

## CHAPTER NINE

THE WAY THAT LIVING PROCESSES CAN GUIDE

# THE RECONSTRUCTION OF AN URBAN NEIGHBORHOOD

*This chapter emphasizes the reconstruction of existing city blocks, not by large-scale development (which nearly always does damage) but by a process-oriented repeating generative sequence which builds and modifies the street pattern, changes density, and enhances economic life, while leaving the prospering same families and businesses intact.*



1 / A GROWING CITY



*The Progresso neighborhood, Fort Lauderdale, Florida, 1996*

Cities today are not coherent beautiful structures. A city today is more like a rambling incoherent structure loosely placed on the surface of the Earth.

We must be concerned, then, with the way this rambling structure of development, misery, poverty, and elegance might gradually be transformed, and the process by which it might grad-



*Progresso, Fort Lauderdale, Florida, as it was in 1996. The dark buildings are good buildings which need repair, but which have a fundamentally positive role in the present neighborhood.*





*House converted to an office building, Progresso district, Fort Lauderdale, Florida, 1996*



*Something to be kept: a lively place where at least the children are having fun.*

ually be reconciled with human needs, reconciled with the organic needs of plants and animals and climate, reconciled with the emergence of mass computer civilization, cars, trucks, and manufacturing.

How is this nearly random structure of the present to be transformed, gradually, to form a humane, coherent structure on the Earth?

Let us begin, now, with a neighborhood, and its capacity to nurture human feeling.



2 / ADDRESSING THE PROBLEM OF BLIGHT

In any urban neighborhood, creation of public space and private space, with a proper relationship between the two, is the critical issue. Yet in cities around the world, conventional city planning, the deterioration of public space, organization for cars, and modern methods of design and construction have left us with blighted inner cities and morbidly sterile suburban neighborhoods. What can we do to transform and rejuvenate these neighborhoods?

Even in the most blighted and congested urban slums, a suitable pedestrian structure can slowly be generated. Where it does not exist today, it can be generated step by step. A slum neighborhood can be transformed to create an economic, flourishing, safe world where pedestrian hulls (chapter 3) are growing and being strengthened and connected; where businesses are helped to support each other economically; and where building lots and land



*The problem of blight, all over the world, as in Fort Lauderdale*



parcels have rules which encourage true human uniqueness to appear.

In the pages that follow I describe one particular way in which I have approached this problem in a plan for the rejuvenation of Progresso, a neighborhood in Fort Lauderdale, Florida.

The processes I describe are, I believe, living processes for a neighborhood, and show, I hope, a way of giving the power of gradual unfolding to a community in need of repair.<sup>1</sup> They gain their strength from the repeated use of the fifteen transformations as applied to the tasks of redesigning space, building volumes,

gardens, and local roads. The most interesting and important aspect of this process is the way that these transformations are made, in this instance, to work in *time*. My idea, essentially, is to show how the qualities we want in a neighborhood—its pedestrian structure, gardens, roads, communal life, and support for each person's private individuality—can be created step-by-step, by a sequence of actions carried out over many years, gradually, through hundreds of small steps, transforming an existing neighborhood of the type we have today into a living structure.



### 3 / A NEW KIND OF ZONING LAW, HELPING TO GENERATE NEIGHBORHOOD STRUCTURE THROUGH SUCCESSIVE TRANSFORMATIONS

Let us consider a dynamic system of processes which are capable of creating living structure in a neighborhood, and which work, above all, by getting this new living structure *from* the structure which exists today.

This program of transformation is consistent with the program of unfolding and with the living process, but it will show living process, in this case, in an unusual form which requires a few dramatic changes in the way we think of neighborhoods. It also requires, in principle, new forms of implementation which do not yet exist. For this reason I can, so far, show this living structure on paper only.

The discussion will show one way that serious thought about living processes requires particular detailed processes in a neighborhood capable of creating new configurations in land, public space, private space, property, building layout, and road layout. All this is to be achieved by new procedures.

The neighborhood geometry which results from these new procedures will be *very* different from the one we came to consider normal in the 20th century. However, this new geometry, I

think you will agree, is a sensible structure which does address directly the twin issues of belonging: that is, belonging of a public nature to the community (which requires formation of a communal and coherent pedestrian hull), and belonging of a private nature (which requires that buildings are relatively small, standing on their own individual lots, and which may therefore be developed individually by owners, families, and businesses, seeing the world as they see it, embodying their vision of the world in the individual territory where they belong).

All this requires new kinds of zoning laws—laws which are created explicitly to permit this kind of dynamic unfolding, and which include rules and incentives that encourage the unfolding to work correctly. I shall return to this topic of the needed zoning framework on pages 295–310. For the moment, though, I ask that you get ready in your mind to imagine the events I am going to describe happening in an area which has an overlay zoning district that encourages new kinds of actions to be taken in respect to building construction, land, lots and parcels, and road development.



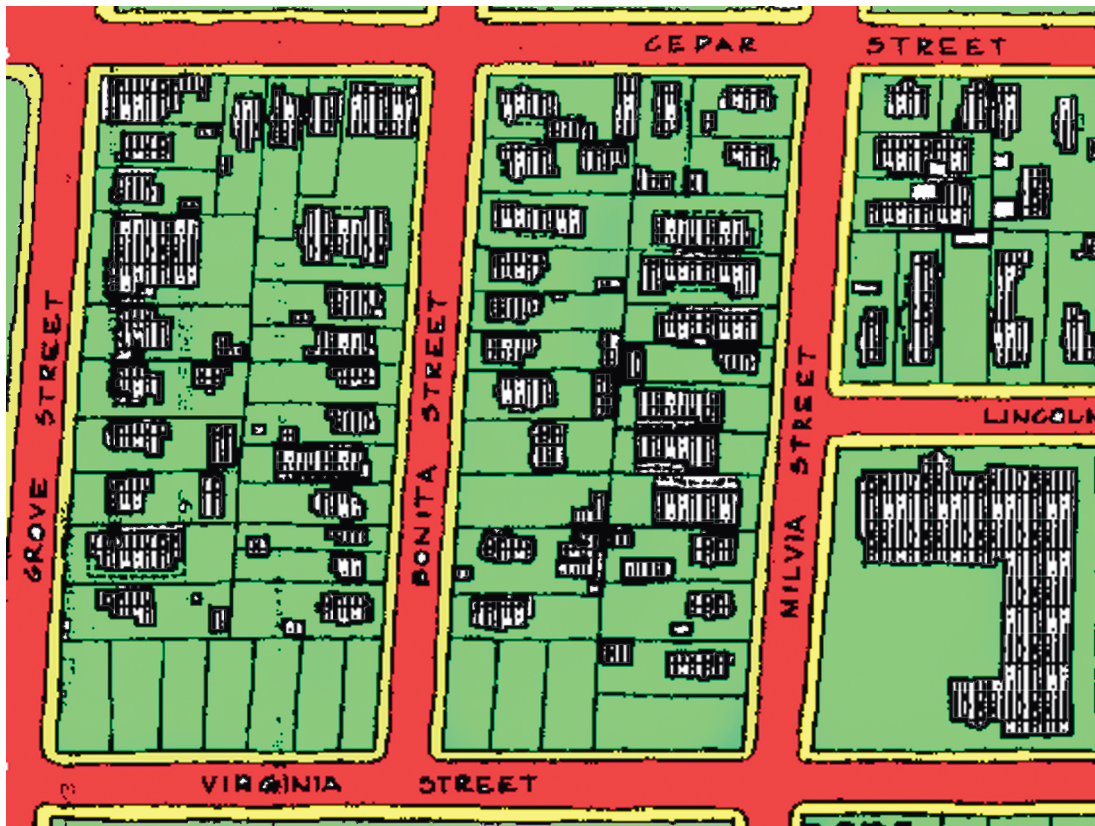
4 / A PROFOUND CONTRAST BETWEEN  
TWO VERY DIFFERENT FORMS

The plan on this page shows a four-block area in Berkeley. It is fairly typical of modern American cities. Versions of roughly the same kind of thing may be found in Africa, Australia, Russia, China, and so on.

The plan opposite, on the right-hand page, shows a simulation of the results which come from the type of living process which is described in this chapter: It has the same density, the same number of houses, the same number of cars. But it is entirely, one might say **UTTERLY**, different. On the right-hand plan, we see a project where there is informal uniqueness at every spot. The houses are

distributed to form pleasant spaces. The green areas to some extent work together even when they are private land. Above all, the pedestrian streets and paths (shown yellow) form a coherent center and subsidiary centers that give the neighborhood a communal quality, a heart. Cars do not dominate, they are the low man on the totem pole, and are squeezed in where they can be fitted, but are not allowed to destroy the neighborhood or its communal, living structure.

