIRECTION
SCALE: 1"=200'

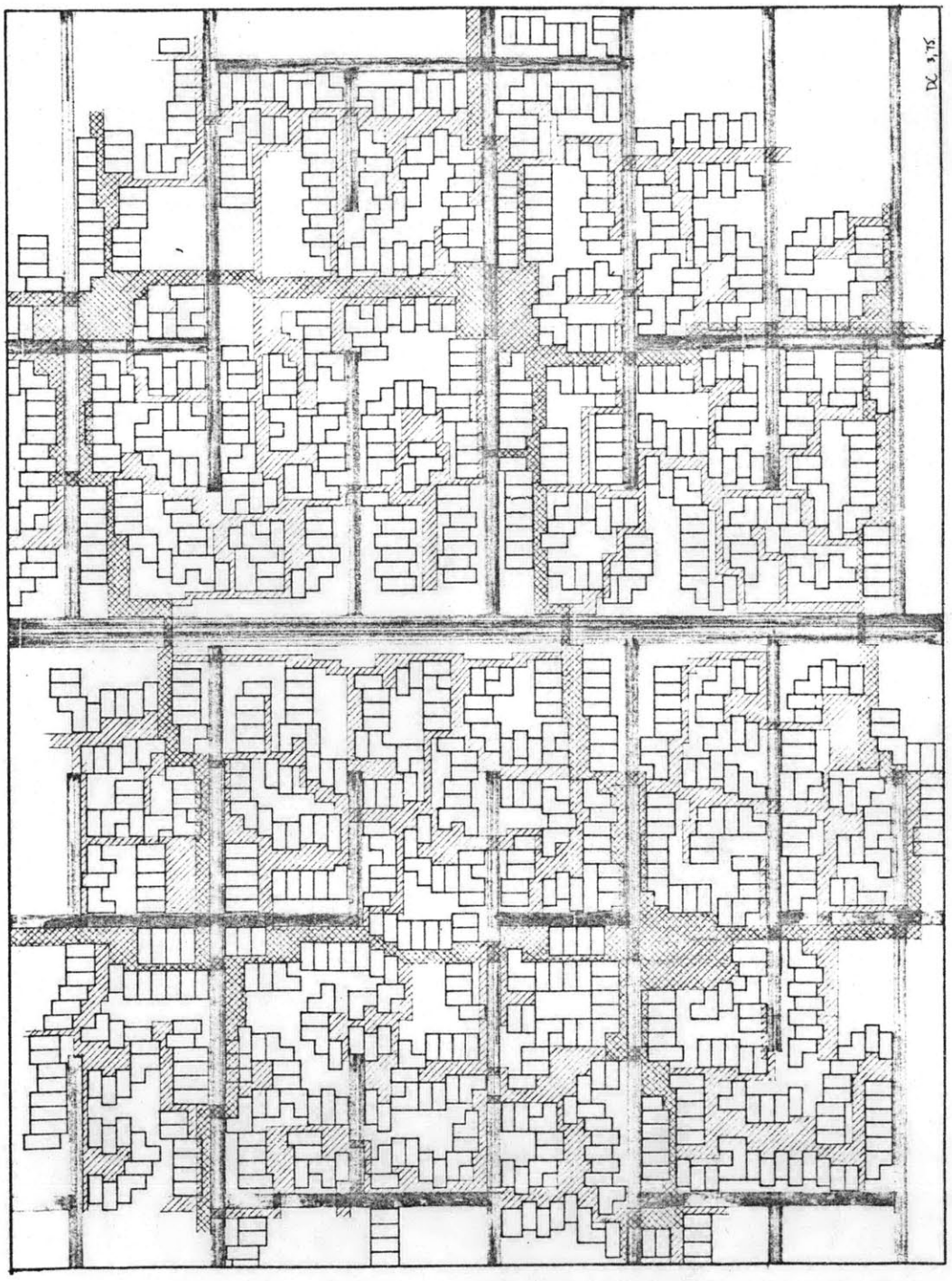
Drawing #2


MAJOR ROADWAY AT GRADE LEVEL. MIXED USE ZONES FORM A CONNECTION BETWEEN BOTH SIDES OF THE MAJOR ROADWAY WITH AN EXCLUSIVELY COMMERCIAL EDGE AT THE EDGE PUBLIC MALL SERVES AS BUFFER BETWEEN RESIDENTIAL ZONE AND TRAFFIC OF MAJOR ROADWAY, AND ACTS AS A PHYSICAL BOUNDARY BETWEEN THE SIDES OF THE ROADWAY (MAJOR ROADWAY MAY BE SOMEWHAT BELOW GRADE AT THIS POINT TO ACCENTUATE THE BOUNDARY) PUBLIC MALL PROVIDES A DIRECT PEDESTRIAN LINK BETWEEN ADJACENT MIXED USE ZONES. MIXED USE ZONES PENETRATE RESIDENTIAL ZONES CREATING A CONVENIENT AND SIGNIFICANT PEDESTRIAN PATH INDEPENDENT OF ROADWAYS.
SCALE: 1"=200'
MAJOR PEDESTRIAN PATHS
MAJOR ROADWAY
USE ZONES
RESIDENTIAL
MIXED USE
