URBAN OPEN SPACE : THE EFFECT OF
OBJECTIVES AND REGULATIONS

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ABSTRACT

This thesis is focused on one component of the urban environment: open space, specifically open space in the downtown core. Taking the position that supplying adequate and appropriate open space is an important civic responsibility, the thesis investigates the proposition that such open space can be created through the combined effect of urban open space objectives and urban regulations.

The proposition is investigated in three parts. First, the influence of urban regulations on urban open space development is examined. The regulatory histories of New York's, San Francisco's and Vancouver's downtown cores are reviewed to identify regulations that have influenced open space. Most attention is given to Vancouver's regulatory history and urban development patterns. In general, the investigation revealed that, while San Francisco defined what constitutes adequate and appropriate urban open space, New York and Vancouver did not. Because of this lack of definition the regulations continued to be developed in response to immediate situations rather than in response to open space objectives.

The second part uses the historic shifts in the understanding of open space to identify four fundamental objectives for the development of adequate and appropriate urban open space. The objectives are: open space for public use; open space to shape the urban environment; open space to improve environmental quality; and open space as a network.
The third part compares the regulations, identified as influencing open space, with the proposed objectives. This comparison determines how effectively the regulations achieve the objectives. Finally, a decision-making process is outlined that would enable the narrow and effective actions of the regulations achieve the broad objectives identified for urban open space.

The thesis concludes that through the combined effect of urban open space objectives and urban regulations, cities can define adequate and appropriate open space and influence development to create such spaces.
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CHAPTER I
INTRODUCTION

1.1 THE THESIS

Open spaces: The sidewalks, squares, parks, boulevards, plazas, malls and leftover spaces are vital components of the urban environment. Lawrence Halprin, in his book Cities, describes their importance:

it all starts with the basic urban open spaces which give a city its character; the spaces within which its life takes place . . . these set the tone of the city, in fact, establish the qualities and character of its presence. (Halprin 1972, p. 7)

Within a city the open spaces are accessible to all; they comprise the public components of the urban environment. The open spaces offer special potential for use; they are the places where people meet, socialize and recreate. The open spaces combine with the built form to shape the urban environment. They also provide habitats for other forms of life enabling the natural environment to enter the urban environment. Finally the open spaces contain the pedestrian circulation network providing connections between where people are and where they want to be.

Insuring the provision of adequate and appropriate open space is an important civic responsibility. Yet cities have limited their role in open space development. These limitations are primarily due to lack of vision and lack of resources. Most cities have not committed the necessary effort to define or realize adequate and appropriate open space.
Without a clear definition of urban open space, in most cities, it has been left to zoning regulations to provide for the development of open space. Generally, the influence of these regulations have been either direct or indirect. Direct influences are the results of regulations intended to control open space development. Indirect influences are the results of regulations, intended to control another aspect of the urban environment, that indirectly controls the development of open space. For example, in 1961 New York adopted regulations to stimulate the development of plazas (Barnett 1982, p. 113). By stimulating plaza development these regulations directly influenced urban open space, whereas the first zoning ordinance, adopted by New York in 1916, exerted an indirect influence. The 1916 ordinance included bulk controls that allowed development to cover 100% of the site (Barnett 1982, p. 61). These controls indirectly restricted open space to the public sidewalk.

Typically the influence of regulations on open space can be characterized by their narrow focus and uniform results. The 1961 New York plaza regulations stimulated the development of many similar plazas but did nothing to affect the development of other forms of open space. Generally, the motivating factors behind the adoption of regulations have not been the development of adequate and appropriate open space. Instead many of the regulations were adopted to counteract the perceived ill effects of previous regulations. The 1961 New York plaza regulations were for example, adopted to increase the amount of open space that had been limited to the sidewalks by the 1916 zoning ordinance.
The effect of regulations alone is not enough to achieve the development of adequate and appropriate open space. The primary deficiency of the regulations, is the failure to define what constitutes adequate and appropriate open space. Without this definition, regulations continue to be developed in response to immediate situations, rather than in response to the well considered goal. Adequate and appropriate open space should be developed through the open space planning process. Through this process the goal is set, objectives that define the goal are identified, and regulations aimed at achieving the objectives are developed. The planning process enables the otherwise narrow and uniform regulations to be used to achieve the identified open space objectives. Therefore, the purpose of this thesis is to investigate the proposition that:

THE DEVELOPMENT OF ADEQUATE AND APPROPRIATE OPEN SPACE REQUIRES THE COMBINED EFFECT OF URBAN OPEN SPACE OBJECTIVES AND URBAN REGULATIONS.

1.2 THESIS ORGANIZATION

This thesis into the effect of objectives and regulations on urban open space development focuses on the downtown core, where both the demand for open space and the influence of regulations is intense.
Chapter 1: **INTRODUCTION**

Asserts that the development of adequate and appropriate urban open space requires the combined effect of open space objectives and regulations.

Chapter 2: **THE EFFECT OF THE REGULATIONS ON URBAN OPEN SPACE**

Investigates the effect of regulations on urban open space development. The regulatory histories of New York's, San Francisco's and Vancouver's downtown cores are reviewed to identify regulations that have influenced open space. From this review, the type of regulation, the motivation for adopting the regulation and the influence of the regulation on open space development are determined. Through this process the current effect of regulation on urban open space development is identified.

Chapter 3: **THE DEFINITION OF OBJECTIVES FOR URBAN OPEN SPACE**

Defines adequate and appropriate open space, and expresses that definition as a series of fundamental objectives for the development of urban open space. This is done by reviewing the history of urban open space to identify fundamental shifts in the understanding of urban open space. This understanding is then used to generate modern open space objectives.
Chapter 4: THE EFFECT OF THE OBJECTIVES AND THE REGULATIONS ON URBAN OPEN SPACE

Compares the regulations identified in Chapter 2, as influencing open space, with the proposed objectives. This comparison determines how effectively the regulations achieve the objectives. Finally, a decision-making process is outlined that would enable the regulations to achieve the open space objectives.

Chapter 5: CONCLUSION

Concludes that the development of adequate and appropriate open space requires the combined effect of urban open space objectives and urban regulations.

1.3 THE DEFINITIONS

Urban Environment encompasses both urban form and urban function. Urban form incorporates the spatial arrangement of the city, while urban function incorporates its economic, social and political functions. This study is primarily concerned with urban form. Urban form is made up of two components: open space and built form. These two components combine with the forces of urban function to create the complex relationships of the urban environment.

Urban Open Space incorporates all space that is open to the sky and accessible to the general public in the urban environment. While a park is the most obvious example, open space encompasses more than just parks. The long list of
Urban open spaces also includes sidewalks, alleys, squares, parks, boulevards, avenues, malls, plazas and left-over spaces.

**Urban Regulations** includes all the mechanisms city governments use to control or influence the physical development of cities. Zoning was one of the first and is still the most pervasive mechanism. Urban regulations exercise public control over the use and development of private property, they represent a method for achieving specific public interests through the development of private property.

**Urban Planning** is the process through which city governments mediate the competing interests of the developer, the city, and the public, in urban development. As a process, planning incorporates a number of critical steps: determining a goal; setting objectives that define the goal; and developing mechanisms, including regulations, aimed at achieving the objectives. Finally, the process and the results of the process are reviewed. Through urban planning, city governments influence private development in the public interest.
CHAPTER 2

THE EFFECT OF REGULATIONS ON URBAN OPEN SPACE

The purpose of this chapter is to investigate the influence of urban regulations on open space. To discover what regulations have influenced urban open space, the regulatory histories of New York's, San Francisco's and Vancouver's downtown cores are reviewed. From this review the type of regulation, the motivation for adopting the regulation, and the effects of the regulation on open space are determined.

New York, San Francisco and Vancouver were chosen for study for a number of reasons. Both New York and San Francisco are recognized leaders in urban development and urban regulation innovation. Their regulatory histories are documented and available for study. The sections on New York and San Francisco are general reviews derived from secondary sources. The opportunity for primary research is used to assess the effect of regulations on open space in Vancouver. This section relies on the records of the Vancouver Planning Department and is a study of a prototypical area in the downtown core.

Taken together, these three investigations provide general information on the influence of regulation on open space for two cities and specific examples of that influence for one.

Urban regulations encompass all the mechanisms city governments have used to control or influence their physical development. Regulations exercise public
control over the use and development of property. They represent a method of accommodating the public and private interests in the development of private property. Allen Fonoroff, in the book *The New Zoning: Legal, Administrative, and Economic Concepts and Techniques*, describes the function of regulations as "to solve difficult land use and development problems in furtherance of community objectives within the constitutional guarantees of a democratic society" (Fonoroff 1970, p. 82).

The first mechanism designed to regulate urban development that was widely adopted in North America was zoning (Hason 1977, p. 1). Originally zoning attempted to restrict land use and dictate built form. Over time communities refined their urban regulations to do more, to encourage and influence development. Thus, the early zoning controls evolved into complex techniques and procedures that comprise modern urban regulations.

2.1 NEW YORK

From the review of the regulatory history of New York's downtown core, two distinct forms of open space regulation are evident: 1. fixed controls, and 2. fixed plaza controls.

1. **Fixed Controls.** The first comprehensive zoning ordinance was adopted by New York in 1916 (Barnett 1982, p. 61). The early controls established zones, and within each zone regulations specified the size and shape of buildings plus their use. These regulations allowed development 'as of right', or without
the need for individualized administrative review. The idea implicit in these early controls was development according to standards stated in the controls. As Jan Krasnowiecki says early zoning "assumes that most, if not all, development will occur under the pre-established rules" (Krasnowiecki 1970, p. 3).

Within early zoning controls a minimum of administrative flexibility was necessary. The variance mechanism provided that limited flexibility (Babcock 1966, p. 6). Variance is permission to be exempt from the established standards. Therefore, within the early zoning system, developments either complied fully with the control or they were granted variance and were exempt from some of the control.

New York's 1916 zoning ordinance permitted the building to cover 100% of the site at ground level (Barnett 1982, p. 113). The result of this regulation was to limit urban open space to the public sidewalks. The 1916 controls also sought to "impose a minimum standard of light and air for streets, which particularly in lower Manhattan, had become increasingly dark and canyon like as buildings grew taller and taller" (Barnett 1982, p. 61). To achieve that goal, the regulations specified height and bulk controls that limited building size and dictated building shape. They imposed setbacks on buildings above a certain height. These regulations limited the height a building could rise, in proportion to the width of the street it fronted on, before it had to set back.

As development continued under these regulations a characteristic urban pattern emerged. This pattern was comprised of development after develop-
ment built to the allowed 100% site coverage (Figure 2.1). The only breaks in
the pattern were window wells and service entrances. Urban open space was
limited to the public sidewalks and the occasional urban park (Whyte 1981,
p. 24).

2. **Fixed Plaza Controls.** Two factors influenced the second form of urban
open space regulation. The first was the growing demand for urban open space
that could not be met through the early 100% site coverage controls (Barnett
1982, p. 113). The second was the rise in popularity of the modern movement in
architecture. This movement, inspired by Le Corbusier's vision of the tower in
the park, had a tremendous impact on urban form (Evenson 1969, p. 8). These
two factors resulted in the incorporation of fixed plaza controls into the urban
regulations.
In 1961, New York’s zoning regulations were completely revised (Barnett 1982, p. 72). This revision introduced a series of new regulatory tools including the floor area ratio and the sky exposure plane. The floor area ratio, the ratio of building to lot size, was designed to regulate building bulk. The sky exposure plane was introduced to limit building height. These tools replaced the setback regulations of the 1916 controls (Barnett 1982, p. 113).

One major goal of the revision was to create more urban open space. To accomplish this goal, the regulations offered a bonus of an increase in the permitted floor area of up to 20% with the provision of a plaza (Barnett 1982, p. 113). For each square foot of plaza space, the developer was allowed 10 feet of additional floor area (Whyte 1980, p. 112). As originally enacted this zoning mechanism did not contain a detailed description of the plaza’s necessary design features; the major requirements were that the plaza be open to the sky and accessible to the public at all times.

