

# Compact City Replaces Sprawl

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**Abstract:** *The compact, geometrically integrated city can and should replace suburban sprawl as the dominant development pattern in the future. This approach to urban planning and design is well established among proponents of the New Urbanist and Smart Growth movements. However, the more radical scenario I propose in this paper is that the compact city should also replace the high-rise, ultra-high-density megacity model. I will present arguments for the compact city from both directions, criticizing both conventional suburbia and the hyper-intensity of the urban core. A radical intervention is required on the part of concerned urbanists. We need to rethink the positioning of individual buildings to form a coherent urban fabric, as well as the role of thoroughfares, parking, and urban spaces. New zoning codes based on the rural-to-urban Transect and the form of the built environment are now available to assure predictable densities and mixed use for the compact city.*

## 1. INTRODUCTION.

Sprawl is a remorseless phenomenon. We see it covering more and more of the earth's surface, whether it is in the form of favelas invading the countryside in the developing world, or as monotonous subdivisions in the United States. Nevertheless, the city of tomorrow (actually, in many parts of the world, the city of today) has a low-rise, compact human scale. If the government does not forbid it (or cannot control it), favelas eventually condense to define compact urban regions, but the same organizing process cannot occur in subdivisions because of anti-urban zoning. A favela can become living urban fabric, whereas its high-priced US analog remains dead. The difference is in the connectivity.

Suburban sprawl has become a self-generating, self-fulfilling "machine" that

produces an enormous amount of mechanical movement, but is not conducive to natural human actions and needs. Sprawl persists because vehicles define a now-familiar self-perpetuating entity: the auto-dependent landscape. Cars enable sprawl, and sprawl needs cars. This suburban “machine” now circumvents its human creators and feeds in directly to the globalized economy. Yet it wastes untold amounts of time and resources, while trapping those without cars in their homes.

High-rise apartment and office towers are equally unsustainable. The serious threat of high energy costs makes both ultra-high-density environments based on skyscrapers, and low-density suburban sprawl no longer feasible. Ultra-high-density urbanism creates more problems than it solves, in the form of energy reliance that draws on the resources of an enormous surrounding region and shortsightedly depends on an uninterrupted supply of cheap oil. Our only alternative is the smaller-scale, compact city, ideally surrounded by and close to agricultural lands for local food supply. We should produce viable settlements at optimal densities for the human scale, just as body tissue has a compact structure at an optimal density. This can be achieved through thoughtful planning and the appropriate codes.

Urbanism once meant dense city living for humans, but anti-urban forces have (literally) driven people out to the opposite condition: low-density suburban sprawl. The correct solution is not formless sprawl, however, but an intermediate density low-rise compact city that is geometrically integrated. The huge commercial success of postwar suburban growth (a low-density phenomenon) took place because it harnessed genuine and powerful socio-economic forces. It also generated and fed some of those forces by means of clever media manipulation and advertising. Those same forces can be channeled to build a better environment for human beings — the compact, geometrically integrated city — so as to make an urban environment adaptable as much as possible. Suggestions for achieving that on a theoretical level are offered in (Salingaros, 2005a).

There is nothing wrong with either high density or low density *per se*, as long as it is well integrated with other densities and is in the right place (not too much of the same thing). People in the past several decades seem to have bought into the false notion of geometrical uniformity, which goes back to the now discredited 1933 Charter of Athens (Salingaros, 2005b). That document introduced notions that turned out to be catastrophic for cities, such as separating functions into single-use zoning, the false “economy of scale”, and also seductive but toxic images of ultra-high-density skyscrapers, vast open plazas, and uniform housing developments. It gave planners the idea of disintegrating the city into non-interacting components, or at best, ones that interact with each other only at tremendous cost and inconvenience; the opposite of a geometrically integrated city.