In contrast, the left-hand plan below shows a much more regimented scheme with land that is largely useless for human purposes. The roads



**AN UNHEALTHY PATTERN: THE 20TH-CENTURY NORM.** *This drawing and the one on the opposite page are drawn to the same scale. The gross quality of this drawing reflects the gross quality of the environment it portrays: a few blocks in a typical 20th-century American city. As in any American neighborhood, there are massive swaths of road cutting through the neighborhood (red); the pedestrian hull is minimal, on the thinly drawn discontinuous sidewalks (yellow). The gardens (green) for the most part are wasted as they surround the gray (houses) in areas too small to be used.*

occupy the space aggressively. Cars dominate the public land. The sidewalks are tiny, as one can see from the slivers of yellow in the drawing: they provide little refreshment or opportunity for pleasure or human contact, discourse or play. The “gardens” are confined and made chiefly to satisfy a zoning setback regulation, so that even the private land is regimented, half of it useless, and none

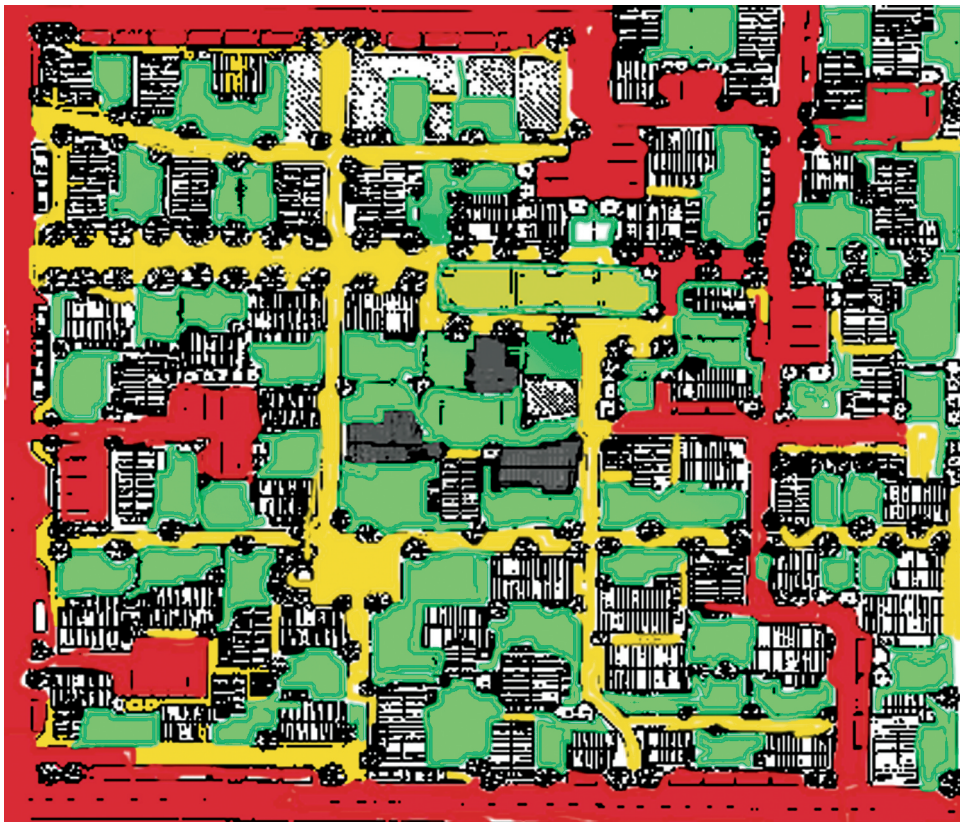
of it cooperating to produce larger wholes of open space which might provide joy. Finally the houses themselves are regimented in straight-line rows, the only opportunity for real harmony with the land being the design of the buildings — but not their shape, orientation, juxtaposition, or their space-making character. All in all, not a very pretty sight, and not very pleasant to live in.



### 5 / THE PATTERN OF YELLOW, GREEN, GRAY, AND RED

In order to discuss these two cases comparatively, I want to direct the reader’s attention to the *overall* structure of the main elements in a

neighborhood. Any neighborhood, looked at from the point of view of its global structure, may be considered as being made of four inter-



A NEW KIND OF NORM: A HEALTHY PATTERN: *An imaginary neighborhood, about 450 feet by 600 feet, with some 65 houses, and perhaps 200 persons, at a density of about 10 dwellings to the acre. The drawing shows relative amounts of yellow, red, green, and gray which are quite different from the previous plan. There are large amounts of yellow, the green is coherently shaped, the red is minimized and discontinuous. In part, this plan simulates the process generated by the principles defined in the following pages. Christopher Alexander and Saul Pichardo, Center for Environmental Structure, 1996.*



locking elements: *Pedestrian space* (including public outdoor space, paths, and pedestrian streets), *Gardens* (private gardens), *Buildings* (including houses and businesses), and *Space for cars* (including parking and roads for cars). These four kinds of elements more or less account for all the space in the neighborhood. They are truly fundamental, and any neighborhood gets its main character from the way these four elements are interrelated, interlocked, arranged.

The four are, in their way, as fundamental for a neighborhood as carbon, oxygen, hydrogen, and nitrogen (C, H, O, N) are the four main building blocks of all organic molecules. Just as every organic molecule is given its characteristic structure by the particular pattern and arrangement of these four elements — C, H, O, and N — so every neighborhood is given its fundamental character by its particular arrangement of *Pedestrians*, *Gardens*, *Buildings*, and *Cars*.

It is the geometry and pattern, the spatial interlock of these four elements, which defines the kind of neighborhood it is, its human character, its working or not-working. Above all, it is the arrangement of these four and their interlock which defines the *wholeness* of a neighborhood.

This is an unusual perspective. It is not the way we see the neighborhood from walking around. But if we want to understand the *structure* of the neighborhood, and want to understand its wholeness as a totality, it is the spatial pattern of these four elements that we must grasp.

To make this wholeness easy to understand, we may think of it as a pattern of four colors: *yellow* for pedestrians and public outdoor space; *green* for private outdoor space; *gray* for buildings; and *red* for cars and parking, including all drivable surfaces. The wholeness of a given neighborhood may then be described by the particular pattern of yellow, green, gray and red that exists there.

The living processes I seek to define will initiate transformations to modify the relative size and arrangement of these four elements (or colors) by changing the relative percentage of land devoted to each one, by changing their shape and connectivity, and by making each part of each one into stronger living centers. When these transformations are applied, I believe the order which will then arise from accurate unfolding will make an urban neighborhood become fresh, more viable for human life — even when it starts from poverty.



6 / WHAT SHOULD BE THE PATTERN OF YELLOW, GREEN, GRAY, AND RED?

Each neighborhood will, of course, have a different pattern of the four colors, according to density, culture, climate, location. But there are certain rather general observations we can make about the way these colors need to go together to make a living structure. The most important aspect of the pattern of four colors lies in their relative percentages, the relative quantities or areas of each color.

In today's typical neighborhoods, the relation among the four percentages is often quite bad. Usually the yellow is too small, the red is too big, the green is too disorganized, and the gray is in lumps that are sometimes too large. This is

easily visible in the plan of a four-block area from Berkeley I show on page 288. In the Berkeley plan, the percentages break down like this:

TABLE I  
UNHEALTHY PRESENT-DAY PERCENTAGES

Yellow . . . . .	2 %
Green . . . . .	.28 %
Gray . . . . .	.23 %
Red . . . . .	.47 %

The plan, typical of many neighborhoods throughout the United States, is really quite bad: it does not create a true neighborhood. But even

before you see the *arrangement* of the plan, its badness is already predictable merely from the relative *quantities* of yellow, green, gray and red, as reflected in the four numbers by themselves. This set of four numbers largely encapsulates what is wrong with the neighborhood.

Before asking what we can do about this situation, how the structure should, or does, vary with density, let us first try to construct a better set of numbers, and visualize a better arrangement. What would a better plan look like? Essentially, we would see a much larger core of yellow structure, forming a branching and continuous hull of pedestrian space, large in the center, with large wide paths going towards the largest spaces, and with a network of smaller yellow paths, forming the branches and twigs. That would be a continuous hull of pedestrian space that gives people a safe place, gives children a safe place, gives people by their daily movement a sense of identity and continuity with the neighborhood.

Then the gray structure, reflecting the individually owned houses and businesses, would be made of more small buildings on their own separate lots. That means, if the density were to increase, these lots would be small, too. And to reflect a vital kind of mixture of work and family, the businesses and houses would be at least partly mixed so that dark gray (for businesses) and light gray (for houses) would be intermingled. Further yet, the dark gray would form some natural kinds of strands or spines so that economic synergy, allowing businesses to support one another through proximity of related interests, might be visible geometrically within the pattern.