PUBLIC MALL

Drawing #3


MAJOR ROADWAY WHOLE LEVEL BELOW GRADE ACCOMODATES HIGH MODIFIED TRAFFIC VOLUMES PUBLIC TRANSPORTATION
MAJOR ROADWAY WHOLE LEVEL BELOW GRADE ACTS AS BOUNDARY SEPARATING SIDES. BRIDGES ON MAJOR PEDESTRIAN PATHS FORM LIMITED BUT INTENSIVELY USED LINK BETWEEN SIDES AND ALSO SERVE TO CONNECT COMMERCIALLY ORIENTED "MIXED-USE ZONES" SIDES OF COMMERCIAL ACTIVITY IS LOCATED ALONG PERIMETER MAJOR ROADWAY DUE TO GRADE THE SECONDARY ROADWAY MUST CLIMB SO AS TO BE LEVEL WITH PEDESTRIAN PATHS THAT PEDESTRIAN PATHS AND ROADWAYS SHOULD BE AT THE SAME LEVEL IS A CONDITION WHICH SHOULD BE ACHIEVED TO THROUGHOUT MOST OF A COMMERCIAL ZONE
RESIDENTIAL ZONE
MIXED USE ZONE
-15 RAMP
MAJOR PEDESTRIAN PATHS
MAJOR ROADWAY
USE ZONES
SCALE: 1"=200'

