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## AIR RIGHTS

The incentive to develop structures on air rights is a result of two interrelated aspects of urban growth -- rising land values and expanding transportation facilities. The effect of these is strongest in the central business district where land values are highest and where transportation systems are generally focused.

In the CBD numerous functions are concentrated in an area characterized by high land coverage and multi-story structures. As the retail, administrative and financial center of the city, and frequently of the region, its smooth operation depends on rapid and constant communication among its internal components as well as with the outside world. The dilemma of downtown can thus be described in terms of the conflicting demands on land made by high-density developments and space-consuming transportation facilities, a competition that has tended to become more severe in recent years.

While the present ubiquity of the automobile may have detracted from the transportation functions of the railroads, it has not reduced railroad land holdings. Thus, the city core has to accommodate -- in addition to the vast acreage of the railroads -- streets, expressways, interchanges, parking lots and garages. Today, this problem is not entirely confined to the downtown. The competition for building space may also be found in outlying areas.

It is natural, then, that attempts have been made to reclaim some of the land lost to transportation by building over railroads and thoroughfares, even though such development raises construction costs. While the shortage of urban land, especially in prime locations, provides the incentive for such developments, the high value of this land for building space assures their economic feasibility.

Improvements straddling transportation facilities and under separate ownership are really not new. The first air rights construction, the New York Central Terminal air rights development in New York City, was started in 1908 and completed in 1913. Electrification enabled the railroad to cover its tracks into Grand Central Terminal with a street and flanking apartment and office buildings. This became Park Avenue and by 1929, 18 skyscrapers had been built over

the tracks. The most recent construction project in this area was the new 59-story Pan American building.

Air rights projects have been built in other cities although on a smaller scale than in New York. But based on the number of recent inquiries to ASPO Planning Advisory Service, interest in air rights developments has increased considerably. This report will review past and proposed projects, discuss problems that a planning agency must face in dealing with such projects, and summarize action by governmental bodies to regulate air rights developments.

## BACKGROUND

In principle, air rights go back to early English common law, with its basis in the Latin legal maxim: cujus est solum ejus est usque ad coelum et ad inferos -- to whomever the soil belongs, he also owns to the sky and to the depths. This traditional concept of land ownership described the parcel as an inverted pyramid starting at the center of the earth and reaching to the periphery of the universe. Recently, the requirements of aviation have abrogated private property rights to the extent that the use of the air as a public highway has pre-empted them. However, there is a definite downward limit for this new highway that has become dedicated to public use: " . . . The landowner owns at least as much of the space above ground as he can occupy or use in connection with the land."<sup>1</sup> Air rights construction has obviously extended the upward use of property beyond the limits once envisioned.<sup>2</sup>

### Definition

Air rights, as usually defined, comprise the rights vested in the ownership of all the property at and above a certain horizontal plane as well as caisson and column lots essential to contain the structural supports of the air rights improvement. This means in effect a horizontal division of real property, with the parts under separate ownership and involving an allocation of responsibilities and rights. The utilization of air rights consists of construction "in space", above an existing surface use. Thus, it encompasses more than the usual vertical arrangement of different uses, as may be found in an office building with stores on the ground floor, an apartment hotel having a garage in the basement, or a railway station on top of tracks. These typical building use arrangements include three characteristics that are lacking in most air rights development: single ownership, a functional kinship among the uses, and synchronized planning and construction.

### Review of Experience

The expanding range of air rights projects is illustrated by a 1961 estimate that one hundred transactions in this field had been or were in the process of being negotiated in New York and Chicago alone.<sup>3</sup> Tables 1 and 2 list some

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<sup>1</sup>This and subsequent references are listed at the end of the report.

of the existing and proposed developments throughout the country. As might be expected, most developments are over railroad tracks, with a smaller number over parking lots and expressways. But there are also examples of buildings resting on top of another.

As early as 1910, the Cleveland Athletic Club leased the air rights over a five-story commercial building and added another eight stories to house its activities. In 1922 another major air rights development was negotiated in Cleveland. The Cleveland Union Terminal Company, owned by three railroads, leased the air rights above a plane 32 feet over the track level. The improvements of this 35-acre tract of centrally located land now include the Cleveland Hotel, the Higbee Department Store, the Terminal Tower Office Building, and two other structures.

Although most air rights agreements involve air space over privately owned railroads conveyed to privately sponsored improvements, some projects include public as well as private property. In Cambridge, Massachusetts, the air rights over a publicly owned parking lot were sold for the construction of a privately owned motel. Santa Cruz, California, permitted a commercial development over a publicly owned parking lot. In New York, privately sponsored apartment buildings have been erected over the highway approaches to the George Washington Bridge. A proposal in the Bronx, New York, envisions private housing over a public school, and Toronto has considered public housing over parking lots. Publicly sponsored developments over privately owned land are not so common; one example is Brooklyn, New York, where the Board of Education considered the expansion of a municipal college over the tracks of a private railroad.

One of the largest and also most controversial air rights developments is on Chicago's lakefront. The 48-acre peninsula occupied by the Illinois Central Railroad yards has been called the most valuable undeveloped piece of real estate in any downtown area, with available air space valued at \$100 million. The development started in the early 1950's with the construction of a 42-story office building by the Prudential Life Insurance Company. At present three developers hold options to the remaining air rights. One of these, the Interstate Development Corporation, is completing a 940-unit apartment building. However, complications have arisen which go beyond questions as to the proper use of the land and the obvious need for a coordinated development plan for the total area. The very ownership of the land, presumably vested in the Illinois Central Railroad, has been challenged by the City.

