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**REPORT  
ON  
THE IMPACT OF BUILDING HEIGHTS IN PORTLAND**

*The Committee:* L. James Bergmann, Robert C. Goodwin, Jr., Charles K. Landskroner,  
Gary L. Michael, George H. Fraser, *Chairman.*

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*"To inform its members and the community in public matters and to  
arouse in them a realization of the obligation of citizenship."*

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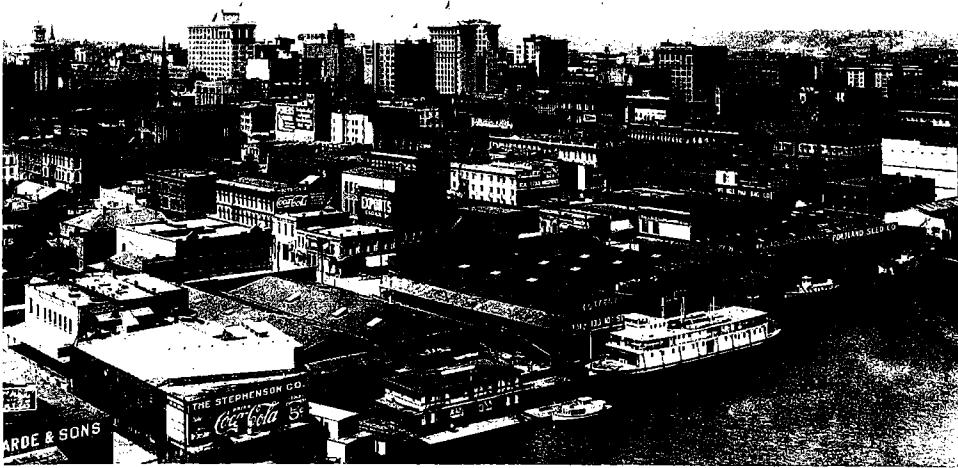
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**Photos Opposite Page:**Top: Downtown Portland skyline, 1914  
(Oregon Historical Society file photo)Middle: Downtown Portland skyline, 1963  
(Oregon Historical Society file photo)Bottom: Downtown Portland skyline, 1974  
(Photo courtesy of Portland Planning Commission)



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**REPORT**  
**ON**  
**THE IMPACT OF BUILDING HEIGHTS IN PORTLAND**

To the Board of Governors,  
The City Club of Portland:

**I. INTRODUCTION**

On February 5, 1973, the Board of Governors approved the establishment of a committee to "\*\*\*\* study and report on the impact of building heights on the City of Portland, and to make recommendations on policies and regulations thereon, if indicated." The charge to the Committee stated:

"The Committee will give consideration to such aspects of height limitations as:

1. Past ordinances and their interpretation, with the reasoning behind such interpretation;
2. Current ordinances, with their advantages and disadvantages, pertaining to economics, density, traffic, skyline, zoning and overall planning;
3. Planning for future proposals, including control ordinances, for Portland's high-rise structures;
4. High-rise control, or lack of it, in other cities (both successful and unsuccessful);
5. Changes in public opinion over the past decade regarding high-rises in Portland."

**II. BACKGROUND**

**A. Definition of High-Rise**

We have concluded there is no universally accepted definition of a high-rise. It has been defined variously as any building over six stories high; any building over 78 feet high; any building over 16 stories high; any building that rises beyond the height existing fire department equipment can reach (approximately 10 stories); any building that is 10 percent higher than the average of buildings in 90 percent of the adjoining area. *A practical definition might be that "It is any structure that offends your concept of what you are entitled to view from your own vantage point."* The topography of the area may be a factor. For example, the ground level at the site of the First National Bank Building in Portland is 68 feet higher than ground level at lower Burnside Street. It is easy to identify extremes. What was considered a high-rise in 1940 may no longer be considered a tall building by the public. The 40-year-old Empire State Building in New York was the classic skyscraper. Now its owners are exploring the feasibility of adding 11 stories to make it once again, the world's tallest building. The newer buildings are referred to as "space scrapers." The twin towers of the World Trade Center in New York City have a 1,350 foot preeminence. The Sears & Roebuck tower in Chicago is 1,450 feet high. In Chicago, the Hancock Center or "Big John" is a \$95 million vertical city, 1,127 feet high. Its 100 stories contain department and grocery stores, 705 apartments, office space for 4,000 workers, restaurants, banks, and recreational and parking facilities. Its management states that its "megastructure" provides a complete living arrangement for more than 1,700 tenants.<sup>1</sup> The concept of a high-rise therefore may differ from city to city or even in different areas of the same city.