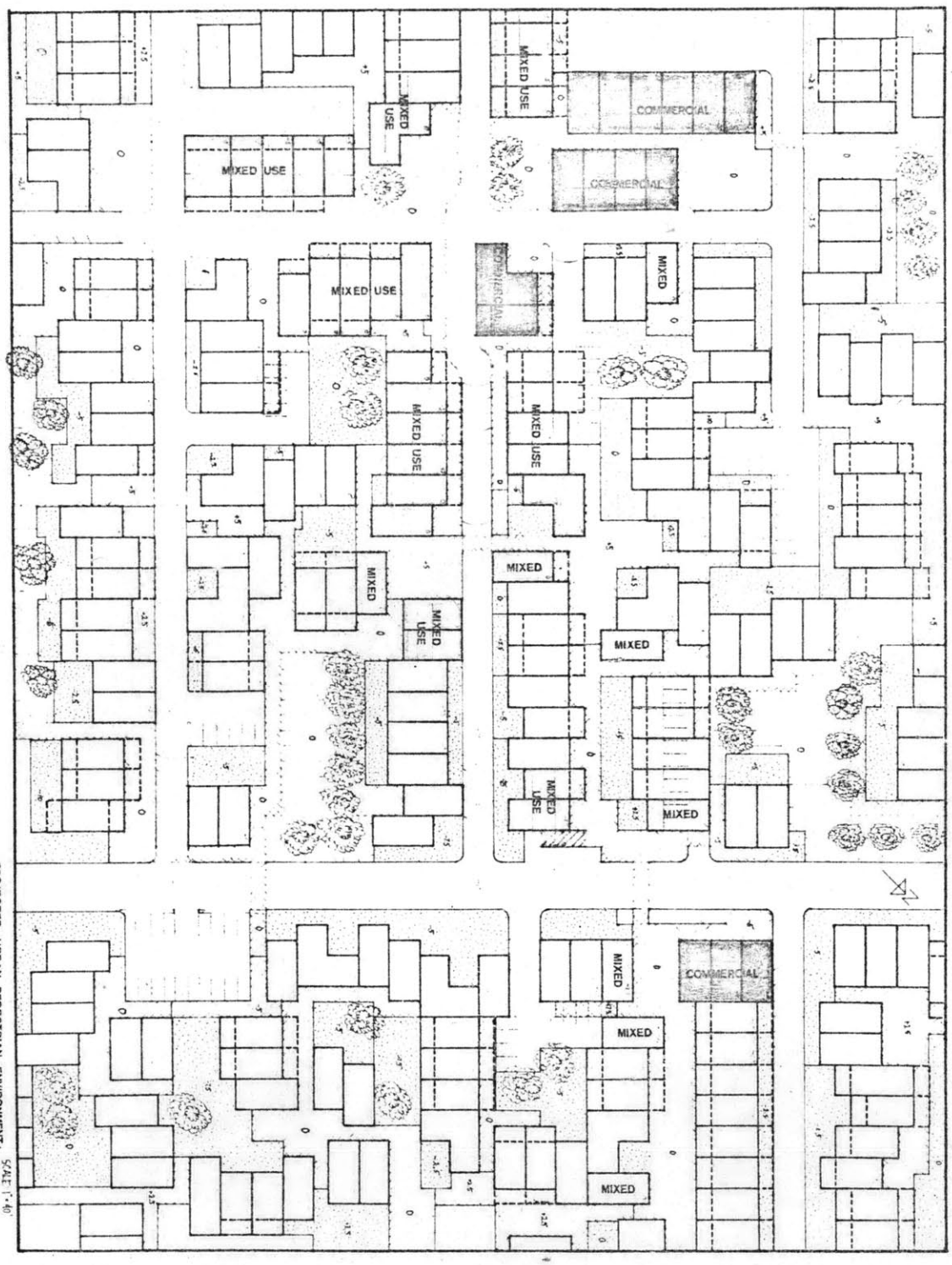
Drawing #4


DC 3,75
HIERARCHICAL AND INDEPENDENT SYSTEMS OF MOVEMENT FOR VEHICLES AND PEDESTRIANS: GIVEN VEHICULAR SYSTEM, PEDESTRIAN PATHS ARE GENERATED BY RELATION TO VEHICULAR SYSTEM, GENERIC PATTERNS OF USE AND MOVING CONFIGURATIONS OF PEOPLE
SCALE 1"=100'