The most ambitious plan yet advanced for the utilization of air rights was a proposal submitted in 1961 to the State of New York by the Study Committee for Urban Middle-Income Housing. The Committee proposed the use of under-developed land for middle-income housing over selected, tax-exempt, public properties. Approximately 250,000 dwelling units in high-rise structures, housing approximately one million people, would be built under New York's limited-profit housing program. The plan identified more than 200 suitable sites over highways, public transit trackage, piers, schools, tunnel plazas, and parking fields.<sup>4</sup>

Table 1

## SELECTED AIR RIGHTS DEVELOPMENTS IN THE UNITED STATES

Year	Location	Surface Use	Air Rights Development
1908	New York City	Railroad (New York Central)	Commercial and Residential (Park Avenue)
1910	Cleveland, Ohio	Commercial (Mercantile Bldg.)	Private Club (Cleveland Athletic Club)
1922	Cleveland, Ohio	Railroad (Cleveland Union Terminal Co.)	Commercial & Office
1927	Chicago, Ill.	Railroad	Office (Chicago Daily News Bldg.)
1929	Chicago, Ill.	Railroad (Chicago & North Western)	Commercial (Merchandise Mart)
1952	Chicago, Ill.	Railroad (Ill. Central)	Office (Prudential Bldg.)
1957	New York City	Highway (F.D.R. Drive)	Residential (Co-op Apts.)
1957	Providence, R.I.	Street	Parking
1959	Cambridge, Mass.	Parking	Commercial (motel)
1962	New York City	Highway (Approach to Geo. Washington Bridge)	Residential (Middle-income Apartments)
1962	New York City	Railroad (N.Y. Central)	Office (Pan-Am Bldg.)
1962	El Paso, Texas	Railroad (Southern Pacific)	Office (El Paso National Bank)
1962	Kew Gardens, L.I.	Railroad (Long Island)	Residential (Luxury Apts.)
1962	Sioux Falls, S.D.	River (Big Sioux River)	Parking
1963	Chicago, Ill.	Railroad (Chicago & North Western)	Residential & Commercial (Marina City)
1963	New York City	Railroad (Pennsylvania Station)	Commercial & Office (Madison Square Garden)
1963	Hollywood, Fla.	Parking	Residential
1964	Chicago, Ill.	Railroad (Illinois Central)	Residential (One Outer Drive East Apartments)

**Table 2**

## PROPOSED AIR RIGHTS DEVELOPMENTS IN THE UNITED STATES

Location	Surface Use	Air Development
Akron, Ohio	Parking (Public Garage)	Commercial
Bronx, N.Y.	School (Board of Education)	Residential (Private)
Bronx, N.Y.	Railroad (Subway yard)	College (Board of Education)
Bronx, N.Y.	Highway (Hutchinson River Parkway)	School (Board of Education)
Brooklyn, N.Y.	Railroad	School (Board of Education)
Fresno, Calif.	Parking (Public Lot)	Commercial
Louisville, Ky.	Parking (Public Garages)	Residential & Commercial
Montreal, Quebec	Railroad (Public Subway Stations)	Commercial, Residential & Office
Philadelphia, Pa.	Railroad (Pennsylvania RR)	Residential (Luxury Apartments)
Rochester, N.Y.	River (Genesee River)	Commercial & Office
San Francisco Calif.	Railroad (Public Car barn)	Commercial & Garage
Santa Cruz, Calif.	Parking (Public Lot)	Commercial & Office
Toronto, Ont.	Parking	Residential (low-rent apartments)

**Incentives**

The exploitation of air rights reflects the advantages inherent in such dual-purpose land development. Some have already been mentioned, such as the recapture of land lost to tracks and pavement for other uses. There are also other advantages for such developments both to the municipality and to the private land owner and developer.

The benefits to the municipality are twofold. First, air rights over publicly owned facilities, such as streets, expressways and parking lots, may be sold or leased. Providence, Rhode Island, entered into a contract with a private parking firm to build an elevated parking deck over a city street. The City

shares in the gross receipts of the operation, up to 52 per cent of all revenue over \$150,000, and receives title to the deck after the expiration of the 25-year lease. Another example, the Santa Cruz, California, development, includes the sale of air rights for commercial development over city-owned parking lots. Secondly, land used for a public purpose is not permanently lost to the tax rolls. This is especially true for public rights-of-way that occupy an increasing share of the urban land surface, as well as rapid transit systems, public parking lots, and drainage channels.

Chicago expects its lakefront development to add \$12 million to city property tax revenues. Massachusetts legislation provides that air rights improvements over publicly owned land must be taxed in the same manner and to the same extent as if the lessee were the owner of the land in fee, and the value of the land must be included in the assessment. The City of Hollywood, Florida, is leasing air rights over municipally owned parking lots and requires the lessee to pay all taxes levied against the land and against all improvements added by the lessee. A proposal for Louisville, Kentucky, recommends that the City condemn land and structures for construction of multi-level parking garages. The City would then lease the air rights to the space over the garages for private development -- apartments, hotels, offices, stores.

Construction "in space" may be equally advantageous to the private land owner. The conveyance of air space over railroad rights-of-way has provided incremental income and explains the zeal with which railroads have promoted air rights deals: the New York Central in St. Louis, Indianapolis, Cleveland, and Columbus, Ohio; the Illinois Central in Chicago; and the Pennsylvania Railroad in New York, Newark and Philadelphia.

The incentives to acquire air rights are strong for the developer as well. Air space offers the opportunity to secure a large site in one transaction and eliminates the tedious process of assembling several parcels, demolishing existing structures and relocating present tenants. Secondly, it offers the chance to obtain a prime site in or near the central business district where reasonably priced conventional sites may no longer be available. Finally, air space is often sufficiently less expensive than similarly located vacant land to more than offset additional construction costs.

An added benefit to the community, perhaps less tangible, is the elimination of eyesores, such as open parking lots and railroad yards, and the closing of transportation cleavages -- railroads and expressways -- which tend to bisect communities. Neither railroads nor expressways add much to the aesthetic appeal of the urban landscape. A prime example again is the New York Central whose tracks entered the city surrounded by semi-slums; when covered by a platform, the right-of-way was transformed into one of the most admired pieces of real estate in the world.