The green structure, too, would be very different. Instead of circles of narrow green strips that occur on each lot around the buildings, as in the pattern on page 288, we would see each patch of green as a positive and constructive space, a useful shape, a substantial garden or outside yard, with its own quality of positive space, its own coherence. Thus, to put it in the simplest terms, the green would

be made up of coherent rectangles, and almost no green space would be in any other form. This is visible on page 289.

Finally, the red would exist in the form of narrow looping irregular lanes connecting small gatherings of parking spaces. Above all, this red pattern would be indirect — less direct, certainly, than the yellow which reflects the easy way pedestrians move — and would reflect, rather, an indirect pattern of movement through the neighborhood where cars, not dominating, could nevertheless approach their individual parking spaces easily.

The colored drawing on page 289 shows roughly what a neighborhood might look like with these features, and what the pattern of yellow, green, gray, and red might be like for such a neighborhood. In this plan there are nearly equal amounts of the four colors:

TABLE 2  
HEALTHY PERCENTAGES

Yellow . . . . .	17 %
Green . . . . .	29 %
Gray . . . . .	27 %
Red . . . . .	27 %

Table 2, which shows what is *needed*, shows a type of structure which is virtually unknown in our 20th- and 21st-century cities.

You can see how dramatically different these numbers are from the numbers for typical contemporary cities in America (or Europe, or Africa, or Asia) as they are being built today, shown in Table 1 (page 290).

One can examine almost any neighborhood from this point of view, by studying its percentages, and correlating them with the quality of life perceived — including, of course, your *own* neighborhood.

Let us now consider how we might get to this kind of desirable end-result by actions in an existing neighborhood, and see how the existing Progresso neighborhood might gradually be transformed to achieve the healthy percentages for the four elements.



7 / MAKING A START IN THE EXISTING  
 PROGRESSO NEIGHBORHOOD

Progresso, like all neighborhoods, has important, unique features which should of course be the basis of its full life. But in many ways, its problems also make it possible to see it as a generic neighborhood of our time: it is unprepossessing, often slum-like, dominated by cars and mechanically laid-out lots, disordered, fragmentary, over-run with dead space on every block. Yet it has the opportunity to grow into something live and beautiful. It has streets not always cleanly paved, houses and warehouses that are half falling down. It is above all fragmentary. It has no special beginning, no special end. It goes on and on.

The neighborhood is quite large, about half a mile by three-quarters of a mile. It is only two blocks north of City Hall. Yet it is in fairly poor condition, rather like parts of hundreds of other cities all over the world, blighted, slum buildings mixed with the occasional beautiful little garden, with businesses that have gone bankrupt,

and so on. And, in the middle of the neighborhood, there is a community of poor families who have come from Haiti. Because of that, there are all the problems that arise from fear of other people, fear that the neighborhood is collapsing, in part, perhaps because some people do not want to be near the people who have come from Haiti. There is a lack of confidence in future development, and reluctance to build.

Let us concern ourselves with the way in which this rambling structure of development, misery, poverty, and occasional elegance might gradually be transformed, and the process by which it might gradually be reconciled with human needs, reconciled with the organic needs of plants and animals and climate, reconciled with the emergence of mass computer civilization, cars, trucks, and manufacturing.

How is the disorderly and nearly random structure of the present neighborhoods to be transformed and made humane?



8 / DENSITY INTERACTIONS AND THE DENSITY THRESHOLD

Of course what is right for Progresso, or any other neighborhood — the right pattern of the four colors for that place — will be closely related to the overall building density. This is mainly because as density increases, the number of cars increases, the impact of cars on a neighborhood becomes greater, and the area consumed by cars increases the ground coverage assigned to cars as density goes up. Buildings can get higher. But land devoted to cars spreads outward and consumes more and more land, gobbling up its available percentage points, as density gets higher — except in the rare cases where garages can be built, which is feasible only with

the highest densities and the highest land-values.

There are other density interactions, too. Usable space, gardens, and courtyards are strongly affected by the height of the buildings that surround them. Except in very hot climates, where small outdoor spaces can be made cool and therefore pleasant, outdoor spaces need to be surprisingly large in order to be really pleasant and genuinely alive.

So space is at a premium. Each of the four colors needs to be bigger, to deal with needs and pressures. Ideally, then, one might hope the density could be reduced. But in fact, in most urban



*Styrofoam model showing a study of good density. This arrangement, with a net density of 22 dwellings per acres (some apartments upstairs), and an FAR of 0.54, was the highest we could go, while maintaining a good environment. In the particular case of Progresso, we made a number of scale models of half-blocks, full blocks, and several-block areas to try and judge what kind of density would be pleasant, and consistent with the evolution of the neighborhood. These models were very informative. By placing cars, trees, and buildings at the right height, the right distance apart, you can see street width, garden size, and you very quickly form an impression of the kind of density that would make for a pleasant life. The photograph shows one of our models.*

areas, density is typically increasing, thus making it more and more difficult to reach a balanced state where the four colors are in effective functional harmony. In Progresso it was expressed to me that the neighborhood residents wanted the density of the neighborhood to be increased. Most of the people in the neighborhood wanted some kind of economic and social rehabilitation; they wanted the vacant lots occupied, they wanted dead places made vibrant. But, in addi-

tion, they wanted to reach a level of development which went far enough to change the economic situation. The big developers were, of course, hungry for very big increases of density. A cheap lot with a shack standing on it, only three blocks from city hall, could be worth a fortune and was, therefore, a natural place for developers to think of a 5-fold — even a 7-fold or 10-fold — increase of density. *This the people of the neighborhood wanted to avoid at all costs.*



So a rough consensus had grown up that an increase of about 2.5 to 3 times in density would help to repair the area, bring back its economic life, and would also be high enough so that it would undercut the pressure from the greedy and hungry developers. In short, if the neighborhood could achieve this 2.5-fold or 3-fold increase of density, they could have a vibrant living neighborhood, one in which — potentially — the beautiful small houses (once scattered among the old slums) could be kept; one in which the overall character, the beautiful trees and bushes could be kept; one in which the people who now lived in the neighborhood would be able to stay there, could — above all — *afford* to stay there.

What follows, here, is an outline of the kind of process which my coworkers and I believed could repair the neighborhood of Progresso, which could, gradually, build the right structure, true to people's individual and communal wishes, while increasing the density to a middle range level.



To make the increase clear I shall summarize the density statistics. In the whole Progresso neighborhood there are about 150 acres, including roads, and about 900 dwellings (1996). During my discussion with residents, a target was set of some 2400 dwellings (or an equivalent total built area containing a mixture of dwellings and businesses).

We may calculate like this. Say, for the sake of argument, that each unit (whether dwelling or workplace) has an average of 1400 square feet; the 2400 units would then occupy 1400 x 2400 which equals some 3.4 million square feet of built floor space (whether house or work). If we assume that this volume of built space occupies an average of two stories (based on our experiments of the highest density that can retain a humane and positive feeling), this implies that the 3.4 million square feet are standing on 1.7 million square feet of building *footprint* — some 42 acres of building in all. The area of gray in the neighborhood, then, is to be 42 acres.

Typical parking allowance for a dwelling is 1.5 spaces; and for office space the allowance is 1 space per thousand sf of floor area. On average, then, the 3.4 million square feet of built space will require about 3,400 spaces, consuming about 1 million square feet or 25 acres of land given to parking (parking garages are uneconomic at this density). In addition, the driveable surface of roads, local lanes and narrow roads for access will consume an additional 0.5 million square feet, another 13 acres, making an all-in total of 38 acres for surfaces occupied by cars. The total area of red, then, will be 38 acres.

Based on calculations drawn from the kind of model shown on page 293, and the size of the two-story building footprint, in order to make the gardens humane, there would need to be about 1.9 million square feet of gardens, just slightly more, all told, than the footprint of the buildings. All in all, some 45 acres. So the area of green will be 45 acres.

Finally, based on the model shown, together with the calculations made on page 291, the hulls of pedestrian space — all squares, pedestrian streets, and small paths — will need about 1 million square feet of public pedestrian space, hence, about 25 acres. So the area of yellow will be about 25 acres.

These four areas within the overall envelope of the Progresso neighborhood would then break down like this:

TABLE 3  
PROGRESSO PERCENTAGES  
16 UNITS/ACRE, FLOOR-AREA RATIO 0.54

PEDESTRIANS (yellow)	. 25 acres	. . .	17 %
GARDENS (green)	. 45 acres	. . .	30 %
BUILDINGS (gray)	. 42 acres	. . .	28 %
CARS (red)	. 38 acres	. . .	25 %

All this, taken together, can provide an overall floor-area ratio or FAR of about 0.54 (the floor area ratio being the total net area of interior built square feet divided by the area of land — not including roads — on which they sit).



The gross density is 2,400 units in 150 acres or 16 units per acre. The colored drawing on page 291 shows roughly what a neighborhood might look like with these statistics, and what the pattern of yellow, green, gray, and red might look like. Buildings are one, two and three stories high, mixed, with an average building height of two stories.