Developments influenced by these controls exhibit a characteristic pattern of towers set in plazas. As urban developments continued under these regulations the earlier urban pattern dictated by the 1916 zoning regulations was interrupted by the new developments, and a different urban pattern emerged (Figure 2.2).
Jonathan Barnett, urban designer with the City of New York for many years, describes the effect of these regulations as:

One of the most widely used features of New York's 1961 zoning resolution...because the plaza is obtainable 'as of right' there has been no way to direct or control its use...the first plaza on an avenue is a welcome relief; by the time there are five, the spaces they create seem confused and irregular. (Barnett 1970, p. 127)

The desire expressed above, by Barnett, to have more effective control over urban development resulted in the amendment of the 1961 zoning ordinance.

In 1975 New York amended the 1961 zoning ordinance to require that plazas, developed under the bonus provisions be "amenable as well as accessible to the public" (Whyte 1980, p. 112). The amendment was in the form of specific guidelines to influence plaza development. These specified: size, location (on
the site) and shape requirements; minimum seating; openness to the sidewalk; maximum elevation; tree planting; lighting and handicapped access. Retail and service uses were required adjacent to plazas to generate pedestrian activities (Cook 1980, p. 88).

This review of New York's downtown regulatory history identifies two distinct forms of regulations that influenced urban open space. In the first, fixed controls exerted an indirect influence on open space from 1916 to 1961. These controls effectively limited open space to the public sidewalks. In the second, fixed plaza controls exerted a direct influence on open space from 1961 onwards. These controls encouraged the development of urban plazas and before their amendment in 1975 a large number of similar plazas were developed. Both forms of regulations had a narrow focus and within that focus were extremely effective.

Originally, the fixed controls were adopted to protect environmental quality. The fixed plaza controls were adopted to solve the problems created by the 1916 fixed controls. The 1975 amendment was adopted to correct the deficiencies of the 1961 controls. This chain of events illustrates that the motivation for adopting controls was not influenced by a general understanding of open space. Instead, the motivation was reactionary. The new controls were adopted to correct the perceived ill effects of the earlier controls.

The review indicates that while over time the regulations were altered, the basic approach, of regulations acting without explicit open space objectives,
remained unchanged. The influence of the regulations can be characterized by a narrow focus and uniform interpretation.

2.2 SAN FRANCISCO

From the critical review of the regulatory history of San Francisco's downtown core, three distinct approaches to regulation and open space are evident: 1. early controls; 2. fixed plaza controls; and 3. open space planning.

1. Early Controls. The first zoning ordinance was adopted by San Francisco in 1921 (Cook 1980, p. 134). These regulations concentrated on restricting land use in residential areas and did not influence the size or density of downtown buildings. Therefore, the early regulations exerted no influence on the development of urban open space in the downtown core.

2. Fixed Plaza Controls. In 1960 San Francisco adopted a city wide zoning ordinance establishing height and bulk limits for the downtown core, however these regulations were so generous they had no effect (Halpern 1978, p. 162). In 1968 these regulations were amended. The amended regulations included a bonus system for plazas, similar to New York's 1961 plaza regulations.

In the bonus regulations plazas were defined as publicly accessible open space at the base of buildings. Under this system developments providing plazas were granted additional floor area. Each square foot of plaza was credited with 6, 8 or 10 square feet of additional building space, depending on the zoning district,
up to a maximum of 15% above the outright allowable floor area ratio (City and County of San Francisco 1983, p. 50). The City of San Francisco describes the plazas that were developed under these controls as:

only marginally useful because they are either inaccessible, are sited in the shadows of buildings, and/or lack seating or other amenities that make people feel welcome and comfortable. (City and County of San Francisco 1983, p. 50)

3. Urban Open Space Planning. As the pace and complexity of urban development increased the pressure for flexibility in the interpretation of fixed regulations also increased. Michael Heyman describes planners as:

Recognizing that regulations...cannot intelligently cope with the problems or maximize on the opportunities presented by contemporary urban physical development, and that regulatory devices which more individually and sensitively treat particular development proposals are necessary. (Heyman 1970, p. 42)

With this increasing demand for flexibility the emphasis shifted from a fixed set of regulations, towards a planning approach.

San Francisco produced the Downtown Plan in 1983. The Plan was prepared in response to "public concern over the degree of change occurring downtown" (City and County of San Francisco 1983, p. 1). The Plan includes a major section on downtown open space, stating:

Past policies produced open space in an unplanned fashion, and in many cases, open space of unsatisfactory quality was provided. This Plan approaches open space in a more comprehensive and systematic way and establishes guidelines to ensure the quality of future open space. (City and County of San Francisco 1983, p. 50)

To overcome these identified deficiencies, the Downtown Plan outlines three major open space objectives. They are:
1. Provide quality open space in sufficient quantity and variety to meet the needs of downtown workers, residents and visitors.

2. Create an open space system accessible to and usable by everyone downtown.

3. Provide contrast and form by consciously treating open space as a counterpoint to the built environment. (City and County of San Francisco 1983, pp. 55-58)

The Plan supports these objectives with a series of policies and implements the policies through the actions of regulations.

The first objective is supported by policies which set standards for human comfort in the design of open spaces by minimizing wind and maximizing sunshine. This objective is also supported by a system that classifies the various open space components necessary to meet the needs of downtown San Francisco.

The second objective is supported by policies that define accessible and usable. In this case proximity is identified as the key variable. An inventory of San Francisco's downtown open spaces was undertaken to identify areas deficient in open space.

The third objective is reinforced by policies that influence the location of open space in order to create "distinctive openings in the downtown's otherwise dominant streetwall" (City and County of San Francisco 1983, p. 58). The objective is reinforced by policies that introduce elements of the natural landscape, such as vegetation and water, into the downtown core.
The comprehensive and systematic approach of the Plan to urban open space development is illustrated by Proposition K which was one of a series of regulations adopted to implement the open space objectives. Under the first objective, solar access was identified as one of the environmental factors critical to maintaining human comfort levels. This factor was translated into Proposition K, which states:

City owned parks and open spaces are now protected by Proposition K which prohibits the City from issuing a building permit authorizing construction of any structure exceeding 40 feet in height that would shade any property under the jurisdiction of, or designated for acquisition by, the Recreation and Park Commission. Construction that would shade these properties from between one hour after sunrise to one hour before sunset could not be permitted, unless it is determined that the impact on the use of the property would be insignificant. (City and County of San Francisco 1985, p. 64)

Therefore, Proposition K ensures that public open space will have adequate solar access.

In 1985, San Francisco produced the Recreation and Open Space Plan, which incorporates the open space section of the Downtown Plan into a city wide open space plan. The two documents represent the most systematic and comprehensive treatment of urban open space development found in the three cities examined.

This review of San Francisco's downtown regulatory history identifies three distinct approaches to open space regulation. In the first, the early controls were so generous that they exerted no influence on open space from 1921 to 1968. In the second, the fixed plaza controls exerted a direct influence on open space from 1968 to 1983. These controls, which were similar to New York's,
exerted tremendous influence on open space development. Indeed, the influence of these controls was so great that their effect, in part, provided the motivation for abandoning the existing regulation based approach and replacing it with the planning based approach. In the third approach, urban open space planning was adopted in 1983.

This review indicates that the regulatory approach was replaced with the planning approach in 1983. The planning approach is characterized by articulated open space objectives and regulations aimed at achieving the objectives.

2.3 VANCOUVER

Investigating the influence of Vancouver's downtown regulations on the development of downtown open space involves reviewing the regulatory history and investigating open space development.

From the review of Vancouver's downtown regulatory history five distinct periods are evident. The first begins in 1886 with the incorporation of Vancouver. The second begins in 1928 with the adoption of the first zoning bylaws. The third starts in 1956 with the adoption of the Zoning and Development Bylaw. The fourth starts in 1974 with the adoption of the Downtown District Official Development Plan. The fifth and latest period begins in 1979 with the adoption of the Central Waterfront Official Development Plan. For a detailed outline of downtown Vancouver's regulatory system history see Appendix I.
To investigate open space development a representative study area there within the downtown core has been selected, as shown on Map 2.3.

MAP 2.3 STUDY AREA

The northern boundary follows the harbour's edge. The southern boundary of Georgia Street was expanded to include the Pacific Centre and the Court House Art Gallery Complex. The eastern boundary of Granville Street was expanded to include the Hudson's Bay Company's building. The western boundary follows Thurlow Street. Within this area are examples of urban open space development that occurred under the five regulatory periods outlined above. Map 2.4 OPEN SPACE indicates the open space within the study area. Map 2.5 DEVELOPMENT BY REGULATORY PERIOD indicates the developments by regulatory period. For a detailed review of the developments within the study area see Appendix II.
The following discussion of urban open space development, urban regulation and their relationship is presented under the five regulatory periods outlined above. Each of the periods is discussed under two headings, urban regulation and urban open space.
MAP 2.5 DEVELOPMENT BY REGULATORY PERIOD

Information not available.
Urban Regulations. When Vancouver was incorporated as a city in 1886, development was almost completely unregulated. While there was a series of building bylaws, there were no regulations that dictated urban form or controlled land use downtown (City of Vancouver 1963, p. 1).

Urban Open Space. As indicated on Map 2.6 - 1886-1928 INCORPORATION, fourteen developments within the study area date from this period. These developments fall into two categories, private or public developments.

The private developments include the Hudson's Bay Company, the Georgia Hotel and the Credit Foncier building. Without exception these developments were built to the lot lines. Stepping back from the lot lines occurred only to allow light into the interior of the buildings, or servicing at the back of the buildings. Another characteristic of these developments was their carefully articulated front facades. These front facades add visual interest and human scale to the developments.

The public developments include the Court House, Christ Church Cathedral and the Old Post Office. Two examples within this group, the Court House and Christ Church Cathedral, were developed in the middle of their lots, well back of the lot lines. This characteristic form of development resulted in the creation of urban open space. These spaces were landscaped and incorporated
into the public realm, where the open space acts as a symbol to reinforce the public use of the developments.

In this period urban regulations were limited to building bylaws. These bylaws made no reference to urban open space. Therefore, the existing regulations had no influence on the development of urban open space.
1928-1956 THE FIRST ZONING BYLAWS

Urban Regulations. Vancouver and the surrounding municipalities became interested in zoning controls in the 1920's. In 1921, Point Grey was the first municipality in Canada to adopt a simple but comprehensive zoning bylaw. South Vancouver adopted an almost identical one in 1924 (Hulchanski 1979, p. 4).

In Vancouver, the Town Planning Commission was established by City Council in 1926. The Commission was authorized to assist Council in an advisory capacity regarding the adoption and future amendments of a city plan and zoning bylaw (Hulchanski 1979, p. 4). That same year the Commission hired Harland Bartholomew and Associates, City Planners and Landscape Engineers from St. Louis, Missouri, to prepare a master plan for the City (Bartholomew 1928, p. 10).

As Arthur G. Smith, Chairman of the Town Planning Commission, stated in the introduction to A Plan For the City of Vancouver:

People began to strive to form an idea of Vancouver as a unit and to study the layout of the City with the intention of forming an opinion as to whether the structure is fitted to adequately carry out the function of a metropolitan centre. (Bartholomew 1928, p. 24)

In February, 1927, Vancouver adopted the interim zoning bylaw #1830 and established the Zoning Board of Appeal (Hulchanski 1979, p. 5). The interim controls were largely to prevent the intrusion of apartment houses into the single or two family residential areas. Three districts were outlined in the
regulations: i) one and two family districts; ii) apartment districts; and iii) unrestricted districts. In the first two districts, the size of yards was regulated, but no provision was made for the restriction of building height. In the unrestricted districts no regulations of any kind were outlined (Bartholomew 1928, p. 211).

In 1928, *A Plan For the City of Vancouver* was completed by Harland Bartholomew and Associates. Walter Hardwick, in his book *Vancouver*, summarized the Plan as calling for:

A core-orientated, sectorally-segregated, radially organized city. This built naturally on the established patterns in Vancouver, and was consistent with the main academic and professional views of the time. (Hardwick 1974, p. 27)

The Plan was not officially adopted. However, a new consolidated zoning bylaw, based on the Plan's recommendations was. This bylaw replaced the interim zoning bylaw #1830 (City of Vancouver 1981a, p. 6).

In 1929, the three municipalities of Point Grey, South Vancouver and Vancouver amalgamated to form the City of Vancouver. The zoning bylaw was updated and became bylaw #2516 to incorporate this change in 1930 (City of Vancouver 1981a, p. 5).

