A CONCEPTUAL ANALYSIS
OF
AIR RIGHTS DEVELOPMENT
OVER
THE URBAN TRANSIT CORRIDORS OF BOSTON

by

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Submitted to the Department of Architecture
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ABSTRACT

This thesis analytically examines air rights development in the
airspace above existing urban transit corridors. Specific
attention has been directed toward Boston and The Massachusetts
Turnpike Authority, on the one hand, and upon Copley Place, on the
other.

The attached analysis has been conducted within a comprehensive
framework focusing on the legal, technical, social, and financial
components unique to air rights development. The emphasis has
been on clarifying the exceptional constraints imposed by air
rights, as well as on highlighting their enormous potential.

Although development of the airspace above existing urban transit
corridors has been advocated on the basis of a number of divergent
and compelling grounds, the inherent difficulty of such airspace
development has proven to minimize the number of projects taking
advantage of this unique medium. Through a process intended to
demystify air rights and identify their appropriate role in the
revitalization of our urban centers, this examination has explored
the many facets of their complex structure. Specific attention
has been directed to an exploration of the design implications of
constructing in airspace.

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# TABLE OF CONTENTS

I. INTRODUCTION.............................................4

II. OVERVIEW..................................................5

III. GENERIC CONDITIONS.....................................6

   III.1. PLANNING ISSUES....................................10

   III.2. FINANCIAL ISSUES.................................11

   III.3. TECHNICAL ISSUES.................................13

   III.4. LEGAL ISSUES....................................15

IV. LEGISLATIVE EVOLUTION..................................17

   IV.1. THE MASSACHUSETTS TURNPIKE AUTHORITY..........19

   IV.2. MASSACUSETTS BAY TRANSPORTATION AUTHORITY.....22

   IV.3. BOSTON TURNPIKE DEVELOPMENT AUTHORITY..........23

V. VALUATION..................................................30

   V.1. COMPARATIVE LAND VALUE...........................31

   V.2. RESIDUAL CAPITALIZATION OF INCOME................33

VI. DESIGN CONSIDERATIONS...................................35

   VI.1. COLEY PLACE.......................................37

   VI.2. HANCOCK OFFICE/GARAGE COMPLEX.....................46

VII. CONCLUSIONS...........................................50
I. INTRODUCTION:

_Cujus est solum, ejus est usque ad coelum_

This Latin maxim, as codified into English common law doctrine, is the originating principle which recognized the legal ownership of rights in air space. (1) This doctrine concretized the fact that whosoever owned a surface parcel of land also owned a modified, inverted, pyramid which projected out from the center of the earth--encompassed the ground--and extended into the heavens above. (2) As this concept of ownership was originally conceived, there were neither theoretical restrictions to land ownership, nor legal differentiations between the land itself and the space above. Currently, however, there are such restrictions, and there is the opportunity for such differentiation.

Throughout this examination we will pursue an understanding of contemporary air rights development within a framework that encompasses the technical, legal, social, and financial considerations of such development. In particular, an examination will be made into the implications of air rights development within the envelope of space above existing urban transit corridors. Although the information gathered has focused on Boston, the questions raised and solutions offered are seen to be applicable to numerous American urban areas.
II. OVERVIEW:

Air rights development above railway yards and highways has been construed to be of significant potential value for a number of various reasons. Some proponents have expressed interest in such development in order to knit together communities which were torn asunder when transit corridors were introduced. Others have seen an opportunity to recreate revenue producing real estate by building taxable structures over untaxed property. Developers have recognized that surface urban transit corridors often represent the largest available sites suitable for redevelopment in dense urban locations. Economists have based their interest in air rights development upon economic rationalizations of density maximization, and transportation planners have pursued the concept of synergy between transportation networks and the structures built above them. A prominent structural engineer who has written extensively on air rights has summed up the virtues of their development in the following manner:

Air rights development over depressed roadways offers many advantages: the repair of neighborhoods divided by expressways, improved access to...amenities, and the creation of valuable real estate from what would otherwise be considered "waste" space around and over the highways that scar the downtowns of many cities. And air rights also offer excellent opportunities to improve highway safety as part of the building program.(3)

However, with these various concepts in mind, the key questions which must be answered are: to what extent are such goals compatible or mutually exclusive, and how can harmony be produced from these potentially disparate elements.
In an effort to proceed from a solid foundation of mutual understanding, it is essential to take a momentary excursion into the definitions of two key phrases which will be used throughout this examination. Mr. J. Keilch, a professor with the Department of City and Regional Planning at the University of California, Berkeley, offered the following definitions:

The terms "air rights" and "air space" are often used interchangeably; however, they have distinct meanings. Air rights are the rights to inclusive and undisturbed use and control of a designated space within delineated boundaries, either at the surface (e.g. under a freeway overpass) or above a stated elevation. Such rights may be purchased or leased for the construction of improvements under or above a structure. Air rights, like mineral easements, are only a partial interest. Air space is the separate parcel and legally described area above or under another structure.(4)

Mr. M. Bernard, editor of Reflections on Space, has written that:

Air rights are rights in air space—and constitute part of the "bundle of rights" comparable to those relating to land itself.(5)

III. GENERIC CONDITIONS:

With the foregoing definitions in mind, it is important to understand that we are not solely dealing with the legal existence of air rights and an owner's ability to treat them as real property, but with the practical and logistical requirements necessary to develop those rights within a framework of identifiable public and private goals. As such, prior to investigating specific methodologies and examples, it is necessary to establish a generic perspective for understanding the contextual implications of air rights development over urban transit corridors.
Initially, one must be able to conceptualize air rights development within the context of a horizontal two dimensional plane—essentially an architectural perspective in plan. When viewed from this angle, it is immaterial whether the given transit corridor which transverses through an existing neighborhood is at, below, or above, grade. The key element is one of separation, and the key question is one of connection—should the areas separated by the corridor be re-connected, and, if so, how. Whereas the areas on either side of the corridor may be connected by cross streets spanning that corridor at some more or less regular interval, this occasional bridging is insignificant in comparison to the potential effects of an air rights development constructed to span the corridor itself.

Second, one has to be able to conceptualize air rights development within the framework of a vertical two dimensional scheme—an architectural perspective in section. When viewed in these terms, the height or depth of the corridor and corresponding development become the crucial factors. As a technical or legal matter, air rights development can take place regardless of the corridors location. However, as a practical matter height considerations enable us to refine those questions of connectedness raised earlier. When viewed within this vertical perspective, one is able to ask: what are the implications for neighborhoods which wish to be reunited across a corridor—will a highway "gash" simply be replaced by a "spine" of tall buildings?
Correspondingly, what are the implications of high density development across transit corridors for those communities which do not wish to be re-connected? Furthermore, can the development rights which apply to the air rights above a corridor be transferred along that corridor to facilitate the desires of both types of neighborhoods?

Although connectedness is an overarching concern with regard to air rights development, one must recognize that resolving that issue simply broadens the scope of inquiry. An analyst who has done extensive research into those issues which are unique to air rights development has isolated twenty key factors which are crucial to planning for successful air space projects. He frames those issues in the guise of the following questions:

1. What are the existing land uses in each of the...abutting parcels?
2. Are the existing...land uses compatible if they were to be united?
3. How do...parcel land use regulations compare (e.g. zoning)?
4. In particular, what...are allowable building heights?
5. How do land elevations and general topography compare?
6. What are the comparative assessed values in the abutting parcels?
7. What are the estimated "highest and best use" valuations for the abutting parcels?
8. What are the soil or structural limitations in the abutting parcels and in the right-of-way?
9. How will traffic and transportation access be affected by uniting a given set of abutting parcels?
10. What is the square foot construction cost of a "platform" or supporting structure over the right-of-way parcel?