For our purposes in the Portland area we concluded that a high-rise is any large building or group of buildings that is disproportionate to the size and height of other buildings in the area or out of scale with its surroundings.

<sup>1</sup>"The Uncertain Future of the American Skyscraper," U. S. News and World Report, November 20, 1972.

### **B. A Short History of High-Rise Construction in Portland**

Portland is a unique city. It abounds with spacious views, wooded foothills, rivers, and snow-capped mountains. It enjoys not only the beauty of the Willamette and the Columbia, but also the commercial advantages offered by these rivers. The core area of the city is unique in that downtown development has tended to be confined by the Willamette River on the east and the hills on the west. It is a city in which one can walk from one end of the core area to the other in 15 minutes. The geographical restrictions on the core area make the need for good planning essential to maintain its environmental quality and its viability as the center of the city.

The core of the city expanded from the west bank of the river toward the west hills. Bridges made the expanding core easily accessible from the developing residential areas on the near east side. Portland's early buildings were of wood frame. Later, heavy timber and masonry structures were built to four and five stories in height.

With the invention of the elevator and the development in Chicago of the structural steel frame in the 1880's and 1890's, changing technology permitted erection of much taller buildings. Portland's first decade of the twentieth century saw at least eight buildings from 10 to 14 stories erected. The U.S. National Bank Building at 309 S.W. Sixth at 12 stories was the highest in 1906. Meier & Frank topped that with 14 in 1908. The Yeon Building built in 1912 at 522 SW Fifth at 15 stories reigned supreme until the Hilton Hotel (22 stories) was completed in 1963. Portland's first major post-World War II building, the original Equitable Building, now the Commonwealth Building, completed in 1948, is only 13 stories. However, to this day it may be historically our most internationally significant work of architecture. Its uniqueness lies in the aesthetics of its metal and glass skin rather than its height.

Portland's skyline was not dramatically changed until the 1962 construction of the Hilton and the Standard Plaza Building (16 stories). Then came the Portland Center Apartment Towers at 22, 23 and 25 stories. When the Georgia-Pacific Building (30 floors) was under construction in the late 1960's some people began to be concerned about the question of height. The First National's 41 stories, Portland Plaza's impact on the auditorium Forecourt Fountain, and high-rise projects constructed and proposed along the waterfront have become controversial subjects.

Growing public concern for the environment, the energy crisis, and the transportation problems of our cities are creating pressure for more study and self-analysis. Portland is not unique in this regard. Cities across the country are grappling with development problems, not the least perplexing being the issue of building height.

### **C. Existing Height Controls in Portland**

Section 1 of the Planning and Zoning Code of the City of Portland, Oregon states that:

"The Council finds that zoning regulations including regulations of height of buildings, setback requirements and regulations of use of land in the city of Portland are necessary in order to encourage the most appropriate use of property within the City; to stabilize and conserve the value of property; to provide adequate light, air, and reasonable access and to secure safety from fire and other damage; to prevent overcrowding of land; to avoid undue population density; to set forth adequate provision for transportation, water, sewerage, schools, parks and other public improvements and generally to promote the public health, peace, safety and welfare.\*\*\*"

Existing height regulations are as follows:

*R20, R10, R7, R5* (One Family Residential Zones) and *A2.5* (Apartment Residential Zone)—two and one-half stories, or 35 feet.

*A1* (Apartment Residential Zone)—three stories, or 45 feet, except that there shall be no height limit on any structure located 400 feet or farther from any *R10, R7, R5, A2.5, C5, or C4* Zone.

*A0* (Apartment Residential Zone)—no limitation on height except as regulated by the

maximum floor area permitted as follows: 3.0 FAR<sup>2</sup> for sites under 15,000 s.f., 3.5 FAR for sites 15,000 to 19,999, 4.0 FAR for sites 20,000 to 24,999, 4.5 FAR for sites 25,000 to 29,999, 5.0 FAR for sites 30,000 to 34,999, 5.5 FAR for sites 35,000 to 39,999, and 6.0 FAR for sites 40,000 s.f. or more.

*C5* (Limited Commercial Zone)—one story or 15 feet (Type A Sites), and three stories or 35 feet (Type B and C Sites).

*C4* (Local Commercial Zone)—two stories or 20 feet.