## **2. ANDRÉS DUANY AND THE TRANSECT.**

Even the best theoretical urbanism is close to useless without changes in our zoning codes, however. The existing codes, more than anything, determine the pattern of urbanism. The planner-architect Andrés Duany and his partner Elizabeth Plater-Zyberk are at the forefront of efforts to reform these codes. They coded and designed the highly

successful New Urbanist community of Seaside, Florida in the mid 1980s. The momentum from Seaside propelled traditional town planning again into the mainstream of planning options (Duany & Plater-Zyberk, 2005; Duany *et. al.*, 2000). Duany and his colleagues have built numerous New Urbanist projects around the world, and in each case they work closely with the local government to adopt codes based on urban form instead of the separation of uses. Without a form-based code, one cannot predictably plan a human-scale community. Duany will not work for a community that wants to rebuild itself, but which stubbornly retains its postwar anti-urban codes. He has found out from experience that it leads to time-consuming and irresolvable conflicts.

Using a very pragmatic approach to urban form, Duany classifies different zones according to a Transect (i.e. a cross-section of a continuum) of the built environment, according to intensity and density of urban components. He then proposes that communities ensure their desired urban character by adopting written codes that prescribe it. In Transect planning there are six zones, but the three zones T3 (Sub-Urban), T4 (Urban General), and T5 (Urban Center) (Duany & Plater-Zyberk, 2005) contain the areas that we would identify with a compact, walkable, mixed-use village or city neighborhood. Unfortunately, the single-use zoning of the past sixty years has made such compact patterns illegal. (Note that, as explained below, Sub-Urban is not the same thing as suburban).

I propose that a compact T3/T4/T5 city or town begin to substitute for suburban sprawl everywhere around the world. The compact city is sustainable, whereas both sprawl and the high-rise megacity are not. The Transect codes are ready for immediate use, and should therefore be adopted by government agencies. The “low-density city” we now see erasing farmland is not a city: it feeds off and depletes a vast region that it keeps at a distance, so the functioning city is much larger, has a higher net density than first appears, and is ultimately unsustainable.

### **3. THE THREE URBAN TRANSECT ZONES OF THE COMPACT CITY.**

Transect Zone T3 allows single houses on large lots, with a looser road network than in the higher zones. A Transect-based code limits the density to maintain a relatively rural character. Still, there would be walkable street connectivity to the denser Zones, so that residents are not isolated and forced to use cars for all their daily needs. Thus, T3 is part of the compact city, not estranged from it. (Country houses, on the other hand, would be part of T2, the Rural Zone, which is by definition outside the city). The T3 Zone may be the same density as the dreary suburban tract houses we see in sprawl — technically referred to as Conventional Suburban Development (CSD) — but other key design elements in the new codes ensure much more housing diversity, walkability, and connectivity.

Transect Zone T4 is the denser Urban General Zone, with houses closer to each other and to the sidewalk. More mixed use is permitted, with corner stores and restaurants within walking distance of most houses. As soon as the density permits, therefore, the mixing of functions is actively encouraged by the Transect-based codes.

Finally, Transect Zone T5 is the Urban Center, thoroughly mixing commercial uses with housing. This is analogous to the neighborhood center or small-town Main Street in early twentieth-century America, as well as the traditional European village. Transect-based zoning supports the compact city from both of the critical standpoints identified earlier, for it also prevents the erection of high-rise buildings and vast parking lots, whose expanse and density destroy the desired human-scaled character of T5. (The height limit in the Duany Plater-Zyberk Transect-based Smart Code is three storeys for T3, four for T4, and six for T5). Other important details, such as sharp curb radii and narrow streets, help to calm traffic.

The urban geometry in these Transect Zones is entirely different from that of sprawl (Conventional Suburban Development): roads and buildings correspond more to the compact small town found at the turn of the last century. Suburban sprawl, on the other hand, is neither a low-density CITY nor true country living; in pretending to be both, it accomplishes neither. The correct Transect codes ensure that the complex urban morphology necessary to support the city for people will not disintegrate into disconnected sprawl.

One crucial point of the Transect is that the three zones T3, T4, and T5 connect to and adjoin each other. Each one is kept by its own code from changing wildly, yet each one needs the other two next to it. Suburbia without an urban center requires constant driving, while a downtown without a healthy mix of uses is dead after business hours (Salingaros, 2005b). The codes prevent the repetition of one single zone over a wide area, thus preventing the monoculture of sprawl.