11. What are the ventilation or anti-pollution costs for covering over the right-of-way parcel?

12. What is the development and land value trend in the general area?

13. What is the acreage of the individual parcels and the consolidated acreage of the airspace and abutting parcels?

14. What property interests has the highway fee owner been legally authorized to convey to a developer in the airspace parcel ("air-rights")? What rights in the underlying land for support and utility purposes? Are there any time restrictions or encumbrances?

15. What is the "economic threshold" where development land values will exceed the cost of a platform or support system?

16. What are the ownerships of the...abutting parcels?

17. Are there any parallel ownerships with relation to the right-of-way (railroad or mass transit trackage is not infrequently present)?

18. What permits, approvals and government agencies will be involved in consolidation of the parcels and their development?

19. Is right-of-way coverage (of a cut) indicated for certain highway sections, with restriction on any development?

20. What parcels appear to have "connectivity", and how might they best be "clustered" to form a consolidated parcel for an appropriate use or development?(6)

With these questions in mind to focus our analysis and to draw our attention to the general issues involved, it is possible to proceed to a more detailed, in depth, discussion.
III.1. PLANNING ISSUES:
As has been indicated above, planning concerns loom especially large within the context of air rights development. The interrelationships between city agencies, state authorities, and community concerns are extraordinarily complex. Given the fact that the air space above transit corridors is usually owned by quasi-governmental state agencies—in the specific case of Boston, by the Massachusetts Turnpike Authority (MTA) and the Massachusetts Bay Transportation Authority (MBTA)—the private developer is forced to broaden his scope of focus as he pursues approval for his project. Insofar as air rights development brings the developer into negotiation not only with the customary array of city and community groups, but also with those state transportation agencies who own the land over which he proposes to construct his platform and superstructure, he is faced with an additional layer of development risk. The development of terra firma projects is a relatively straightforward endeavor in comparison to the obstacles encountered when developing property above active transportation lanes. Essentially, air rights developments must be concerned with the full weight of traditional planning questions, be they technical or aesthetic, while concomitantly addressing the complex issues fostered by the necessity of continual coordination with the transit agencies involved. Mr. M. Joliffe, a structural engineer responsible for the successful organization of a number of Boston air rights projects has made the following observation:
Particularly crucial is the coordination between the engineering staff representing the client, and that of the public works authorities, for once the legal hurdles to project approval are met, it is they who will interface daily.(7)

III.2. FINANCIAL ISSUES:
Financial considerations also take on a unique, critical, and complex perspective when analyzing air rights developments. Essentially, air rights are leased to prospective developers based on the assessed value of adjacent land, allowing for the expense of platform costs, the lack of demolition costs, etc., or an residualized income basis. For such leases to be economically feasible it is essential that the surrounding land or proposed project be of sufficient value that the economic threshold be crossed whereby the increased construction, engineering, and permitting expenses of air rights development can be justified. In addition, air rights are traditionally leased on an unsubordinated basis, similar in concept to unsubordinated ground leases. This arrangement makes financing air rights developments understandably problematic, for financial institutions are notoriously reluctant to stand in a second position with regard to the land owner in the event of project default. Further complicating financial matters is the fact that multiple use air rights developments which involve numerous joint ventures (i.e. Copley Place), must clearly define the relationship which is to exist between the various joint venturers themselves.(8) Such definition is crucial to protect against the possibility of one joint venturer falling into default and, therefore, being unable to pay its assessed share of the air rights rent due.
Theoretically, this one default could result in a revocation of the entire lease. In such a scenario, the surviving joint ventures would be forced into a position of paying the revenue difference, or facing lease cancellation. Such conditions compound financing problems, placing a premium on ingenuity and fiscal strength.

Whereas these problems are not insurmountable, they do require financial innovation. For example, Urban Investment and Development Company (UIDC), the developers of Copley Place, devised a system whereby they calculated the present value of the projected rent stream due the MTA and purchased sufficient Treasury Bills so that their interest paid the assessed air rights rent in guaranteed installments. The result of this financing method was to essentially prepay, i.e. "buy", the lease. Owning the lease made subsequent financing less problematic, but such a scheme obviously requires careful analysis, intricate legal lease negotiations, and substantial equity. The following section of the Copley Place lease agreement which was signed by UIDC (as the tenant) and by the MTA (as the land owner) details the terms that were employed with regard to financing the air rights for that particular project.

...the Tenant shall acquire and deposit with the Escrow Agent United States Treasury Bonds 7-5/8% due February 15, 2007, callable not earlier than February 15, 2002, paying interest at an annual rate of not less than $1,200,000, and having a total par value at maturity of not less than $15,800,000, to secure performance of its obligations.(9)
III.3. TECHNICAL ISSUES:

In considering the unique technical aspects of air rights development, the one maxim which must be placed in the forefront of all others--regardless of the potential value of the proposed development--is that the leasing authority must maintain its fiduciary relationship to the public in terms of insuring unimpeded traffic flow throughout the construction period (and subsequent operation) of the air rights development. Whereas negotiated transportation improvements may temporarily impact traffic flow, maintaining service is the primary consideration and concern of the leasing authority. As such, developers are forced to endure a variety of additional costs and logistical problems which must be included into their pro forma calculations. Such premium costs are multi-faceted and include, for example, the necessity of paying overtime wages due to the need to perform substantial amounts of work during those times when the roads and rails are least travelled--i.e. midnight till dawn. Additionally, the costs of required transportation infrastructure changes needed to accommodate the proposed superstructure, or required as part of the lease package to improve transit facilities, must be analyzed. As has been noted, consideration must be paid to problems and costs of lighting the corridor beneath the platform, ventilating that corridor, arranging for adequate fire protection, mitigating echo, etc.
Additional unique problems include those which concern pre-construction staging and actual project construction. Essentially, the contractor must be able to supply his job in the absence of a usable site, for until the requisite platform is completed the site may (practically speaking) not exist. Insofar as specific air rights developments may include parcels of terra firma unencumbered by transportation easements, these technical gymnastics may be made more manageable, but their awesome scope must be acknowledged none the less. A principal with Zaldastani Associates--the Boston firm responsible for the structural engineering of the Hancock Garage and Copley Place--has written about the extraordinary coordination required by air rights projects in the following terms:

Our experience in these complex projects points out the particular engineering and logistical challenges of highway air rights construction. The structural engineer is required to find innovative means to underpin large structures where foundation and support column locations are extremely limited by underlying transportation corridors. Access to the site and locating adequate staging areas for moving and storing equipment and materials may also be difficult. Often, roadways must be kept open and railways clear as construction proceeds, and phased strategies must be worked out to bring the project to completion economically, quickly, and safely.(10)