*C2* (General Commercial Zone)—three stories or 45 feet, except there shall be no height limit on any structure located 400 feet or farther from any R10, R7, R5, A2.5, C5, or C4 Zone.

*C1* (Central Commercial Zone)—no limitation on height except as regulated by the maximum floor area permitted (12 times site area).

*M4* (Limited Manufacturing Zone) — 35 feet, except that this height limit may be exceeded in locations where the petitioner can demonstrate that any structure above 35 feet in height will not obscure the panoramic view from any property located in a zone or part of zone having a three-story or lower height limit and within 3,000 feet of the petitioner's project by more than a horizontal angle of six degrees.

*M3* (Light Manufacturing Zone)—same as A1 and C2.

*M2* (General Manufacturing Zone)—no limitation, except as provided in the Housing and Building Codes.

*M1* (Heavy Manufacturing Zone)—same as M2.

In addition to the above, interim regulations requiring plan review for projects over 20,000 square feet or parking 20 or more cars have been in effect during most of the Downtown Plan study.

### III. ISSUES

#### A. A Problem of Density and Bulk as well as Height

The high-rise issue is extremely complex. One cannot analyze problems of height without getting into related issues of density and bulk. High-rise buildings do not necessarily equate to high density and conversely, high densities are achievable without extreme height. Some of the most densely populated cities of the world are primarily "walk-up" cities. However, generally speaking, higher buildings do tend to create higher densities. And in many cases the result is development with sheer bulk or mass that may be as objectionable as the height.

A good case can be made for higher density in Portland. It is now relatively undeveloped, in comparison to other cities and to what is allowable under current zoning laws. When one takes into account all developable property in the core area, the average building height is approximately two stories. Theoretically, we could double or perhaps even triple our density without going over six stories.

Cities developed primarily because of the need for communication. Assuming acceptable environmental quality, a dense, compact city should function better than one that is dispersed over a broad area.

A major justification for density is that public transportation will not work without it. The growing energy crisis, along with State and Federal environmental standards, make essential the development of viable alternatives to automobile transportation. The opinion has been expressed that our present population density is too low to support mass transit other than a bus system. The fixed rail systems of New York, London, Paris, Mexico City, Toronto, and San Francisco require high densities along transit

<sup>2</sup>Floor Area Ratio, or FAR, is the ratio of the gross floor area to site area. In Portland's C-1 Zone, the permitted FAR is 12, which means that the gross floor area on a full 200 x 200 block is 480,000 square feet. If a developer chooses to cover the whole site, the height is therefore limited to 12 floors. If he covers only half the site, he can build 24 floors, etc. The FAR was originally limited to one block, but the concept of "borrowing" from adjacent blocks has been permitted in Portland since 1967, when the Planning Commission made this interpretation of the zoning ordinance in holding that the Georgia-Pacific Building could be constructed without a variance.

corridors. And in turn these systems stimulate greatly increased densities along those corridors.

Density makes possible certain kinds of amenities in cities that otherwise could not exist. Specialty shops, unique restaurants, art galleries, musical and theatrical events, and active public spaces (such as our auditorium Forecourt Fountain) are less likely to occur in low density areas. Higher densities tend to delay suburban sprawl and preserve the natural environment close to our cities. Higher densities (if not extreme) also should result in more efficient provision of services by government and private enterprise. It has generally been accepted that taxes generated by high-density development help to subsidize lower residential areas.<sup>3</sup>

Density, of course, has much to do with economics, and this is covered in Section D, Regulatory Precedents.

### **B. The Impact of High-Rises**

In the past 10 years there has been a growing concern regarding the planning of our cities. People are concerned with the impact of the automobile, crowding, mass transportation, pollution, and aesthetics. Architects and engineers have become more vocal about the problems that a "super building" generates. The famous Greek architect and city planner, Constantinos A. Doxiadas, published a paper entitled "Confessions of a Criminal." The foremost crime, Doxiadas wrote, was to have advocated and designed high-rise buildings. Such buildings, he explained, "work against nature by spoiling the scale of the landscape. The most successful cities of the past have been the ones where man and his buildings were in a certain balance with nature, such as Athens or Florence." High-rise buildings, Doxiadas continued, work against man himself, especially against children who lose their direct contacts with nature. These buildings are subsocial and against society because they do not help the units of social importance—the family and the extended family, the neighborhood—to function as naturally and as normally as before.<sup>4</sup> Doxiadas also noted that high-rise buildings "work against the networks"—his term for the complex of roads, sewer and water mains, electric and telephone lines and all other pipes, wires and strings that hold modern urban life together. Nathaniel Owings, one of the founders of Skidmore, Owings and Merrill, the architectural firm which has designed some of the tallest and most famous skyscrapers of the past two or three decades, also has expressed concern. "History has proven that skyscrapers tend to dehumanize the area in which they are raised. They suck the lifeblood of the area around them, drawing up into the air that which should be lying closer to the human scale."<sup>5</sup> Generally recognized negative impacts and potential hazards of high-rise structures recognized by many architects and urban planners are as follows:

