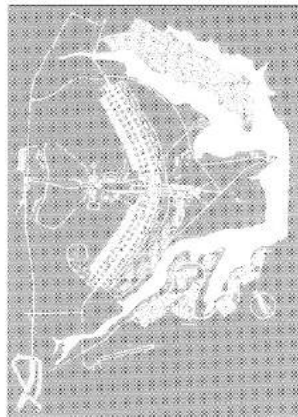# The Nature of Urban Design: The Lessons of Experience

Jon Lang

Professor of Architecture
Faculty of the Built Environment
University of New South Wales
Sydney, Australia

Cities are constantly being designed, piece-by-piece, by thousands of individuals seeking to fulfill their own interests. They have to work within the laws of a land, to the extent that the laws are enforced. Individual actions may vary in scale from placing a flower box filled with petunias on a front stoop to the building of several blocks of the city. Inadvertent actions also shape the city. The stepping of feet erodes stairs and fingerprints mark walls. Ice creams are dropped on the ground and sidewalks are smeared with the residue of chewing gum (except in Singapore). Nature too is a designer; buildings decay, the rain stains buildings and abandoned sites fill with weeds. The city evolves. We have learnt much from the experiences of the past five decades.

Each city is unique. Its living culture is defined by the interactions amongst its physical form, the values and beliefs of its inhabitants, its intangible heritage of the arts, rituals and the set of rules, written or not, that govern society. The physical form is tangible; it consists of the city's topography, streets and buildings and other elements of built form. Its population's range of norms of behavior, aesthetic attitudes and concepts of spirituality form a set of abstract variables that are reflected in both the built form and intangible variables of art. To some extent, the built environment shapes the abstract and intangible aspect of a living culture (Siswanto, 2000) or, at least, affords their development in particular ways.

The built environment of cities consists of private and public realms. The private realm can be said to consist of the interiors of buildings and privately held secluded open space. The public realm consists of the space between the privately held components. The distinction between private and public is not always clear because much that is privately owned is open to the public or open to the public view. There is also much that is privately held (e.g., the facades of buildings) that impinges on the nature of the public realm and so its character can be said to be a question of public interest. Thus in places such as the Fifteenth Street Mall, in Denver, Colorado the questions arises: "What falls within the purview of urban design and the concern of the urban designer?" Is it simply the publicly owned spaces or all that impinges on public life?

Figure 1   Sixteenth Street Mall, Denver Colorado, USA.
I.M. Pet, Architect, Hanna/Olin Landscape Architects

In capitalist societies, the built form of cities is shaped by competing interests within the financial market place but also within the market place of ideas. Behind every decision is a developer. The developer may be a private individual or a public organization. Their roles and obligations often overlap. The capitalist city has been shaped by private enterprise although over time governmental agencies that constitute the public sector have come to play a greater role. It is within the framework of the political institutions that decisions are made about the rules that govern the decision made within the private sector about what should and should not be built.

In some countries it is the public sector's role to build the city's infrastructure, to provide and maintain its roads and parks and schools—to build the public realm. In other countries it is the private sector that builds most of it. The design of the public realm generally precedes the development of the private but sometimes it follows. Most frequently parts of it are built before, parts simultaneously, and parts subsequently. Piece-by-piece, the private and public realms of a city are changed over time as the needs and self-perceptions of a society and the way it wishes to present itself to the world change. Its living culture changes and the built form follows. Sometimes it is the other way around.

Urban Design

The term *urban design* has been co-opted by the traditional design fields of architecture and landscape architecture to mean almost anything. When it was first used at Harvard and Pennsylvania in the 1950s ihad specific connotations that should be retained for the sake of intellectual clarity. Urban design, in the public sphere, involves the self-conscious intervention, great or small, into the market place and the legal processes that shape the public realm of cities. The intervention is justified on the ground that the public interest is not fully served by private developers trying to maximize their own goals. Urban designers, at their best, seek to maximize the quality of life of the people who will inhabit or use a scheme when it is completed. They also recognize that in capitalist societies projects have to be profitable. In the public interest economically unsound privately sponsored projects require public subsidies.

There are many ways of looking at the nature of urban design work and the work of urban designers – almost as many as there are people writing about urban design. One simple way is to distinguish between the *project types* generally subsumed under the rubric *urban design* and, more importantly, *procedural types*. The former deals with the artifacts of urban design and the latter the process by which those artifacts are created.

Urban Design Product Types

Urban design is most frequently thought of in terms of project types. This view should not be surprising because it has a long tradition in architecture and because many architects specialize in one or two building types: hospitals or sports stadiums, for example. The urban design project types can be categorized in many ways but it is impossible to devise any categorization in which the types do not overlap. A simple typological approach is to categorize

projects as: (1) urban form policies, (2) new towns, (3) urban precincts, campuses and suburbs, (4) urban renewal projects, or (5) infrastructure designs. Here, for instance the third and fourth categories can overlap and the first is not strictly a project type. It will thus also be mentioned under the rubric *procedural types* later!

(1) Urban form policies

The most general level of urban design products consists of land use and zoning regulations that have an impact on four-dimensional urban form qualities. This is the aspect of urban design that is closest to city planning because in city planning legislation there are many unconsidered urban and building design implications. Zoning regulations that stipulate building setback requirements and height regulations in the name of public safety can have un-considered effects on city- and streetscapes and the quality of urban life. The urban designers concern in forming general urban design policies is to ensure that such issues are considered or re-considered when planning policy decisions are made.

(2) New Towns

A *new town*, to purists, is a settlement that is built from scratch usually on previously un-built on land. To be regarded as a 'town', it has to provide all the amenities of life including employment and entertainment opportunities. While the building of all towns started from scratch somewhere in time, the concern here is with the self-consciously designed case.