All of these above considerations are essentially extras--those typical technical issues of soil capacity testing, neighborhood traffic impact analysis, superstructure impact studies (i.e. sunlight and shadow concerns), must all be addressed. The design implications of the constraints which are unique to air rights development will be discussed in a subsequent chapter.
III.4. LEGAL ISSUES:
The last generic topic to be considered is that of the legal framework within which air rights leases must be negotiated. In discussing the primary legal issue of sovereignty between city and state, it must be noted that the applicability of zoning statutes is a function of the enabling legislation creating the transit authority. For example, the MTA is by statute obligated to abide by the zoning ordinances of every municipality through which its land passes, other than those zoning ordinances in effect for the city of Boston. Ironically, Boston is the one area where such air rights development is most likely to occur due to the values of adjacent land. As a practical matter, however, transportation agencies are extremely sensitive to local political concerns. This attentiveness is manifested in the necessity for the governor to sign any air rights lease which exceeds forty years. Hence, unless the statehouse is willing to explicitly ignore city hall, air rights developments will fundamentally conform to applicable by-laws, or pertinent guidelines. As an example of the degree to which it is possible for the state, through the MTA, to forge a legal framework encouraging a developer to accept appropriate city and community guidelines, one can cite the work of the Citizens Review Committee (CRC) as their efforts were employed within the Copley Place development process. Essentially, at the Governor's request the Office of State Planning (OSP) organized the CRC to "identify design, environmental, economic and community
considerations to serve as guidelines for the development". (11) As UIDC, Copley's designated developer, tested the degree to which the state would support the guidelines, it became clear that "OSP would back up the CRC recommendations". (12)

Another interesting legal scenario which should be mentioned at this point is that of parallel ownership. In such situations, two or more different transportation authorities occupy adjacent land upon which their transit corridors are located. This adjacency brings an additional element of legal logistics into play. Essentially, in Boston there is no established framework to address potentially divergent transportation authority concerns. The resolution of outstanding issues are decided on a more or less ad hoc, case by case basis, dependent upon the ingenuity of the developer and the perspective of the transit authorities themselves. Unless the different transportation agencies effected are able to present a unified position in terms of lease duration, remuneration, valuation, etc., a developer's ability to codify lease terms will be extremely difficult, and potentially costly. One approach to resolving this issue has been the acceptance of the master lease concept, a concept employed by the MTA and Conrail with regard to Copley Place. Under a master lease framework, the authority with the preponderance of air rights to lease (in this case, the MTA) negotiates terms with the prospective developer (UIDC) and pro-rates the rent ultimately received by paying the adjoining authority involved (i.e. Conrail) its percentage based minority share. (13) Obviously, such
intricacies are not required if the land is owned by a single body which has only granted another transportation authority surface easement rights.

IV. LEGISLATIVE EVOLUTION:
In considering the development of air rights legislation, a momentary word on the origins of joint development in the United States with regard to roadway subspace is appropriate. The great onslaught of highway, freeway, and expressway construction of the fifties and sixties quickly established the need to address the impact of these transit corridors. The first such efforts focused on utilizing the airspace under these structures for commercial purposes. Although these commercial ventures--parking lots, trailer storage yards, etc.--did little to mend the social fabric torn by the roadway itself, they did provide rental revenue. Subsequent subspace development efforts attempted to address social ills by locating play grounds for children and benches for the elderly directly under elevated sections of the road system. Although gallant in effort, such subspace was inherently unfriendly, and efforts to humanize these spaces at this early stage were mostly unsuccessful. A striking example of such design/use incompatibility can be seen under the Mass Pike where it crosses Commonwealth Avenue at Kenmore Square--the lonely benches located there stand as testimony to a failed concept. However, the legislation that provided for these projects was far reaching in objective--even if limited in success--and is the fore
runner of MTA air rights legislation. As can be seen from the following statement of intent, the original goals of joint development were strikingly similar to the concerns which currently exist with regard to the utilization of air rights.

Highway joint development projects have been carried out for a multitude of purposes, but basically the objective sought has been a higher measure of compatibility between the highway facility and its environment. This attainment may be measured in terms of savings and replacements as to land, money, (and) public facilities...(14)

These combined objectives of addressing revenue potential and societal need led inexorably to further enabling legislation which detailed the conditions whereby federally and/or state funded transit corridors could be used to aggressively pursue air rights development.

In Boston, current discussions of air rights development primarily focus upon the Mass Pike, for it is the most visible scar within the city, and its extensive, centrally located body has steadily fostered interest in its development potential. However, in the belief that the possibilities of further development over fixed rail should not be totally ignored, we will briefly examine MBTA legislation in addition to the applicable MTA laws.
IV.1. THE MASSACHUSETTS TURNPIKE AUTHORITY:

In 1963 the Massachusetts Turnpike Authority adopted an amendment providing for the lease of air rights—specifically, Section 15A: "Utilization of Air Rights". To quote from Section 15A itself:

...the Authority may...lease...for a term...not to exceed ninety nine years...air rights over land owned or held by the Authority in connection with the Massachusetts Turnpike...as, in the opinion of the Authority will not impair the construction, full use, safety, maintenance, repair, operation or revenues of the Massachusetts Turnpike, provided, however, that any such lease for a period of forty years or more shall be subject to the approval of the governor.(15)

Two significant observations can be made at this point. First, the MTA is not empowered to sell their air rights, they may simply lease them. Second, the political importance of air rights development is explicitly recognized insofar as the governor is granted veto power over the MTA's ability to enter into long term leases.

Perhaps the most unusual feature of this legislation are the clauses which refer to applicable zoning restrictions. Section 15A specifically exempts air rights development within Boston from the city's zoning requirements, while concomitantly subjecting all other air rights development along its length to all applicable zoning statutes. To quote Section 15A once again:

Use of air rights under this section respecting land within the territorial limits of the city of Boston...shall not be subject to any...zoning ordinance, rule or regulation applicable in the city of Boston.(16)
Furthermore:

The construction of any building erected under any lease under this section of air rights respecting land outside the territorial limits of the city of Boston shall be subject to the zoning laws and zoning ordinances, by-laws, rules and regulations applicable in the city or town in which such building is located. (17)

Further complicating this sovereignty issue is the clause which states that even though legally exempt from Boston zoning restrictions, the Authority shall not lease any air rights relating to the Boston Extension unless the Authority is able to conclude that the proposed development is beneficial. To quote from Section 15A for the final time:

The Authority shall not lease any air rights in the city of Boston unless the Authority shall find, after consultation with the Mayor, that the construction... will preserve and increase the amenities of the community. (18)

Interestingly, this dichotomy provides a unique opportunity for negotiation. By exempting air rights development from zoning but subjecting it to mayoral approval, Section 15A provides a window for creative input. The participants in the Copley Place project recognized this opportunity, and utilized the aforementioned guidelines devised by the Citizens Review Committee in lieu of established zoning statutes. Mr. K. Himmel of UIDC has written:

Since the site, owned by the Massachusetts turnpike Authority, is exempted from the City of Boston zoning ordinances, the development envelope with which the project (i.e. Copley Place) has been designed was established by the Citizen's Review Committee Process. Guidelines and recommendations were established which, in general, set the parameters of (the) building program. (19)
Furthermore, it was recognized that:

The ultimate card in the state's hand derived from state ownership of the land, and the consequent legal requirement that the governor sign the lease for the developer to build on land owned by the MTA. In other words, the state could build into the lease agreement the specific requirements it wanted.(20)

The remainder of Section 15A establishes two secondary, but pertinent points. The first of these two points establishes the lessee's obligations with regard to payment of applicable fees. This clause confirms the unsubordinated nature of any air rights lease negotiated between the MTA and a developer, with the proviso that any default on the part of the developer cannot implicate the Authority with regard to delinquent or outstanding financial obligations. The second point establishes the lessee's right to assign or mortgage his air rights lease provided prior approval is granted by the Authority.