Drawing #5

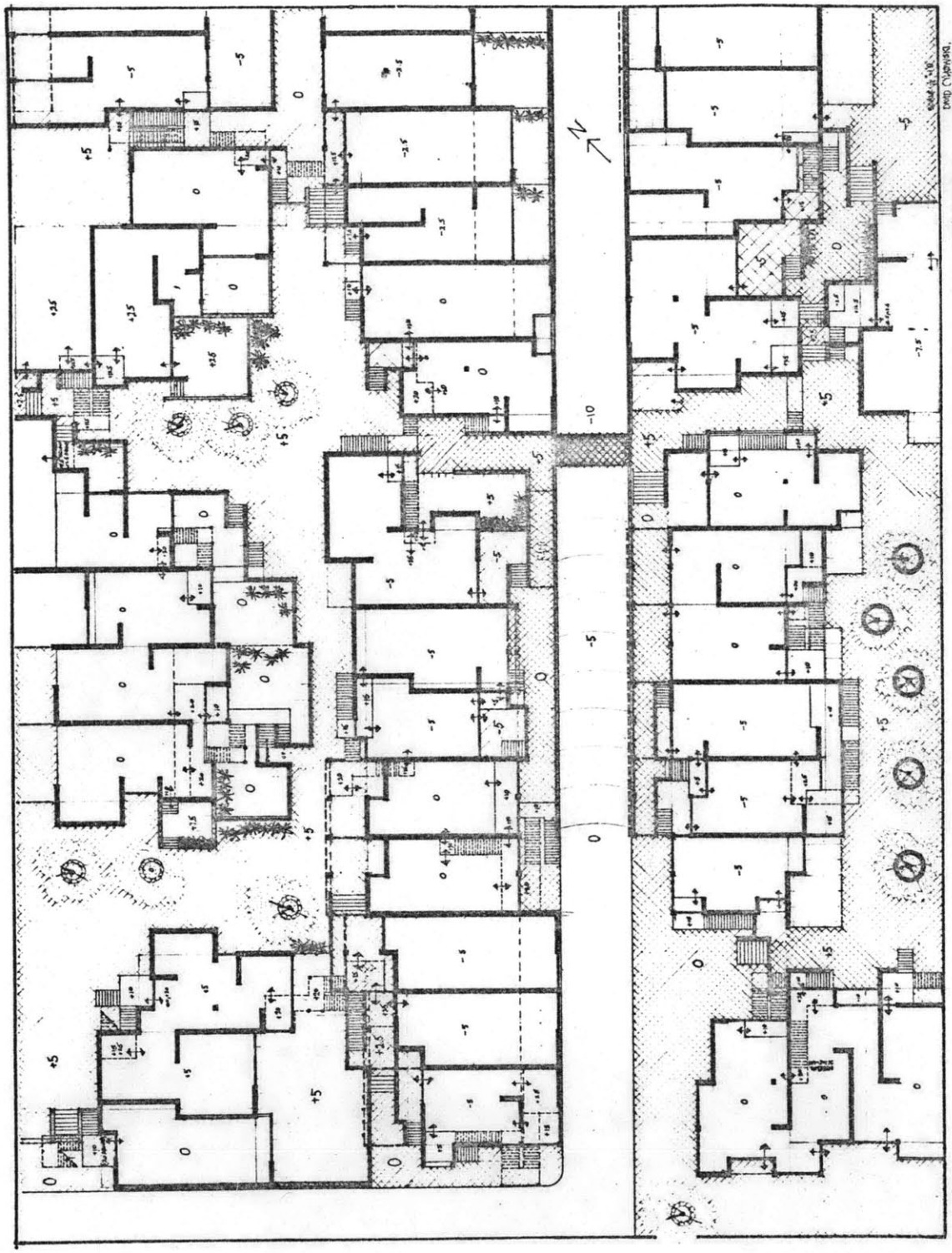
PROJECTED URBAN PEDESTRIAN ENVIRONMENT
SCALE: 1"=40'
DAVID C.D. WONG
MAY, 1975

Drawing #6

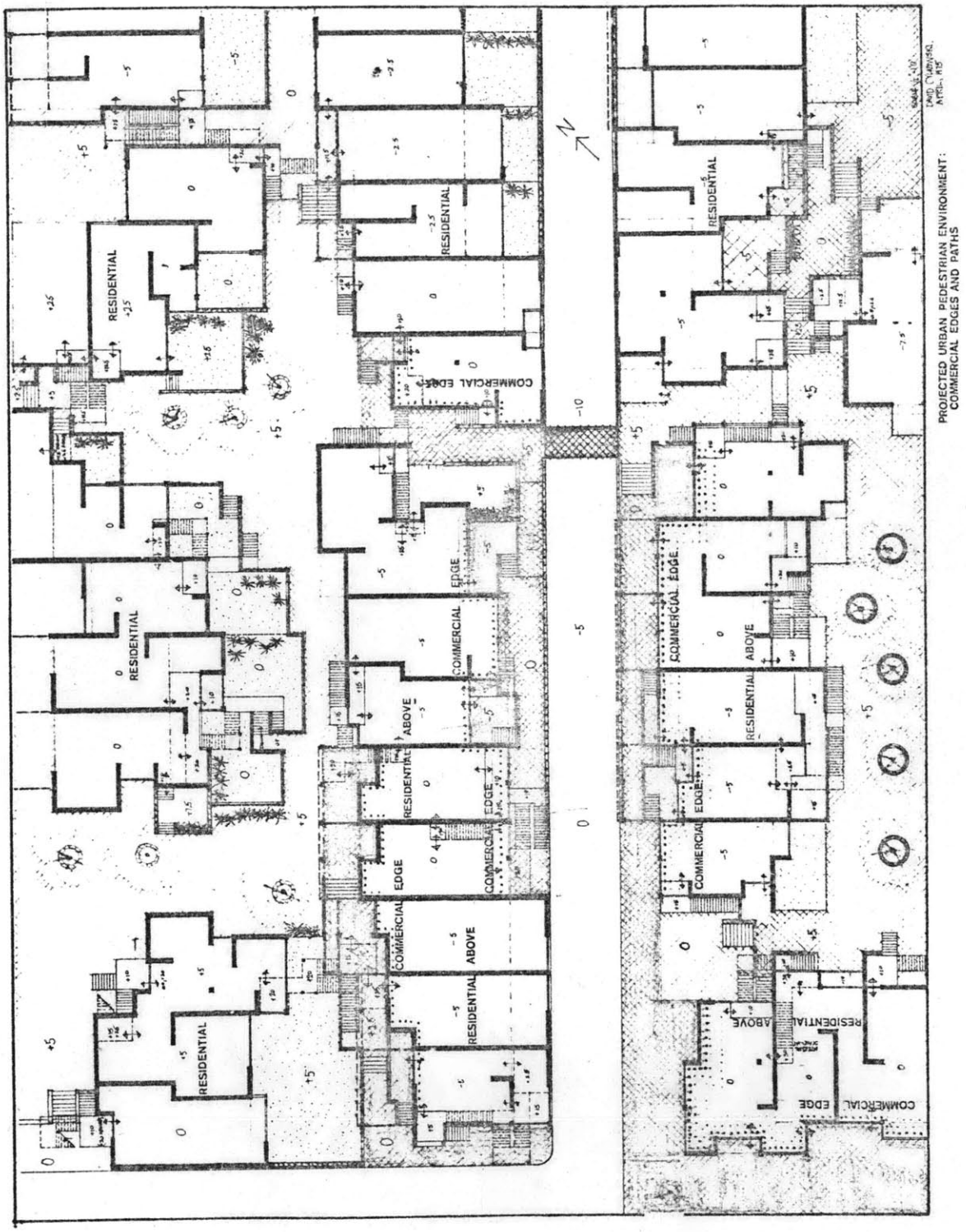


PROJECTED URBAN PEDESTRIAN ENVIRONMENT:
MIXED AND COMMERCIAL USES

Drawing #7


PROJECTED URBAN PEDESTRIAN ENVIRONMENT:
EXPLORATION OF ENTRANCES AND
VERTICAL MOVEMENT

Drawing #8


PROJECTED URBAN PEDESTRIAN ENVIRONMENT:
COMMERCIAL EDGES AND PATHS
RESIDENTIAL
COMMERCIAL EDGE
ABOVE
COMMERCIAL
EDGE

Drawing #9

Footnote

1. Illich, Ivan, Deschooling Society, Harper & Row, New York, 1972.