In *very* rough terms, there are about equal areas of the four colors (none is very far from 25%). This reflects the rule I have stated earlier, that a humane environment must have a reasonable statistical balance of the four components.

I do wish to underscore, and say again, that to understand this distribution of density, it is necessary to understand that the success and humanity of such an urban environment is *extremely* sensitive to small changes in density. For example, in the situation described 2,400 dwellings of the size stated can be made to work very well. However, 2,700 dwellings (an increase of only 12%) create dramatic reductions in pedestrian space, the social glue which binds the neighborhood. The reason is simple. Building

footprint goes up. Car footprint goes up. The green space, too, probably needs to keep pace with the building area, to keep up with more buildings. If anything, for higher buildings garden space needs to be bigger, not smaller. If green space is increased, too, the result is that pedestrian space gets sacrificed, and ends up far less able to carry the burden, and less able to perform the functions that public space and paths ought to perform.

TABLE 4  
DRAMATIC LOSS OF PEDESTRIAN SPACE  
20 UNITS/ACRE, FLOOR-AREA RATIO 0.60

PEDESTRIANS (yellow)	. . . . . 10 acres	. . . . . 7 %
GARDENS (green)	. . . . . 50 acres	. . . . . 33 %
BUILDINGS (gray)	. . . . . 47 acres	. . . . . 32 %
CARS (red)	. . . . . 43 acres	. . . . . 28 %

Because of this interaction among the four percentages, *a density of 16 dwellings (or units) per acre is roughly the upper limit of what can be achieved while keeping the environment humane.*



9 / THE KEY IDEA:  
WITHIN AN OPTIMUM DENSITY FRAMEWORK,  
CENTER-ENHANCING TRANSFORMATIONS  
OF THE NEIGHBORHOOD

Let us now begin to consider the problem of improving the neighborhood, dynamically, up to a chosen density of 16 units/acre, through living processes based on the fundamental process and the fifteen transformations. How can a healthy structure of the right kind be made to grow? How can we take piecemeal action, at different times throughout the neighborhood, in such a way as to repair damaged centers, create new living centers, and — in short — to create the right kind of structure, bit by bit, by a version of unfolding in the large?

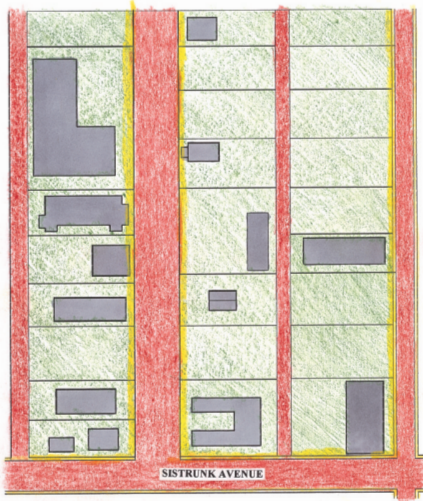
The key issues which make this interesting are the following:

EVOLUTION OF PEDESTRIAN (YELLOW)

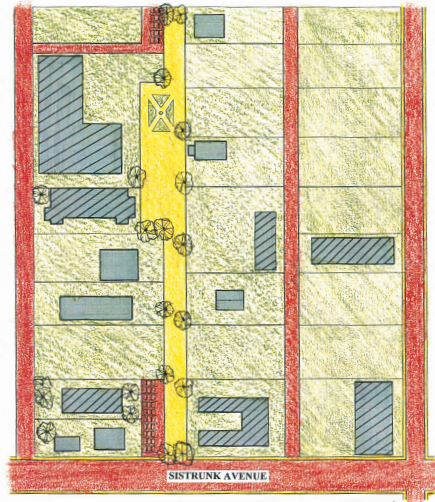
First, we are talking about a process of extending and recreating a spine and system of pedestrian paths and spines, opening from time to time into small squares and parks. This system is to grow incrementally.

What is interesting here is that this incremental process of growing the pedestrian structure is happening — from a practical point of view — in parallel with the process of splitting lots. The question arises how can we get the land for the path system to grow. We cannot, I think, do it by

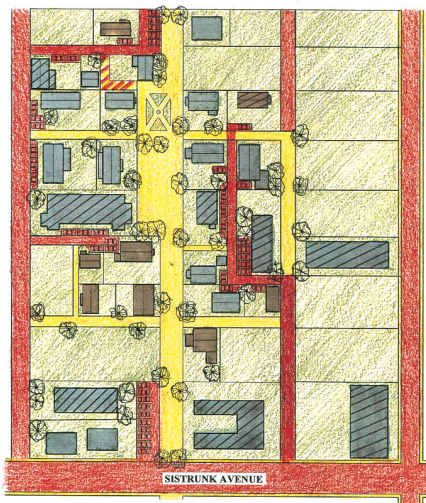
*Stages in the transformation of a small area within a neighborhood, showing how buildings are replaced, lots are amalgamated and divided, and how the four components are made to grow under the rules of transformation provided by the fundamental process*



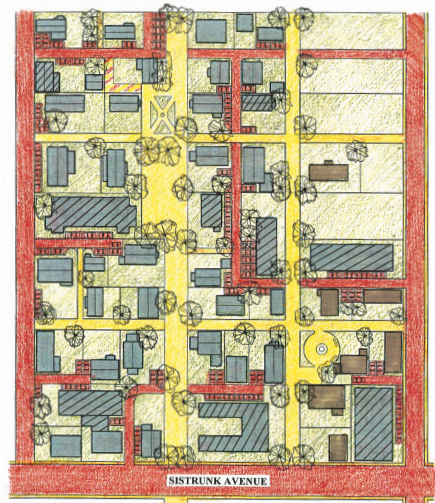
*Stage 1. The state of a one-and-a-half block area, as it is today. Stages 2, 3, and 4 show the effect of successive periods during which the transformations are applied.*



*Stage 2. In the middle, what used to be the road has been re-formed as a major pedestrian space. In addition, a portion of the pedestrian path is on the land of the old large parcel under a rule which says that land being subdivided has to make a contribution to the growing pedestrian network. In the lower left corner, new driveway and parking spaces have become part of the growing local road network.*



*Stage 3. A portion of the right hand road has been made pedestrian, while new driveways and loops are added to reach parking lots. The space released by demolition of the large building has been divided into smaller parcels and four new houses have been built there. Additional workshops are built near the parking, and new houses built along the pedestrian path. New trees adorn the pedestrian space.*



*Stage 4. The local looped road along the lower part is now completed, and has been crossed by a new pedestrian path, along the edge of an old lot, running to meet the main pedestrian bull. A large number of businesses and houses have been completed. The gardens are placed, and shaped, everywhere, to be positive, and in this small area, the positive space is now more or less complete.*

eminent domain. Though possible in theory, it would be resisted fiercely and is not really practical. But we can ask instead that every time a land transaction occurs to split a lot, or build a building, the owner is asked to make a contribution to the path system. That is practical. And on page 196 I have shown, in diagrammatic form, how it can work.

#### EVOLUTION OF LOTS AND BUILDINGS (GRAY)

Second, we are talking about a process in which lots are being subdivided, and becoming smaller. This follows necessarily from the increase of density. If the density is to increase and, yet, people are to retain their individuality, then lots must become smaller, so that autonomous, individually unique, and well-adapted houses and businesses can be created. So long as lots remain larger, if density trebles, the individuality of dwellings and businesses cannot be preserved. This is an enormously important point.

#### EVOLUTION OF GARDENS (GREEN)

Third, once again a radical departure from contemporary American practice, is the idea that green space — private gardens and private green

space — is to be formed, step by step, in a way that makes only segments of POSITIVE SPACE. This is in contradistinction to the present situation where much space is in narrow slivers along the sides of lots. Instead, here, the demand says that buildings must be placed in such a way as to form positive gardens, positive green space. This rule then controls the placement of buildings, just as surely as today's system of setbacks controls the placement of buildings — but this new rule does it better.

#### EVOLUTION OF CARS (RED)

Fourth, and last, we are talking about incremental creation of a system of narrow lanes for cars, peppered with occasional small parking lots and parallel parking along the edges. This is to take place as a transformation of the existing road system. We start with a normal American grid and gradually close off streets, cut streets, and run lanes across blocks to create a more intricate, more convoluted, system of lanes for carrying and parking cars. That is amazing in its effect, since it would seem entirely to change the character of today's American neighborhood.

The following sections describe the transformations of the four elements in more detail.



## 10 / YELLOW: GROWING THE PEDESTRIAN HULL

The pedestrian hull — a linked system of pedestrian areas — needs, at least in part, to be laid down in advance and understood and agreed upon by people in the neighborhood. It will be a composite structure including some parts of existing streets, maybe including some back alleys.