Interestingly, there is no call for the Authority to pursue any form of master planning with regard to the disposition of Mass Pike air rights. Perhaps as a harbinger of things to come, applications are currently being accepted by the Authority for the newly created post of "Director of Planning and Development". A primary focus for this new director will be to coordinate planning in an effort to maximize real estate value through the promotion of air rights development.(21)
IV.2. MASSACHUSETTS BAY TRANSIT AUTHORITY:

As detailed in the MBTA study entitled "Joint Development", the Authority appears to have a complex framework in place to consider issues of public/private partnerships, but to date their emphasis on air rights development itself has been quite circumspect. In fact, the MBTA has yet to aggressively pursue air rights development, although the Authority has the jurisdiction to do so through Chapter 16A of the Mass General Laws.(22) One potential reason for this lack of emphasis may be the fact that MBTA tracks are currently underground, and covered, in those areas where the high density and correspondingly high land values requisite for viable air rights development exist. Recently, however, there has been increased interest on the part of the Authority with regard to pursuing untapped air rights potential. The Authority's sharpened focus is made explicit in the first point of an eight point agenda established by the MBTA's Department of Real Estate Development. To quote the MBTA itself:

(The Department shall) identify MBTA parcels, including air rights, which are appropriate for development, either to enhance transit amenities or to re-use excess (and potentially blighted) parcels for the capture of value to the MBTA and the generation of public benefits.(23)

Interestingly, the MBTA's only current foray into the field of air rights development involves an unusual twist. The Authority is presently negotiating the transfer of a section of their air rights to a third party to enable that party to increase the density of a project proposed for an adjacent piece of tera firma.
This transfer will be coupled to a legal guarantee whereby the Authority will forswear their right to develop the area from which their air rights have been transferred. Although this transfer is currently under negotiation between the MBTA, Harvard University, and the city of Cambridge, it may prove to be an interesting case to analyze as the pertinent facts are made public. (24)

IV.3. BOSTON TURNPIKE PROPERTIES DEVELOPMENT AUTHORITY:
The apparent absence of a planned approach to the development of the air rights relating to the Mass Pike has recently given rise to a piece of legislation which is currently, albeit circuitously, moving through the City Council and the State Legislature. An examination of the goals and conflicts within this proposed legislation will highlight a number of illuminating issues with regard to urban air rights development.

Jurisdictional Questions:
Originally drafted under the auspices of Councillor Scondras' office, "An Act Establishing the Boston Turnpike Properties Development Authority" attempts to address the dual problems of traffic congestion and affordable housing in Boston through air rights development. To quote from the proposed Act:

It is hereby found and declared that congestion in the downtown area of the City of Boston has reached a point where public safety requires an urgent solution to the impact of development and necessitates the utilization of
the air rights and abutting property presently owned by the Massachusetts Turnpike Authority as one of several approaches to this problem. It is further found and declared that the economic health of the region surrounding the Turnpike within the City of Boston requires a solution to the problem of traffic congestion and the problem of lack of affordable housing. An appropriate set of structures built over the Massachusetts Turnpike within the City of Boston in such a fashion as to allow entry and egress from the Turnpike to and from parking garages,...which also allows for the creation of new...residential housing, particularly low and moderate-low housing, and which allows for the creation of new commercial space would provide substantial benefits to the citizens of the commonwealth.(25)

Interestingly—and, perhaps, illustratively—although the bill was conceptualized at the city level, it was immediately passed to Representative Roosevelt for presentation and debate in the state legislature. This legislative hand off from the city to the state was precipitated by the belief that insofar as the MTA is a state authority, any legislation dealing with its land or the rights pertaining to that land must be legally addressed at the state level. However, when the bill was presented to the state house clerk in order for it be assigned a rotation number and a hearing date, it was returned to Roosevelt's office with the adviso that a Home Rule Petition would have to passed by the City Council prior to its being considered by the state.(26) Such slippage can be seen to underscore the potential for ambivalence with regard to the issue of sovereignty over planning decisions as they relate to MTA real estate.

Insofar as such political ambivalence may exist, it will inevitably focus developers attention on the need to build in
additional profit margins to account for the extra effort that may be required to move through the permitting process. Concomitantly, the private developer will be forced to factor into his proforma the associated risks which may accompany such permitting delays—such as fluctuating interest rates, changing market conditions, missed completion dates, etc. However one must question the efficacy of creating a new Authority to address such issues, and must consider the likelihood that such a new Authority will simply add yet another layer of bureaucratic delay. To quote Mr. J. Feaster, the MTA's acting director for real estate development:

What do we need it (a new Authority) for? Read the statutes. The MTA has the authority to do what this legislation calls for. And why would we agree to surrender our control?(27)

Perhaps institutionalized coordination between those Authorities already in existence and empowered to consider developmental questions (i.e. the BRA and the MTA itself) is the vehicle that would most efficiently handle potential jurisdictional disputes and minimize their cost. In fact, a model for such institutionalized coordination may be found with reference to the Development Cabinet which facilitated the Copley Place project. State Planning Director during the Copley development, Mr. F. Keefe, has stated that:

...the Development Cabinet exerted a key structural influence on the Copley project. The Cabinet was an interagency coordinating committee...(which) meant that member agencies 'did not have an independent turf. We would proceed with a single development agenda.' It provided an
arena for the direct expression of competing interests, and permitted a complicated mixture of goals to be advocated and accommodated within a single project. (28)

Whereas the high powered precedent of the Development Cabinet may not be appropriate for smaller scale projects, insofar as that body consisted of four state Cabinet officers as well the director of the Office of State Planning, it offers an alternative concept to the creation of a new Authority to focus attention on air rights development.

**Introduction Of Planning:**
An interesting element of the proposed Act which should be examined is its call for the establishment of a "Turnpike Plan". Although the envisioned plan emphasizes the need to promote parking facilities and housing, the essential feature is the call to consider the collective development potential of the Mass Pike. Specifically, the legislation recommends parking structures designed for the entry and exit of cars directly from the Turnpike with limited city street access, on the one hand, and housing densities which conform to the surrounding communities, on the other. To quote from the proposed legislation:

The Turnpike plan...shall be the result of careful studies undertaken by the Authority in conjunction with the Boston Department of Transportation...The Turnpike Plan, when completed, shall be submitted to the City Council of Boston and the Mayor of Boston for their approval, and without such approval, no activity of the Authority may proceed pursuant to the plan...There shall be an community advisory committee to the development of the plan...(and) if the CAC does not vote approval to the plan, an environmental impact statement...
While there is a serious question with regard to the viability of parking oriented projects being developed in neighborhoods which seek re-unification through low density urban residential development, what is crucial is not the viability of the proposed use mix, but the fact that for the first time the Mass Pike is to be analyzed as an entire interconnected entity. It is precisely this reference to planning which is missing from the MTA enabling legislation, yet it is precisely this omission which the MTA is attempting to remedy through the creation of the aforementioned post of "Director for Planning and Development".