Theoretical work (Salingaros, 2005a) based upon earlier work by Christopher Alexander (Alexander *et. al.*, 1977) supports Duany and Plater-Zyberk's practical prescriptions with fundamental arguments about urban form and structure. New Urbanist solutions also draw upon the neo-traditional notions of Léon Krier (Krier, 1998). The same approaches will, of course, also work for the Urban Core (T6), as well as for Natural and Rural Zones (T1 and T2), and the appropriate Transect-based codes apply to those densities as well. Nevertheless, here my topic is the compact city, a human-scaled city to replace both sprawl and the high-rise megacity. The compact city, therefore, involves only the medium-density zones of T3, T4, and T5.

#### **4. SPRAWL IS DRIVEN BY THE CAR.**

Sprawl exists only because it is an outgrowth of car activities. In turn, this automobile dependence generates urban geometries that accommodate cars first and pedestrians second. These are the wrong priorities for a healthy life, especially for those who cannot drive: the young, the old, and the poor. The sustainable compact city must be designed for the pedestrian first.

People have been encouraged by the automobile industry and by government agencies promoting the automobile industry to indulge in an impossible and destructive fantasy of inappropriate urban types. In practical terms, sprawl comes about from

misunderstanding urban morphology. The needs of the car automatically generate an urban morphology appropriate to the car. Sprawl relies totally on the automobile, and thus follows the dendritic (treelike) geometry of roads. A dendritic geometry is good for the automobile, but is inappropriate for human beings. Sprawl occurs when buildings are erected with no regard or understanding of which connective geometries encourage walking. Suburban sprawl grows uncontrollably, generated by anti-urban zoning codes that achieve the opposite geometry to what human beings need.

Complex urban fabric means condensation, connectivity, and mixing; the opposite of homogeneity (Salingaros, 2005a). And yet, most postwar planning has deliberately spread a homogeneous, amorphous structure over the earth, replacing healthy urban fabric in existing compact cities. Monoculture displaces and stretches its vital connections to complementary nodes, making the functioning city (a much larger entity that encompasses the entire commuting distance) tremendously wasteful of both time and energy.

With the wrong codes in place almost everywhere today, roads in fact determine the geometry of urban settlements. Let's examine what happens when the government builds a road to connect two towns. A road in the countryside attracts new buildings along its length, thus linking each building with that particular road and with nothing else. But human beings do not link to a road: they link to work, school, church, medical facilities, etc. Clustering is supposed to occur among linked human activities, and not strictly between houses and a road. It's the wrong linking, and it destroys the meaning of a city.

The solution is obvious to some of us. Zoning codes should prevent the dendritic growth of buildings along roads, and instead promote an urban geometry that concentrates human connections inward to focus on local urban nodes. Transect-based zoning has the correct zoning codes that do this, replacing anti-urban zoning codes that allow the unrestrained growth of the auto-dependent landscape.

## **5. LAWS, REGULATIONS, AND THE DEMOCRATIC IDEAL.**

I have proposed Transect-based zoning to regulate the development of urban areas of different density. It may appear to a reader that this represents a rather strict set of regulations. The notion of regulations runs counter to our utopian conception of civic freedom, and may cause strong protests if not revolution. In the case of Transect zoning, however, I am simply advocating a REPLACEMENT of very rigid zoning codes that already exist, governing the geometry of buildings and roads. Most people are woefully unaware of how tightly the built environment is now controlled by existing codes on planner's books. They have been sold the false image of "suburban freedom". In fact, Transect-based zoning provides MORE choices for development than does current single-use zoning.

Another misconception about Transect zoning and the New Urbanism is that it places severe restrictions on cars. It merely changes the geometry of how they move and

where they park. True, in the compact city, the movement of cars is calmed, and parking is no longer dominant and obvious in front of buildings. But cars are not banned, and parking is adequate.

Still, for a variety of reasons, including energy costs and population growth, car use must be curtailed over time. Unfortunately, the immensely powerful car industry has successfully coupled the idea of personal “freedom” with a car purchase, and it has been almost impossible to convince people to reduce car use. They don’t see that giving unlimited “freedom” to the car has to be paid for by the destruction of a city, and of their own human environment. One’s car today represents something almost inviolate — a right of ownership and object of fetish all at the same time. It is going to be very difficult to educate people on this point.