The scope of bylaw #2516 was expressed in its preamble:

A bylaw to regulate and restrict the location and use of buildings and the use of land within the City of Vancouver; to limit the height and bulk of buildings; to prescribe the size of yards and other open spaces and maximize density of population and for these purposes to divide the City into districts. (Bartholomew 1928, p. 220)
Under this bylaw the three districts of interim bylaw #1830 were expanded into ten districts. In each of the ten districts complete regulations were provided, controlling use, height, size of yards and density.

The entire downtown core, including the study area, was designated General Business District. In this district, the most intensive use of property was permitted. All types of commercial uses, warehouses, and many types of industrial uses were allowed 'as of right'. Buildings could be built up to the lot lines as no front, rear or side yards were required except for residential premises (City of Vancouver 1981a, p. 6). A complex set of height to air space requirements were adopted controlling the bulk and mass of downtown developments. The bylaw stated:

On a street 80 feet or more in width...above 120 feet in height the super structure of one-third of the base area must be set back one foot for every three feet of height...on a 66 foot street a building can be erected to 99 feet and above a similar setback is required. (Bartholomew 1928, p. 229)

Under these regulations, buildings were allowed to cover 100% of the site up to a height of one and a half times the width of the street. Above that height the building was required to set back in proportion to their height. The maximum height allowed was two and a half times the street width (City of Vancouver 1981a, p. 16). These regulations were intended to limit the negative effects of development on downtown streets. As stated in A Plan For the City of Vancouver, "in preparing the setback regulations, careful studies were made as to the possible amount of sunlight reaching the street surface" (Bartholomew 1928, p. 229). The setback regulations adopted in Vancouver show the influence of the 1916 New York zoning ordinance.
Under Vancouver's first zoning bylaws, the regulations were fixed; there was little opportunity for administrative flexibility. The only exemption from the controls was through the Zoning Board of Appeal, which had the power to modify the regulations in special circumstances.

**Urban Open Space.** As shown on Map 2.7 - 1928-1956 THE FIRST ZONING BYLAWS, six developments within the study area date from this period. Three of the most significant are the Hotel Vancouver, the Georgia Medical Building and the Marine Building.

Developments from this period are built to the lot lines. Any exceptions to this form are to accommodate light and servicing into the building. Therefore, urban open space is limited to the public sidewalks. Two of the developments, the Hotel Vancouver and the Marine Building, exhibit the characteristic form inspired by the setback regulations adopted first by New York and later by Vancouver.

The 1961 New York zoning ordinance influenced both urban regulations and architectural style; in fact, the characteristic setback form dictated by the controls became a popular architectural style. From the documentation available, in Vancouver, it is difficult to determine whether this same type of form exhibited in the Hotel Vancouver and the Marine Building was a direct response to the urban regulations in force in Vancouver or to the prevailing architectural style, popularized by the New York regulations. However, Vancouver's urban regulations did have an impact on the form of open space.
The 100% allowable site coverage enabled the buildings to occupy the entire site and restricted open space to the public sidewalks.
1956-1974 THE ZONING AND DEVELOPMENT BYLAW

Urban Regulations. Following a proposal from the Planning Commission, Vancouver City Council established the Planning Department and the Technical Planning Board in 1952 (City of Vancouver 1981a, p. 14). The Planning Department was made responsible for the administration of the zoning bylaw. With the establishment of the Planning Department, "it became obvious that the legal and administrative framework of the 1928 Zoning bylaw was inadequate to cope effectively with the changing city" (City of Vancouver 1963, p. 2).

In 1956, City Council adopted the new Zoning and Development Bylaw #3575. As described by the City, in the General Explanatory Memorandum: Zoning and Development Bylaw #3575, the bylaw:

"embodied most of the modern techniques known at the time...the name of the bylaw has been expanded from Zoning to Zoning and Development Bylaw in view of its positive rather than negative approach to the control of development." (City of Vancouver 1963, p. 2)

Bylaw #3575 brought a number of innovative techniques to Vancouver. The bylaw introduced the development permit system. This system required any development, including the addition to or alteration of structures, to have a permit indicating compliance with the zoning bylaw. The bylaw also expanded the variety and scope of conditional use. Conditional use was not specifically allowed 'as of right' in the bylaw, but subject to the approval of the Technical Planning Board. The bylaw also defined permitted use rather than prohibited
use as earlier bylaws had. The bylaw established a floor space ratio to control bulk. The bylaw also established comprehensive development zones. Within these zones urban regulations could be specifically tailored to meet the City's goals. These innovations, embodied in the Zoning and Development Bylaw, were intended to:

ensure greater flexibility in zoning control than is otherwise possible through extensive provisions for the granting of conditional uses and relaxations of the Bylaw where considered appropriate. (City of Vancouver 1963, p. 2)

Under bylaw #3575 the ten districts of the previous bylaw #2516 were expanded to 22 zoning districts. The General Business District, regulating downtown development, was replaced by the (CM-1) Commercial District Schedule. The height and bulk regulations remained generally unchanged from those permitted under the earlier bylaw, and no floor space ratio was specified for this district schedule (City of Vancouver 1981a, p. 15). The regulations influencing open space development were, therefore, the same as under the previous bylaw #2516.

In 1957, Vancouver's high density office and shopping core, including most of the study area was rezoned (CM-2) Commercial District Schedule. This rezoning did not alter the regulations influencing open space, and developments covering 100% of the site were still permitted.

A 'Zoning Plan for the Downtown Area' was presented to City Council in 1961, which included bonus provisions. Under the provisions, developments that included a specified amenity could earn an increase in the allowable density.
One amenity bonus listed was the 'open area' bonus, described in the plan as, "area left open at ground level in the form of an open plaza...visible and/or accessible to the general public on the street" (City of Vancouver 1961, p. 14). However, this study was not adopted by the City Council.

Bylaw #3575 underwent one amendment that influenced open space development. By 1968 the Technical Planning Board had permission to approve buildings that were at variance with the existing controls after reviewing:

- The amount of open space, views, plazas, pedestrian needs and interests, the height and bulk of the building, and its location in relation to the site surrounding streets and buildings, the effect on traffic, the provision of off-street parking and loading, its overall design, and the general amenity desired for the Downtown Area.

(City of Vancouver 1969, p. 146)

This amendment enabled the Technical Planning Board to exert some influence over open space development, and was the first step in developing the negotiation process that was later incorporated into the Official Development Plans. Unlike both New York and San Francisco, Vancouver did not adopt specific plaza bonus legislation in the downtown core.

Urban Open Space. As shown on Map 2.8 - 1956-1975 THE ZONING AND DEVELOPMENT BYLAW, twenty-one developments within the study area were developed in this period. Three large projects, Pacific Centre, Granville Square and the Court House Art Gallery Complex, were developed outside the established zoning bylaws, under specially controlled comprehensive development zones.
Pacific Centre, begun in 1969, is a two-block project incorporating the 30-storey Toronto Dominion Bank building, the Eaton's Department Store, the 18-storey I.B.M. Building, the Four Seasons Hotel, two urban plazas and, below grade, the Pacific Centre Mall (Kalman 1978, p. 81). The open space in this project is limited to the two urban plazas which are connected by the public sidewalks.

Granville Square, begun in 1971, was the first phase of a large waterfront redevelopment called Project 200. This phase included a 32-storey office tower and large urban plaza jutting over and above the Vancouver harbour (Kalman 1978, p. 87). The subsequent phases of this project were not developed.

The Court House Art Gallery Complex, begun in 1974, is a three-block project incorporating the Provincial Law Courts, Provincial Government offices and the Vancouver Art Gallery (Kalman 1978, p. 104). Uniting the project is a unique public open space which begins at grade on Robson Street, climbs two levels and descends to grade again at Smithe Street.

With the exception of the Court House Art Gallery Complex, most of the developments in this period, within the study area, follow the tower in the plaza model. Typically, the developments were glass and concrete towers that rose 25 to 35 storeys above paved urban plazas. Three such projects, that were developed in contravention of the zoning bylaw #3575, but with Technical Planning Board approval, were the Bentall Towers 1 and 2 and Oceania Plaza.
Bentall I was one of the first towers in the plaza to be developed in Vancouver. This project, begun in 1965, includes a 21-storey office tower, interconnected car park and open plaza. The Town Planning Commission in a report dated February 19, 1965, discussed this project. The report stated:

The proposed office tower does not conform to the regulations of the existing CM-2 District Schedule...total height of the building 271.0' is greater than maximum permitted height of 248.5'...and the design of the building does not step back as the height increases (City of Vancouver file #33926).

The report however, concluded that the building should be approved for development because it was, "in keeping with the height and bulk concepts that would be proposed in the revised bylaw regulations for Downtown development" (City of Vancouver file #33926). The proposed 1961 revisions referred to above were never adopted.

Phase 2 of the Bentall development was begun in 1967 and included a tower similar to the one in Bentall I. In a letter, dated August 16, 1967, to W.E. Graham, Director of Planning, Dominion Construction, the developers, state:

With the completed development we will have approximately 76,844 sq. ft. of property - covered by buildings 54,157 sq. ft. Therefore approximately 22,687 sq. ft. of open space on site, or approximately 29%. Under existing zoning, we could cover the entire site with buildings...we are thus providing a very large open space not required by the bylaws. (City of Vancouver file #33926)

This statement indicates the underlying feeling of the developer that by providing additional open space, not required under the zoning bylaw, the development was contributing positively to the downtown environment.

One of the last towers in the plaza developed in the downtown core is Oceania Plaza. This project, begun in 1976, includes a 28-storey office tower and urban
plaza (Kalman 1978, p. 119). Oceania Plaza, unlike the Bentall developments described above, was the subject of intense debate between the developer and the City. One issue this debate focused on was the plaza-building relationship, with the City hoping that through their efforts at improvement, a better relationship would be developed (City of Vancouver file #62582).

Thus the debate over Oceania Plaza followed the general shift in architectural style away from the rigid tower in the plaza toward less rigid forms. In the nearly ten years between the development of Bentall 1 and 2 and the development of Oceania Plaza the popular response to that building form had shifted. Bentall 1 and 2 met with a generally positive response from the City, Oceania Plaza a decidedly negative one.

In this period urban regulations were one step behind urban development. Rather than influencing urban form, the existing regulations, allowing 100% site coverage, were set aside, through various ad hoc measures, to allow the approval of straight towers and plazas.
**1975 THE DOWNTOWN DISTRICT OFFICIAL DEVELOPMENT PLAN**

**Urban Regulations.** Through the 1960's Vancouver's City Council and Planning Department undertook a wide range of studies and reports focusing on downtown issues. However, not until the 1970's did any of these studies and reports result in significant changes to the regulations.

In the fall of 1973, temporary amendments were made to the Zoning and Development Bylaw #3575. In addition to the power to vary existing controls given to the Technical Planning Board in 1968, all downtown development was now made subject to their approval. In reviewing projects for development approval, the Board had to give consideration to such elements as "design, views, amenities, relation to surrounding buildings, pedestrian needs and interests, and effect on traffic" (City of Vancouver 1981a, p. 32).

City Council adopted the Downtown District Official Development Plan in the fall of 1975. The Plan was designed to regulate development in the downtown core, including most of the study area. The Development Permit Board and the Development Permit Advisory Board were also established in 1975. The Development Permit Board has the power to approve development permit applications in accordance with their conformance with the Plan (City of Vancouver 1981a, p. 34).

In the Plan a distinction is drawn between regulations and interpretative requirements. Regulations dictate land use, density and parking. Interpretative
requirements influence height of buildings, social and recreational amenities and facilities (City of Vancouver 1975, p. 446). This split between regulations and requirements marks a new approach to controlling development in downtown Vancouver. Prior to the adoption of this Plan, all developments were subject to specific regulations, which were either enforced or waived by the Technical Planning Board, or in some case the Board of Variance, or the City Council. With the adoption of the Plan a new flexibility entered into development control downtown. This flexibility was now incorporated into the existing development permit application process.

The intent of the Downtown District Official Development Plan is stated in the Plan:

(1) To improve the general environment of the Downtown District as an attractive place in which to live, work, shop, and visit.

(2) To ensure that all buildings and developments in the Downtown District meet the highest standards of design and amenity for the benefit of all users of the Downtown.

(3) To provide for flexibility and creativity in the preparation of development proposals.

(4) To encourage more people to live within the Downtown District.