There is no census of new towns designed and built during the second half of

the twentieth century but the number is in the thousands. Some have resulted from the self-conscious attempts by governments to distribute populations or rejuvenate declining regions; others have been the work of private enterprises either creating company towns or simply attempting to fulfill the needs of the market place. The new towns built during the past five decades range in size and importance from small mining towns to the capitals of countries.

Of the new capital cities, Brasilia is the best known of a country while Chandigarh in India is probably the best-known capital of a state. Possibly, they are best-known because internationally recognized architects designed them. Brasilia, the capital of Brazil was designed by a team under the direction of Lucio Costa and Oscar Niemeyer with the country's president Juscelino Kubitschek as the primary client. Le Corbusier designed Chandigarh. Islamabad in Pakistan and Abuja, the capital of Nigeria are less well known examples of countries' effort to relocate their capitals. A more poignant example of a *fiat* national capital city is Yamoussoukro. It was built during the 1980s and 1990s for the Ivory Coast by President Felix Houphouet-Boigny to honor his birthplace. Today, the whole city, with the world's largest basilica, Our Lady of Peace, lies almost totally abandoned.
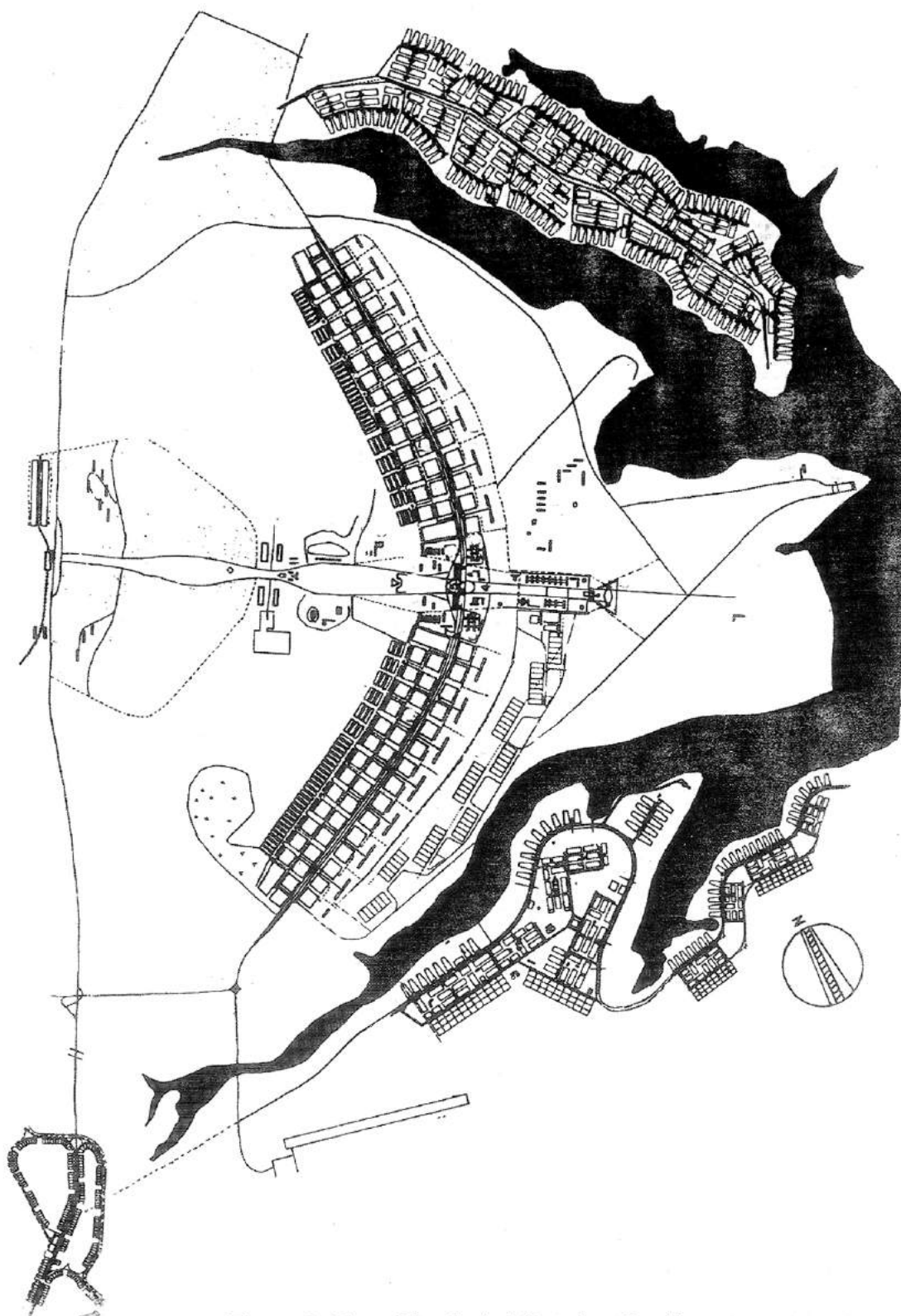
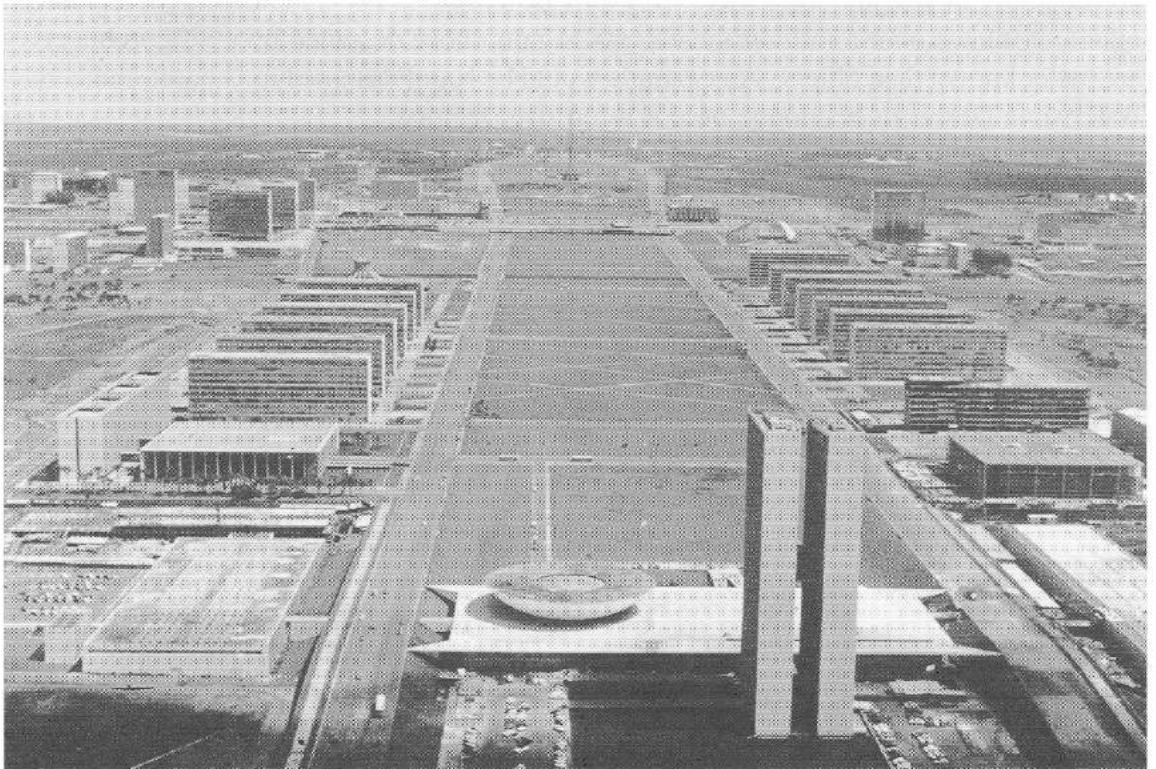**Figure 2** Plan of the Capital Complex, Brasilia