## **6. THE AUTO-DEPENDENT LANDSCAPE SELF-GENERATES.**

The auto-dependent landscape consists of the road surface, parking, and all areas devoted to the care and feeding of vehicles, such as gasoline stations, garages, muffler shops, tire stores, hubcap stores, car dealerships, parts stores, car washes, automotive junkyards, etc. Shopping areas and restaurants take the form of drive-ins or malls set back in a sea of parking. In this way sprawl is a self-generating system with mechanisms for spreading and enlarging itself. In the auto-dependent landscape — occupying more than half the urban surface in many regions — vehicles no longer serve simply as a means of human transportation, but as ends in themselves.

Since the auto-dependent landscape feeds on and generates much of the world’s economy, it is not feasible to simply eliminate it. Many countries’ industries and economic base depend on producing cars and parts, or petroleum and petroleum products. Global wars are fought over the petroleum supply. At the same time, the auto-dependent landscape is changing the earth and human civilization, so it has to be contained. What is good for General Motors is no longer good for America, to turn around an old American slogan. Car-related activities within a city are still essential for our economies, but they must be kept on the proper geographic scale. The great planning fallacy in our times is trying to mix up (instead of carefully interface) the auto-dependent landscape with the city for people: all that happens is that the former takes over the latter.

Most important, vehicular speed must be calmed. The highways of the auto-dependent landscape are designed to maximize a smooth and fast flow of traffic, without any consideration of human beings outside a car. Those same principles of speed maximization at the expense of pedestrian physical and psychological well-being have been automatically applied to all roads inside the urban fabric, making it anti-urban in the process. My book “Principles of Urban Structure” (Salingaros, 2005a) offers rules that reestablish the city for people by giving pedestrians priority over cars. Those rules rely on earlier work by Christopher Alexander, published as “A Pattern Language” more than twenty-five years ago (Alexander *et. al.*, 1977).

Despite numerous, well-documented presentations of energy/oil depletion issues,

people remain blissfully unconcerned about their car-dependent lifestyle. They trust the transnational oil companies to continue providing them with affordable gasoline until the end of time. Gasoline will certainly be available — at market price, whatever that may be in the future. I do not add my voice to the doomsayers predicting the end of petroleum, but unsustainable urban and suburban morphologies will simply become too expensive to survive. The compact, small-scale city is sustainable, whereas ultra-high-density skyscrapers and suburban sprawl are not.

## **7. SPRAWL IS ALSO DRIVEN BY COMMERCIAL FORCES.**

The dream of owning an isolated country villa surrounded by forest draws people out to suburbia, and cheap land draws developers there. At the same time, lower rents and taxes draw business there, following residential growth. But because the form of suburbia is already established by single-use zoning, businesses must locate away from residential areas, and they must locate where there is enough drive-by traffic to sustain them. Since developers and builders have made fortunes out of selling this defective geometry, they simply keep building what they have done for decades. Government perpetuates sprawl by building roads and infrastructure in an anti-urban pattern.

Because business in sprawl depends on attracting the drive-by customer, then, it must announce to all drivers that there is ample free parking everywhere. Thus we have the shopping mall surrounded by a vast parking lot; the office tower in the middle of farmland surrounded by its parking lot; the university campus in the middle of nowhere surrounded by its parking lots, and so on. Urban morphology is determined in most places by highways and parking lots. Again, the priorities are exactly backwards. Thoroughfares and parking lots should conform to a compact urban structure, not the other way around.

The geometry of commercial nodes is generally oriented outwards toward high-speed arterials to attract drivers. Current zoning makes sure that it cannot be oriented toward residential neighborhoods. That must change with new Transect-based zoning. When a community adopts such a zoning code, there will be assigned Transect zones as described above and structured so that stores, schools, churches, and parks are within walking distance of homes. Density increases as T-Zones get higher, but never to the extent of the high-rise megacity that depends precariously upon a vast energy grid. In a Transect-based code, mixed use is allowed in all T-Zones, and the design of streets favors the pedestrian. The first priority is to get rid of the parking lot in front of a store, narrow the streets, and provide a wide sidewalk (Sucher, 2003). On-street parking is fine; as is parking behind, below, and above the store (Sucher, 2003). Parking garages must have liner stores with windows, so that the pedestrian does not walk past blank walls or rows of cars. People are more likely to walk if there are pleasant things to look at on the way.