(5) To support the objectives of the Greater Vancouver Regional District as referred to in "The Livable Region 1976/1986" as issued March 1975, to decentralize some office employment to other parts of Greater Vancouver by discouraging office developments considered inappropriate in the Downtown District.

(6) To improve transportation Downtown by encouraging greater transit usage, discouraging automobile usage for journeys to work, and by maintaining automobile access for non-work trips including shopping, business and entertainment. (City of Vancouver 1975, p. 495)
The intent statement fails to identify open space or open space issues as important components of downtown development.

In addition to the regulations and interpretative requirements stated in the Plan, City Council adopted an extensive set of guidelines for the Downtown District. These included: Planning Policies, Design Guidelines and Character Areas. The intent of the guidelines was to spell out the City's objectives for downtown development. Two of the guidelines, Planning Policies, and Design Guidelines articulate the City's intentions for downtown open space.

In Planning Policies, a series of policies are outlined. Two of these pertain directly to open space.

1. Implement an open space concept for downtown through combined public/private action.

2. Encourage developers to provide usable open space where pedestrian amenities should be high. (City of Vancouver 1980a, p. 4)

In Design Guidelines the general aim for urban open space is stated as, "to provide varied, accessible, and where appropriate, interconnected open spaces to be used by a wide range of people throughout the year" (City of Vancouver 1980b, p. 2). This statement is supported by a series of detailed guidelines. The guidelines for "Public Open Space at or Near Grade" are:

- Depending on the size, function, and location of the space in question, the following points should be considered in their design:

  a) Spaces should be varied, interesting, and should be designed to reflect their different functions, activities, and topography. Elements such as level changes, plant material, and pattern changes should be carefully related.
(b) Spaces associated with heavy pedestrian volumes should be designed to incorporate such uses as retail shops or restaurants, and where desirable provide areas for activities such as bandstands, street vending kiosks, and provisions for small public gatherings.

(c) These places should also provide either in the same space or in close proximity, some of the following facilities for the convenience of the public:
- Places to sit
- Sheltered places
- Bicycle racks
- Washrooms
- Drinking fountains
- Sculptures
- Clocks
- Stages, platforms or rostrums
- Ponds, pools and fountains

(d) Such spaces should also provide lighting at pedestrian scale so as to encourage night use.

(e) All facilities provided should meet the requirements set for the physically handicapped.

(f) In the design of public open spaces, consideration should be given to creating views to:
- the water and mountains
- various streetscapes and urban landmarks
- other open spaces.

(City of Vancouver 1980b, p. 2)

These open space policies and guidelines do not represent regulations or even requirements. Instead they are intended to act as suggestions for the development of open space within the area covered by the Downtown District Official Development Plan, the eventual result being that their influence varied from project to project.

Urban Open Space. As shown on Map 2.9 - 1975 THE DOWNTOWN DISTRICT OFFICIAL DEVELOPMENT PLAN, six developments within the study area date
from this period. Three of the most significant are: the Daon development, Bentall 4 and 800 Burrard.

The Daon development, begun in 1977, includes a 19-storey office tower and urban plaza (City of Vancouver file #76481). The now characteristic, diagonal plan and multifaceted tower of the development represents one of the first modification of the rigid tower in the plaza form that had previously dominated private development in Vancouver's downtown core.

This development was subject to an intense debate between the developers, the architects, and the City. The City saw the site as a strategic one, because it straddles the junction between the Downtown District and the Central Waterfront District. The City felt that any development of this site must meet the objectives of both districts. A City of Vancouver interoffice memorandum dated February 15, 1977, states:

Any development of the site must recognize and account for:
Pedestrian needs and activities, with emphasis along the northerly sun-exposed side of the street...concerns that pedestrian amenities such as viewing plazas, landscaped pockets are provided with water site views...Pedestrian linkages to the future Waterfront development and Burrard Street is considered to be a major pedestrian corridor to the waterfront. (City of Vancouver file #76481)

At one point in the development permit process, Ray Spaxman, the Director of Planning, suggested a Design-In. He offered to meet with Bob Levine of Daon and Frank Musson and Terry Catell, the architects, to "solve the design problems of this project" (City of Vancouver file #76481). These focused on the exterior form and orientation of the building. Perhaps the distinctive multi-
faceted form of the building and surrounding open space emerged at the Design-In.

The Daon development set the stage for future developments. The Manulife Building at 510 Burrard Street and Park Place at 600 Burrard Street, both built after the Daon building, exhibit the characteristic diagonal plan, creating new open space along Burrard Street.

Bentall 4, begun in 1978, includes the fourth and last tower to be built on the Bentall site, and a parking garage and urban plaza (City of Vancouver file #82011). This development is characteristic of the tower in the plaza form, although in this case, the plaza is one floor below street level.

The debate between the City and the developers over this final phase of the Bentall development represents the changed attitudes towards this form of development. The developers were required to undertake a detailed assessment of the wind patterns at the pedestrian level. They were pressured by the City to significantly alter the open space. However, the developers refused to change their design, and at the end of the development permit application process Ray Spaxman, the Director of Planning, concluded, "there was considerable unrealized potential to create an attractive pedestrian environment" (City of Vancouver file #82011). Therefore, the City was unable to influence the design of Bentall 4 to meet this open space objective.
The 800 Burrard project, begun in 1978, is a combined residential, commercial project that includes a 16-storey office tower, two residential wings and an urban plaza (City of Vancouver file #82580). This project involved the transfer of development rights, from the residential portion to the commercial portion of the development, as part of the City policy to encourage the development of housing in the downtown core.

The City's principal open space concern, in this project, was to reduce the shadowing effect of the development on Robson and Burrard Streets. The Development Approval Board, on June 11, 1979, suggested the tower element be modified to reduce the shadowing effect (City of Vancouver file #82580). This limited concern indicates the City's open space intention for this project.

The Downtown District Official Development Plan is a departure from the earlier forms of Vancouver's urban regulations. The early regulations were replaced by regulations and requirements. These regulations and requirements were supported by a series of policies and guidelines. The development permit application process became a process of negotiation where the needs of the developer and the City could be matched. In this period urban regulations were again influencing open space development; however, from the developments investigated the influence appears to vary from project to project.
Urban Regulations. In 1979, City Council adopted the Central Waterfront Official Development Plan. The Plan was designed to influence future development of the Central Waterfront district, which includes a portion of the study area. The Plan is subject to the interpretation of the Development Permit Board, and the Board may approve or refuse a development permit application on the grounds of compliance with the Plan.

The Plan sets out a series of general goals for the Central Waterfront District. The goals are:

- Encourage the development of new urban uses including commercial, recreational, cultural and public uses throughout the waterfront area.
- Provide for easy public access to the waterfront.
- Enhance the public's enjoyment of the waterfront by encouraging the provision of harbour activities and a variety of views.
- Facilitate the continued operation of port functions.
- Facilitate the continued operation of rail facilities to serve port, freight and passenger functions.
- Provide transit systems for movement to, from, and between waterfront developments in order to decrease dependence upon the private automobile.
- Ensure a scale transition in the physical form of future development between Downtown and the Burrard Inlet.
- Support the objectives of the Greater Vancouver Regional District as referred to in 'The Livable Region 1976/86', in particular the concept of living close to work. (City of Vancouver 1979, p. 516)

The Plan also provides a framework within which these goals are expanded into descriptive policies. These policies cover: Use, Population, Physical Form,
Public Open Space, Movement Pattern and Shoreline. Of these policies three, Physical Form, Public Open Space and Movement Patterns, exert a direct influence on urban open space development.

The Physical Form section emphasizes the importance of new development relating to the form and scale of existing developments. The section states:

A variety of building heights and development forms will be desirable in the Central Waterfront. The planning of any new development will require the thorough analysis of its potential impact on the variety of view environments (predominantly streets, sidewalks and plazas) in Downtown and Gastown as well as its potential impact regarding shadowing onto existing sunny areas of the Central Waterfront which are ideal for public use. (City of Vancouver 1979, p. 526)

This general policy emphasizing the public environment is supported by a series of specific policy statements:

1. The scale of new development should provide a physical transition from existing buildings abutting the northern edge of Downtown and Gastown to the water area of Burrard Inlet.

2. The height and bulk of new development should generally decrease towards the water area of Burrard Inlet.

3. The location, height and massing of new development should minimize noon-hour shadowing onto the sunny areas of the Central Waterfront.

4. The location, height and massing of new development should preserve and maximize view potential of the waterfront, Burrard Inlet and the North Shore mountains from existing street-ends of Downtown and Gastown.

5. New development should create new opportunities to view waterfront activities wherever possible.

6. New development should utilize accessible roof areas as terraces including, wherever possible, public use. Such areas
should be sensitively treated particularly responding to climatic conditions as well as creating a pleasant visual environment when viewed from adjacent higher structures. (City of Vancouver 1979, p. 526)

The policy statements place a special emphasis on the environmental quality of the Central Waterfront.

The section on Public Open Space defines open space as, "open to the sky, and accessible to the public at all times." Open space is identified as "a basic necessity for the successful redevelopment of the Central Waterfront into a high quality urban environment." In order to ensure that adequate public open space will be provided "new development must contribute to the provision of such space" (City of Vancouver 1979, p. 526). These general policies for open space are supported by a series of specific policy statements:

1. Major public open space should be provided at locations in close proximity to the intended primary pedestrian access to the Central Waterfront as set out in Section 4--Sub-Area Development Guidelines.

2. Approximately 32 acres of public open space should be provided in the Central Waterfront. In order to achieve this objective, each new development should strive to provide public open space equivalent to at least 40% of the development area.

3. New development in the Central Waterfront will be required to provide for different types of open spaces as follows:

   (a) Public pedestrian walkway space to be located at or in a position directly associated with the water's edge. Such space need not be at the same level throughout but should form part of a continuous pedestrian walkway system within the Central Waterfront.

   (b) Public pedestrian circulation systems which connect the development to its surrounding areas including pedestrian access to the Central Waterfront.
(c) A variety of public places to serve the active and passive relaxation of the future population of the Central Waterfront and its visitors. (City of Vancouver 1979, p. 527)

The Public Open Space section of the Central Waterfront Official Development Plan represents the most detailed expression of open space policies within Vancouver's regulations.

The Movement Patterns section identifies pedestrian access as currently being very limited. Therefore, the objective of this section is to create major pedestrian links to the Downtown and Gastown. This section proposes that these pedestrian links will eventually be connected to "the future pedestrian walkway system which is envisioned to be continuous and located in close proximity to the shoreline" (City of Vancouver 1979, p. 527). A series of specific policy statements support this general policy; they are:

**Pedestrian**

11. Safe, convenient and attractive pedestrian access to the waterfront should be provided throughout the Central Waterfront connecting directly to the existing Downtown and Gastown Street system.

12. A continuous pedestrian walkway system should be developed in close proximity to the existing shoreline. Such walkway system need not be at the same level throughout and should be connected directly to other pedestrian circulation systems within the Central Waterfront.

13. Pedestrian routes should be provided to enable easy movement between developments in the Central Waterfront. (City of Vancouver 1979, p. 529)

These policy statements emphasize the importance of pedestrian access and circulation to the redevelopment of the Central Waterfront District.
The Central Waterfront Official Development Plan embodies the most comprehensive approach to urban open space within the City of Vancouver's regulations.

Urban Open Space. As shown on Map 2.10-1979 THE CENTRAL WATERFRONT OFFICIAL DEVELOPMENT PLAN, five developments within the study area date from this period. Two important projects currently under construction in the Central Waterfront District are the Sinclair Center and Canada Harbour Place. Both projects are funded by the Federal Government.

Sinclair Center is the restoration of the old Post Office and Canada Customs buildings. The restoration will not change the open space-built form relationship of the original development.

Canada Harbour Place, situated on the old piers B and C, incorporates the Pan Pacific Hotel and the Canadian Pavilion for Expo 86. After Expo 86, the Pavilion will become a cruise ship facility and convention centre. Included in this project are a series of public open spaces and walkways. This system of open spaces is designed to provide new waterfront viewing opportunities. The City has worked closely with the federal government to ensure that the open space policies, articulated in the Central Waterfront Plan, are achieved in this development.