1. Increase in traffic and parking problems.
2. Congestion on streets caused by rush hour outpourings.
3. Difficulty in affording adequate fire protection and quick evacuation of tenants in case of fire.
4. Cutting off light and scenic views for persons in smaller buildings and in adjoining areas.
5. Problems of providing security against thieves and burglars who can often escape detection in stairwells and corridors (it has been reported that "the total number of crimes of all kinds . . . is three times higher in towering elevator apartment buildings,

<sup>3</sup>Only recently has this concept been challenged (in San Francisco). A \$250,000 study begun in 1972 by the San Francisco Planning & Urban Renewal Association (SPUR) is attempting to determine the fiscal impacts of high rise buildings. This study was due to be completed late in 1974 but as of this writing no definite conclusions had been drawn. If the suburban areas of San Francisco are subsidizing the core area, it is likely that the reasons can be found in the social problems which typically occur in the core.

<sup>4</sup>"High-rise apartments probably serve vanity more than humanity," Wolf Von Eckard, LA Times, Washington Post Service, reprinted The Oregonian, January 4, 1973.

<sup>5</sup>*Ibid.*

particularly in large projects, than in neighborhoods of detached homes, townhouses or walk-up garden apartments"<sup>6</sup>).

6. Interference with television signals, damaging reception for nearby viewers.
7. Compounding problems in providing water and sewer facilities or disposing of waste products.
8. Wind velocities at the base of building caused by downdrafts off sheer vertical face of building.
9. Sway and vibration in upper stories caused by high winds.<sup>7</sup>

Impacts of a favorable nature to be obtained by the erection of high-rises are:

1. The development of a commercial, professional and administrative core area identifying the center of the city.
2. The high vertical concentration of people tends to save land for open space and enjoyment, avoiding sprawl. (This impact advantage has been criticized on the premise that high-rise buildings must be placed far apart to assure sufficient air and sunlight for the occupants and that little of the space allotted for that purpose is used for greenery and enjoyment. Even where the open spaces between the buildings are landscaped, they tend to be dead areas by reason of the lack of shops and community buildings. The areas are deserted at sundown.)
3. They permit a greater concentration of residential living in or near the core area partially eliminating the use of automobiles for these residents.
4. They supply a concentration of worker and business activity necessary to support a viable mass transit system.
5. High-rise buildings can often work more efficiently than horizontally spread-out structures.
6. Create their own views—command higher rents.

### C. Economic Considerations

Development of any kind must deal with economic constraints. Among these are market conditions, financing costs, construction costs, land costs, taxes, operating costs, and public policy.

In urban areas experiencing growth, market demand for new space is automatically created. When development of new space is consciously limited, as has been done in London since 1965, the demand for space will cause rents to increase. Rent levels for new space are affected by the above-listed constraints, together with a necessary profit margin which must take into account the sometimes enormous risks involved in real estate development.

Financing costs account for a major portion of the final cost paid as rent by the users. Core area housing for low or even middle income persons is not economically feasible unless subsidized. The cost of money varies significantly from time to time, although the overall trend has been upward.

Construction cost, the other major development cost, has almost doubled since 1967. The cost of labor and materials has contributed to this rapid increase, as well as our demand for amenities such as air conditioning and sprinkler systems.

As Portland grows, as inflation continues, and as we try to save open space or otherwise limit development, the cost of land can be expected to increase. In the core area, full blocks range from one to three million dollars. Obviously, one must construct more floor area on expensive sites than on cheaper land, other constraints being equal. Where unrealistic limitations on density are imposed, development will not occur.

Developers are prompted to construct large and tall buildings because of economic considerations. Although additional building height increases the unit cost of the building's floor area, the increase normally is not sufficient to defeat the feasibility of the

<sup>6</sup>*Ibid.*

<sup>7</sup>*Ibid.*