As planning of the Mass Pike proceeds—whether under the auspices of an MTA Director, or a new authority—it is critical that the mistakes of past urban renewal efforts be avoided. The prospect of platforms erected without adequate private sector involvement into site selection and sequencing could have effects as devastating and as unintentional as the urban renewal programs of the sixties. Without active private sector participation, platforms constructed in accordance with a "plan" could remain as barren as the vast tracts of city land which were cleared for urban renewal only to remained undeveloped for decades.
Bonds And Revenue Issues:
By way of final consideration of the important implications of the proposed Act, one must examine the financial structure suggested. The legislation calls for the issuance of bonds at a fixed interest rate to underwrite the construction costs of those projects which this new Authority deems appropriate and in accord with the aforementioned Turnpike Plan. These bonds are guaranteed solely by the new Authority itself, and are not collateralized by the MTA or any other city or state agency. The monies raised by the sale of these bonds are to be used for underwriting construction costs in the same manner that bonds were originally issued by the MTA to construct the Mass Pike itself. (30)

Whereas the concept of development bonds is intriguing, the issuance of such bonds need not be tied to the creation of a new Authority. There is no legal justification which would prevent the passage of a bill amending the MTA enabling legislation to bestow upon the MTA itself the right to issue such bonds. Ultimately, it appears that the Act's envisioned financing device is appropriate only insofar as it allows for and promotes public sector development and construction. Given the fact that the MTA has established precedent for creative financing with regard to encouraging private development when there is a viable proposal at hand, one must question the necessity of such bonds for spurring private sector interest in air rights development. With reference to Copley Place once again, it is apparent that the state is very aware of its role in financially encouraging air rights
development. To quote Mr. F. Salvucci, the transportation secretary in office at the time of the Copley Place negotiations:

It was... 'tremendously important that the Turnpike Authority could define the value of the land.' It was a 'great luxury' which meant that if the state decided to limit development in any substantial way for environmental or social reasons, it could reduce the value of the land and the lease price accordingly. (31)

While it may be appropriate to argue that established planning guidelines and financing incentives would encourage interest in air rights projects lacking the scope (and political clout) of Copley Place, it does not appear that this current legislation will provide the tools necessary for encouraging such interest.

Although one must question the goals of the envisioned plan (and the wisdom of so definitively setting those goals in an enabling act); and whereas one must probe the details of the proposed bond issue (and the viability of 8% returns); and insofar as one must wonder about the efficacy of a new Authority (as opposed to better MTA planning with BRA and community input); one is struck by the focused interest on MTA air rights which is embodied in the Scondras/Roosevelt proposal.
V. VALUATION:
Even though the state has the authority to establish land values based on considerations other than profit maximization, it is necessary to understand the valuation methodologies employed with regard to determining the market value of air rights. Regardless of the scope of subsequent lease negotiations, both the public agency and private developer involved must understand the nuance of air rights appraisal. In so far as it has been recognized that the exceptional cost of constructing in the airspace above a highway or other transit corridor is a major impediment to private development, appraisal calculations have been devised which explicitly discount air rights value with regard to the increased costs implicit in their development. To quote Mr. M. Regan, a Boston based appraisor who has been involved with establishing air rights values for the MTA:

Among the construction costs peculiar to air space development (which should be considered in their valuation) are the following:

1. lack of basement or subbasements for elevator, maintenance, utilities, and services, requiring their placement in other areas of the building;

2. reinforced floor on the first level above the highway for safety purposes;

3. insulation of lower floors from noise, vibrations and fumes;

4. construction of safety provisions to protect the highway from falling objects;

5. potential special costs for access to the building(s) and possibly for utility connections;
6. due to the complexity of construction and the requirement that traffic not be interrupted or endangered, the overall construction time may be extended;

7. and it is reasonable to expect that negotiations and approvals from federal, state and local agencies will entail time delays and additional costs.(33)

However, air space utilization cannot be discounted purely on the basis of these added costs—appropriate consideration must be given to the potential savings involved. A brief analysis of the two most common valuation techniques used to address this issue follows.

V.1. COMPARATIVE LAND VALUE:
The original methodology used to value air rights is based upon formulas which focus on comparable land sales. Starting with the premise that an appraiser can use "comparative sales of land in the vicinity", this approach identifies the savings attributable to air space development, and then proceeds to deduct those costs which are considered to be unique. The Highway Research board has recommended the following formula in its report titled "The Valuation of Air Space":

\[ V + D + S + P - X - Y - I = A \]

in which:

\( V \) = comparable land value;

\( D \) = savings due to absence or reduction in demolition and foundation costs;

\( S \) = value attributed to site prominence or improved access;
P = savings due to readily assembled large parcel;
X = reduction in utility of structure due to design or functional obsolescence;
Y = excess construction costs due to underlying highway;
I = additional interest incurred over a longer construction period; and
A = appraised air rights value.(34)

While it is apparent that a number of these variables can be ascertained with statistical accuracy, others are simply "best guesses" which are open to differing interpretation and potentially significant variation. For example, where as an experienced contractor can be expected to reliably determine premium construction costs, the calculations needed to factor the assemblage or access premium is obviously less precise. Essentially, through this concern for accuracy it has become an accepted appraisal practice to use comparable land formulas only as a means of complementing and supporting the results obtained through use of the more sophisticated residual income approach. To quote Mr. Regan once again:

This approach (comparable land value) is considered complimentary and supportive of the residual approach. The most recommended method of appraising air rights is the residual income approach.(35)
V.2. RESIDUAL CAPITALIZATION OF INCOME:
This methodology of air rights valuation essentially "backs in" to a value for the air rights component of the projected development. By assigning to the air rights the residual value of the project after capping cash flows and subtracting total development costs--including the developer's fees and entrepreneurial return--the appraiser can determine the value of the air rights themselves. Such an approach depends on establishing an income and expense statement reflecting the project's expected revenues and estimated costs. Allowing for appropriate proforma considerations such as vacancies, tenant roll overs, brokerage commissions, etc., the appraiser applies a capitalization rate--which is determined with reference to comparable land based properties recently sold and/or refinanced--to the net income calculated. From this calculated figure, both hard and soft costs as well as profit margins are deducted, and an amount available for distribution as air rights rent is then established.

The residual capitalization of income approach is a more flexible and more sophisticated valuation methodology than the comparable land value model in that it implicitly recognizes that "rights" are not the same as "real estate". To quote Mr. Regan one final time:

This approach ('residual air-rights value by income approach') incorporates the conclusions that:

1. air rights have commercial land value only in use or recognized income potential;
2. air space above a highway is significantly different from a parcel of land;

3. the private market will not purchase or lease air rights above a highway strictly on the basis of adjusted comparable land values. (36)

As has been noted above, it has become the accepted practice for transportation agencies to rely on independent appraisal analysis to determine air rights values in order to establish a baseline for their negotiations with private developers. However, the MTA has stated that as a rule of thumb, a developer can estimate air rights values to average ten percent of the total development costs. (37)

The most intriguing element of this valuation approach is not in consideration of the methodology itself, which is a widely accepted real estate finance procedure for determining land values, but is in consideration of the relationship it fosters between the city and the state transit authority. It is evident that such an approach encourages the transit authority to promote high density and maximum development. As such, the state agency is placed in a typical land owners position with regard to building regulations and zoning restrictions. The degree to which those revenue maximization considerations are tempered by other concerns is, ultimately, a function of many political and social factors. With reference, once again, to Copley Place, one can clearly see the convergence of disparate factors leading the state (i.e. the governor) to consider broader implications than
simple revenue maximization through strident adherence to the appraiser's interpretation of the value of an air rights lease. In the words of Mr. T. Lee, an urban planner intimately involved with Copley Place, it was clear that:

As with many major development efforts, the fate of this project (i.e. Copley) was influenced greatly by recent large scale development proposals... To local politicians, Park Plaza (a contemplated, but never constructed, downtown development) was a fearsome symbol of the downside of development politics. Delays by the previous administration...had resulted in a protest march of 50,000 construction workers and their supporters... The Dukakis administration had a strong interest in producing a substantial development that would employ construction workers.(38)

Whereas air rights value can theoretically be independently and objectively determined by professional appraisors, one must always keep in mind that their ultimate value is dependent on the public sector's perception of the political climate, and the proposed projects influence upon that climate.