Figure 3 The Capital Complex, Brasilia

A number of countries have had the creation of new towns as part of their political agenda. During the latter half of the twentieth century, over twenty new towns have been built in the United Kingdom in order to keep London to a manageable size and to encourage industry to locate outside the southeast corner of the country. The Soviet Union had an even larger program with new towns being built across the republics from the west to Siberia. The goal was either to distribute population growth or to control territory or both.

In North America, the genuine new towns have been built by private companies not the public sector. Columbia in Maryland is the best example. Begun in the 1960s, the city has a population of over 100,000 and employment opportunities approximating

the number of workers in the city. Many outsiders, however, commute into Columbia to work and many residents in the city commute out! There are few such new towns in the United States because the infrastructure costs are high and the developing company must be capable of considerable investment prior to any return on capital being achieved. They do, however, continue to be built. Las Colinas in Texas has been under construction for almost twenty years now.

By far the most numerous new towns in the world during recent years have been company towns. Some have had a mining or other resource base and others have been manufacturing cities. They have been built by industrial organizations, public or private, to suit their own purposes. The towns vary

considerably in size and longevity. They may be as small as five hundred people while others will have over a million inhabitants. Again, those designed by major architects are better known than others. An example would be Kalol designed in Gujarat, India by Balkrishna Doshi. Its economic base is a fertilizer factory.

Figure 4   Plan, Housing Street, Housing. IFCO Township Kalol, Gujarat, India

(3) Urban Precincts, Campuses and Suburbs

Most urban design deals not with new towns but with smaller areas of cities, precincts (existing or new), and areas on the edge of cities, the suburbs, and what have come to be called campuses. The term *campus* has traditionally referred to universities but now is often used to refer to business, technology or industrial estates.

A number of new precincts of cities have gone under the term *new town* usually because they are bounded areas separated in some way or other from the remainder of the city. The so-called new towns of the city-state of Singapore, although they contain many of the facilities of a city and are also employment centers, have little industry and the heart of colonial Singapore remains the cultural center of the city. The new towns of Singapore are, given the terms used in this article, really substantial precincts of the larger city.

During the 1970s, the term *new-town-in-town* was widely used to describe large multi-use building projects on sites cleared through the demolition of the existing buildings. Such sites are often called *brown-field sites*. In New York City, for instance, Roosevelt Island (formerly Welfare Island) was referred to as a new-town-in-town. The island, the home to a number of hospitals and other obsolete institutions has been transformed into a predominantly residential area with the retail and other institutional frequirements of those who live there. Surrounded by water, it is indeed a clear entity.

Much of what is called urban design in cities refers to relatively small precincts of like use buildings.They may be commercial or institutional types.Penn center in Philadelphia, a relatively small enclave of commercial buildings related to a railway station, is an example of a commercial precinct while Lincoln Center in New York is an example of an institutional complex. One of the great urban

design debates is over whether such a facilities should indeed be agglomerated into a single unit or distributed in the city. That question has also been raised about the decision to assemble so many sporting facilities required for the highly successful 2000 Olympic Games in Sydney, Australia into a single precinct (Lang, 2000).