#### SEPARATION OF PROPERTY RIGHTS

The question of air space ownership has been settled in approximately half the states by the enactment of legislation. The conveyance of air rights, however, has been authorized by the statutes of only three states. Thus, New Jersey<sup>5</sup>

and Colorado<sup>6</sup> provide that:

Estates, rights and interests in areas above the surface of the ground, whether or not contiguous thereto, may be validly created in persons or corporations other than the owner or owners of the land below such areas and shall be decreed to be estates, rights and interests in land.

Illinois permits municipalities to lease air space over streets and other public places for terms up to 99 years and permits railroads, which own the fee to real estate, to sell or lease the air rights for further development, provided such development does not interfere with the operations of the railroad.<sup>7</sup>

No other state has authorized the conveyance of air rights. Nor has the conveyance been specifically tested in court. Nevertheless, there is little doubt that the validity of such conveyances would be recognized if challenged. In many cases throughout the country, millions of dollars have been paid for leases or fee simple titles to air rights.

Since the property granted is a three-dimensional tract located above the land surface, the drafting of an air rights conveyance introduces a number of problems which are not generally presented by the conveyance of a surface parcel. The main difficulty is the requirement that, to be valid, a deed must describe the property granted in terms which are sufficiently precise to locate and distinguish it.

The legal documents used in recording a sale or lease include a plat of subdivision covering the specific property involved. The property is subdivided vertically\* in the conventional manner and a system of fixed range lines is delineated upon the plat. Horizontally, it is subdivided by a system of fixed planes, related by specific elevations to city datum or some other known recorded basic level. Similarly, the center lines of column and caisson lots are located specifically by reference to fixed range lines delineated upon the plat of subdivision with the upper and lower limits of such lots fixed by reference to planes of specific elevations. The exact boundaries of the various parcels are, therefore, easily determined.

Four different methods of conveying air rights have been employed, one of which involves a leasehold and three of which involve granting the developer a fee interest in the air space (for examples, see Table 3):

1. The leasing, with options to renew, of air space and land necessary for foundations by the owner to the developer. The lease should include provisions with regard to insurance, tax apportionment, transfer rights of the developer, and the respective rights and responsibilities of the parties, during the period of the lease as well as after its expiration.
2. The conveyance of the entire fee of land and air space to the developer with an easement reserved to continue the surface use. From the purchaser's

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\*Vertical subdivision refers to the subdivision of property along a vertical plane; horizontal subdivision refers to the subdivision of property along a horizontal plane.

This three-dimensional illustration was taken from a portion of the recorded subdivision plat for the Prudential Building in Chicago. Clearance for the ground-level railroad is provided between supporting columns, beneath the "platform" on which the building is constructed.



**Table 3**

**METHODS OF CONVEYANCE OF OWNERSHIP RIGHTS IN SELECTED AIR RIGHTS DEVELOPMENTS**

Method	Project	Description
1. Lease of air rights	Park Avenue, New York	Railroad leased air rights to developers; when leases expired, it demanded replacement of original structures with office buildings which have a higher income potential.
	Cleveland Athletic Club	98-year lease of air rights, lobby and basement space, elevators, stairway, etc.
	Cleveland Union Terminal Development	Lease including easements for caissons and columns.
	Providence, R.I., parking deck over public street	25-year lease; after expiration, deck becomes city property.
	Hollywood, Fla., apartments over parking lots.	59-year lease.
2. Sale of entire fee rights to land and air space	Kew Gardens, L.I., apartments	Long Island Railroad sold a part of its right-of-way and retained an easement for its tracks.
	Marina City, Chicago	Chicago & North Western Railroad sold a part of its right-of-way and retained an easement for its tracks.
3. Sale of air rights and caisson lots	Merchandise Mart, Chicago	Developer bought air rights plus fee rights in caisson-column lots.
	Prudential Building, Chicago	Developer bought air rights plus fee rights in caisson-column lots.
4. Sale of air rights with grant of easement for foundations	Bridge Apartments, New York	City sold air rights at public auction subject to the requirement that the property be used for middle-income housing.

point of view, this is an ideal arrangement, not only because of its flexibility, but because the entire property is owned outright. The surface use has, legally at least, a subordinate or inferior interest.

3. The conveyance of the fee to the air space above a certain level and the grant of easements through the ground fee for supporting foundations. This method, as well as the following, results in two adjoining fee titles, but in a horizontal rather than a vertical relationship.

4. The conveyance of the fee to the air space and support areas. This method was pioneered in Chicago in connection with the Merchandise Mart and was based on the premise that land could be platted and subdivided not only vertically but horizontally. Both the air and land comprising the site of the Merchandise Mart were subdivided into various lots. The developer took title, for example, to certain caisson lots necessary to furnish the foundations on which the building was to rest.

Legal limitations as well as financial considerations influence decisions as to which method of conveyance should be used. For example, if the trustee under a railroad mortgage lacks legal authority to convey, then a lease is the only method available. The prospective mortgagee of the air rights improvement, on the other hand, would naturally prefer a sale. Otherwise, the mortgage security would in effect comprise a leasehold estate.

At times, the conveyance of the entire fee of land and air space is necessary to satisfy the mortgage lender. When the Long Island Railroad embarked on its real estate marketing program for the construction of residential buildings in Kew Gardens, Long Island, it found that the developer was unable to secure mortgage commitments on the proposed residential projects to be built on air rights. The railroad had no choice but to sell a section of its right-of-way, retaining a perpetual easement for its tracks.

Office building developers will usually find mortgage funds more easily available, as even speculative builders generally obtain from tenants long-term leases that then serve as mortgage security.

