Creating Sustainable Air Rights Development Over Highway Corridors:

Lessons from the Massachusetts Turnpike in Boston

by

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ABSTRACT

Research and practice have shown that air rights development over highway corridors in America's cities is not only feasible, but desirable. As planners, policy makers and consumers attempt to curb the sprawling development pattern that was characteristic of the second half of the twentieth century, the development of the air space over urban highway corridors is emerging as a beneficial type of development that promotes revitalization and can be more sustainable than other types of redevelopment.

As the advantages of air rights development over highway corridors become increasingly apparent, more projects and proposals are surfacing in cities nationwide. However, while this development pattern can contribute to urban revitalization, it is also unique from other types of infill and redevelopment. Air rights development is complex and requires special scrutiny and treatment from a planning and policy perspective, a distinct understanding of urban design and attention to neighborhood context, and specific development principles for construction and financial feasibility. This thesis describes these unique considerations both generically and through analysis of the Massachusetts Turnpike in Boston. It examines three cases: a completed air rights development, a planned development that has gone through the permitting phase, and a proposed air rights development as it seeks the path of least resistance for development.

In this examination, a set of "best practices" and recommendations is proposed to advance the feasibility of this unique type of development. The recommendations aim to make air rights development over highway corridors more sustainable, more predictable, and more systematic in improving the urban environment. Chief among these recommendations include: the implementation of a robust and predictable regulatory framework to control the outcome of air rights development; design guidelines to ensure connectivity and contextualized development that also reflect realistic assumptions about financial feasibility and development intensity; and a systematic air rights lease negotiation process and framework that links leasing liabilities to future development revenues.

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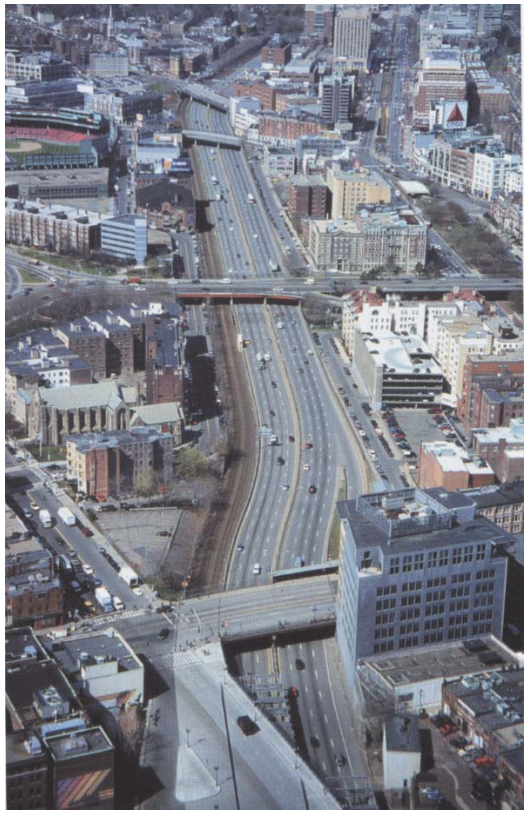
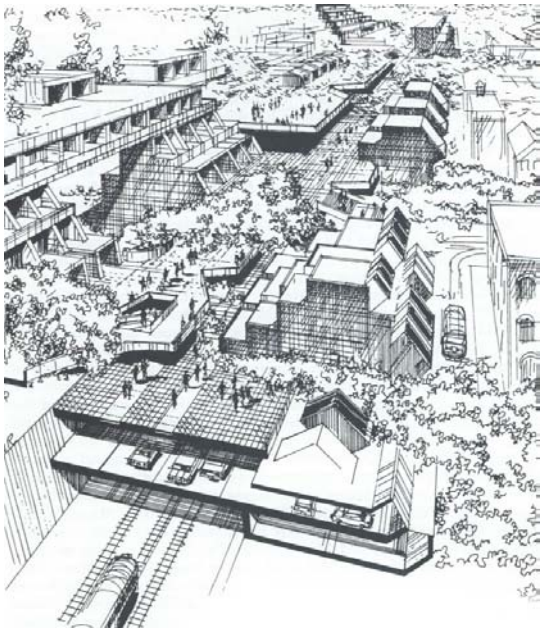
Chapter I: Overview

Research and practice have shown that air rights development over highway corridors in America's cities is not only feasible, but desirable. As planners, policy makers and consumers attempt to curb the sprawling development pattern that was characteristic of the second half of the twentieth century, the development of the air space over urban highway corridors is emerging as a beneficial type of development that promotes revitalization and can be more sustainable than other types of redevelopment.



Massachusetts Turnpike, Boston, MA

The concept of s*ustainability* offers a useful framework within which to evaluate urban development. First advanced by the World Commission on Environment and Development in 1987, sustainability refers to actions that seek to balance long-term social equity objectives, environmental integrity and economic viability.[1] If implemented sensibly, highway air rights projects may have the opportunity to strike a better balance between these principles than other forms of urban redevelopment. With regards to social equity, highway air space development can reconnect neighborhoods that have been long divided by undesirable transportation corridors and harsh edges, provide needed neighborhood amenities and uses, and have a revitalizing effect, bringing jobs and activities to formerly undesirable fringe locations. Air rights development has also been lauded for its ability to advance environmental objectives by promoting urban infill over sprawl, by mitigating some of the negative externalities associated with a highway corridor, such as noise and pollution, and by directing development onto an existing transportation corridor, reducing trips and increasing the viability of public transportation options. Finally, as developable land in many downtowns becomes scarce, land values have escalated and highway airspace is increasingly viewed as some of the last large developable area in many of America's downtowns. Not only has this type of development become defensible from a financial feasibility point of view, despite the



Concept for "Linear City" project in New York City, 1967

premium associated with the cost of construction, many developers are also finding that this type of development is extremely marketable. Its high-visibility, high-profile nature makes potential tenants and buyers eager to invest, furthering the economics viability of development. The inherent proximity of highway air rights development to a ready source of consumers—commuters who are office workers, retail customers, hotel guests and residents—makes this kind of project extremely desirable.