In places where derelict land exists, a few small pieces of right of way may need to be bought or donated as easements. Provisions must exist in zoning so that these donations or dedications do not penalize but help the owners who are willing to do it by giving them a bonus in what they are allowed to build. There needs to

be a lessening of restriction on their lots, as a reward, and certainty that they can have as much, or more, than they had before.

The picture on page 298 shows some un-built land now existing in Progresso. It would make an ideal park for the neighborhood, almost as it is.

The key processes are:

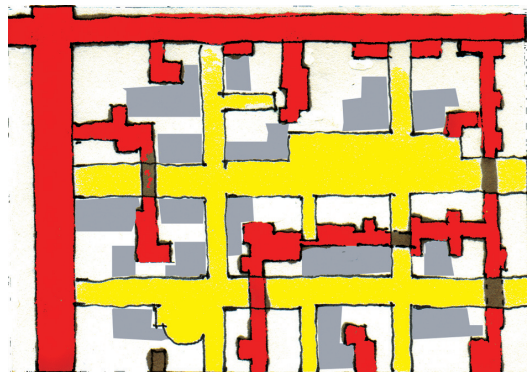
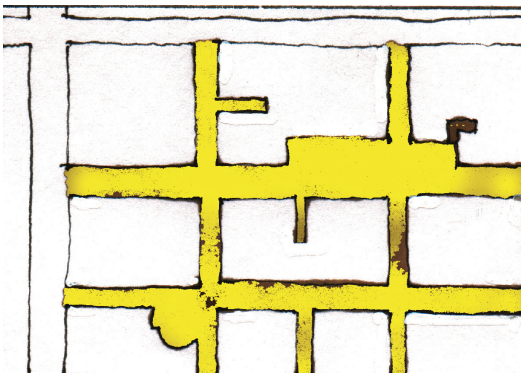
*Step by step, create a linked pedestrian structure that is pleasant and is genuinely owned by the people living and working there.*

*Close certain streets or parts of streets to achieve this aim.*





*A beautiful unbuilt parcel of land in Progresso, quite beautiful enough with its lawn and trees, to be one of the new urban places as the Progresso neighborhood is developed according to the plan.*



*The pedestrian hull in a small part of the neighborhood. Pedestrian paths and squares and parks are shown yellow (left). On the right the same pedestrian structure is shown, with buildings in gray forming the shape of the pedestrian space, and with roads and parking for the cars added in red, suggesting how these follow and adapt themselves to the pre-existing pedestrian structure.*

*Define the front of each building (new or old) as a “wall” whose job it is to create and help to shape the public space (and hence the public good).*

*Whenever new construction occurs, use incentives and regulations to construct street fronts*

*and place new buildings to help form positive space on streets and paths and alleys.*

*Allow the new pedestrian areas to be shaped and built, in part, by their own efforts of neighborhood residents. Award them contracts, provide materials, and encourage voluntary help.*



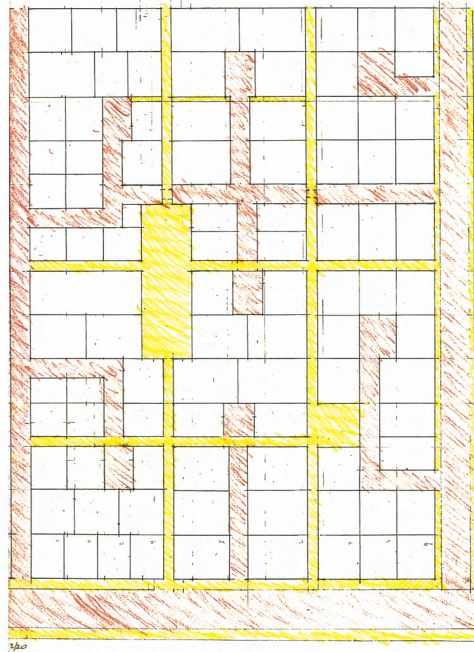
11 / GRAY: SPLITTING LOTS AND MULTIPLICATION OF SMALLER-SCALE INDIVIDUAL BUILDINGS



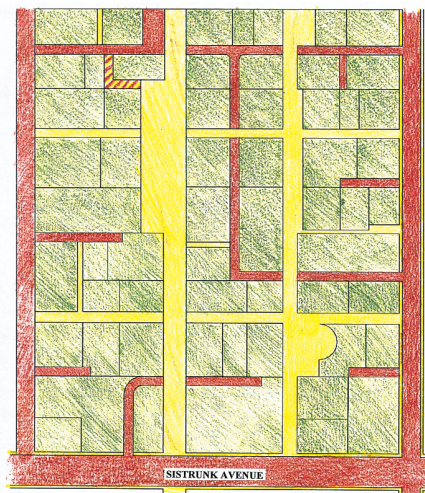
*Gradual addition, modification, and reduction of buildings, accompanied by density increase*

To bring life to the neighborhood, it is essential that it can be a place where people live and work, where two essential parts of people's lives can be brought together. There is a major shift in the way people live and work; every day sees more people working out of their homes. The separation between commercial and residential, made in modern zoning ordinances, drains the vitality from a city. When living and working intermingle, a place becomes more real. If we think of dark gray to designate workplaces, and light gray for dwellings, we may say then that dark gray and light gray must be strongly mixed.

Further, in order to encourage true belonging, there must be an opportunity for people to own their own houses and workshops and offices, and therefore for a progressive process of property subdivision by unfolding and transformation. I would recommend (and assume in the following process illustrated here) that a new zoning of Progresso will encourage lots to be independently subdivided when the owner wishes to do so, increasing the density and economic vitality of the neighborhood. In parallel with this process, provisions are in place for the existing property and vehicular infrastructure to be reconfigured, allowing a more livable environment



*Subdivision of lots. The ordinary long narrow lots are shown here, as they might appear some time after reparcelization has begun. We see that original lots have in some cases been subdivided into two, occasionally even into three.*



*Map showing a portion of Progresso with paths and alleys introduced to make lot splitting work.*



to form. Re-parceling properties, in accordance with new zoning, will produce a lively, varied, and well-adapted whole.

The most critical thing in the growth of the gray areas of our four color map is that development becomes individualized. Buildings and building projects are getting smaller, not larger. Instead of massive parking garages and condominiums which overwhelm the neighborhood's human character, on the contrary, steps are being taken, day by day, year by year, to reduce the scale and grain of construction, to make the neighborhood therefore more of a place which people can belong to, more of a place where each person's individual stamp is there, in the houses, in the offices, in the apartments, on the sidewalks, pavements, gardens, and fences.

When everyone builds his own home or business, in whatever way suits his life, then there is a chance of the neighborhood being a living place where each inhabitant, each family, and each business has an environment that belongs to them. Instead of a few big developers, Progresso will be built by hundreds of individual

property owners. Only when we make the personal decisions that go into creating a home or business can that place truly belong to us.

The process will encourage the resident owners and businesses to finance and develop their own land independently.

We may summarize the processes for buildings and lots like this:

*In extremely damaged neighborhoods, care for an emerging economic core, so that the few businesses that exist become coherent together, gain gravity by their connections, and do indeed form the basis of a coherent, expanding economic core.*

*Gradual reduction of lot sizes so that it becomes feasible to make small, individually owned owner-occupied buildings, houses and businesses at a gently increasing density.*

*Give emphasis and incentives to small, individually owned businesses and houses.*

*Refuse permission to construction of office buildings and apartment buildings controlled by absentee owners.*

*Restrict heights to a mixture of 2 and 3 stories, and restrict floor area ratio to about .94.*



## 12 / GREEN: THE GROWTH OF POSITIVE GREEN SPACE

In our vision for Progresso, every garden should create space which both holds us and connects us. This vision of positive outdoor space is almost more important than the buildings themselves.