#### **VALUE OF AIR RIGHTS**

The marketing of air rights requires a determination of their value. This involves both an appraisal for sale or lease and an assessment for tax purposes. As air rights comprise only a portion of the total rights of the land, the value of the complete fee rights must be determined before the value of this portion can be determined. As the key to the value of air rights -- utility -- is the same as the key to the value of any parcel of real property, a comparison approach is used. The building to be erected in air space is compared with a similar, hypothetical building erected upon the land underlying the air rights. One authority suggests that this comparison includes:<sup>8</sup>

1. A study of the relative cost of construction of the two buildings.

2. A comparison of the cost of maintenance and operation.
3. A study of the respective earning capacities.

Major added costs in building air rights structures include columns, beams and girders to support the elevated structure; the installation of a structural bottom floor slab; and higher sewage plumbing costs. Furthermore, the absence of basement space in an air rights structure results in a loss of income due to the location in otherwise rentable space of utilities normally placed in the basement.

These higher costs were recognized in the leases offered by the New York Central Railroad in the Park Avenue and Grand Central Terminal developments. The railroad offered the air right leases at annual rentals equal to five per cent of the fair value of the complete fee rights in the land involved, whereas, at the time, the going rate of return on such land was six per cent. It was therefore unnecessary to determine the fair value of the air rights as such. The original leases further stipulated that the railroad and lessee would share equally the general real estate taxes levied against the surface land. When, at a later date, some of the air rights were sold outright, the tax assessor divided the assessed value of the land in the ratio of eighty per cent to the air rights portion and twenty per cent to the subviaduct portion. This division has proven equitable in other central business district locations where high-rise structures have been built.

In the Kew Garden development, the Long Island Railroad sold its right-of-way for approximately one dollar per square foot in an area where vacant land -- if available -- would have cost ten to twelve dollars per square foot. Construction costs attributable to abnormal foundation work raised the cost of land acquisition to approximately seven dollars per square foot.

Air rights totaling 130,000 square feet over the approaches to the George Washington bridge in New York were bought by the Washbridge Housing Corporation at a public auction for \$1,100,000 or approximately \$8.50 per square foot. Supplementary foundations added \$1,529,000 to normal construction costs.

In Cambridge, Massachusetts, the air rights over a municipal parking lot were sold to a motel developer for \$1.75 per square foot, 50 cents more than the minimum authorized by the city council. During construction, the developer was required to reimburse the city at the rate of \$600 per month for losses in revenues from parking operations.

The dual handicaps of inflated construction costs and reduced income potential obviously limit the number of sites suitable for air rights developments. The desirable areas are those where land values exceed the cost of building a platform or some other supporting device. Additional construction costs in Chicago have in the past ranged from four to twenty dollars per square foot and may exceed the latter figure now. The construction cost of the Pam American building is estimated to have increased from five to ten per cent due to its position above Grand Central Terminal. It is evident, therefore, that location is of considerable importance to real estate developers. Few of the many miles of tracks and expressways crisscrossing a city provide an economically feasible project for second-level development -- at least not at present land prices or through the operation of the private real estate market.

## PLANNING CONSIDERATIONS

From a planning viewpoint, probably the most serious problem is that construction in air space opens up tracts for a type of development that most likely was not anticipated in the land use plan. At the time most land use plans were prepared, it was unusual for consideration to be given to the possibility of air rights improvements over tracks and expressways.

In a sense, an area that acquires potential for air rights development increases the supply of buildable land. It may add to the existing building density and bulk and to increased demand on existing public facilities and utilities. Air rights improvements would fill existing open space and possibly cut off light and air from surrounding structures. Although tracks, parking lots and expressways may contribute little to the visual appeal of urban centers, their existence has provided open areas in downtown districts.

A differential rate of obsolescence between surface and air development is another potential source of conflict, especially if the ground use has a shorter life expectancy or has early expansion needs. Where apartments are built over schools, it may be difficult to expand the school facilities or, if abandoned, the space used for classrooms may be unsuitable for other purposes. Similarly, it may be difficult to expand or relocate the right-of-way of an expressway once it has been covered. Space now occupied by railroad tracks and yards cannot be easily altered for modernization or converted to other usage.

Problems of compatibility between contemplated improvements and existing service uses should be carefully investigated. Some uses may be complementary, e.g., commercial establishments built over parking lots. Others may interfere with each other unless effectively separated by a platform completely covering the ground use. Railroads and expressways fall into this category where noise, dirt and fumes will affect the straddling improvements; conversely, access ramps from overhead residential or commercial uses to a major highway can disrupt traffic flow.

A basic question to be answered by public officials is whether it is in the public interest to develop potential air rights areas for private uses. A further question asks whether there should be any distinction between air rights development and other uses for the purposes of land use controls and regulations.

The preparation and adoption of a plan for air space use is essential for two reasons: first, to determine potential air rights development areas and specify those where such development would be in the public interest; and second, to suggest the kind of air rights improvements, public or private, that would conform to the over-all plan, both surface and air, in the area.

Whatever regulatory measures controlling air rights may be adopted, it must be remembered that such regulations will apply primarily to privately owned areas. There will be a question in some states whether such regulations can apply to publicly owned property, such as an expressway operated by a state tollway commission. For example, in 1962 the Massachusetts Turnpike Authority introduced a bill in the state legislature that would grant the authority carte blanche powers to lease air rights for private construction over the Boston Turnpike extension. City building, fire, zoning, and health regulations would not

apply under the provisions of the proposed bill. The chairman of the Turnpike Authority asked for passage of the bill by insisting that immediate decisions were essential to permit simultaneous construction of the expressway and air rights development. The proposed bill, moreover, would have subjected an air rights development to taxation of the value of structures only, and not on the value of land. The city insisted that municipal approval be required to assure conformance with local regulations as well as with over-all city plans. It also argued that payment in lieu of taxes should be collected on the value of the land from the Turnpike Authority. The bill was approved by the state legislature, but vetoed by the Governor.

The sale or leasing of air rights over city-owned property is, of course, subject to all and any conditions the city may wish to establish. For example, Montreal intends to sell or lease air rights over 21 subway stations currently under construction. The city planning department has been assigned the responsibility of determining desirable occupancy and construction standards. After completion of the site plan, advertisements will be published by the city calling for development of the site in accordance with such conditions. Bids will be studied by a committee consisting of representatives of the departments of public works, planning, law and finance.