Sustainable compact cities in place all around the world are now being destroyed by the introduction of anti-urban components. Not only are skyscrapers proliferating as symbols of modernity, but so are more modest typologies that profit one person while slowly degrading the entire city. In Latin America and Europe, for example, a new corner

store typology copied from the United States erases the sidewalk and gives it over to parking. If this goes on (along with adopting other similar typologies from the auto-dependent landscape), that will unbalance societies that have depended on a human-scale urban morphology for so long.

Transect-based zoning codes limit the number of storeys in the compact city to three in zone T3, four in zone T4, and six in zone T5. This places a ceiling that protects the urban fabric from the negative consequences of high-rise construction. These problems include: the office tower (which generates traffic congestion for the entire region during rush hour); the residential tower (which generates strongly negative social forces as discussed in (Alexander *et. al.*, 1977; Salingeros 2005a)); and the giant parking lot that comes as part of either of these (and which erases the human environment precisely where it ought to be intensified). High-rise buildings don't belong in a compact city. Genuine high-density, high-rise city centers do exist, as coded for in Transect Zone T6, the Urban Core. Examples include the downtown Loop in Chicago, Manhattan, Hong Kong, and Sydney. But I do not foresee a future for new T6 Cores, so I have confined the compact city to a T5 maximum density and six-story height limit.

It is a great pity to see cities in the developing world self-destruct as they try to imitate the images of dysfunctional western cities (to them, symbols of power and progress). Cities in southeast Asia and China that had been working fairly well up until recently, such as Bangkok and Shanghai, have in one bold step ruined their traditional connective geometry. Their mistakes include building megatowers, then widening streets and building a maze of expressways to serve the new ultra-high-density nodes. For their entire future, those cities are condemned to be choked by traffic.

## **8. LOW SPEED ENCOURAGES URBAN LIFE.**

The compact city is a LOW-SPEED city. This feature has to be guaranteed by narrow streets and a special low-speed geometry. Planning has for several decades concentrated upon increasing vehicular traffic flow. This has diminished the livability of cities and urban regions. To rebuild a living environment for people, we need to reverse almost all the traffic-boosting planning measures implemented since the end of World War II — that is, rewrite the traffic codes. Roads inside the compact city should not be built to accommodate fast vehicular traffic. Cars should go slowly inside this region. The physical road surface and width will force them to. Transect-based planning calls for thoroughfare design to respond to the context of the T-Zone, not the other way around.

The key is to permit internal access everywhere for large vehicles such as fire trucks, delivery trucks, and ambulances, but in the immediate vicinity of a house cluster around an urban space, all the roads should be *woonerven*, the Dutch model of very low-speed roads shared with pedestrians (Gehl, 1996). Here we may use narrow roads with occasionally semifinished surfaces. We have forever confused ACCESS with SPEED. Today, fire departments refuse to cooperate with urbanists, insisting on an overwide paved thoroughfare everywhere. The reason is that fire chiefs want to be able to make a U-turn in one of their giant fire engines anywhere along any road.

The compact city mixes shared civic spaces with concentrated arrangements of structures. It defines a highly-organized complex system, in which each component supports and is connected to the whole. A city for people consists of buildings of local character and specific function that contribute to the immersive context of their Transect Zone. This is the opposite of modern “generic” building types, which are strictly utilitarian and connect only to the parking lot. Fixated on fast speed, governments or developers spend much of their money on paving wide roads and vast parking lots, neglecting the design of urban space. When building a low-speed parking ribbon (described in the following Section), parking costs should be the last priority, thus permitting gravel, and brick/grass surfaces. Such surfaces slow cars down.