Land is subdivided into individual properties. The best land on each property should be laid out as a garden first, then buildings fill in the space left over. Outdoor space is made positive before a building is designed. The resulting gardens become the fabric holding the neighborhood together. A public space laid out during the initial transformations may be enhanced by the addition of adjacent private spaces. Private gardens add to the life of public outdoor space. Make the following processes dominant:

*Make positive space essential to the life of the neighborhood.*

*Care for positive space.*

*Use the process of locating buildings, always, to enhance positive space.*

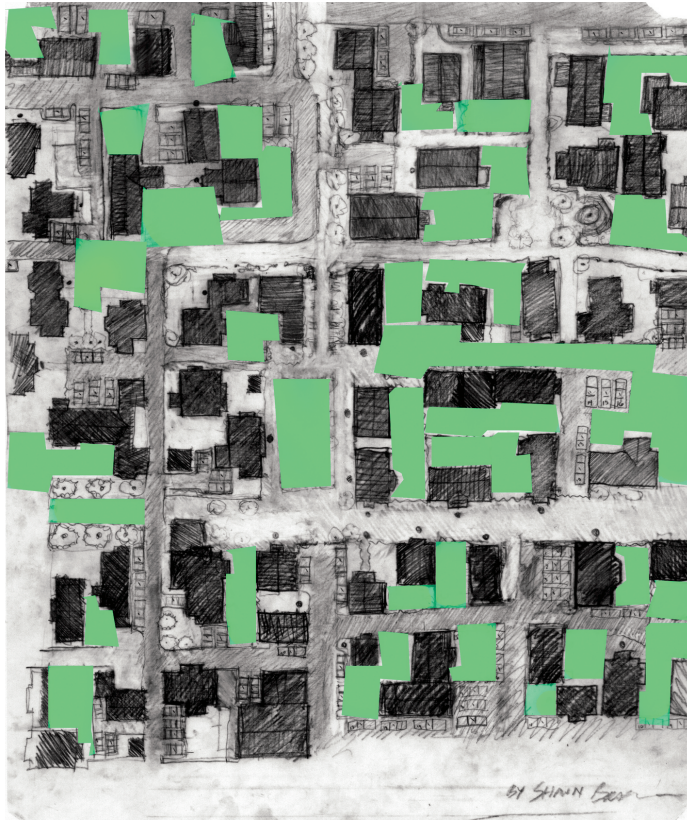
*Encourage gradual emergence of positive space in all the gardens throughout the neighborhood.*

*Preserve those beautiful gardens and trees which are strong living places now, and do not use them as building sites.*

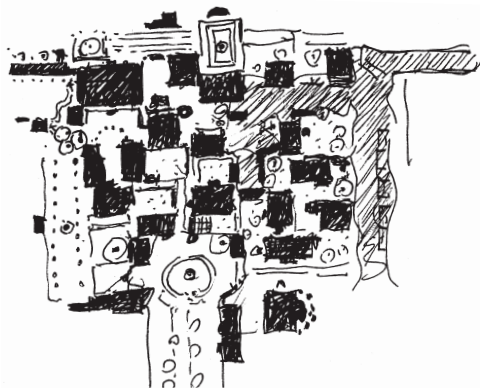
*Build and rebuild mainly in the damaged areas.*

*Care, above all, for plants, trees, foliage, and gardens. Strongly care for the positive space in the neighborhood at each spot where it occurs.*

RECONSTRUCTION OF AN URBAN NEIGHBORHOOD



*Positive space created by the placement of buildings*



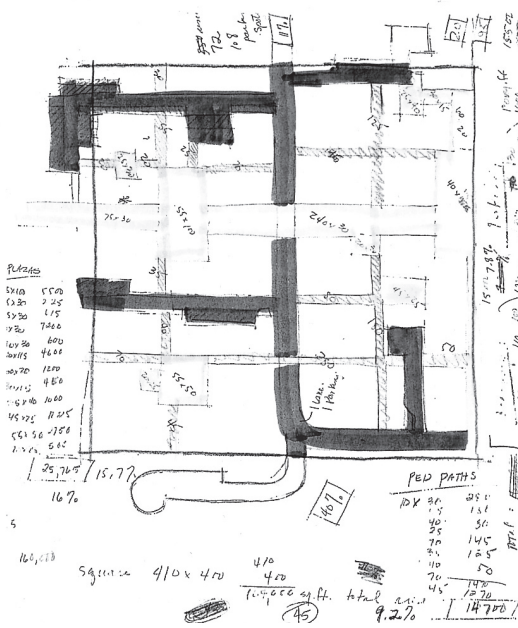
*Growth of positive space between the buildings. Each building is placed to form positive space (green), and the next building is then placed, again, to form another coherent chunk of positive space.*



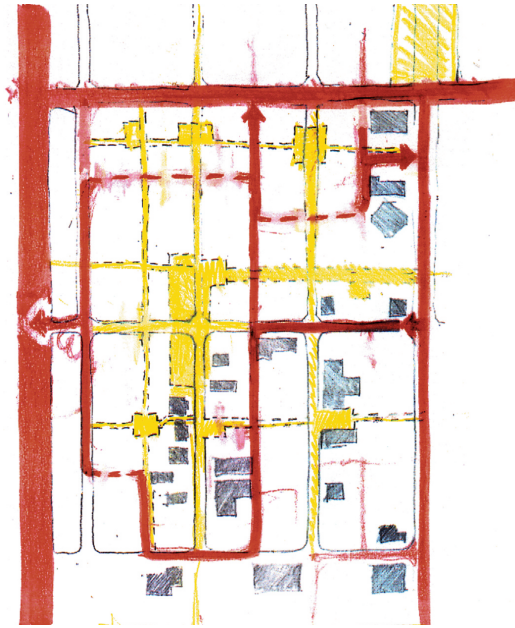
*A recently built business in Progresso. It fits in to its environment. It is helpful, pleasant. It has the right scale and, with its garden of palms trees, helps the community.*



13 / RED: CARS ARE GIVEN LAST PLACE



We see here how the existing roads are modified and shut off to leave partial loop roads (shown in dark) with parking spaces; the part of the old roads which is shut off is now pedestrian, and the pedestrian structure is left more coherent, and more direct. Nevertheless, the looped local roads are coherent, though indirect.



Gradual growth of a coherent pedestrian network. Here we see how roads have been closed to start forming a pedestrian bull connected with the main spine of the larger Progresso neighborhood.

The pedestrian realm is the framework for the growing neighborhood. A neighborhood should be a place where you would rather walk than drive your car, where people feel free to walk, meet, enjoy themselves; a place where children can play safely almost anywhere; there are public spaces and walking paths throughout.

In a neighborhood modified by a living process, the car must therefore be made to play second fiddle to the pedestrian; vehicular traffic must be accommodated without dominating the pedestrian environment. The car has to play a subsidiary role. It is convenient, the car can reach almost every house, almost every workshop, but it is not allowed to dominate the situation, nor to create conditions which threaten the well-being of the pedestrian world. What this means, in practical terms, is that the pedestrian world, not

the car world, must be geometrically the more coherent of the two.

To achieve this we give, in the unfolding process, priority to the process that establishes the pedestrian structure, and we expect this pedestrian structure to be coherent, dominated by local symmetries which form the land into nice pieces, and so on.

The cars and the land devoted to cars play a secondary role. The process of setting in parking, lanes for cars, alignments for cars to drive along, must always be playing second fiddle, from a process point of view. It comes later. And we expect that the paths for cars will be somewhat tortured. It makes the car slow down when it is in the neighborhood. The car can easily negotiate bends, curves, etc. On the other hand, for the pedestrian, unless there are views, and a co-

herent sense of the space, the pedestrian world will not easily be grasped. So (contrary to most 20th-century thinking) the car is given irregular streets and parking, while the pedestrian is pampered, made to feel king, allowed to feel at home.

There are also, occasionally, small lanes for cars and pedestrians together, very narrow lanes where they can coexist without danger or discomfort, lanes that are comfortable for both so long as cars cannot move fast or dangerously.

Here are some of the most important processes:

*Always keep the car in second place.*

*Place parked cars very carefully so as not to destroy the delicate fabric.*

*Construct looped roads as indirect and tortuous paths, forming closed cycles for the car.*

*Reduce the width of these looped roads.*

*Make their indirectness and slowness come as a consequence of a rougher surface, even gravel if need be, and of physical narrowing and constrictions.*

*If a road is to be used by cars and pedestrians together, make driving surface even rougher.*



#### 14 / OVERVIEW OF ALL FOUR PROCESSES TOGETHER

These are, in rudimentary form, the transformation rules for the yellow, the gray, the green, and the red. These rules are revolutionary; they conjure up a vision of an existing neighborhood in almost any American city — indeed, in almost any city in the world — slowly transformed by step-by-step actions which grow coherent new structures — structures which are unknown today, and have never been seen before.

The combination of these transformations, taken together, slowly creates public space that is coherent, creating pedestrian hulls that are coherent; and it creates the possibility of unique individual businesses and houses and apartments, interleaved with vibrant green gardens that are also unique and well shaped between the houses, helping to form the common land.

Of course all this that I have described follows the fundamental process which creates living centers, and enhances living centers, whenever possible. If you do not see it, think of this: We are asking ourselves how the neighborhood may be transformed so that living centers are

created. Among the most vital kinds of living centers are the houses and businesses. If they are not unique, each one properly adapted to its unique family or business, then of course it cannot be a living center. So to assure a neighborhood of the growth of living centers, we must make provision for splitting the lots. Without it, we get condominiums, apartment houses, office blocks. The reason for the radical proposal I have made is that it follows directly from the simple rule of all living process: Let us make sure that every house and every business, and every garden, and every public space is a true living center.

In the same vein, we know that the community cannot exist as a living center without a kernel, a core, where people meet, play, dream. That is just the hull of public space I spoke about in chapter 3. So, to make a process which creates these centers of public space in the yellow space — the hulls of pedestrian space — we must also make these centers live. Again, the fundamental process is the engine which is doing the hard work.