Two other important projects, within the study area but outside the Central Waterfront District, are the Park Place development and the Manulife Building.
The Park Place development was approved in 1980. This development includes a 35-storey office tower, urban park and Christ Church Cathedral. The project involved the transfer of development rights from Christ Church Cathedral to the tower. This transfer enabled the 35-storey office tower, Vancouver's tallest, to be built (City of Vancouver file #89697). The City insisted that the developer use open space to unite the two diverse elements of the development; the tower and the Cathedral. Therefore, a unified landscape theme was prepared for the entire site. The City also required a major urban open space be developed on the site. The City's main requirement for that space was easy access from the Burrard Street sidewalk (City of Vancouver file #89697).

The Manulife Building includes a 14-storey office tower with retail use at ground level and an urban plaza on Burrard Street. The architects in their submission to the City describe the development as addressing "the new scale of the surrounding area, injects high quality commercial and retail space into the community, and adds a major public open space to the downtown core" (City of Vancouver file #93703). The City insisted that a pedestrian link to Hornby Street be provided through the building during working hours. Also, the building setback on Burrard Street is designed to provide substantial amounts of sunlight to the plaza between 11:30 a.m. and 2:30 p.m. The City also required that extensive planting and trees be added to the plaza (City of Vancouver file #93703).

The Central Waterfront Official Development Plan continues the approach first taken by the Downtown District Official Development Plan of replacing fixed
regulations with more flexible controls. Unlike the Downtown Plan where fixed regulations were replaced with a combination of regulations and requirements, the Central Waterfront Plan replaces the fixed regulations with a combination of regulations and planning policies. The planning policies, including the open space policies, are intended to influence rather than control development. They rely on the negotiation process between the City and the developer included in the development permit application process. The process allows the City to utilize the planning policies to exert influence on the development to achieve their objectives. For example, the Canada Harbour Place development meets the City's planning policy which states that, "new development should create new opportunities to view waterfront activities wherever possible" (City of Vancouver 1979 p. 526).
This review of Vancouver's downtown regulatory history identifies five distinct periods. Within these five periods, three distinct approaches to open space regulations are evident. In the first, from 1886 to 1928, the regulations exerted no direct influence on open space. During the second, from 1928 to 1975, the controls restricted open space to the public sidewalks. However, for a significant period, from approximately 1956 to 1975, these controls were ignored as developments, in contravention to the regulations, were approved by the Technical Planning Board. In the third period, from 1975 onwards, the general approach shifted away from the regulatory approach toward a planning approach unique to Vancouver.

Vancouver's history does not exhibit the strong connection between the various forms of regulations seen in both New York's and San Francisco's. Instead, there is a distinct movement away from the early regulatory approach toward the current planning approach. Within the planning approach, the open space objectives are not achieved through the actions of regulations. Instead, the objectives are intended to influence the negotiations, between the City and the developer, incorporated into the development permit application process. Investigation into the development permit application process revealed that the influence of the objectives on open space varies from case to case as different open space concerns, such as shading or street accessibility, are identified by the City. Within this flexible negotiation system, the City is not always successful in its attempts to have developments meet its concerns.
2.4 THE EFFECT OF REGULATION ON URBAN OPEN SPACE

This examination, of the influence of regulation on open space development in New York, San Francisco and Vancouver, reveals a number of important conclusions. Initially, all three cities adopted regulations that exerted little direct influence on urban open space. These first regulations did, however, have the indirect effect of limiting open space to the public sidewalks.

Throughout the 1960's, the three cities allowed the development of towers in plazas. This form of development was encouraged by the regulations in New York and San Francisco. Although they were in contradiction to Vancouver's regulations, the City supported their development. As towers in plazas proliferated, the negative effects they exerted on the urban environment became apparent. These negative effects motivated the three cities to change their approach to urban open space control.

New York chose to modify their regulatory approach by developing more detailed and specific controls to influence the development of urban plazas. San Francisco chose to replace their regulatory approach with open space planning, and developed open space objectives and supporting regulations. Vancouver chose to adopt Official Development Plans where open space policies influence development through negotiations between the City staff and the developers.
These changes represent three very different responses toward open space development. With the exception of San Francisco's open space objectives, the regulations examined do not define, in broad terms, what constitutes adequate and appropriate open space. Without this definition, the various approaches to urban open space continue to respond to current situations rather than to well considered objectives. Therefore, Chapter 3 investigates what constitutes adequate and appropriate open space.
CHAPTER 3
THE DEFINITION OF OBJECTIVES FOR URBAN OPEN SPACE

The purpose of this chapter is to define adequate and appropriate open space, and express that definition as a series of fundamental objectives for the development of urban open space. This is done by reviewing the history of urban open space to identify fundamental shifts in the understanding of urban open space. This understanding is then used to generate modern open space objectives.

Many authors have defined urban open space. Seymour Gold, in his book *Urban Recreational Planning*, defines urban open space as: "all land and water in an urban area which is not covered by buildings" (Gold 1973, p. 320). D.A. Cotton, in the article "Open Space: Its Value and Conservation in the New Urban Environment" provides another definition: "open space is that part of the three-dimensional void of the landscape not occupied by man-made features constructed for spatial enclosure" (Cotton 1964, p. 1). Kevin Lynch provides another definition: "open space ... is an outdoor area ... which is open to the freely-chosen and spontaneous activity, movement, or visual exploration of a significant number of city people" (Lynch 1963, p. 3). Within the context of this thesis, urban open space is defined as all the space that is open to the sky and accessible to the general public in the urban environment. While a park is the most obvious example, open space encompasses more than just parks. The long list of urban open spaces includes: sidewalks, alleys, squares, parks, boulevards, avenues, malls, plazas and left-over spaces.
3.1 URBAN OPEN SPACE CONCEPTS

Throughout history, open spaces have played an important role in city development. In reviewing urban history, a legacy of open space is evident. The town square, cathedral plaza and urban park are but a few of the long list of historic open spaces. Important as these historic open spaces are, the review of urban development indicates that there are critical times where the basic understanding of urban open space shifts. It is these shifts, and not the list of various open spaces, that are fundamental to the understanding of urban open space. Four critical shifts in open space understanding are represented in: the Greek city agora, the medieval city plaza, the industrial city park and the modern city open space network.

The Greek City Agora

The ancient Greek civilization exerted a tremendous influence on urban open space, by providing the conceptual origins. The Greeks originated the concept of democracy, which found physical expression in their central urban spaces or agoras.

The word agora means public meeting place. It was to the agora that the citizens of ancient Greece came to exchange news, to trade, to exercise, and to meet. As such, the agora was multifunctional and provided opportunities for all the citizens to learn, play, work, and socialize.
The agora in Athens was a large central space the size of two football fields (Wilkinson 1984, p. 47). However, it is the representation of the important concept of democracy, and not the physical form, that makes the agora an important urban open space model today. The agora established open space as public space, that is accessible to all citizens. As Lawrence Halprin states:

The greatest major plazas in the world become civic symbols, not only because of their beauty of design, but because of the variegated and important events which take place in them. (Halprin 1972, p.28)

Therefore, our concept of open space as public space, for public use, originated in the cities of ancient Greece.

The Medieval City Plaza

The medieval cities were preoccupied with protection. Typically, they were located on easily defensible sites and surrounded by large walls. Inside the walls, open space was generally limited to the central plaza. This plaza was the heart of medieval cities. While the Greek ideal of democracy was in decline, the need for commerce, trade and social contact was great. The central plaza offered the most protected location for these activities.

In medieval cities, the division between buildings and open space was not distinct. This lack of differentiation was the result of the tremendous space constraints within the walls, where buildings and open space were in constant competition. This competition resulted in a tight interrelation of space and mass. The space constraints also resulted in a world easily accessible by the person on foot. Typically, within the walls, the pedestrian had access to the entire city.
The medieval model is important today because it represents a scale of development that revolves around the person, and it represents an urban environment dominated not by buildings or open space, but by their interrelationship.

**The Industrial City Park**

The Industrial Revolution exerted a tremendous effect on cities. Urban populations expanded dramatically and urban conditions deteriorated as cities were unable to provide the level of service necessary to ensure the basic conditions for healthy life. As conditions deteriorated, reform movements with the goal of improving urban conditions developed. One result of the reform movements was the creation of urban parks.

New York's Central Park, developed in the late 1800's, is a good example of such a park. Frederick L. Olmstead and Calvert Vaux, designers of Central Park, stated that their intention was to create contrasting and varying passages of scenery, all tending to suggest to the imagination a great range of rural conditions (Roper 1983, p. 137). Central Park was developed as a piece of the natural rural landscape in the city. The park was envisioned as a place where both the rich and poor could enjoy the benefits of nature (Roper 1983, p. 144).

The urban park, which was developed in industrial cities, attempted to use nature as a counterbalance against the negative effects of industrialization. The belief that contact with nature could improve people's lives supported the development of the great urban parks. In the industrial cities, open space became the important container of the natural environment.
The Modern City Open Space Network

Architecture’s modern movement incorporated the new technology developed after the industrial revolution. For Norma Evenson, the modern movement embodied:

an enthusiastic acceptance of the conditions of modern life, and a determination to employ all the resources of advanced technology to enable architecture to achieve a form suitable to the spirit of the modern age. (Evenson 1969, p. 9)

Adherents to the modernist point of view envisioned cities transformed into rows of high rise towers, connected by freeways, all sitting in a vast garden. This vision changed city form. Gone was the scale of development based primarily on pedestrian accessibility; it was replaced with a scale of development based on machines – the automobile and the elevator.

The modern movement was conceptualized as a new reality that would replace existing cities. Instead, modernist buildings and their surrounding open spaces were inserted into the fabric of these cities, resulting in conflict that had an effect on urban open space. Open space that had been limited to sidewalks and parks was expanded to include building plazas. These plazas were often poorly connected to the existing open space, and did not contain any facilities to encourage public use. This resulted in the fragmentation and confusion of urban open space. The modernist vision of the city set in a vast open space was very different from the reality of fragmented and poorly used urban open space. The vision and the reality combined to move the understanding of open space away from the individual components and toward the sum of the components or the open space network.
History reveals four fundamental shifts in open space understanding: The Greek city concept of open space for public use; the medieval city concept of open space that shapes the urban environment; the industrial city concept of open space as a container of nature; and the modern city concept of open space as a network. These shifts have important implications for modern open space development.

The following sections of this chapter investigate the implications each of the four open space concepts have on modern urban open space development.

3.1.1 Urban Open Space for Public Use

The civic ideal of open space as public space, that originated with the ancient Greeks, is still important today. The open spaces of the city are the symbols of democracy and equality. They are the places accessible to all, facilitating the shared experience of urban living; they are the places where people meet, gather, and exchange ideas. Lawrence Halprin describes public city life as:

social, extroverted and interrelated. It is the life of the streets and plazas, the great parks and civic spaces... This life is mostly out in the open in the great urban spaces, where crowds gather and people participate in exciting urban interrelationships which they seek as human beings. (Halprin 1972, p. 11)

Therefore, urban open space acts to bring people together; the arrangement of open spaces and their design should encourage people's interaction.

The two primary public uses of urban open space that facilitate the interaction of people are circulation and recreation.
Circulation

Circulation has long been a primary function of urban open space. In modern cities, pedestrian circulation is growing in importance. August Heckscher states:

The spatial organization of today's cities is being largely determined by the fact that people like to be on foot as observers and participants in the urban scene. They are increasingly prepared to park their cars and take part as individual human beings in the movement of the city. (Heckscher 1977, p. 30)

Therefore, the quality of the pedestrian environment is an important urban concern.

Urban open space affects the pedestrian environment in two critical ways. First, open spaces often are important centers of activity. Therefore, they are important pedestrian destinations. Second, open spaces often provide the connections between centers of activity. The location of centers of activity within the pedestrian circulation network is critical to the quality of the pedestrian environment. Robert Cook points out "ease of accessibility, visual proximity and nearness to the center of things all promote use" (Cook 1980, p. 13). Urban open space is a critical component of the pedestrian environment.

Recreation

One of the key reasons open spaces are important urban destinations is because open spaces provide the opportunity for recreation.

Within the literature, recreation is presented as the primary human need for modern open space. Paul Wilkinson, in his book Urban Open Space, outlines
two components of recreation; the physical and the psychological (Wilkinson 1984, p. 20). He sees the recreation function of urban open space as a counterspace to the stress of regulated work, the highly structured urban environment, and the problems involved in social situations. He states "open space and recreation have the potential to provide a suitable mix of new and varied stimuli" (Wilkinson 1984, p. 23). In order to satisfy an individual's requirements for self-expression, self-fulfillment, and sensory stimulation a variety of opportunities must be provided. Wilkinson argues that to even begin to meet this need "there should be a wide variety of recreational opportunities provided in a well planned urban open space system" (Wilkinson 1984, p. 21).