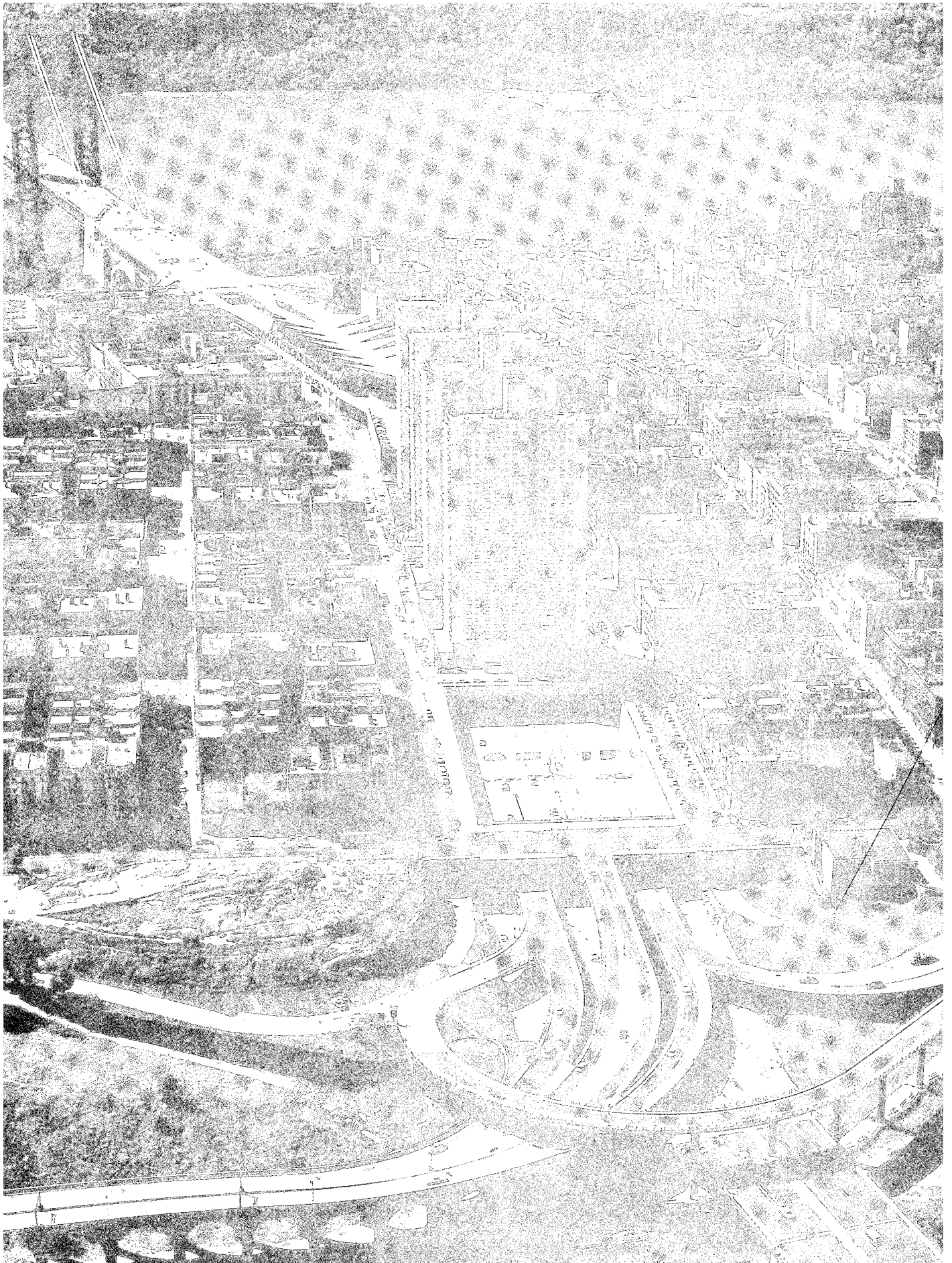
Solution of the problem of assuring conformity to a general plan may call for two approaches. First, the city itself can purchase the rights and build portions of the development, such as the platform. The city would then resell or lease parcels for private development in accordance with the plan. This approach is the simplest, aside from financial questions, and could be used for large-scale development over private property, as well as for construction over land that the city already owns.

The second approach is to adopt regulations under which approval for private owners to build is conditioned on conformance to the plan. This is difficult if a large parcel is to be developed in stages and construction involves several developers.

#### **Public Ownership and Resale or Lease**

There may be several methods of purchase, building and resale of air rights parcels. Acquisition of the whole land parcel and construction of the platform could be a part of a program to construct a public facility, the cost of which would be financed by revenue bonds. For example, an off-street parking garage, assuming the project is financially feasible, might be constructed and the revenues pledged to payment of the bonds. The revenues might come from the lease of space over the parking lot for private air rights construction as well as from the lease of the parking lot itself. It may be possible for the city to lease the parking facilities before construction, with an obligation on the lessee to do all the construction, including streets, with the city sharing in the street costs.

In some states, cities may have the authorization to condemn and sell the land in such a way that the purchaser contracts to clear existing structures and build the super-structures. For example, if the air rights area could qualify as a blighted area for redevelopment, on the basis of obsolete platting and a need for new residences, commercial structures, and other private facilities,



the project might be carried out under the redevelopment authority of the municipality. The municipality's contribution would be its power of eminent domain. Future federal urban renewal policies will probably be a significant factor in considering this approach, although many municipalities could initiate non-federally assisted projects under existing state legislation.

## REGULATORY CONTROLS

The second approach -- approval to build conditioned on conformance with a plan -- does contain weaknesses, especially where the proposed air rights project is large enough to require participation by several different developers. Nevertheless, once a plan has been developed for the area and approved by corporate authorities, it is probably possible to grant the planning commission authority to withhold approval unless there is conformance with the plan. The city could adapt for air space development and use existing legislative authority for regulations under subdivision control, zoning, mapped streets, mandatory referral and capital improvement programming.