## 15 / STRUCTURE-PRESERVING UNFOLDING OF THE FOUR-FOLD PATTERN OF YELLOW, GREEN, GRAY, AND RED

To create a coherent pattern of pedestrians, gardens, buildings, and cars step by step, by the processes described above is an immensely complex task. To understand the complexity of the task, it is helpful to look at it, almost like a board game in two dimensions. In two dimensions it is a process of covering the plane with yellow, green, grey, and red areas, bit by bit, placing patches of these colors in alternating sequence, until we build a coherent fabric.

In this process we place one fragment at a time of yellow, green, gray, or red, always following the rules for the colors. We do it, expanding outward from one or more sites where we begin.

There is no single “right” sequence. Instead, we place — at each moment — just that color which appears needed to make the pattern continue, as a whole, in the most wholesome fashion. At one moment we may need to place several patches of yellow, broken apart, then a patch of green, then two or three patches of red. The process goes on like that.

This corresponds to a real-world process in which buildings, pedestrian space, green space, and asphalt (roads or parking) are being carried forward, piecemeal, step by step, in parallel. That is, indeed, just what happens in the real-world process. Each of these four elements is constantly modified, developed, it grows, it is extended.

What is different about the process depicted here is that each of these processes goes forward in the context of the whole and contributes to the whole. Each is done, as far as possible, to make a maximum contribution to the life of the whole. The next buildings to be built are placed to make extension of the pedestrian space possible, placed to make the green space as positive as it can be made, made to allow modest penetration by cars to somewhere near the buildings.

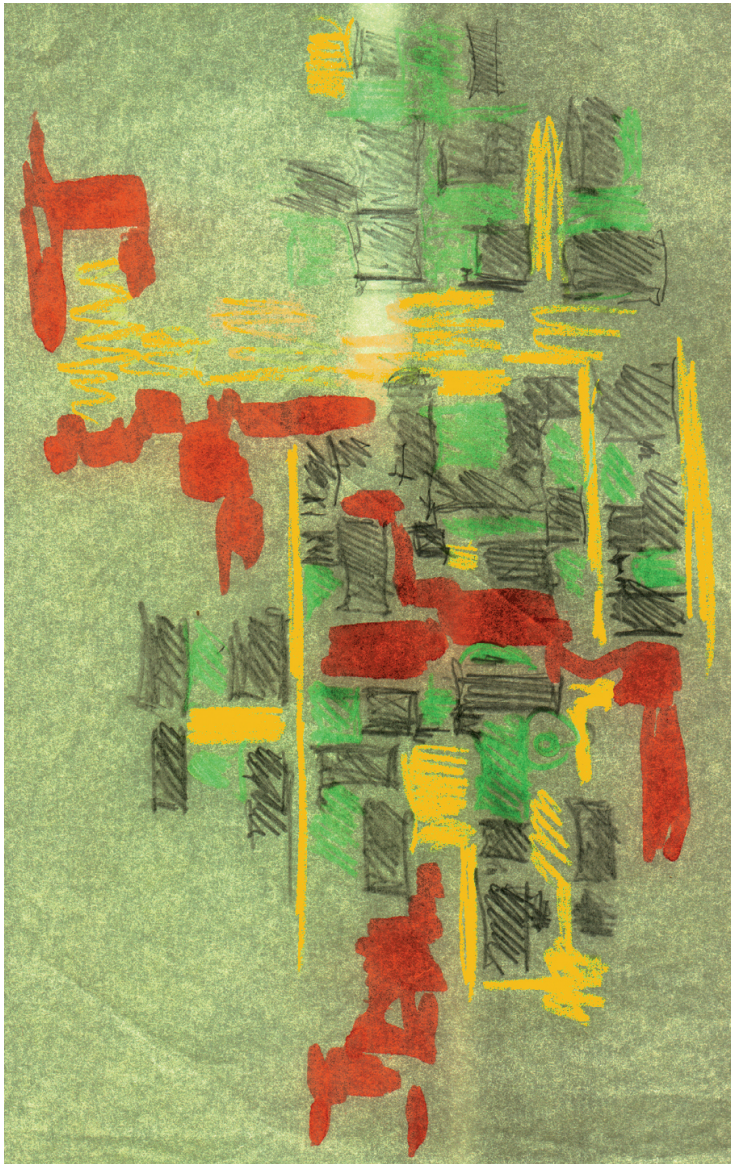
But the aim is always to make the whole better, to make it come closer to the ideal com-

pleted neighborhood in which pedestrian space, gardens, buildings, and small spurs of roads and parking remain in harmony, and provide a continuous world of movement for pedestrians, while also allowing each building its own freedom and sway over its immediate domain.

Further, there are necessary relations between the swaths of different color. Yellow, for example, must be shaped by gray around it: that means that good pedestrian space, which is positive, arises only when it is shaped, as a volume of space, by building fronts. So that the yellow space is positive it must be largely surrounded by gray. The green must be distributed in areas which form useful and generous rectangles that also have a positive and living character. Red (roads) must come close enough to buildings, so that people do not feel it inconvenient. On the other hand, people also do not want to live too close to parking lots or vehicles. The yellow forms the hull, the red is more rambling, fitting in where it can. The blobs of red must not be too big — more than three or four cars in one place is already too big.

It is also vital that the buildings are individually owned — only then can individual character be manifested. That means that the old-fashioned European row house does not work very well. Light in these row houses is bad anyway. And, unlike old-style thick masonry wall construction, inferior modern construction with lightweight walls doesn’t work well enough to give people a sense of what they can really do themselves. So, although the modern developer’s condominium town house creates the illusion of individual dwellings at mass densities, it is just that — an illusion. The buildings, even at rather high densities, need to be well separated when they can be. Yet density also requires that they be close together.





*A diagram showing the loose, syncopated fashion in which gradual increments of the four colors—green, yellow, gray, and red—will, over time build up a complex structure with unpredictably complex relationships among the colors to satisfy the local conditions that are required.*

Sometimes lanes which are narrow and inconvenient for cars are fine for both cars and people—provided the lane is so narrow and bumpy that cars can't drive too fast on it. This is a case where yellow and red may be combined: we might think of this as a hatched red-and-yellow area, which must be not too straight, and rather narrow.

What do we observe in the resulting pattern? It repeats endlessly, but never repeats ex-

actly. The rules are so complex that they create a dynamic and everlastingly interesting and complex response, and unpredictable, syncopated, organic structures.

To reach a state in which each part is full of life and coherent in itself demands a holistic eye and a syncopated, irregular treatment. It is fascinating to see the unfolding process creating such a syncopated structure.



## 16 / REPAIRING BLIGHT

I have tried to lay before you a way of creating an entirely different approach to the rejuvenation of neighborhoods. And as I hope you begin to see, that which starts out as a problem of urban blight — a practical problem having to do with perceived crime, a perceived problem of a lack of development opportunity — actually becomes a great opportunity and the solution to a moral dilemma that has plagued American cities and cities in nearly all countries of the world during the last hundred years.

Consider what actions are typically taken to improve such a part of a city. Streets get widened and paved. Slums are torn down and replaced with new buildings. Gradually the city becomes more dense and cleaner. But what happens in the process? The individuality is taken away. The public space is destroyed.

Instead, I have shown how we might try a process which does the opposite. It creates small-scale life from the inside, instead of large-scale order imposed by development corporations from the outside.

And it creates economic opportunity and economic wealth. At present, there is a conspicuous absence of good, usable, positive space in the neighborhood gardens next to buildings. Like most American neighborhoods the houses are in the middle of lots; space is therefore wasted on side yards and front yards which contribute little, and have too little life of their own as outdoor spaces. To bring this aspect of the neighborhood to life, these gardens need, whenever possible, to be extended, re-platted, re-fenced, so that slowly, over time, the good ones are preserved, the negative ones are over-built or combined with others to form good ones.

Obviously, this is bound to be an immensely slow process since property lines and existing buildings are involved and, in the short run, are likely to perpetuate the bad pattern. But it is possible to imagine that rules and incentives can be

put in place which will have the effect that very gradually, over time, lot-lines will be moved, new buildings will be shifted from their old footprints when rebuilt, fences will be torn down or rebuilt, and so on — until a pattern of centers is created in which every center has more profound, more living positive space.

The economic condition of the neighborhood is undernourished. The centers of economic activity — businesses and groups of businesses — are weak, not sturdy. In order to encourage economic growth in the blighted neighborhood, a self-sustaining economic structure must be created. Whatever that is, it can probably not be created by massive injection of capital or new businesses which will not, at first, want to locate there. So we need, with care, to look for the seeds, the starters. By that I mean any small businesses that exist at present and that have even a spark of life in them.