Urban space is supported by the geometry of surrounding buildings (Salingaros, 2005a). Buildings should attach themselves to those spaces, and not to the road. A compact city is defined by internal cohesion achieved via a centripetal (center-supporting) arrangement, versus a centrifugal (directing away from the center) arrangement. Buildings are connected via a network of paths into clusters. A number of buildings should define a cluster perceived by a pedestrian as accessible (a low-speed setting). By contrast, buildings in suburban sprawl are outward-looking and connect to nodes in the far distance, but not to each other (a high-speed setting). There are rarely any local connections in a monofunctional region.

Sidewalks and all pedestrian paths must be protected from unnecessary changes of level, and any other discontinuities (Gehl, 1996). Cars on the other hand, don’t get tired, so their path can easily go around people and pedestrian nodes. Again, that slows them down (anathema to today’s traffic engineers!). Pedestrian paths should be laid out to connect urban nodes, and to reinforce a connected complex of urban spaces (Salingaros, 2005a). A parking ribbon can be designed to snake around buildings and pedestrian urban spaces — not the other way around.

## **9. CAR-PEDESTRIAN INTERACTIONS AND THE PARKING RIBBON.**

The compact city is a city for people, but it still accommodates cars and trucks. However, surface parking lots interrupt the urban structure and sense of an outdoor “room”; they are dangerous and exhausting for pedestrians, and visually destroy any pleasant walking. They also create runoff from impervious surface, encouraging flooding.

Instead of taking over a vast open area, parking should occur in a ribbon of intentionally constrained road: I am proposing a radically different parking geometry, to be generated by new zoning codes. A parking “lot,” then, is just another road, not an open space. These long and narrow parking ribbons will branch into each other, assuming a networked form just like urban streets. A maximum dimension of about two car lengths will be stipulated for the width of any parking ribbon, accommodating only one side of head-in or diagonal parking. Parking ribbons don’t need to be straight, but can be made to fill up otherwise useless narrow spaces.

Furthermore, pedestrians should be given priority when crossing an existing large

parking lot. This means building a raised footpath, sometimes covered by a canopy, and also giving it a distinct color coding for visual separation. Giant, uniform parking lots are hostile to human beings and essentially anti-urban. They can be reformatted into parking ribbons by building other structures inside them. Inserting sections of water-permeable surface into giant parking lots will also solve the serious problem of flooding from storm run-off. Such infill solutions can be written into a new code.

On-street curbside parking (either parallel, or diagonal) should be encouraged in the public frontage, but banned from the private frontage, between the sidewalk and building face (Sucher, 2003). On-street parking actually helps pedestrians feel safer on the sidewalk by providing a buffer between them and moving traffic. Sidewalks are not used if there exists a psychological fear from nearby cars and trucks; vehicular traffic parallel to pedestrian flow can be tolerated only if it flows at a certain distance from people. Adjusting the maximum speed of a road (not by speed limit signs, but by its narrowness and road surface) to tolerable limits also achieves this symbiosis. For slightly faster urban traffic, an excellent thoroughfare type to accommodate both car traffic and safe sidewalks is the boulevard, traditionally designed with low-speed “slip roads” and parking on the sides.

Parking ribbons already exist in traditional urbanism: as curbside parking on slow-moving roads; and on the sides of a fast-moving boulevard. Most parking garages are indeed wound-up parking ribbons. What I’m suggesting is that ALL parking should conform to the ribbon geometry. A parking lot should never again be confused with an urban space, and cars should never be allowed to take over an urban space.

Another solution is to have orthogonal flow for pedestrians and vehicles (working simultaneously with protected parallel flow). Their intersection must be non-threatening. The two distinct flows cross frequently at places that are protected for pedestrians. In this way, the two flows do not compete except at crossing points. Introducing a row of bollards saves many situations where pedestrians are physically threatened by vehicles. An amalgamation of pedestrian paths defines a usable urban space. This must be strongly protected from vehicular traffic. Any paved space that children might use for play must be absolutely safe from traffic. I discuss all these points at length in (Salingaros, 2005a; 2005b).