William Whyte in his book, The Social Life of Small Urban Spaces, presents the findings of the Street Life Project. The project studied how people use small urban plazas in New York. Whyte identified various forms of socializing as the primary recreational activity of small urban plazas. He states "what attracts people most, it would seem, is other people" (Whyte 1980, p. 19). To facilitate socializing, Whyte identifies a series of critical factors including: seating, sun, wind, trees, water and food. One other critical factor identified is the relationship of the plaza to the street. Whyte observes that proximity and involvement with the street plus the other factors mentioned are critical to establishing successful human use patterns.

Accommodating public uses is an important function of urban open space. The two primary public uses of open space are circulation and recreation. Determining the amount and type of urban open space necessary to meet public
needs is a complex undertaking. Two components are involved: developing the essential open space capable of accommodating the variety of public activities, and ensuring that the components are well linked by the pedestrian environment.

3.1.2 **Urban Open Space to Shape the Urban Environment**

Urban form is comprised of two elements, open space and built form. These elements are arranged by economic, social, and political forces into the complex relationships that create the environment. Within this environment the relationship between open space and built form provides the basic texture. Edmund Bacon in his book, *Design of Cities*, suggests that the essence of design is the interrelationship of open space and built form. He points out that, in this culture, the preponderant preoccupation is with built form, to such an extent that many designers are 'space blind'. He suggests that to overcome space blindness:

> The first step is to orient one's mind as fully as possible to the concept of space as a dominating force, to respond to space as a basic element in itself. (Bacon 1974, p. 34)

August Hecksher reinforces this opinion by outlining the importance of conceiving open spaces, "from the beginning, as elements of the city at least as important as its buildings" (Hecksher 1977, p. 33).

One way of conceptualizing the open space-built form relationship is as a continuum, with opposite open space-built form relationships at either ends. At one end is a tight interrelated model, at the other, a loose interrelated model.
Along the continuum, between these basic models, an infinite variety of open space-built form patterns occur.

**THE WALLED CITY**

The tight relationship is characterized by the Walled City. This model is based on the medieval city. The medieval city form developed in response to the need for protection, the need for a safe place in which life could go on (Galion 1963, p. 33). Walled cities are characterized by massive encircling protective walls and intense development within them. Examples of walled cities are York in England, Quebec in Canada, and Jerusalem in Israel.
The walled city space system was essentially a closed system. The walls surrounding the city firmly limited its development. Within the walls, a high density of development evolved. The streets and squares appear to be hollowed out of a compact mass of moderate height buildings. The building facades appeared as background for the open spaces cut into them (Lynch 1984, p. 407).

Walled cities are dominated by a central plaza (Gallion 1963, p. 378). Streets inside the walls, with the exception of a few main roads between the gates and the plaza, were for pedestrian circulation only. These narrow streets wound about the city, often changing direction, merging and separating with other streets eventually finding their way to the central plaza. The proportions, characteristics and connections of these public spaces create the character of the city. Lawrence Halprin describes the appeal of the medieval city today as:

The medieval street has intriguing characteristics for modern people. It tends to be narrow and winding, with an air of mystery and adventure. One does not see very far ahead, and the promise of fulfillment is always one step beyond. (Halprin 1972, p. 17)
The effect of the walled cities was the creation of a visually defined structured and limited relationship of open space and built form. This relationship is referred to as tight.

![Figure 3.3: The Tight Relationship](image)

The tight relationship, of open space to built form, embodied within the walled city model is part of designers' common heritage. This intimate environment has a hold on their collective imagination. As Kevin Lynch describes, in his book *The Theory of Good City Form*: "We have a great affection for these cities. They seem secure, legible, proportioned to the human scale, and charged with life, even if at times a little oppressive" (Lynch 1984, p. 407).

Walled cities are certainly incapable of accommodating the demands of modern cities for high rises and freeways. But while far removed from today's modern style of life they have an attractive scale, density of development, and quality of space that is lacking in most modern cities.
The Tower in the Park

The loose relationship is characterized by the tower in the park. This model responds to the desire for space. Le Corbusier, the poet of this model, incorporated the potential of modern construction technology and the demands of modern cities. Taking his cue from technology, Le Corbusier envisioned cities keyed to the massive scale of new commercial, industrial and residential organization.

In this model, the buildings were placed in regular rows widely spaced, and separated by avenues designed for rapid movement (Heckscher 1977, p. 17). The buildings became isolated objects in space. These buildings, or clusters of them, are the remarkable elements, the open space form is lost and becomes merely a background for the buildings (Lynch 1984, p. 408). This characteristic open space-built form relationship is referred to as loose.

FIGURE 3.4 THE TOWER IN THE PARK
The tower in the park model was expressed in Le Corbusier's plan for Paris, the 1925 Voisin Plan (Gallion 1963, p. 360). In this proposal, the medieval and baroque heart of Paris was replaced by Le Corbusier's vision. In the plan the downtown is comprised of a series of 60-storey towers set in a vast open space. The towers are completely isolated from each other, and completely surrounded by open space.

Le Corbusier's vision caught the imagination of planners, architects, and developers and became the model for North American cities. One fact that may have contributed to the appeal of this vision is the embodiment of visual order. In spite of the current fashion for visual complexity, Le Corbusier's vision still provides simple and straightforward solutions.

Le Corbusier succeeded in permeating the collective subconscious of the design profession with a set of urban prototypes forming a basis for much postwar building... prophetic of the massive urban renewal projects which would eventually transform the cores of many cities. (Evenson 1969, p. 108)
The contribution of Le Corbusier, and the modern movement of architecture he influenced, was the conceptualization of the modern urban environment. By using new technological developments of concrete and steel construction, the freeway and the tower were combined to create our modern urban environment. The lack of congestion, the clear organization of the streets and the separation of activities cannot satisfy the need for mystery and surprise. This environment was characterized by both organization and separation of activities. To achieve this level of organization and separation, the indistinct but appealing qualities of the walled city model were lost.

The tower in the park model reversed the relationship of open space and built form evident in the walled city model. Where once open space and built form had been interwoven and connected, now they were separate and distinct. The challenge facing modern designers and planners is to integrate the ground level, human scale environment of the walled city with the modern freeways and towers of the tower in the park. August Hecksher describes the challenge as:

To accept the economic pressures making for clusters of high rise buildings, and then to maximize at ground level the advantages produced by the concentration of people. (Hecksher 1977, p. 31)

Understanding that open space is a determinant, not simply an accident, of urban form is critical in meeting this challenge.
3.1.3 **Urban Open Space to Improve Environmental Quality**

The natural environment - the soil, the water, the plants and the animals - can make an important contribution to urban life. The people of the industrial cities recognized the importance of the natural environment as a counterbalance to urban conditions. Therefore, they made great efforts to incorporate natural elements into their cities.

Today, with the ever-increasingly complex competition for urban space, the important role of the natural environment in the city must be reasserted. Lawrence Halprin states:

> We need once again to evaluate our urban open spaces to design them to perform ecologically for the good of the community. We must realize, too, that open spaces in a city are not decorative frills which can be added or subtracted at whim. (Halprin 1972, p. 11)

Where once the natural environment was understood as rural views and vistas, today it is understood as a complex set of interdependent dynamic processes. These processes: enable the continuous transformation and recycling of living and non-living materials; interconnect the living plants and animals with the earth, climate and water; sustain life on earth and create the physical landscape. Therefore, incorporating nature into the urban environment involves much more than the insertion of a limited number of plants and animals. It involves a restructuring of the city, based on natural processes.

Jack Wright contends that the conventional pattern of urban growth is largely based on socio-economic design concepts (Wright 1976, p. 40). He sees open space development as an after-thought or residual that only accidentally
coincides with areas important to natural processes. He states, "uncontrolled urban growth and unthinking destruction of natural resources have traditionally resulted in costly remedial measures, such as water purification, erosion control, and air purification" (Wright 1976, p.40). Finally, he asserts that environmentally sound urban developments can be achieved by respecting the existing natural processes and that such developments would prove aesthetically pleasing and cost effective.

Michael Hough, in his book *City Form and Natural Process*, argues that urban ecology should be the basis for urban design. He states: "as ecology has now become the indispensable basis for environmental planning of the larger landscape, so an understanding and application of the altered but nonetheless functioning natural processes within cities becomes central to urban design" (Hough 1984, p. 25). He describes the modern city as an environment totally separate from the processes controlling the natural environment. The modern city, while demanding a continuous supply of resources, does not recycle. Waste water, sewage, and garbage are all thrown away while fresh water, food, and other resources are constantly in demand. The modern city encourages simplicity while the natural environment demands diversity. In the natural environment, diverse communities of plants and animals have evolved; in the city, limited types of plants and animals survive. The modern city ignores micro-climatic variations and locational options, and instead, uses huge amounts of energy to modify the urban environment. Hough argues that by adhering to the natural processes and recycling resources, encouraging diversity, and maximizing locational options and siting variations, the urban
environment would be more productive, hospitable, and interesting. Furthermore, he insists that inserting environmentally sound processes into the existing urban fabric is not only possible, it is also cost effective. Through recycling and energy conservation, urban areas could easily recoup the costs of modifying the existing environment.

Anne Whiston Spirn, in her book *The Granite Garden: Urban Nature and Human Design*, similarly argues for natural processes as the basis for urban planning. She presents a plan applicable to every city: a comprehensive plan for the management of the urban ecosystem. The plan provides a framework based on ecological principles within which individual components can be designed. She states:

> An understanding of the urban natural environment should underlie all aspects of the physical design of the city: location of specific land uses; the shape, size and landscaping of urban parks and plazas; the alignment and width of streets and highways; and the overall pattern of the city's transportation network, and places of work, residence and play. (Spirn 1984, p. 262)

Spirn asserts that through planning based on natural processes, the traditionally accepted roles of open space for circulation and recreation would be extended to include crucial roles in environmental health and welfare.

Both Hough and Spirn identify urban open space as a critical component necessary to the successful integration of natural processes into the urban environment. Urban open spaces, whether large or small, have the potential to improve air and water quality and climatic conditions, provide a diverse community of plants and animals, conserve energy and water, and assimilate
some of the city's wastes. Urban open spaces can thereby improve the environmental quality of the city.

3.1.4 Urban Open Space as a Network

It is critical that urban open space be understood not simply as individual components, but rather as a network comprised from these components. Jack Wright, in an article for Recreation Canada, defines a network as: "a group of interacting, interrelated, or interdependent elements forming or regarded as forming a collective entity: a functionally related group of elements" (Wright 1974, p. 35). Therefore, the sidewalks, alleys, squares, parks, boulevards, avenues, malls, plazas and left-over spaces, if successfully connected, can create an urban open space network.

This shift in the understanding of urban open space as a network represents the resurgence of past open space concepts. Pre-industrial cities, characterized in the earlier discussion in their most extreme form of the walled city, exhibit unmistakable patterns of interconnected open space. Walled cities are places for walking and the open spaces exhibit a human scale, where both the width of the streets and the heights of the buildings are keyed to the pedestrian. Modern cities, again characterized in the earlier discussion in their most extreme form of the tower in the park, exhibit a very different quality of space. The tower and the freeway create a city of extraordinary scale, a city that relates more easily to the automobile than to the pedestrian.
These two models represent extremes of urban form. In reality, most modern cities blend aspects of both models. Before the development of the tower or the freeway, cities' open space patterns often revolved around the sidewalk and the urban park. These two components were connected and together they created an easily understood and accessed open space network.

With the rise in popularity of modern architecture, more and more high rise towers in plazas were inserted into the existing urban fabric. The effect of this insertion was to interrupt the existing open space network. The new plazas were unconnected elements in the urban environment that often did not contribute to either the recreation or the circulation functions of urban open space. This disruption of the previous straightforward and easily understood pattern of open spaces with unrelated elements, brought about a reassessment of urban open space.