We need to plot the positions of these potential seeds carefully on a map of the neighborhood (opposite), and then we must take action to bolster the thread of life that these existing businesses already create. We began just this in Progresso. After an initial analysis we found a small artists' colony of people making some money from art who existed as a group. Tied to them were other small businesses, flourishing, albeit at a lower level. When we plotted their positions, we saw in the map a kind of thread. This thread, a latent center in the community, most urgently needed to be strengthened, supported. We proposed, therefore, that a new pedestrian line be formed to connect these particular locations, and that the line of this pedestrian walk, coupled with a road, become a spine in one part of the neighborhood.

If we can succeed in encouraging others to locate in relation to these small businesses, we can enable to community to grow its own economy, from its own bootstraps, and from what exists already. All this hinges, as you see, on the strengthening of the existing centers.





*Appearance of a street as it might be when the neighborhood starts to repair itself*

Local roads, too, do not exist as positive living centers. A local road in a neighborhood becomes living as a center when it is narrow, has occasional parking, is informal, and allows cars

to move only at a slow rate which is friendly to pedestrians. Obviously the roads in a typical block pattern are not like that. Once again, such small, straggling local roads need to be intro-



*Annual diagnosis for economic repair: Progresso, Fort Lauderdale, Florida, as it was in 1996. The dark buildings are good buildings which need repair, but which have a fundamentally positive role in the present neighborhood. The orange circles identify existing small businesses, which can be linked and supported to form slender chains of growing prosperity.*



duced. In some cases old roads might be modified to create this character; in other cases, where roads are transformed to be pedestrian hulls, then new and very narrow lane-like roads need to be introduced between the buildings.

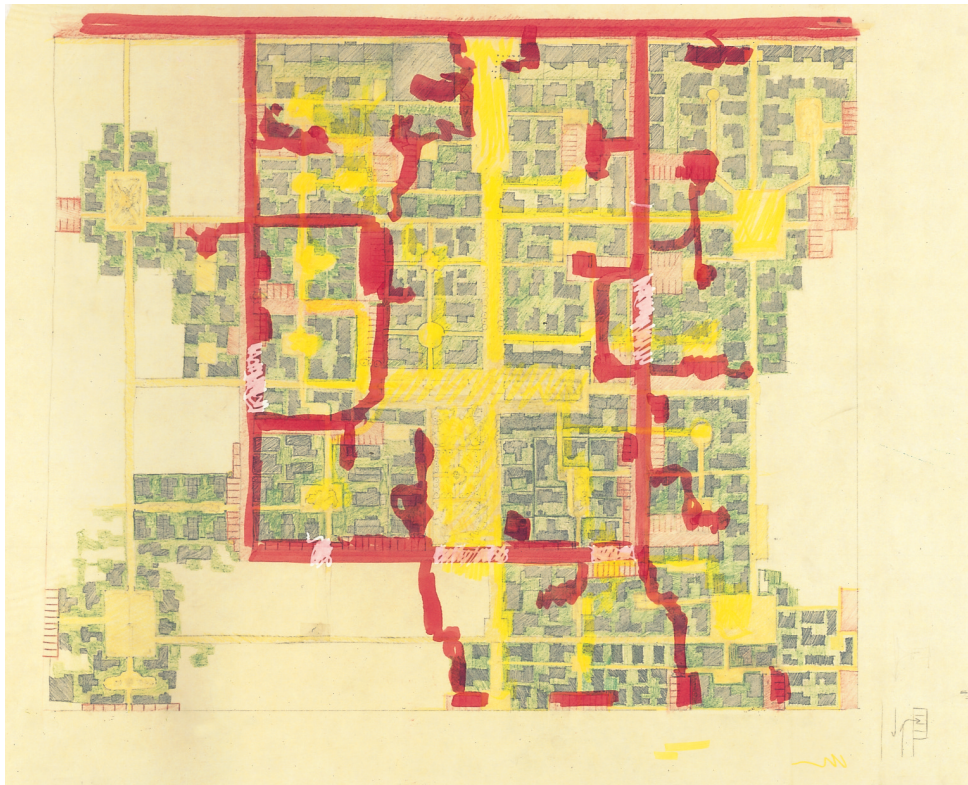
And individual buildings are not as expressive of individual need and taste as they might be. Although a dwelling, no matter where it is, and no matter what kind of thing it is, is a living center, to make it a *deeply* living center it must be more thoroughly imbued with the character of that family, it must allow the family to express their need, their life style, their special wishes, so that expressive uniqueness runs through the character of the dwelling, and runs, too, in the land around the dwelling.

administrative fiat. It is too expensive for the city to do it. And of course it would be wrong, and would lead to wrong results since making changes of this sort in the *existing* order would be traumatic and disruptive.

To make all this practical, a new zoning district would need to be formed. The rules in this special zoning district need only to be drafted to cause the appearance of streets, pedestrian paths, parking, and mixed-use areas in just the way I have been describing here, written in such a way as to be consistent with the rules for a special zoning district, and consistent with the equal protection clauses of the constitution. For example, the very secondary treatment of roads and parking — while maintaining their needed surface area, but giving them no priority of geometry or position — means rewriting fire-truck codes, most parking codes, and the ordinances governing road width and turning radius.

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A huge, spread out transformation of this kind cannot be made overnight. It cannot be made by



*A completed simulation showing the pattern of yellow, gray, green, and red in a larger part of the neighborhood*



*A drawing, based on process simulations, showing the kind of environment which would follow after a few years of the Progresso process*

Perhaps most significant, the ordinances would have to make provision for the reduction of legal lot size. Rules and incentives must be written into the code which give people economic and density advantage if they choose to split their lots. The zoning then protects the daylight and privacy of neighbors, but above all the legal lot limits are strongly reduced to allow cottages, and small two- and three-story buildings to be built close together.

The neighborhood is steered by periodic and continuous diagnosis of the existing structure, repeated at each stage of transformation. Landowners, community leaders, and residents of Progresso would be encouraged to create diagnosis maps of the neighborhood, highlighting useful and valuable structures.

The first step in this process is to make a thorough inventory of what the existing Progresso area contains — to determine what is worth saving and what needs repair. That is repeated annually, as the whole structure grows.

In the sketches on pages 296-309 I have shown, in simulated form, how we have carried

out these processes for one small neighborhood within Progresso. I have shown an area about 1,000 feet by 1,000 feet. Within this local area, I have imagined a step-by-step process which moves forward year by year, gradually improving the neighborhood. Without the oppressive crushing force of condominiums, office or apartment buildings, this growth and reconstruction would mainly be done by owner-occupiers, working within a framework that — in principle — could be provided by the new zoning district for Progresso, under the inspiration of the neighborhood association.

I have not yet had the opportunity to restore the life of a whole neighborhood in this way, and perhaps I never shall. But *you* may have the opportunity. The problem is everywhere and the desire to correct it, though beaten down in many of us, is almost universal.

What I suggest is this: Neighborhoods and cities can be restored to life in an infinite variety of ways if we can break free locally from the death grip of conventions and rules that block the smooth, natural, step-by-step processes by

which a life-supporting structure of any environment comes into being. And that *can* be done. With a little help from the Planning Department

and Public Works Department, the people of Progresso can do it. You, working in your own neighborhood, can try to do it, too.



17 / HIGHLY COMPLEX ORDER  
THE KEY INVARIANTS IN A NEIGHBORHOOD

*The long-range order created by this syncopated process is unusual and reminiscent of an a-periodic crystal (Schroedinger's lovely phrase for DNA, before its structure was fully known). It has a complex repeating order which comes from the fact that red, green, yellow, and gray are all positive in their own specific ways, and that at each new step of growth they are made more positive. The sketch on page 305 shows the character of this a-periodic order expressively.*

*The large-scale order which is created by this apparently simple local process is highly complex, and almost not describable geometrically, EXCEPT as the result of this kind of process. This may be understood in the context of the discussion in Book 2 where I asserted that the kind of order that occurs in living structure has a complexity not usually describable by drawings or by architectural images.*

*The primary invariant which follows proper use of living process in a neighborhood is a statistical balance of the areas of pedestrians, positively shaped gardens, buildings, and cars. Under a living process, as unfolding proceeds, the relative areas of these four components need to remain almost equal. In particular, a living process will maintain the size and coherence of the pedestrian and garden areas and severely limit unruly growth of areas for cars.*

*The most important secondary invariants concern the complex intertwined character of the areas devoted to pedestrian (yellow), gardens (green), buildings (gray), and cars (red). The interaction of these areas will be topologically complex, not easily described by simple geometry. Green areas will be mixed in size, and all positive; gray areas partly surround green areas. Yellow areas touch all the green areas and the gray areas; the yellow areas have different sizes and are all coherent and locally symmetrical geometrically; red areas consist of small loops of narrow roads with very small areas devoted to parking no more than a few hundred square feet at a time, and only a very small number of larger, high-speed roads, carefully placed to avoid damaging the delicate fabric of yellow, green and gray.*