VI. DESIGN CONSIDERATIONS:
Insofar as every major development within downtown Boston is subject to considerable public and professional scrutiny with regard to design review, the focus of this chapter will be on analyzing those design considerations which are unique to air rights developments. Specifically, the complex relationship which exists between the transit corridor base and the air rights superstructure will be analyzed, with a focus on exploring the design implications of that relationship.
At the outset, it must be noted that air rights projects can be designed and constructed in a number of differing ways, with each divergent method having unique design implications. For example, with regard to sequencing, air rights developments can be built in conjunction with (or prior to) the completion of the underlying highway. Two examples of this type of sequencing were the Star Market in Newton, and the Prudential center in Boston. Or, air rights projects may be constructed after completion of the highway itself, while the highway is actively used. Two examples of this construction scenario were the John Hancock Garage and the Newton Corner complex.

Concomitantly, air rights projects can be developed under differing conditions, and differing degrees, of transit corridor planning. For example, if steps are undertaken to facilitate subsequent air rights development during initial highway design and construction, center median strips can be widened and/or side easements can be broadened to minimize the cost—and maximize the range—of caisson and foundation placement. In addition, the roadway itself can be depressed relative to the surrounding land to ease the transition between that land and the platforms which will be required for future development. However, the most typical—and the most challenging—scenario is one in which the developer is faced with a situation where prior planning has not been implemented, and the highway underneath the proposed development is actively used. Two examples of this situation are
the completed Copley Place project, and the cancelled John Hancock office/garage complex. Both of these developments will be discussed in depth.

Before entering into a detailed analysis of these two projects, there is one principal consideration crucial to the design of all air rights developments which must be put to the forefront. That consideration is size. The implications of size restraints and density limitations with regard to the design of air rights projects will be shown to be far reaching. However, at this point it should be noted that Mr. Joliffe--the aforementioned structural engineer recognized for his extensive work on air rights technology--has stated:

It can be concluded that the buildings which are most appropriate for air rights development are those of light construction and, more particularly, those having a low live load requirement.(39)

VI.1. COPLEYS PLACE:
Copley Place is a mixed use as well as a mixed medium development, and on the journey from concept to completion both of these mixes have undergone considerable modification. Given the technical difficulties implicit in air rights development, the story of Copley Place is uniquely instructive. Ultimately, the evolution of Copley highlights the fact that the inherent limitations of building in airspace will inevitably influence the final design of a project, while it simultaneously focuses attention on the ways
in which those very constraints can be altered to accommodate changing economic realities.

Copley Place is built upon a 9.5 acre site, wholly owned by the MTA, located between the Back Bay and the South End. The structures comprising the development are either built directly upon terra firma or over the transit corridors which dominated the site, and made its development so problematic for so long. Although the MTA had depressed the Mass Pike below grade at this location—in accord with the aforementioned planning principles—to encourage subsequent development of this prominent site, it was the encroaching introduction of looping entrance and exit ramps connecting city streets to the Turnpike which caused the constraints that prevented earlier, economically viable, development.

In addition to the physical restrictions imposed by the highway and its ramp network, there was the concomitant concern on the part of developers that a project of such scope would be forced to endure a long, and potentially painful, permitting process. Where as such permitting concerns are not unique to air rights development, the envisioned lack of flexibility which would be imposed by the necessity of incorporating the air rights component into the development presented additional problems. However, with reference to Copley Place, one is able to examine the creativity which overcame such concerns—a creativity which was all encompassing, and included not only the private developer, his
engineers, financiers and tenants, but included the public sector, its community groups, city agencies, state authorities and federal assistance programs.

**Evolution:**

With regard to Copley Place, the relationship between use and design, on the one hand, and the underlying transit corridor, on the other, proved to be an exceptionally interactive one. The design changes and modifications which were required during the development of the project were tempered by the ability to alter or accommodate subsurface conditions so that the envisioned design could be structurally supported. To quote UIDC:

> The characteristics of these first alternatives reflect the iterative process between the plan consultants and UIDC. For example, the initial schemes (under the direction of architect Ben Thompson) showed a coverage of the entire site, with emphasis on low rise construction and pedestrian walkways and courtyards connecting a series of separate program elements...(However) as these plans progressed increasing effort was made to locate tall buildings away from the turnpike rights of way, railroad tracks and ramp structures to avoid constructing major structures over these site obstructions.(40)

Essentially, the relationship which developed between building heights and corresponding site restrictions was fluid. As will be demonstrated with reference to the cancelled Hancock complex, a major factor that facilitated this fluidity and made many of the proposed changes feasible was the fact that only a portion of the air rights utilized by Copley were directly above the depressed, immovable, Mass Pike. The vast majority of the air rights leased were above elevated, and potentially movable, egress ramps. Key
to the flexibility provided by these ramps was the Stuart Street realignment. To quote Mr. Joliffe:

Stuart Street itself would be relocated to a position partly over the Turnpike... The relocation of Stuart Street almost doubled the triangular site's original 30,000 sq ft and provided a viable site for the Westin Hotel (an original joint venture partner who was a key tenant throughout the design process). The rearrangement of the ramps, not incidentally would also correct a notoriously confusing pair of turnpike exits...(41)

Three additional key considerations are highlighted by the above quote. First, it was that very triangular piece which initially attracted developer interest to the site itself. As the largest unencumbered piece of property--i.e. as the largest piece of terra firma unrestricted by the Mass Pike or its ramps--developers were interested in its real estate potential from the time of its creation. However, insofar as the state held out for a developer ready and willing to develop the entire site, it was possible to devise a comprehensive scheme which ultimately presented the developer with an originally unexpected bonus--the right to enlarge that very desirable, and potentially very profitable, piece of property. Second, in allowing the developer to maximize this terra firma, not only did the MTA take a profound step in ensuring the economic viability of the project, but was able to improve its own transportation network. Third, the staying power of a major anchor, in this case the Westin Hotel--an original joint venture partner--was a crucial element in a process complicated by so many variables.
Project Parameters:
The scope of Copley Place was dramatically reconfigured many times during its design and feasibility review process. While some of those changes were the result of community recommendations supported by city and state agencies, others were a function of shifting economic conditions.