An important method of control for the municipality is through adoption of appropriate zoning regulations. The reasonableness of zoning controls to secure compliance with the plan should be based on an officially adopted plan for the area.

The few existing zoning ordinances that make special reference to air rights developments suggest that the intent of these provisions is the same -- the establishment of site plan review procedures. There are at least two zoning concepts involved in the problem of air rights control.

The first concept that might be applied is the use of an "overlay zone." An overlay zone would superimpose upon an existing basic use district certain permissive uses and regulatory standards applicable to such uses, without changing the application of the basic underlying district regulations. It represents, in effect, the predetermination of certain areas for specified conditional uses. In mapping an overlay zone for air rights development, there would be no necessary geographical coincidence between the underlying zone and the overlay. In other words, the overlay might include only portions of one or more underlying zones. The additional uses permitted and the standards applicable to such conditional uses are spelled out in the ordinance.

The second technique to provide detailed site review procedures is through adoption of planned unit development provisions in the zoning ordinance. There are a variety of planned development provisions in zoning ordinances across the

← **Figure 2** Four 32-story apartment buildings and a modernistic bus station (above and to the left of the apartments) have been constructed in air rights above the George Washington Bridge approach in New York City. The bridge (upper left) crosses the Hudson River, linking Manhattan Island with New Jersey. In the foreground are the approach to the bridge (lower left) linking Manhattan and the Bronx, and the interchange of Interstate 95 and Hudson River Drive. (Photo: Port of New York Authority.)

country. Some cities, for example, require rezoning for every planned unit development. This procedure is in effect a special district that appears in the zoning map as a planned development district. Other provisions utilize certain features of overlay districts. Still others give a great deal of discretion on location, type of development, and use to the designated reviewing authority.

Planned unit development provisions are also intended to allow a great deal of flexibility in design. There is, nevertheless, a need for limitations. Planned unit development provisions should require maximum ground coverage and floor-area requirements that are at least as restrictive as those applied to other properties in the same zone. The permitted population density, if the construction is to be for residential purposes, should be tied to the density requirements of other property in the same zone.

New York and Chicago have incorporated extensive provisions within their zoning ordinances for control of air rights development.

The Zoning Resolution of the City of New York, as amended September 1962, defines railroad or transit air space as "space directly over a railroad or transit right-of-way or yard, which right-of-way [is] open, except for structures accommodating activities incidental to its use as a right-of-way or yard, and not otherwise covered over by any building or other structure at the effective date of this amendment."<sup>9</sup>

The Resolution states that the City Planning Commission may permit developments or enlargements in railroad or transit air space for any use permitted by the applicable district regulations, provided that the following findings are made:

- (a) That the lot area for such development or enlargement includes only that portion of the right-of-way or yard which is to be completely covered over by a permanent fireproof platform, unperforated except for such suitably protected openings as may be required for ventilation, drainage, or other necessary purposes.
- (b) That adequate access to one or more streets is provided.
- (c) That, considering the size of the proposed development or enlargement, the streets providing access to such use will be adequate to handle increased traffic resulting therefrom.
- (d) That, from the standpoint of effects upon the character of surrounding areas, the floor area or number of rooms is not unduly concentrated in any portion of such development or enlargement, including any portion located beyond the boundaries of such railroad or transit air space.

In addition, the City Planning Commission "may prescribe appropriate conditions and safeguards to minimize adverse effects on the character of the surrounding area, and may require that the structural design of such development or enlargement make due allowance for changes in the layout of tracks or other structures within such right-of-way or yard, which may be deemed necessary in connection with future improvements of the transportation system."

Thus, air rights developments over railroad yards are permitted by essentially



administrative decisions of the Planning Commission, leaving the Commission a certain range of discretion. Approval by the Board of Estimate, the City's governing body, is not required.

The Chicago Zoning Ordinance, as revised to May 1963, defines air rights as follows:

Air rights for the purpose hereof shall be defined to mean the ownership or control of all land, property, and that area of space at and above a horizontal plane over the ground surface of land utilized for railroad or expressway purposes. The horizontal plane shall be at a height above city datum which is reasonably necessary or legally required for the full and free use of the ground surface.<sup>10</sup>

All air rights developments must be submitted and processed under the planned development provisions of the zoning ordinance. A tract of land, designated as a planned development, may be permitted in any zoning district and is given a special district designation on the official zoning map: "Residential Planned Development No.\_\_\_\_," "Business Planned Development No.\_\_\_\_," or "Manufacturing Planned Development No.\_\_\_\_." All former district boundaries are superseded and eliminated.

The zoning ordinance makes a distinction between air rights developments and other types of developments that might qualify as a planned development:

The Zoning Ordinance provides that a Planned Unit Development must qualify as a tract of land which is developed as a unit under single ownership or control, or which is under single designated control by a common ownership at the time it is certified as a "Planned Development." It must include two or more principal buildings, except in the case of hospital planned developments or air rights planned developments which may have only one principal building. A Planned Development shall be at least four acres in area, except for planned developments operated by a municipal corporation, or a hospital as defined by law, which shall be at least two acres in area. Manufacturing planned developments shall be at least ten acres in area. Air rights planned developments shall not require any minimum area.<sup>11</sup>

The application for such an amendment is referred to the Zoning Administrator and to the Department of City Planning for review and recommendation, based on the following criteria:

1. That the plan of the area proposed for the Planned Development be in conformity with a comprehensive plan of adjoining areas having similar characteristics, and shall be in accord with current city plans approved by the Chicago Plan Commission;
2. That the use or uses proposed be compatible with abutting land uses;
3. That the intensity of use -- Floor Area Ratio and Density Pattern -- be in conformity with current city planning require-

ments and with that of surrounding land use and zoning, and be so distributed as to avoid undue concentration in any one portion of the subject area;

4. That buildings be spaced in a manner which would conform with the yard and setback provisions in the Zoning Ordinance;
5. That parking and loading facilities be provided to meet the intent of the Ordinance;
6. That ingress and egress be provided to afford ample access for Fire Department and other emergency vehicles, deliveries, etc., and that entrances and exists be located in such a manner so as to facilitate the efficient circulation of both pedestrians and vehicles, and not conflict with the traffic pattern of the vicinity; [and]
7. That all other intents and purposes of the Zoning Ordinance be met.<sup>12</sup>

The Commissioner of City Planning submits a separate report and recommendation to the City Council Committee on Building and Zoning which, after a public hearing, refers the application to the City Council for final action.