The reassessment asserted the fundamental need of urban open space to be perceived as a network. Galen Cranz, in an article for Landscape, credits New York's 1965 action of hiring architects and landscape architects to plan the city's parks, small vacant lots, and plazas, as a critical expression of the network concept. Termed open space, these pieces of land became increasingly important to both citizens and professionals. All unbuilt spaces, parks, streets, plazas, and empty lots were seen as part of a continuous network (Cranz 1978, p. 16).
These early actions by New York represent the first attempts to incorporate the new open space components, generated by modern architecture, into an open space network.

With the development of the modern urban open space network concept, the emphasis within open space development shifted away from the individual components toward the connections between components necessary to create such a network. As Robert Cook describes:

Public open space has come to be recognized not only as those places specifically set aside for active or passive recreation but also the continuous network of sidewalks, parks and plazas. (Cook 1980, p. 7)

Now each open space component must be assessed in terms of the entire network, for as Heckscher states: "The key must always be careful planning, sensitive to what makes open space a genuine contribution to the needs of the urban user" (Heckscher 1977, p. 7). In the long run, the effectiveness of urban open space components is related to how well these components are integrated into the network and how well the network is integrated into the urban environment. Therefore, emphasis should be placed on the integration, interrelation and interdependence of the components of the network.

From this discussion of the implications of the four fundamental open space concepts on modern open space development, four objectives for urban open space can be defined.
3.2 URBAN OPEN SPACE OBJECTIVES

1. Develop urban open space for public use. Urban open spaces are the places where people meet, socialize and recreate. Therefore, public use standards that outline the appropriate public uses and open spaces required to accommodate these uses should be articulated and applied to open space development.

2. Develop urban open space to shape the urban environment. Open spaces add human scale and visual diversity to the urban environment. Therefore standards that outline the desired relationship of open space and built form should be articulated and applied to open space development.

3. Develop urban open space to improve environmental quality. Urban open space has the potential to contribute positively to the urban environment. Open spaces, whether small or large, can improve air and water quality and climatic conditions, provide a diverse community of plants and animals, conserve energy and water, and assimilate some of the city's wastes. Therefore, standards for environmental quality should be articulated and applied to urban open space development.

4. Develop urban open space as a network. Individual urban open spaces should be connected into a balanced, accessible and comprehensive series of open spaces, thus viewing open space as a whole, rather than
as a series of individual components. Therefore, standards for the development of open space networks should be articulated and applied to urban open space development.

These four urban open space objectives represent the essential qualities necessary for the development of adequate and appropriate open space. The four objectives closely correspond with the three open space objectives stated in San Francisco's 1983 Downtown Plan. This correspondence adds support to the proposition that adequate and appropriate open space can be developed through the influence of objectives and regulations.

Chapter 4 compares the regulations, identified in Chapter 2, with the proposed open space objectives.
CHAPTER 4
THE EFFECT OF THE OBJECTIVES AND THE REGULATIONS ON URBAN OPEN SPACE

The purpose of this chapter is two-fold; first, the regulations, identified in Chapter 2, are compared with the proposed open space objectives. This comparison determines how effectively the regulations achieve the objectives; second, a decision-making process is outlined that would enable the narrow and effective actions of the regulations achieve the broad open space objectives.

4.1 THE CURRENT EFFECT OF THE OBJECTIVES ON THE REGULATIONS

This section compares the regulations identified as influencing open space with the proposed open space objectives. The purpose of this comparison is to determine how effectively the regulations achieve the objectives.

1. Develop urban open space for public use. This objective is based on the premise that open spaces, whether publicly or privately owned, are accessible to all. They constitute the public component of the urban environment. The two primary public uses of open space are circulation and recreation.

The first zoning ordinance adopted by New York in 1916 exerted an indirect influence on the public use of open space. The ordinance included bulk controls that allowed development to cover 100% of the site. The result of these
controls was to effectively restricted open space to the sidewalks and limited public use to circulation and access.

One goal of the 1961 plaza regulations, adopted by New York, was to increase the quantity and use of open space. Although the proposed plazas were situated on private property, they were envisioned as publicly accessible and usable, but in reality, they were often neither. The 1975 amendment to the plaza regulations adopted by New York was intended to improve the public accessibility and usability of the plazas.

New York's regulations do respect the basic objective in that they provide open space for public use. However, the open space developed under these regulations was restricted to either sidewalks or plazas. No other forms of open space were developed for public use. The regulations were dominated by access and circulation requirements, until 1975, when a limited expression of recreation as a public use was incorporated into the regulations.

San Francisco's 1983 Downtown Plan expresses a fundamentally different approach, to the public use of open space, than New York's regulations. The Plan encourages the development of a broad range of public open space options, including terraces, sidewalk widenings and parkettes. This range of options is intended to supplement the typical sidewalk and plaza forms encouraged by earlier regulations. The open space options are supported by regulations and guidelines to influence their development. The Plan emphasizes the basic
public uses of open space-circulation and access. The potential of urban recreation as a public use of open space is, as yet, underdeveloped.

Vancouver's first expression of public use of open space in its regulations is contained in the 1975 Downtown Official Development Plan Guidelines. The guidelines encourage the creation of usable public open space, and present two policies for public open space. However, the policies are not supported by regulations. Instead, they are intended to act as interpretive requirements in the negotiation process between the City and the developer.

The Central Waterfront Official Development Plan, adopted in 1979, contains two public goals for urban open space. These goals are the first definite public open space statements contained in Vancouver's regulations. As such, they indicate the importance the City places on the public use of open space as a component of the redevelopment of the waterfront area. These open space goals are further articulated by policies. The policies are intended to act as interpretative requirements in the negotiation process. Neither the goals nor the policies are supported by explicit regulations.

In Vancouver's regulatory history, there are recent examples of objectives for public use of open space being articulated. However, these general objectives are not translated into specific regulations. This lack of clear, concise regulations expressing the objectives, greatly increases the complexity of the process used to achieve the objectives. Vancouver relies on a negotiation process between the developer and the City to insure that the developments
express the objectives. This method relies, for success, on the extent to which
the developer can or will modify their development to meet the City objectives.
From the examples cited earlier, the effect of the negotiation process vary
from development to development.

From this comparison, it appears that the three cities' regulations do express
the fundamental concept of public use - access and circulation.

2. Develop urban open space to shape the urban environment. This
objective is based on the concept that open space and built form combine to
give shape to the urban environment. This concept is not well expressed in the
regulations which concentrate on built form as the shaper of the urban
environment.

New York's first zoning ordinance, passed in 1916, effectively dictated the
shape of the urban environment by limiting public open space to the sidewalks
and built form to 100% of the site. Under these regulations a characteristic
urban form emerged of a solid wall of building lined by the public sidewalks.
While this urban form is not an example of an intricate open space-built form
relationship, it is an example of a simple, straightforward and functional
relationship.

The desire to increase the amount of open space in the downtown core, plus the
popularity of architecture's modern movement, resulted in the 1961 plaza
regulations. These regulations represent the modernist's understanding of urban
form. This loose open space-built form relationship is entrenched in the regulations. The effect of the regulations resulted in the emergence of a new urban form: the tower in the plaza. The insertion of this new form into the existing cities resulted in problems which was most evident at ground level where the new plazas were often inaccessible from the existing sidewalks. These problems were addressed in the 1975 amendment to the 1961 regulations, and was intended to set standards expressed in the regulations, for use and accessibility of the plazas.

New York's regulations have exerted a significant influence on urban form. However, for the most part, that influence has been disruptive, repetitive and limited. At best, the later regulations can be seen as attempts to rectify the ill effects of the earlier ones. Open space as a determinant of the urban environment has been poorly represented in the regulations. Instead, the regulations respond to changing architectural styles and concentrate on built form as the sole determinant of the urban environment.

San Francisco's 1983 Downtown Plan exhibits a broader understanding of open space as a component of urban form. One open space objective stated in the Plan is, "Provide contrast and form by consciously treating open space as a counterpoint to the built environment" (City and County of San Francisco 1983, p. 58). This objective is supported by policies and regulations that specify the location of open space and the inclusion of natural elements in open space to further contrast with the built form. San Francisco's regulations present an
approach which sets specific urban environmental standards and achieve those standards through regulations.

To date, most of Vancouver's regulations concentrate on built form as the determinant of the urban environment. One example of this is the 1979 Central Waterfront Official Development Plan. The Plan identifies the importance of relating new development to the form and scale of existing development. Form and scale is translated into building form and scale. The Plan states, "a variety of building heights and development forms will be desirable" (City of Vancouver 1979, p. 526).

This explicit concentration on built form is evident throughout Vancouver's regulations. There is, within the regulations little understanding of open space as a determinant of the urban environment. The non-built portion of the site is seen as separate from the built portion, and both are seen as separate from the surrounding developments. This separation is the major result of ignoring the potential of open space to shape urban form.

With the exception of San Francisco's 1983 Downtown Plan, the existing regulations have exerted a negative impact on the objective to develop urban open space to shape the urban environment.

3. Develop urban open space to improve environmental quality. This objective is based on the understanding that urban open space has the potential to contribute positively to the urban environment. This understanding is only
partially expressed in the regulations. While the regulations do not contain an understanding of urban ecology, they do incorporate many standards to ensure site-specific environmental quality.

The 1975 amendment to the New York plaza regulations utilizes regulations to improve environmental quality. This amendment required that plazas be amenable, as well as accessible to the public. Specific guidelines aimed at improving the site-specific environmental quality of new plazas were developed.

While the broader environmental quality issue of incorporating ecological principles into open space development is not expressed in New York's regulations, they do address the very narrow concern of improving the site-specific environment.

San Francisco's 1983 Downtown Plan expresses a broad understanding of site-specific environmental quality. The Plan concentrates on improving the environmental quality of all open space components in the downtown. Specific standards are adopted for open space design. These standards are expressed in regulations such as Proposition K, which restricts the height of buildings around public open space to ensure solar access.

San Francisco's regulations presents an approach which sets site-specific environmental standards and achieves those standards through regulations.
However, the objective of incorporating ecological principles into urban open space is not addressed.

In Vancouver, in 1968, City Council instructed the Technical Planning Board to take amenity into consideration when reviewing downtown projects for approval. The first direct expression of the environmental quality objective was contained in the 1975 Downtown Official Development Plan. One goal of the plan was "to improve the general environment of the Downtown as an attractive place in which to live, work, shop and visit" (City of Vancouver 1975, p. 495). This goal was supported by the planning policy, "encourage developers to provide usable open spaces where pedestrian amenities should be high" (City of Vancouver 1980a, p. 4). However, neither the goal nor the planning policy are supported by specific regulations.

In the 1979 Central Waterfront Official Development Plan, the issue of site-specific environmental quality finds limited expression. One policy states, "the location height and massing of new development should minimize noon-hour shadowing onto the sunny areas of the Central Waterfront" (City of Vancouver 1979, p. 526). This policy has not been developed into specific sun and shadow standards, nor supported by specific regulations.

Vancouver's two Official Development Plans for the downtown do express the desire to improve environmental quality. However, this desire is not expressed through environmental standards or specific regulations. The objectives of
incorporating ecological principles into urban open space design is not expressed.

The broad environmental quality issue of incorporating ecological principles into urban open space is not expressed in the regulations. With the exception of San Francisco's 1983 Downtown Plan, the existing regulations have concentrated on a narrow expression of site-specific environmental quality. Therefore, the objective to develop urban open space to improve environmental quality, is not supported in the regulations.

4. Develop open space as a network. This objective is based on the perception that open space is not a long list of individual components but a continuous interrelated network. The continuous network of pedestrian circulation and access, created by sidewalks, is the first limited expression of urban open space as a network.

One goal of the 1961 New York zoning regulations was to increase the quantity of open space downtown. This increase in quantity was accomplished through regulations aimed at expanding the basic open space network of sidewalks to include plazas. The regulations required the plazas to be accessible.

The 1961 zoning regulations adopted by New York did not incorporate adequate standards to assure accessibility. The 1975 amendment readdressed this issue to ensure that the plazas were not isolated open space components, but connected to the pedestrian access and circulation system. The emphasis within the New
York regulations has consistently been on a narrow expression of open space as an access and circulation system comprised of two elements - sidewalks and plazas.

San Francisco's 1983 Downtown Plan directly expresses this objective: "create an open space system accessible to and usable by everyone downtown" (City and County of San Francisco 1983, p. 57). To accomplish this objective the existing open space in downtown San Francisco was documented, areas deficient in open space identified and new open spaces proposed. The Plan encourages the creation of specified new open spaces and requires that they become part of the pedestrian system. In 1985, San Francisco introduced the Recreation and Open Space Plan. This Plan places the downtown open space objectives, policies, and regulations expressed in the Downtown Plan, within the city wide system of open space planning.