In terms of considering those changes fostered by community recommendations, the most significant to analyze for the purpose of our study is the Citizens Review Committee's insistence upon the total development of the site. A key concern of the CRC was to ensure that, insofar as possible, neighborhoods which were torn asunder by the introduction of the site's transit corridors would be re-connected. With reference to the CRC guidelines, it was stated that:

The entire site must be committed to development and construction as a single, integrated project...This applies specifically to Parcel C. (The parcel of land around Ramp C fronting on Dartmouth St, the Mass Turnpike and the Penn Central tracks.) (42)

Whereas other recommendations of the CRC were exceptionally far reaching--such as their insistence upon the inclusion of a housing component in the ultimate configuration--these types of community considerations are not unique to air rights projects, nor did they pose a specifically unique problem requiring a unique solution for Copley. However, the aforementioned insistence on the inclusion of parcel "C" was truly exceptional, for, if developed,
the result would be the creation of a Mass Pike tunnel extending nearly 4,000 feet. The cost of the lighting and, more specifically, the requirements of ventilation necessitated by such a tunnel were not negligible, and would constitute part of the premium costs which would require federal funding. To quote:

By covering the turnpike, Copley Place in effect created a tunnel between the Hancock Garage and the Prudential Center (two other structures over it) that is almost a mile long. To ventilate the Copley Place Portion, a structure 90 ft high was placed on the north face of the project.(43)

Interestingly, this particular facet of the development highlights the way in which multi-party creativity was focused on accommodating those conflicting goals brought into high relief by the intricacies of air rights construction. Whereas the communities recommendation for continuity could have run head long into the developers desire to leave this particular parcel undeveloped so that the natural venting of the Mass Pike could be maintained, the assistance provided by public agencies worked to facilitate resolution. As alluded to earlier, the developers reluctance and/or inability to fund these, and other requisite site improvements, was offset by the recognition of the fact that financial assistance would be provided. The UIDC report on the Copley Place Project stated:

Unusual site conditions and certain community planning requirements have created extra, or premium costs in the construction of Copley Place. Generally speaking these premium costs might be thought of as costs that would not occur in the development of a typical, non 'air rights' urban site. Here are some Copley Place examples:
1. Deck structures necessary to span the turnpike lanes and ramps, and railroad tracks that run through the site and ventilation costs created by closing in the open turnpike area.

2. Turnpike ramp relocations and temporary traffic re-routings during construction.

3. A pedestrian bridge over Huntington Avenue linking Copley Place to the back Bay.

UIDC contractors and cost estimators have calculated a total of over $27,500,000 in Copley Place premium costs. The project itself can absorb approximately $8,800,000 in premium costs. (This is made possible, in part, because of adjustments in land rent payments made by the owner of the project site, the Massachusetts Turnpike Authority.) The remaining short fall in premium cost funding, approximately $18,800,000 must be provided through public funding. (44)

Ultimately this funding was provided through the UDAG program—whose contributions and loans totalled approximately $15,800,000—and the Federal Highway Administration Urban Assistance Program—whose funding reached approximately $3,000,000. (45)

Moving to a consideration of the ways in which the Copley team was forced to adjust their project to address the dictates of the private sector, one must consider the evolution of the proposed product mix. Although initially envisioned as a mixed use complex with a strong retail emphasis anchored by two (then three) department stores coupled to a single hotel and including an office component, the focus of the development was to change radically. Ultimately, Copley Place evolved into a hotel/office complex with a relatively small, but exceptionally vibrant, retail component comprised primarily of specialty stores. The reasons
for this change in scope are many—not the least of which was the fact that Federated Department Stores withdrew its commitment to locate a Bloomingdale's at Copley Place. This withdrawal was a function of Filene's insistence that the parent company—Federated—should not introduce this element of internal competition. With the loss of Bloomies, the other retail anchors lost interest in the project, and also withdrew. Fortunately, this fallout began prior to actual construction—unfortunately, it occurred after final design approval.

However the requisite flexibility did exist to hold the project together—not only on the part of the developer, the architects, and the engineers, but also on the part of the Citizens Review Committee, the city, and the state. As mentioned earlier, the developer and his engineers increasingly focused on the necessity of building maximum density on those parcels unencumbered by transit corridors. This resulted in final plans—and actual construction—calling for two hotel towers to be built upon terra firma, while providing for the central area which traversed the air rights component of the site to accommodate a less dense retail mall as well as four mid-rise office blocks. The CRC was able to ensure that its final recommendations were not violated, and in keeping with the previously discussed capitalization of income approach, the state was able to re-negotiate its lease with UIDC. To quote UIDC once again:
When the program for Copley Place changed in the spring of 1979, the Massachusetts Turnpike Authority amended its Lease Agreement with UIDC to reflect the changes that occurred in project composition. The Air Rights Lease of December 22, 1978 was, therefore, amended with revised financial terms defining new rent payments and schedule. The amended lease became effective on January 31, 1980.(46)

Substructure and Superstructure:

As the foregoing argument has demonstrated, there was a great deal of flexibility for Copley given the size of the site, the fact that the site itself was composed of considerable terra firma in addition to the Pike and its ramps, and given the desire of all participants to ensure that the site be developed. However, there are inherent limits to flexibility, and many of the existent design elements comprising Copley Place are a response to those components which were beyond feasible alteration.

For example, the final triangular design of the Westin Hotel is a function of the terra firma configuration created by the alteration of Stuart Street. Although a more traditional design was envisioned by the architects, the loading limitations imposed by highway adjacency coupled with the fiscal need to maximize hotel rooms, dictated final design.

Similarly, the elevators which carry the shopper, hotel guest, office worker, etc., twentyfive feet above city street level is necessitated by the clearance requirements of the egress ramps which are elevated above the Pike.
Additionally, the inward looking elements of Copley Place—which still exist despite the best efforts of community groups to integrate the development with their surrounding neighborhoods—is a function of the ferocious traffic fostered by the underlying Pike which encircles the development itself.

Ultimately, one cannot help but be impressed by the creative set of inter-relationships which existed between key components of the project—be they physical or technical, personal or political—which fostered the successful development of Copley Place.

VI.2. THE HANCOCK OFFICE/GARAGE COMPLEX:

Although this proposed mixed use air rights development was cancelled prior to the start of construction, the design of the project had progressed in sufficient detail for it to enlighten our inquiry.

The complex was due to have been built adjacent to Hancock's existing garage, and bordered by Clarendon Street, Stanhope Street and Cahners Place. The project was designed to be constructed in the air rights spanning six lanes of the Mass Pike, and two rail tracks. In addition, the development was to have been anchored by an adjacent piece of terra firma currently owned by Hancock. The MTA is sole owner of the land beneath the Pike and the adjacent rails—the tracks exist as a surface easement only. The total
site area was approximately 42,000 square feet, of which approximately 25,000 sq.ft. was highway airspace, 5,000 sq.ft. was fixed rail airspace, and 12,000 sq.ft. was terra firma. The projected total development costs were calculated to be $30,000,000.

An interesting mix of uses was envisioned. Not only did the proposed project contain office space, ground floor retail, and parking, but it was slated to be the new home of the Back Bay Post Office. In total, the building was designed to rise 100 ft. above street level.

The principal architect/engineer design group for the project was Zaldastani Associates of Copley Place fame. Although detailed negotiations with the MTA were not instituted, Zaldastani was able to establish detailed plans and substantial cost estimates based on their previous experience with Mass Pike air rights development. For example, pro formas were based on the availability of ninety nine year leases, the air rights were valued at ten percent of the total development costs, and technical engineering options were developed.

As it was envisioned, a row of columns would penetrate the median strip of the Mass Pike to act as center supports for the proposed platform. The platform itself was to have been constructed at street level due to the desire to minimize the transition problems which normally create an aesthetic tension between platform and
existing streets. Given that the Mass Pike is below city street
grade at the proposed location, and is unencumbered by elevated
access ramps, this smooth transition could have been realized.

Planning decisions did not focus on efforts to maximize density
upon the terra firma portion of site. This absence of density
emphasis was a function of the fact that the entire structure was
designed to conform to applicable zoning statutes for the area.
As such, there was no need to concentrate density on the terra
firma, for the entire 100 ft. structure could be supported by the
proposed platform. With this said, however, there was a conscious
effort to locate all elevators at the terra firma side of the site
in order to accommodate the elevator pits. Additionally, this
piece of unencumbered land was to have been the staging are for
the construction of the corridor spanning platform.