## **10. BEYOND THE TRANSECT WITH CHRISTOPHER ALEXANDER.**

Where do the Transect-based codes come from? They are a result of thinking how to create an environment conducive to human life, obtained by comparing present-day with older successful environments the world over. They ultimately depend on traditional solutions, such as those collected in Christopher Alexander’s “A Pattern Language” (Alexander *et. al.*, 1977). The Transect’s value lies in structuring a proven form of compact, traditional urbanism in a way that can be used within the existing planning bureaucracy. As Andrés Duany has so often expressed, he wants to use the system to introduce radical changes without waiting to change the system itself. He calls the Transect-based Smart Code a “plug” into the existing power grid used to working in

terms of zoning.

There is another approach. Alexander's new book "The Nature of Order" (Alexander, 2005) is the most important analysis of architecture and urbanism published in the last several decades. Alexander advocates a complete replacement of current planning philosophy, because the existing manner of doing things is so fundamentally antihuman. That may be difficult to implement immediately, but the future of cities does depend upon ultimately applying Alexander's understanding on how urban form is generated, and how it evolves by adapting to human needs. My own work (Salingaros, 2005a; 2005b) has been profoundly influenced by Alexander's.

Alexander describes his adaptive design process, giving examples to show urbanists how to tailor it to their own particular project (Alexander, 2005). I will not attempt to summarize his extensive results here, but only wish to point out a key finding. Living urban regions have a certain rough percentage of areas devoted to pedestrians-green-buildings-cars as 17%-29%-27%-27%. Contrast this to a majority of today's urban regions, which typically have the percentage distribution as 2%-28%-23%-47%. Alexander describes in great detail the succession of geometrical steps that can be taken to convert one type of urban region into another. His approach is to do this one step at a time, and it is eminently practical.

The result is what all of us (Alexander, Duany, Krier, Plater-Zyberk, and myself) want: a human-oriented urban environment. At the same time, Alexander presents a theory of urban evolution, which could be steered either towards a living city, or towards an anti-urban landscape for cars. The point is to recognize the fundamental mechanisms and forces that push towards either goal, and to channel them to what we want. Most important, we should recognize what we really want, since many people (including prominent urbanists) really do want to sacrifice urban life to the auto-dependent landscape, even though they may not openly admit it.

Alexander's understanding of urban processes probes far deeper than the Transect. Duany and Plater-Zyberk have learned from Alexander, but want to affect immediate improvements. The simplest expedient is a change in zoning codes, such as the Transect-based Smart Code. Today's urban environment is so fragmented, degraded, and antihuman that such code reform is urgently needed. Once healthy urban fabric begins to grow again, then people can see the advantages of a human-scale built environment. They could apply Alexander's ideas to generate vital urban regions once again. Anyone who dismisses the New Urbanism as superficial, or as simply a "style", needs to read Alexander to really understand urban form.

And yet, I must point out a fundamental difference. Alexander is convinced that genuine urban unfolding — the process of sequential adaptation that generates living environments — is not possible within current planning practice. He fears that the system is not only misaligned, but is also too rigid to accommodate living processes. The new Transect-based codes, significant as they are in improving an abysmal situation, are not flexible enough, according to Alexander, precisely because they work within the present planning system. Since changing a vast and established bureaucracy is next to impossible, Alexander proposes going around the system. These points raise serious tactical

questions.

Defining urban character as inherent in the Transect has begun to reestablish an urban structure that can engender a new urban citizen. The Transect, however, is just a beginning: in addition to these sectional prescriptive codes, urbanists must extend their logic to multiple scales and work through a knowledge of urban adaptive processes (Alexander, 2005; Salingaros, 2005a).

## **11. SOME CONTRADICTIONS.**

There are several contradictions I feel I need to discuss. First, the limitations of working with a system of permits and construction that is deeply flawed, threaten to neutralize any code-based way of building cities. Alexander (2005) emphasizes that living cities can only come about from an adaptive PROCESS, i.e., building and adjusting urban form step-by-step. This is not easily reconcilable with the present mainstream professional culture. It is, however, the way that traditional building and self-built settlements arose for millennia.

Alexander's fear is that any system that builds cities without a truly adaptive process will never achieve the intense degree of life seen and felt in cities of the past. That is not the aim of the present code-based system, which instead uses the existing bureaucracy to limit such an evolution of urban form. The gradual evolution of cities, akin to the evolution of individual organisms and ecosystems, is now illegal. What is allowed is a large-scale intervention, regardless if it is catastrophic or nearly so (planners cling to the myth of an "economy of scale") (Salingaros, 2005a).