San Francisco's Downtown Plan and Recreation and Open Space Plan represent an approach to achieving the open space network objective. Within the Plans, the open space network-objective is achieved through the actions of regulations.

Vancouver's 1975 Downtown District Official Development Plan states as one policy the implementation of an open space network concept. However, this policy is not supported by the development of an open space network concept or regulations aimed at creating that network.
Within the 1979 Central Waterfront Development Plan, emphasis is placed on the development of public open space. The open space is seen as part of a pedestrian walkway system that would connect the various elements in this area. However, specific standards for this system or regulations aimed at achieving it are not developed.

Vancouver's two Official Development Plans for the downtown do express the desire to create an open space system. However, that desire is not expressed in a network concept or regulations aimed at achieving the concept.

With the exception of San Francisco's 1983 Downtown Plan, the existing regulations have not fully expressed the objective to develop open space as a network.

It is evident from the comparison that aspects of the four urban open space objectives find some expression in the regulations. New York's regulations emphasize specific controls without general objectives. Vancouver's plans contain partial open space policies that are not supported by regulations. San Francisco's 1983 Downtown Plan contains the best examples of open space objectives that are achieved through the actions of regulations.
4.2 THE POTENTIAL EFFECT OF THE OBJECTIVES ON THE REGULATIONS

This section outlines a decision-making process that would enable the narrow and effective actions of the regulations achieve the broad objectives identified for urban open space. Through the combined effect of objectives and regulations the goal of developing adequate and appropriate urban open space would be achieved.

To ensure that the regulations support the objectives, a series of decisions in a descending order of importance and generality must be made. The first level of decision serves to refine the objective. For example, the first urban open space objective is to develop open space for public use. The first level of decision would be to determine what public uses are appropriate for the specific requirements of the particular city. After these first level decisions have been made factors critical to the realization of the objective must be identified and defined. Detailed open space standards that reflect the objective must be developed. Finally, the open space standards must be translated into regulations. These regulations would directly influence development and ensure that the open space standards are met and the open space objectives are achieved. It is the cumulative effect of the regulations on development that eventually results in the achievement of the objectives. Through this decision-making process, the big questions of: how much open space? where is it located? what type is it? and how much does it cost? can be addressed, and adequate and appropriate open space defined.
The process of choice is similar for each urban open space objective. First, the objective is refined to suit the requirements of the particular city. Secondly, the standards are set that reflect the objective, and finally, the standards are translated into regulations. This process is repeated for each open space objective.

1. **Develop urban open space for public use.** The first decision level defines what forms of public use the city considers appropriate. For example, Vancouver may decide to emphasize the public use of pedestrian access and circulation. The next decision level set urban open space standards. At this level Vancouver may decide that rain protection is a critical factor in encouraging the use of public sidewalks, and if that is the case, rain protection standards would be determined. Finally, these specific standards would be incorporated into the regulations. Through the enforcement of the regulations, the sidewalks would be protected from the rain and one critical factor identified as important to public use would be achieved.

2. **Develop urban open space to shape the urban environment.** The first decision level defines the kinds of urban environment the city considers appropriate. For example, New York may decide to emphasize open space at ground level. The next decision level would set urban open space standards. At this level New York may decide that visibility is one critical factor in emphasizing open space at ground level, and if that is the case, visibility standards for open space would be determined. Finally these specified standards would be incorporated into the regulations. Through the enforcement
of the regulations visible open space at ground level would be developed and one factor identified as important to the urban environment would be achieved.

3. **Develop urban open space to improve environmental quality.** The first decision level defines the nature of environmental quality a city considers appropriate. For example, San Francisco may decide to incorporate ecological principles into urban open space development. The next decision level would set open space standards. At this level San Francisco may decide that using plant communities rather than single plant species is a critical environmental quality factor, and if that is the case, plant community standards would be determined. Finally these specific standards would be incorporated into the regulations. Through the enforcement of the regulations the specified plant communities would be established and one critical factor identified as important to environmental quality would be achieved.

4. **Develop urban open space as a network.** The first decision level defines the nature of open space network the city considers appropriate. For example, Vancouver may decide to expand the existing ground level open space network to include above ground level open spaces. The next decision level would set urban open space standards. At this level Vancouver may decide that roof terraces are a critical component of the open space network, and if that is the case, roof terrace standards would be determined. Finally, these specific standards would be incorporated into the regulations. Through the enforcement of the regulations, roof terraces would be developed and one critical factor identified as important to the open space network would be achieved.
The underlying goal of the process of articulating open space objectives and developing regulations that achieve the objectives is to enable cities to exercise choice, to discuss and decide on the nature of urban open space, to become an effective participant in the development of the urban environment. The combined effect of objectives and regulations mean that critical decisions have been made and the subsequent developments are the result of those decisions.

In cities like New York, where regulations are developed without general objectives, a major effort is required to develop open space objectives and supporting regulations. An additional effort is required to bring the existing regulations into alignment with the objectives. Through this process the narrow focus, uniform results and reactionary characteristics of the regulations would be replaced.

In cities like Vancouver, where open space policies are developed without supporting regulations, a major effort is required to clarify open space objectives and develop regulations that support the objectives. Without the open space objectives and supporting regulations, it is difficult to exert a consistent, predetermined influence on the development of urban open space through policies and negotiation.

In cities like San Francisco, where both open space objectives and supporting regulations are developed, a major effort is required to monitor the effects of the objectives and regulations to ensure the continuing desirability of the results. Therefore, through the decision-making process the combined effect of
urban open space objectives and urban regulations, cities can define adequate and appropriate open space and influence development to create such spaces.
CHAPTER 5

CONCLUSIONS

Open space is a vital component of the urban environment. Ensuring the provision of adequate and appropriate open space is an important civic responsibility. In the past, cities generally have utilized zoning to influence open space development. This approach has not proved entirely satisfactory. Robert Cook describes:

The public has come to recognize that private development decisions may have profound consequences for the public environment. Indeed, the notion of distinct public and private domains in city centers is becoming blurred as more publicly accessible private spaces are created. As a result of these demands, traditional forms of land-use regulation - zoning and related development controls - have been expanded, adapted, refined and supplemented to accomplish new objectives. (Cook 1980, p. 151)

Therefore, this thesis addresses the need to create adequate and appropriate open spaces, and asserts that through the combined effect of urban open space objectives and urban regulations such space will be created.

In part I of the thesis, the investigation into the regulatory histories of New York, San Francisco and Vancouver, identifies the effect of regulations on open space development and concludes that neither objectives nor regulations, acting alone, are sufficient to ensure the development of adequate and appropriate urban open space. While regulations were specific, easy to interpret, and effective, they failed to respond to the complexities of urban open space development. The objectives while articulating what constitutes adequate and appropriate urban open space, were unable to ensure adequate results and were difficult to interpret directly into physical development.
In part 2 of the thesis, the investigation into what constitutes adequate and appropriate urban open space, concludes that there are four fundamental open space objectives: open space for public use; open space to shape the urban environment; open space to improve environmental quality; and open space as a network. These objectives have important implications for open space development.

In part 3 of the thesis, the comparison of the proposed objectives and the existing regulations, concludes that, with the exception of the San Francisco example, there is a large gap between the proposed objectives and existing regulations. To bridge that gap, a new decision-making process is proposed. Cities committed to the development of adequate and appropriate urban open space would make a series of critical decisions. Initially, the four proposed open space objectives would be refined to fit the needs of the particular city. The subsequent decision level would develop standards that reflect the objective and finally these open space standards would be translated into regulations. These regulations directly influence development and ensure that the open space standards are met and the objectives are achieved. Through this process, it is possible for cities to exercise choice and develop open space objectives and urban regulations to meet their needs for adequate and appropriate urban open space.
5.1 IMPLICATIONS FOR PLANNING

Urban open space planning, in addition to defining specific urban open space objectives, developing regulations to achieve the objectives, involves two additional steps: the monitoring and evaluation of the results of the objectives and regulations on open space development; and the readjustment of the process if the results are not desired. The following implementation strategy is suggested to translate urban open space concerns into urban open space planning.

Implementation Study

1. Set up a planning team responsible for open space:
   - composed of politicians, planners, landscape architects and citizens with the mandate to develop urban open space planning.

2. Provide urban open space information:
   - develop a body of general open space information
   - monitor the downtown environment
   - take inventory of existing open space
   - survey public use of open space.

3. Communicate the open space information:
   - increase general awareness about urban open space
   - develop a between-the-buildings tour
   - institute a program of naming important open spaces
   - undertake early education in schools about the urban environment.
4. Implement urban open space planning:
   - set a goal and identify objectives for urban open space, translate
     the objectives into regulations
   - co-ordinate and consolidate all civic actions to ensure the
     development of adequate and appropriate urban open space.

5.2 FUTURE STUDY

Avenues for further study into the development of adequate and appropriate
urban open space are:

- investigate the public use of open space, survey the users to
determine their attitudes, needs and desires for urban open space;
- research the urban environment, investigate the quality, location
  and type of urban open space;
- analyze the economics of open space, determine the costs and
  benefits of urban open space.

These areas of study represent the important gaps in open space information.
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APPENDIX I

Downtown Vancouver Regulatory System's History

1886 Vancouver incorporated as a city.

1900 Vancouver City Council adopts the City's first building regulations.

1908 Vancouver adopts its first comprehensive building bylaw.

1921 Point Grey adopts a zoning bylaw, the first municipality in Canada to do so.

1924 South Vancouver adopts a zoning bylaw, almost identical to the Point Grey bylaw.

1926 Vancouver establishes a Town Planning Commission authorized to assist City Council in an advisory capacity regarding the adoption and future amendments of a city plan and zoning bylaw.

The Commission hires Harland Bartholomew and Associates, City Planners and Landscape Engineers from St. Louis, Missouri to prepare a master plan for the City.

1927 Vancouver adopts the interim Zoning bylaw #1830, and establishes the Zoning Board of Appeal.

1928 A Plan for the City of Vancouver was completed by Harland Bartholomew and Associates.

1929 The three municipalities Point Grey, South Vancouver and Vancouver amalgamate to form the new City of Vancouver.

1930 A Plan for the City of Vancouver, B.C., Including Point Grey and south Vancouver and a General Plan for the Region was completed by Harland Bartholomew and Associates. This plan was not adopted by Council. Vancouver adopted a new zoning bylaw #2516. This bylaw replaced bylaw #1830.

1948 Harland Bartholomew completed the revised Master Plan for Vancouver. This plan was not adopted by Council.

1952 Vancouver established the Planning Department and the Technical Planning Board.

1956 Vancouver adopted the new Zoning and Development bylaw #3575.

1957 Vancouver's high density office and shopping core was rezoned (CM-2) Commercial District Schedule.
1960  Vancouver established the Board of Variance by bylaw #3844.

1961  The Zoning Plan for the Downtown Area was presented to Council. The Plan was not adopted.  
Vancouver Tomorrows: Outline for the Preparation of a Plan - Draft for Discussion was completed by the Planning Department.  
Redevelopment in Downtown Vancouver was completed by the Planning Department.

1964  Redevelopment in Downtown Vancouver, Report #5 was completed by the Planning Department.

1966  The Future of Vancouver Metropolitan Core: Preliminary Policy Plan was completed by the Vancouver Technical Planning Board.

1968  Downtown Vancouver: Part I, the Issues was completed by the City Planning Department.

1970  Downtown Vancouver - Development Concepts was completed by the City Planning Department.

1972  Downtown Vancouver - Development Proposals was completed by the City Planning Department.

1973  The City Planning Department establishes the Downtown Study Team.


1975  The Central Area Division is established by the Planning Department to cover the downtown core.  
Vancouver establishes the Development Permit Board and the Development Permit Advisory Panel.  

1978  Review of Central Area Development Control Process was completed by the Planning Department.

1979  Vancouver adopts the Central Waterfront District Official Development Plan.

1980  Goals for Vancouver is completed by the Vancouver City Planning Commission.

1981  Public Plans and Policies for the Core is completed by the Planning Department.
1982 Changes in the Builtform of the Core is completed by the Planning Department.

1983 The Vancouver Coreplan: A Proposal for Discussion is prepared by the Planning Department.
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