Figure 5 Plan, 2000 Olympic Games, Homebush, Sydney, Australia

Figure 6 The Main Axis, 2000 Olympic Games, Homebush, Sydney, Australia

Campuses connote a special type of precinct – a unified set of buildings set in a predominantly park-like environment separated by distance (country-side, park or roadway) or a fence from the remainder of the city or countryside. The university campus is typical. While some universities merge into the surrounding city – the Sorbonne in Paris, Stellenbosch, and the University of the City of Washington, D.C. – many, especially those recently developed are separate entities (e.g., the University of New South Wales, Sydney). The same organizational idea appears in office and business parks. The Denver Technology Center on the periphery of that city clearly falls into this category and is, in many ways, the city's new commercial, if not sentimental, downtown. Le Corbusier would have been pleased. The city is in a park. Many festival market areas such as Baltimore's Inner Harbor or Sydney's Darling Harbour fall into this category. Spatially, they are campus-like precincts.
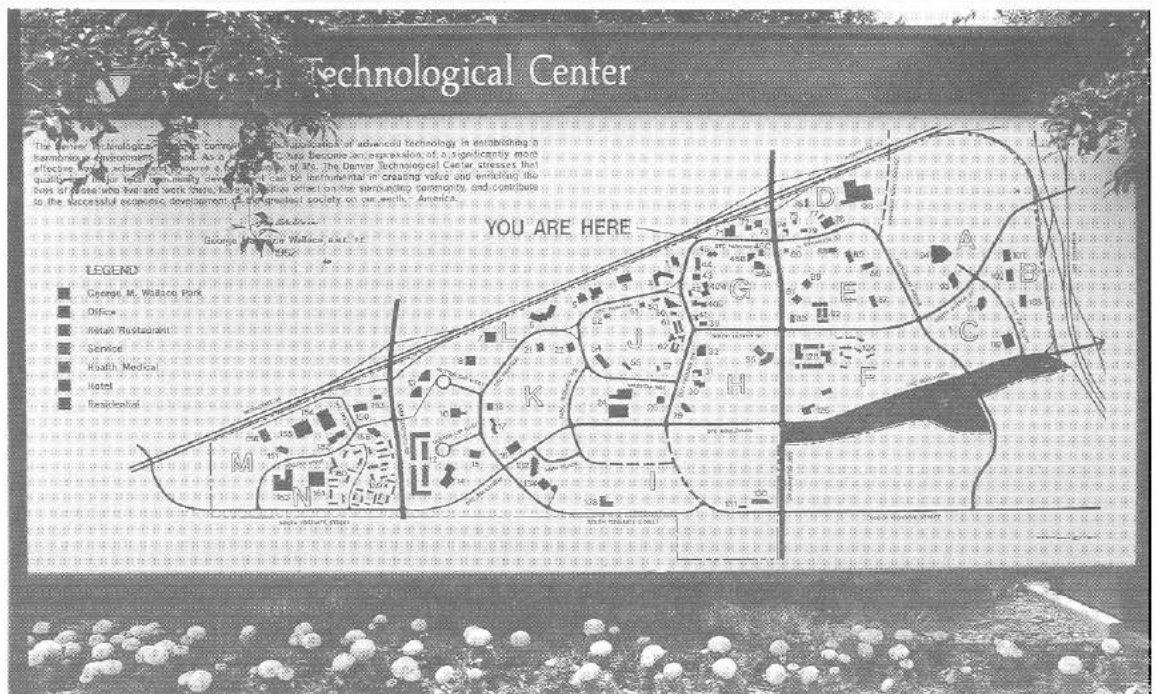
Figure 7 Plan, Denver Technology Center, Denver, Colorado, USA

The expansion of cities throughout the world has taken place at the periphery. While the population of the metropolitan area of New York City continues to grow and the territory covered to expand, the population of the city itself has declined from almost ten million in 1950 to a little under five and half in 1990. The major growth has been suburban. Vast tracts of housing and accompanying facilities have been built. In countries with strong socialist tendencies, such as India, the major developers have been the Public Works Departments of the Central and State governments. In the United States, it has been the private developer who has been responsible for all the development although much has been made possible by the development of extensive highway systems funded by various levels of government. At best, these suburbs have been thoughtfully designed in terms of providing the amities to enable all segments of the population to lead full lives. Others are simply dormitories.

The new suburbs have been built along one of two different lines of thought: the Bauhaus/Le Corbusian model or the Garden City model. The outskirts of major cities in Europe such as Paris and Madrid and Latin American cities such as Caracas (e.g., the 23 de Enero estate) have major developments of tower or slab blocks of housing set in park-like areas – the Le Corbusian model. Most of the suburban development in countries such as the United Sates and Australia have followed the Garden city model and still do.

(4) Urban Renewal

Urban renewal, as its name suggests, refers to the process of rebuilding precincts of cities that have become obsolete and abandoned or are in a state of decay. Sometimes, urban renewal has involved slum clearance and the total rebuilding of environments but more usually it has involved selective demolition and the integration of the old and new into a new design (e.g., Charles Center, Baltimore). Often this process has occurred without any overall cooperative intention but as frequently there has been a clear planning and design goal. The former would not be called urban design here while the latter would. It has involved the retooling of existing areas by upgrading their physical infrastructure and the provision of new usesfor existing buildings.

After the devastation of World War Two in Europe, vast segments of cities were rebuilt sometimes replicating the past (e.g., Warsaw), but more frequently to represent new ways of life. Cities such as Coventry and Rotterdam acquired new hearts. In many cities, particularly during the period 1960 to 1970, throughout the world major slums were cleared and new housing estates built. They have had mixed results because what appeared to be a highly physically deteriorated world was often socially highly viable. Singapore, has by all reports, been successful in its slum clearance projects.