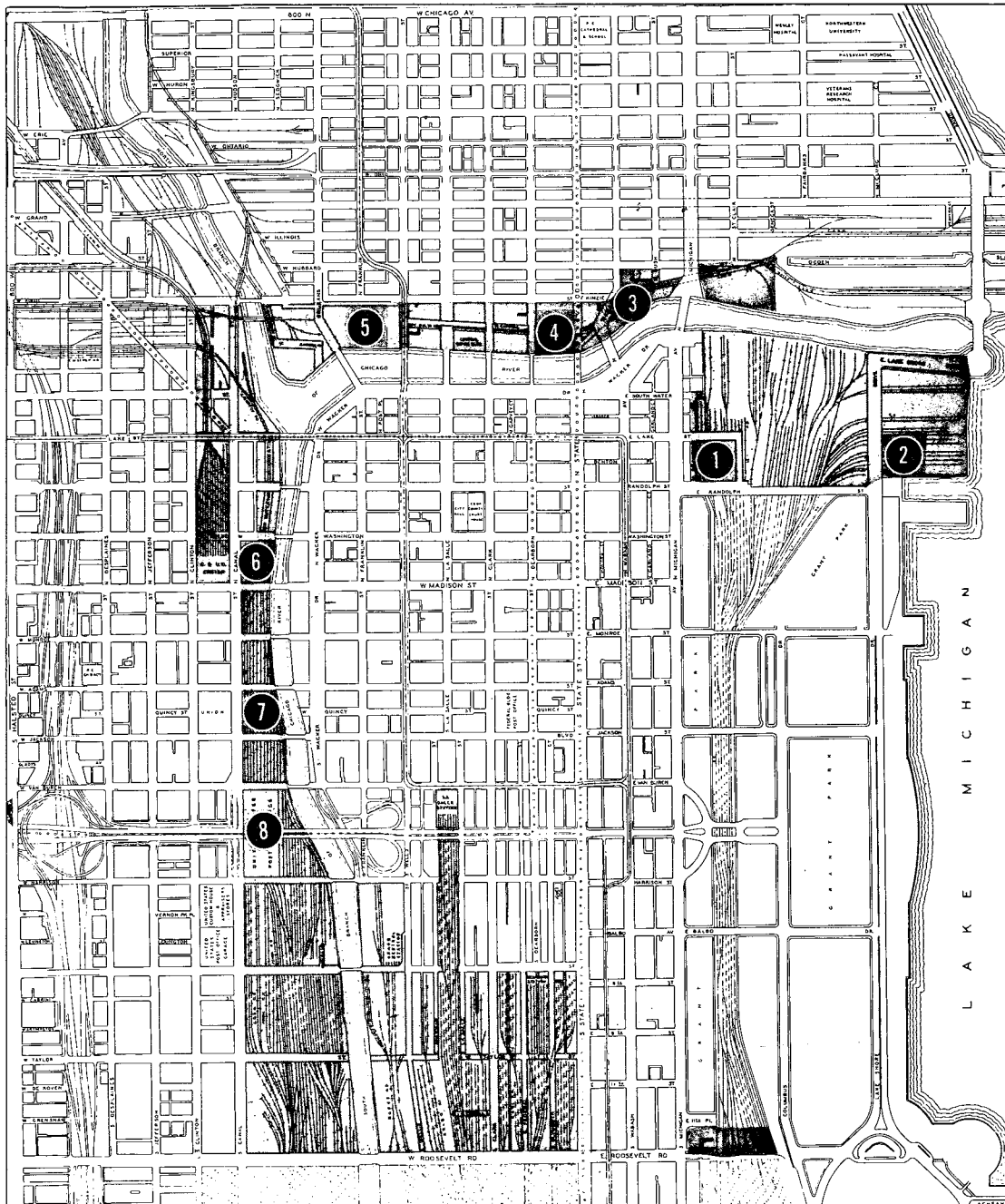
While a separate problem than that with which this report is concerned, the purchase of air space above existing buildings to meet building bulk standards raises some interesting planning and zoning questions. In San Francisco, calculation of the lot base for the floor-area-ratio method of controlling building need not be limited to the particular lot on which the building rests. It can be expanded by acquisition of air rights, or perpetual easements to light and air, over lower neighboring structures. In effect, the sale of air rights means that the owner of a building gives up, for a consideration, his right to build as high as he wants, and this becomes a deed restriction to be conveyed to his "heirs and assigns." The Equitable Building was built under this special permit procedure. The application for the proposed American President Lines Building, which paid the city \$100,000 for air rights over a garage to enable the new building to be cantilevered over the garage structure, was also processed under this procedure.

If a workable system can be devised to permit transfer of permitted floor area, it would allow greater diversity of development. The lack of experience in using this transfer technique, however, makes it difficult to predict its effectiveness. Certainly, transfers should be limited to small areas -- perhaps adjacent property not separated by a street or property in the same block. If the system caught on, the municipality might well end up mapping areas within which floor area ratios could be transferred.

Pressures for transfer of floor area ratios are intense in the central business district or in nearby zones permitting high-rise buildings. The owner of a low-rise building is under great economic pressure to make way for higher density development. Permission to transfer his additional density rights to nearby property might encourage the desired diversity of development.