It was envisioned that one to two lanes on each side of the median
strip would be closed to traffic from approximately midnight to six
in the morning weekdays, and for longer periods as required on the
weekends. Approximately one year was planned for major
construction.

Interestingly, the demise of the project was a function of two
inter-related factors. First, the general slowdown in the office
market mitigated some of Hancock's enthusiasm for the project.
Second, the Neighborhood Association of the Back Bay was prepared
to resist the project unless convinced the parking component would
not add to the vehicular congestion of the city streets. As originally designed, the Neighborhood Associations fears would have been unfounded, for Hancock/Zaldastani had planned a sky bridge to run across and above Clarendon Street to connect the new garage with their existing facility. The value of this sky bridge link between the two garages lay in the fact that the existing garage, built in Mass Pike air rights, was designed with spiral access ramps tying directly into the Pike below. As such, it was envisioned that the new garage would be able to access those same spiral ramps via the linking bridge. However, the BRA was adamantly opposed to the construction of a sky bridge, and without this above ground link the new garage was forced to access city streets. Accordingly, neighborhood resistance to the project on the grounds of increased traffic congestion became considerable.

The next move focused on mitigating those traffic concerns by working with the MTA and the City to add additional access ramps to the Pike--specifically an eastbound onramp at Arlington Street and a westbound off ramp at Berkeley Street. These same two access ramps are being pursued in relation to traffic mitigation concerns involving the Prudential Center redevelopment. However, for the Hancock project, the developers enthusiasm had run out--neighborhood traffic concerns tipped the balance away from the project in a softening market.
Interestingly, the last chapter may not as yet be written--Hancock still holds an option on the air rights involved, and future conditions may change which would make the project more palatable. To quote Mr. Joliffe one final time:

The obstacles to air rights construction are not insurmountable ones. Indeed the growing interest in various cities in the potential benefits of highway air rights development may eventually make this process common. The impetus may be coming, however, not from development needs, but from efforts to improve transportation.(46)

VII. CONCLUSIONS:

Air rights—a unique medium with intriguing potential and awesome complexity, subject to extraordinary constraints.

Having delineated the most compelling reasons which advocate air rights development in the airspace above existing urban transit corridors—as well as having highlighted the most daunting obstacles to their implementation—the question remains: what role will air rights play in the future? What place will air rights hold in the revitalization of our urban centers? Both are, unfortunately, difficult questions to answer. However, one may conjecture.

Technology will move forward. Continued technical and engineering innovation will mitigate many of the costs and constraints which currently plague air rights construction. As lighter superstructure systems are developed, as new foundation
techniques are employed, as platform systems are refined, etc., buildings which are built in airspace will become more versatile. The current restrictions with regard to sizing and density will become less onerous as greater distances can be spanned, and greater heights realized. There shall always be premium costs associated with air rights construction, and those costs may tend to mitigate private sector interest in air rights development. However, technological innovation can be seen to be one of many elements which may coalesce and contribute to the widening of profit margins on proposed air rights projects. As returns are improved, the reservations which currently plague air rights development will be lessened.

Real estate will become more valuable. The vast tracts of land which are currently occupied by highways and fixed rail tracks will forever loom as bastions of potential profit and social remedy. As downtown development progressed over the past two decades in the older urban centers where the presence of transit corridors cutting through the city fabric posed a problem, "good" terra firma sites were the first to be purchased and built. However, as those viable sites are developed and lost to future expansion, the airspace above transit corridors will become a logical, perhaps inevitable, venue for further development. Whereas one must recognize the existence of viable terra firma sites in the currently suburban and rural areas of the country, and whereas the existence of such available terra firma may (once again) mitigate private sector development interest in air rights
projects, America's major urban centers--such as Boston--have proven quite resilient. As such, the increasing value of downtown property will facilitate actualization of the aforementioned economic thresholds which are necessary to justify the premium costs of air rights development.

Public agencies will become more creative. Those bodies empowered with rationally planning for the future will increasingly focus their attention on grafting life upon their moribund scars. As terra firma locales are "rescued" through new development, and as the ever growing demand for tax revenue proceeds, states and cities may more aggressively advocate and encourage the development of their airspace. One can see such encouragement taking many forms. For example, there may be increasing acceptance of the sole source designation used at Copley Place, whereby the city and state chose a developer based on his team composition and development experience in order to expeditiously pursue feasibility studies and implement community recommendations. There may be an increasing readiness to discount air rights value and their lease terms in order to encourage specific product type or general fiscal viability. One can envision comprehensive planning frameworks being implemented to demystify the process of air rights development itself. Furthermore, institutionalized cooperation--reminiscent of the Development Cabinet which facilitated inter-agency public sector coordination for Copley Place--may be established to expedite the complex process of permitting and approvals. As public agencies
become more pro-active, and as financial incentives become more prominent, private sector confidence will gain in stature. As this confidence rises, so will the superstructures.

Neighborhood organizations will be more involved. As efforts to knit together communities torn asunder by the introduction of transit corridors gains momentum, and as traffic concerns rise in prominence, the unused space above urban transit corridors may be linked to efforts to address both problems. Witness the Scondras legislation and the community component of the Turnpike Plan acceptance process. However, it must be noted that increased community involvement may empower those groups or individuals opposed to any form of development—even those forms which negate unsightly transit corridors. One only needs to examine the example of the Hancock garage to witness an air rights project whose demise was at least partially a function of community opposition. However, given the fact that the interplay between interested public agencies, potential private developers and a concerned citizenry will inevitably loom as a major factor during the approval process of any new development, air rights projects are uniquely positioned to provide numerous benefits to impacted neighborhoods which similar terra firma projects could not possibly provide. As such, it is not unreasonable to foresee a scenario whereby the added amenity of overcoming the negative aspects of exposed transit corridors may positively influence community support. Neighborhoods have not been seen to suspend their demands simply to remove the intrusion of transit corridors,
but their removal may prove a valuable benefit in development negotiations.

Developers will become more aggressive. As past successes can be identified, the potential to profit from air rights development will become more firmly established. For example, the success of Copley Place can be measured not only in terms of developer prestige, but in true economic meter. The hotels are active, the office space leased, and the retail component remains one of Boston's most fashionable. Furthermore, Copley Place successfully established the fact that acceptable design can spring forth from unusual subsurface constraints. Although the Hancock project was not actualized, and whereas such a scenario may lay doubt to the viability of air rights development, the project was not cancelled due to constraints unique to air rights, but to neighborhood resistance to perceived traffic congestion. The air rights components were resolved in a fairly straight forward manner based on the experiences realized from developing Copley Place and Hancock's own existing air rights garage. Essentially, increased private sector familiarity with the medium of air rights will encourage its further development.

Whereas the above projections may appear to be rather optimistic, the assumptions behind them are pragmatic. Civilizations grow on the basis of rational optimism with regard to the future. Air rights development is rational, and it will be an increasingly important concept in our future.
FOOTNOTES

CHAPTER I.


CHAPTER II.


CHAPTER III.


9. MTA-UIDC Air Rights Lease, Section IV.


CHAPTER IV.


15. MTA. "Massachusetts Turnpike Authority Legislation". Nov. 1974, p.16.

16. Ibid.

17. Ibid., p.17

18. Ibid.


29. Scondras. op. cit., Section 8.


CHAPTER V.


34. Ibid., p.49.

35. Ibid., p.79.

36. Ibid., p.2.


CHAPTER VI.


45. Ibid.

46. UIDC, op. cit., p.10.

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