A new type of 'urban' renewal started to occur during the last two decades of the twentieth century in the United States. As the demographic characteristics of suburban areas changed so the demand for new facilities in their shopping centers has occurred. What is happening is either that the traditional two-story suburban shopping district (e.g., Bellevue, Washington) or the standard 1950s shopping mall (e.g., Newport Center, California) are being transformed into a high-density multi-use enclaves. These new 'suburban downtowns' are rather like the traditional core areas of the old city. Sometimes this process has been abetted by the building of a new railway or subway link (e.g., Bethesda, Maryland). More often it has been due to the limitations of the land supply. What has generally occurred has been that the two or three story high areas have been replaced by high-rise commercial and residential developments. This process has often occurred willy-nilly but there are many examples where the redevelopment has been a concerted urban design effort. (e.g., Walnut Creek, California).
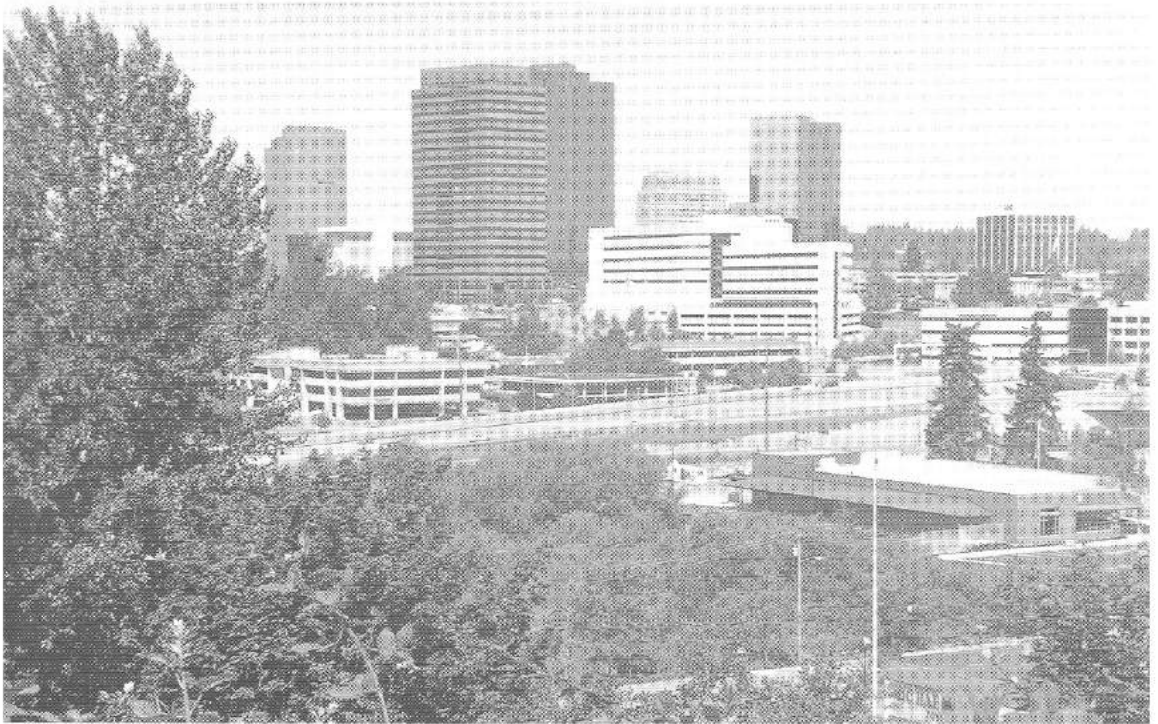
Figure 8 Bellevue, Washington,

The demolition and redevelopment of segments of core areas of cities remains a significant urban design concern. At the time of writing (2001), the demolition of sixty buildings in the Forbes and Fifth Street areas of Pittsburgh was planned in order for a retail center to be built. The goal is to revitalize a downtown precinct, but the use of the power of *eminent domain* by the city to obtain the properties has been controversial.

Unless a city is economically static urban renewal projects of this type will continue to be undertaken. Over the last fifty years much has been learnt about how best they can be conducted. The field of urban design as a professional endeavor has grown with this experience.

(5) Infrastructure Design

The nature and the physical character of the infrastructure of a city visually distinguish one city from another as much as the nature of their architectures. There are various ways of considering the infrastructure of a city. The broadest is to include everything that is part of the public domain whether privately or publicly owned. In this view, the streets and other transport facilities, the schools and other public institutions such as libraries and museums are all part of the public domain.

The public interest concern in designing infrastructure components has been not only with their own character but also with their catalytic effects. The location

and design of roads and streets had a major effect on the twentieth century urban design paradigms and projects. It will on the twenty-first too. Many of the issues involved in the design of infrastructure are outside the scope of urban design falling into one or other of the realms of city planning. The consequences of such decisions for the design of precincts of cities are, however, substantial because of the multiplier and side effects they involve. For instance the building of rail links and new train stations has spurred major developments around them.