The second contradiction is that a majority of people go along with anti-urban sprawl and high-rise construction without complaining. It is hardly possible to discuss issues of urban form with a contemporary society that has become desensitized through its addiction to technology. Growing up in suburbia with the false notion of unlimited freedom has distanced people from truly human environments. People who enjoy eating junk food in their parked car; who love the ear-damaging loudness of commercial movie theaters and rock concerts; who own a "Home Entertainment System" (a monster television/stereo with subwoofer) and another subwoofer in their car, are not going to value the pleasures of a traditional environment — it only reminds them of a pre-technological past.

In the present atmosphere, I see Transect-based codes as the best entry-point for bringing a human environment back to our cities. I have discussed these issues with commercial developers, who insist that they are not setting urban typologies: they are only providing what the market wants, working within the existing codes. Clearly, our society has to learn to appreciate good urbanism before Alexander's work and my own can begin to be applied to cities. The Transect will certainly help to move society in that direction.

Alexander would prefer for codes to be optional and voluntary: accepted by ordinary people on the basis of understanding and sensitivity, and not imposed by law.

Duany, on the other hand, is suspicious of media-induced fear and manipulative marketing; those forces push people to reject connectivity and to want to live in monocultures.

The third contradiction is that human-scaled cities must be market-driven and implemented by legislation, but people don't seem to be ready to do what is required. Any hope for a positive change must come from an educated society that demands good urbanism instead of its "junk food equivalent". Enough popular support has to build up to pressure elected officials to make the necessary changes in urban codes. Those who need it the most — the young, the old, and the poor — are either not educated about city form, or have no influence. New Urbanist ideas have been embraced by upper-income groups simply because of their higher level of education. That is not because of any particular attraction between the compact city and any particular socioeconomic class.

Ultimately, the most disadvantaged classes of society can least afford the expense of sprawl, yet only those who are better educated see the reality of a human-scale urban environment.

The fourth contradiction is the institutionalization of sprawl. In addition to planning codes, sprawl has been adopted as an unshakeable standard by insurance companies and financial institutions. They are reluctant to finance or insure the compact city, but will automatically help to build sprawl because all their offices and agents have been doing this for decades. That mindset is permanently fixed to the extent that even when natural disasters wipe out vast areas of sprawl, the bureaucracy does not permit them being rebuilt as compact city. An opportunity to finally get rid of anti-urban patterns and to reconfigure our cities is thus missed. All the discussion about wasting time in commuting, and wasting one's salary on gasoline seems to be for nothing, if it will not influence rebuilding when an opportunity presents itself. This may be interpreted alternately as the bureaucracy doing the "safe" thing; or as criminal willfulness.

## **12. CONCLUSION.**

This essay put forward a radical idea shared by many urbanists today: that the ultra-high-density city is outdated. There are essential differences with other authors, however. Unlike some of my colleagues who abandon any urban principles out of frustration, I condemn suburban sprawl and high-rise buildings as equally unworkable. Supporting Andrés Duany and Elizabeth Plater-Zyberk, I proposed a "new" ordered urban form: the compact city. This new urban typology looks remarkably like the old geometry of small-town and village living, so it is really a return to traditional urbanism. Where it is radical is that it requires a complete rewriting of the zoning codes. That is essential, since theoretical urbanism is ineffective if the present anti-urban codes remain unchanged.

This essay also contained an implicit condemnation of planners and designers who refuse to distinguish between good and bad urbanism, or to offer any workable solutions. That is the equivalent of doctors refusing to diagnose and cure patients,

deciding to give an equal chance to the microbes. Prominent designers talk about the urban condition, labeling the disconnection of our cities (and civilization) as a new, exciting phenomenon: a natural evolution (instead of extinction) of the city. They also accept, without question, the massive destruction of traditional urbanism taking place in China and the developing world as “inevitable progress”. Urbanists have a responsibility to intervene; they cannot be neutral observers. From now on, the world can only rely on pragmatic urbanists who are willing to tackle practical issues to create compact cities for humans.

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