The problem is to devise some arrangement that can be administered and be le-

Figure 3



Buildable land ringing the Chicago "Loop" (shown as shaded areas). The ring would be virtually complete were it not for the fact the Illinois Central Railroad tracks in Grant Park (right) are subject to a general covenant not to build relating to the Park contained in the original plats of subdivision for Chicago.

Some of the development that has already taken place involving "air rights" is indicated:

- |   |   |
|---|---|
| (1) The Prudential Building                           | (5) Chicago Merchandise Mart            |
| (2) Outer Drive East Apartments (Jupiter Corporation) | (6) The Old Chicago Daily News Building |
| (3) Chicago Sun-Times Building                        | (7) Chicago Union Station               |
| (4) Marina City                                       | (8) Chicago Main Post Office            |

In some cases, buildings have been constructed that have simply avoided the railroad tracks (as the Central Office Building, between (4) and (5)).

In the open areas between (6), (7), and (8), the proposed "Gateway Center", an integrated office and transportation complex, is being undertaken. Wolf Point, left of the Merchandise Mart (5) is also contemplated for development.

Source: Airspace in Urban Development, Technical Bulletin No. 46, Urban Land Institute (Washington, D.C., 1963), p. 19.

gally effective over many years. Deed restrictions may not provide the desired permanence both because of legal technicalities and because, in many states, the restrictions expire in a relatively short time. Some other device resembling the conditions attached to a variance may be necessary so that municipalities can impose and enforce individualized restrictions on each lot. The sale of "floor area units" by one owner to another may hold some promise. Units within a prescribed area would presumably come to have a market value, just as the land itself does.

There is one further problem -- an owner transferring his floor area units might be able to get them back through a variance or exceptions. In this case, if public officials were overly lenient, building bulk standards would be sabotaged.

### THE FUTURE

There appears to be a number of new directions that might be proposed by enterprising developers in the next few years. The question has been asked why government buildings should require separate space, on a prime site and off the tax rolls, when they might be located within air space over expressways. And why cannot space under elevated expressways be utilized for public buildings or sold or leased for commercial activities to help defray the cost of these expensive improvements? A Louisville newspaperman advocated the "return of key portions of urban expressways to the private enterprise system,"<sup>13</sup> and estimated that some locations would be so valuable for real estate development that a developer could afford to build the expressway portion at no cost to the public.

Recognizing that expressway space could be used for purposes other than traffic, the Federal Aid Highway Act of 1961 made provision for the leasing of air rights over interstate highways. Special regulations, aimed at preventing any interference with the use and safety of highways, were published by the Bureau of Public Roads in 1962.<sup>14</sup> The regulations list restrictions on supporting columns, clearance, ventilation, access from building to highway, etc., and state that no federal funds can be used for such construction nor for cost added to highway construction because of such construction. The Bureau reserves final approval, although the States are given authority to use or permit use of air space.

A redevelopment plan prepared for Rochester, New York, recommends a narrowing of a central section of the Genesee River and the construction over part of the river bed of a hotel, apartments and offices. In Sioux Falls, South Dakota, a recently completed two-deck municipally owned parking garage spans the Big Sioux River in the central business district. The construction cost of \$2,070 per space, which exceeds the national average for off-street parking spaces by only \$70, was more than offset by lower land costs.

A similar proposal is contained in the plan for Aurora, Illinois, which recommends that the east channel of the Fox River be blocked and its waters diverted to the west channel. Under the concept of riparian rights, the dry river bed would revert equally to its adjacent property owners. The plan suggests that the land be earmarked for parking or a related use. As the City will own two

of the river bed sites outright, public parking lots are proposed at these points. The remaining site could be developed under cooperative private sponsorship.

One of the most challenging proposals is the use of urban renewal legislation and funds for the development of air rights sites, especially over railroad tracks. One such proposal is currently being studied by the Housing and Re-development Board of New York City and contemplates the designation of the New York Central Railroad yard between 60th and 70th Streets -- "Litho City" -- as an area appropriate for urban renewal. The urban renewal project would be limited to the air rights over the present freight yard and would involve a housing project sponsored by the Amalgamated Lithographers of America. Designation as an urban renewal project would be necessary to make the area eligible for federal insurance of mortgage financing under Section 220 of the National Housing Act.

The City Planning Commission, in reviewing the project, found that the area is substandard "by reason of its present incompatible land use and the existence of nuisance conditions such as noise and unsightly railroad yards which create an adverse influence on adjacent properties, impairing their economic soundness and stability, thereby threatening the source of public revenue and impeding the advancement of a general renewal program in the surrounding neighborhood."<sup>15</sup> The Commission noted that the area was zoned as a manufacturing district in which residential development was not permissible and that a zoning modification was therefore necessary. It recommended that the lowest level should be reserved for railroad yard use and the upper levels be developed for residential uses including necessary community facilities.

While this proposal does not envision the use of federal funds, a report prepared in 1963 by the Governor's Committee to Accelerate Middle-Income Housing and Urban Renewal Construction Activity in New York City recommended:

That consideration be given by the Congress of the United States of expanding Title I of the National Housing Act to recognize the creation of air-rights sites as a bona fide urban renewal project activity with the costs of the slab and abnormal foundations being eligible as Federal, State and local urban renewal costs.<sup>16</sup>

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An amendment of the Housing Act to this effect and the use of public funds to defray some of the costs incidental to air rights construction would, of course, open up new areas for economically sound development. Furthermore, the prospect of building large-scale, low- or moderate-income housing projects in an area free of troublesome clearance and relocation problems would appeal to many public officials.

As presently practiced, air rights developments are expensive and therefore, by their very nature, limited to a few sites. Most of the past experience and

most new ideas have originated in New York, because of the special characteristics of the New York environment. Few other cities would tolerate the high densities of Manhattan nor are their land values high enough to absorb additional construction costs, except, perhaps, in central business district locations.

There is little reason to believe that the extent, scope and variety of air rights developments have been exhausted. On the contrary, imaginative proposals are competing for public attention, and although the record of achievement is still limited to certain choice sites, it seems likely that the future will witness an expansion in the use of air space.

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