There are a number of issues involved in infrastructure design that have been of direct interest in the urban design of precinctsin particular. A major concern has been the separation of pedestrian and vehicular traffic and in providing a more congenial environment for pedestrians. Pedestrians and vehicles can be separated in horizontal or vertical space. The former has been the standard with separate sidewalks being provided for pedestrians. In many places throughout the world vehicular streets have been closed to vehicular traffic and turned into pedestrian malls. The goal has been to attract people to use the facilities that abut them. Sometimes such malls have proven to be highly successful, and at others not. Many in the latter category have been reconverted to trafficked streets.
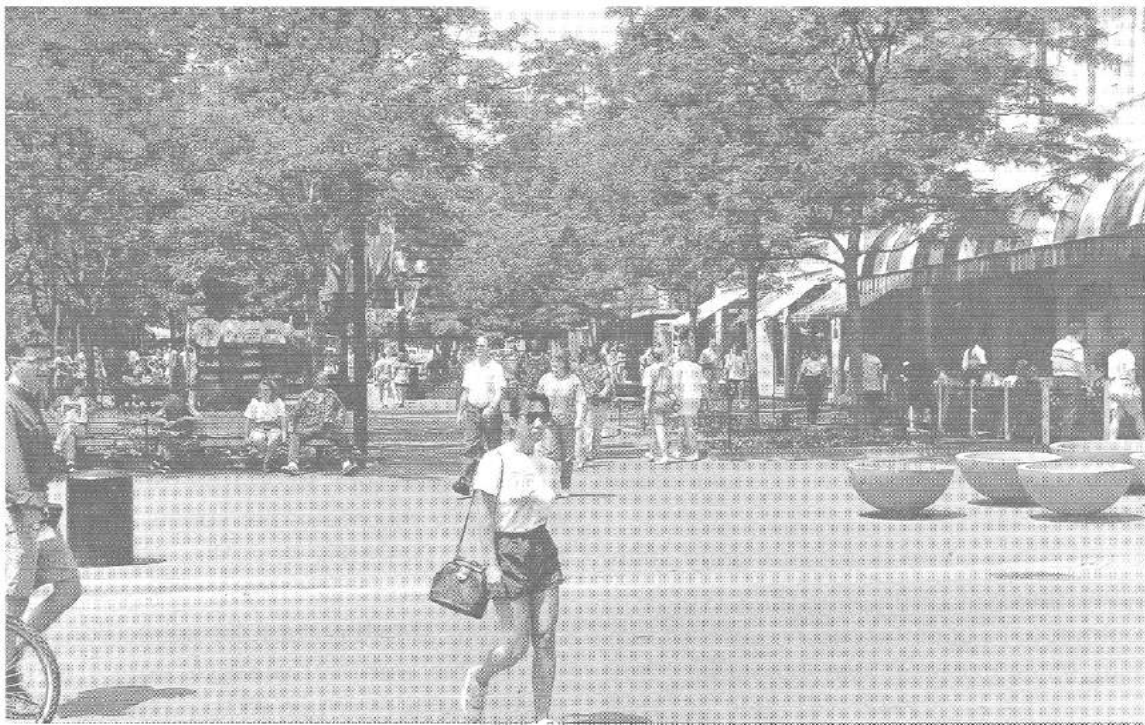

Figure 9 Pedestrian Mall, Boulder, Colorado, USA

The vertical segregation of pedestrians and vehicles has been carried out in many places also with varying degrees of success. A number of cities have quite extensive underground networks of passages enabling pedestrians to cross from block to block without interference (e.g., Sydney, Australia). Other cities have selected elevated systems of pedestrian paths for their central business areas. They take on various forms. One form is to have vehicular traffic kept at ground level and pedestrian plazas and walkways built above them (e.g., La Defense, Paris; the new Naples, Italy Central Business District) while another is to provide pedestrian bridges linking interior quasi-public spaces of buildings into an extended walkway – a skyway system (e.g., Minneapolis, Minnesota).

Urban Design Procedural Types

There are three types of work that vary in the degree of control that urban designers, as individuals or as part of a group of professionals, in conjunction with developers, have over a project. They are (1) where the urban designer is part of the development team that carries a scheme through from inception to completion of construction, (2) where the urban designers identify the issues and problems and then create illustrative site plans and set the parameters within which a number of developers working on bringing the project to fruition have to work, and (3) where the urban designer designs some general policy requirements for a city or a precinct within it. This categorization is not as sharp as it may seem because the designer's activities may well overlap the divisions implicit in

it. In addition, a project may start off as one type and then end up another.

(1) Total Urban Design

Total urban design is really a combination of large (in geographical scale) architecture and landscape architecture. A team of people, working as an individual, holds the control – the infrastructure and buildings are designed as a unit. An in-house team of engineers, architects, and landscape architects, amongst others complete the details and in-house construction managers supervise the building of the project. The debate about ends and means takes place entirely within the team. In many architects' minds, total design is seen as the norm of urban design practice.

They have been some major urban design projects around the world that sit in this category. They vary in scale from new towns to precincts of cities. Brasilia is, perhaps, the largest of the total urban designs. Many of the new towns built in the Soviet Union between 1950 and 1980 are similar in character and a myriad of company towns built around the world are other examples of total urban designs. Few company towns house more than 10,000 people. They tend to be administered communities although some have evolved into more traditional types of settlements; others are now ghost towns having been abandoned when their purposes were served.

Most total urban designs are precincts of cities. Two of the best known would be the capitol and the city center complexes in Chandigarh both designed by Le Corbusier who had been given a free hand in their design. Various architects and planners have designed the remainder of Chandigarh. Probably the best North

American example of total urban design dates back to the 1930s – Rockefeller Center in New York. Over the past fifty years there have been precincts of cities that have been designed and developed by one organization but these are seldom more than three or four traditional city blocks in size.
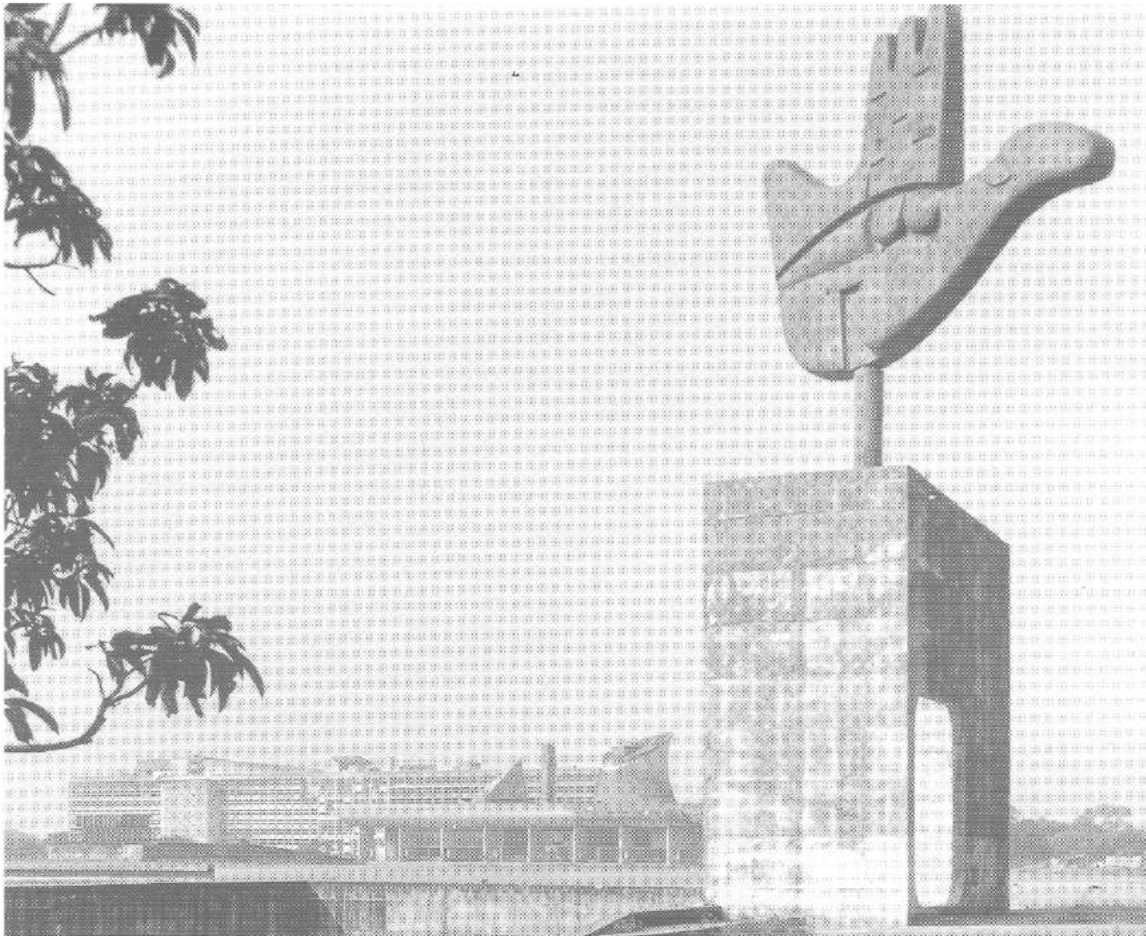

Figure 10 The Capital Complex,Chandigarh, USA

There are many developer-initiated suburban developments around the world that are total urban designs. They have been developed and designed by one team. In many countries with socialist governments they were developed and designed by Public Works Departments or their equivalents but in the United States they have been privately developed. Some of these developments have been vast in size covering many square kilometers. Often they have ended up being visually boring so that developers, public and private, have resorted to relying on piece-by-piece urban design procedures.

One needs to be a little cautious about thinking of total urban designs as really *total.* Seldom does the development team have a completely free hand to do what they wish within the market economy of democratic societies. Almost all projects are embedded

within geographic areas whose population imposes some control over what can take place. In addition, the project has to be a carried out within the laws of a country although they are many examples of the laws being relaxed by politicians in order to get a project built. In totalitarian societies the situation is different. In redeveloping the heart of Bucharest during the 1970s, President Nicole Ceausescu did what he wanted to do. The failure to have a brief that had any external validity means that the capitol complex as designed by Anca Petrescu to Ceausescu's orders has lain empty seeking a use since his demise. A totalitarian ruler was behind the design of Yamoussoukro too.

(2) Piece-by-piece Urban Design

Many urban redevelopment projects and suburban developments are so expensive and/or large in size that a single developer is incapable of financing them single handedly.. In other cases land holding patterns are so fragmented that having a single developer tackling all the sites in a coordinated manner is legally or administratively impossible. In these cases, a single design team develops a conceptual or illustrative project design showing all the buildings and infrastructure and the 'pieces' of the scheme then parceled out to different developers and their architects to build piece-by-piece. The developing company is chosen through some process of design review. The major developer may be the one to build the overall infra-structure or alternatively all the sub - developers may have to provide the components that relate to their projects.

To ensure that the original intention is not lost, each sub-development has to be built within a set of guidelines. Sometimes these guidelines are generic to the whole development and sometimes applied independently to each site to be developed. This type of work has been referred to as piece-by-piece urban design because it is a coordinated effort projected to take place within a given time period. Difficulties in financing often mean that this time period can extend into three or four decades.

One of the best-known examples of piece-by-a-piece urban design is Battery Park City in Lower Manhattan, New York (Barnett, 1987; Gordon, 1997). Dating back to the early 1960s the project was all but completed by 2000. A number of illustrative urban designs were developed over a period of twenty years each reflecting contemporary thinking about what makes a good city until a design by Cooper Eckstut together with a series of urban design guidelines was accepted as policy. What is generally regarded as a fine unified urban precinct has resulted from the work of several developers and their architects.
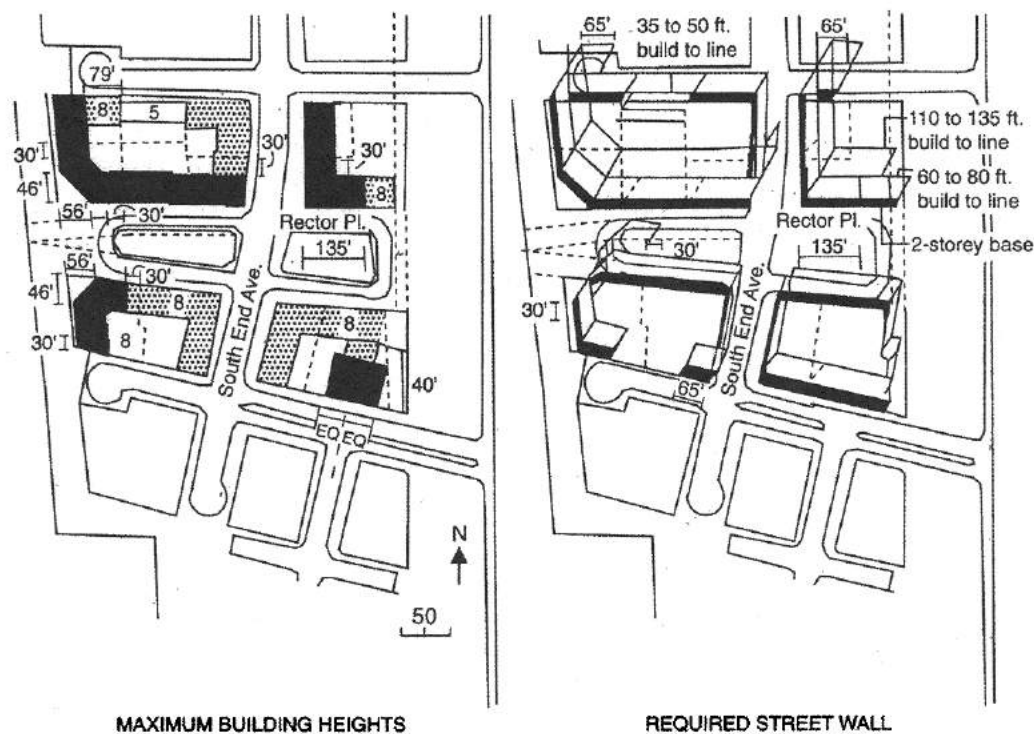
MAXIMUM BUILDING HEIGHTS   REQUIRED STREET WALL

Figure 11 Design Guildelines for Rector Place, Battery Park City, USA
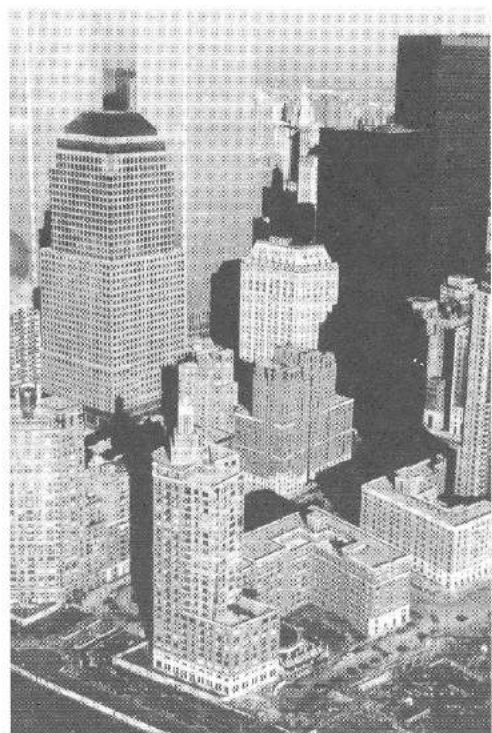

Figure 12 General View

(3) General Urban Design Policy Formation

This type has already been mentioned under the rubric of project types above. All cities are built within a set of laws. They have been referred to as the invisible web of factors that shape urban and building form (Lai, 1988). These laws include those that cover taxation policy, marketing arrangements and zoning laws and building codes. These laws can provide incentives to design in a particular way or they can be restrictive. They can be applied on a citywide basis, precinct basis or, more controversially, on a single building lot basis. Suffice to say here that their formulation represents one type of urban design work.

Postscript

The type of professional work that clearly distinguishes urban design from landscape architecture and architecture is piece-by-piece project design. The concern is with the generic qualities of built form that enhance the quality of life afforded by cities and other human settlements within specific terrestrial and cultural settings. Turning these general qualities into specific design principles and then into urban and building design guidelines is the core of urban design work. The quality of the results reflects and, whether we like it or not, contributes to the living culture of a city. We need to build on the experiences that we have had.

References

Barnett, Jonathan (1987). In the Public Interest: Urban Design Guidelines. *Architectural Record.* 175 (8). 114-125.

Broadbent, Geoffrey (1990). *Emerging Concepts in Urban Space Design.* London and New York: Van Nostrand Reinhold International.

Gordon, David (1997). *Battery Park City: Politics and Planning on the New York Waterfront.* New York: Gordon and Breach.

Lang, Jon (1994). *Urban Design: The American Experience.* New York: Van Nostrand Reinhold.

Lang, Jon (2000). Sydney 2000. *Indian Architect and Builder* 14 (1). 95-139.

Rapoport, Amos (1991). *History and Precedent in Environmental Design.* London, Plenum.

Siswanto, Andy (2000). Lecture to Semarang Urban Design and Conservation Workshop, Semarang, Indonesia. November 21, 2000.