As the advantages of air rights development over highway corridors become increasingly apparent, more projects and proposals are surfacing in cities nationwide. However, while this development pattern can contribute to urban revitalization, it is also unique from other types of infill and redevelopment. Air rights development is complex and requires special scrutiny and treatment from a planning and policy perspective, a distinct understanding of urban design and attention to neighborhood context, and specific development principles for construction and financial feasibility. This thesis will describe these unique considerations both generically and through analysis of the Massachusetts Turnpike in Boston. It will examine three cases: (1) a completed air rights development, (2) a planned development that has gone through the permitting phase, and (3) a proposed air rights development as it seeks the path of least resistance for development. The issues presented by each of these cases are not entirely unique to Boston. Other cities, such as New York, San Francisco, Chicago and Seattle have all struggled with similar issues in trying to successfully implement highway air rights development.[2]

Specifically, this study will attempt to answer the following questions: What are the unique policy, design and financial issues associated with air rights development over highway corridors? What would make the process of developing air rights more transparent, systematic,

predictable, and therefore desirable for all stakeholders including developers, government, and community members?

In this examination, a set of "best practices" and recommendations will be proposed to advance the feasibility of this unique type of development. While the recommendations are specific to Boston, they can be applied to situations in several US cities to make air rights development over highway corridors more sustainable, more predictable, and more systematic in improving the urban environment.[3]

[1] World Economic Commission on Environment and Development, Our Common Future, 1987, www.globalsustainability.org
[2] Bressi, 1989, Russell 1990, Dickens-Wagner, 1981
[3] Savvides, 2002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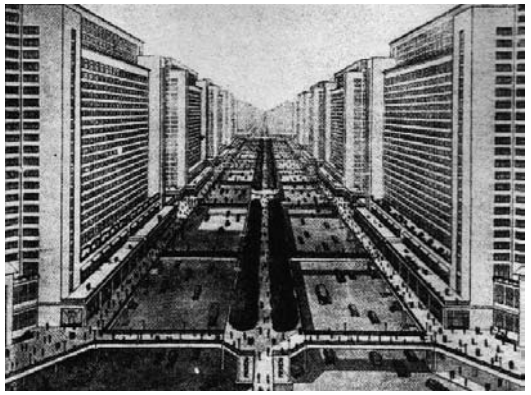
Chapter II: Introduction

For the purposes of this study, “air rights” refers to the right to use or control the air space under or over an existing structure, such as railways, highways, or other properties. Such rights can be afforded by a landowner to another party for purchase or use through a contractual agreement.

Ponte Vecchio, Florence Italy

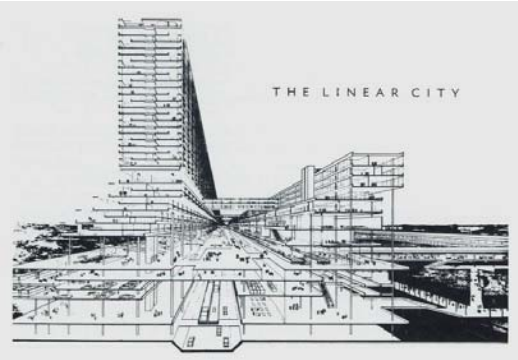
History of Air Rights

Air rights development is not a new idea. Antecedents go back as far as Fourteenth Century Florence, where a bridge over the Arno River, the Ponte Vecchio, supported a vibrant commercial development still in existence today. Upon the advent of the automobile, urban visionaries like Le Corbusier attempted to reconcile the cohabitation of buildings and transportation corridors by prosing development in the air space above high speed roads, as seen in his representation of Ville Pilotis in 1915.[1] The first air space development in the US was New York City’s Grand Central Terminal and Park Avenue development, constructed over the Central Railroad in 1913. Soon after, several other well-known air rights projects over rail corridors, including the Prudential Mid-American Building in Chicago and Madison Square Garden in New York, proved that development above transportation infrastructure was feasible and viable.[2]



Le Corbusier’s Ville Pilotis

However, despite Le Corbusier’s vision, substantive discussion regarding the benefits of developing air space above highway corridors did not begin until the 1950s, when the Federal government’s construction of a national highway system was in full effect. It was at this time that federal highway planners first actively promoted air rights development as a way of enticing reluctant cities to embrace highway construction.[3] However, despite this promotion, only a hand full of significant development project over highway air space resulted. Chicago’s



Concept for "Linear City" project in New York City, 1967

Bridge Apartments, New York City

Central Post office over the Eisenhower Expressway, completed in 1935, and the Bridge Apartments low-income housing developed in 1964 over I-95 in New York City were both pioneering efforts to construct development over a vehicular corridor. Despite the best efforts of highway planners however, this pattern of development did not take hold. The enormous expense and technical difficulty made cheaper land at the edge of the city more attractive for development. Even the projects that were built had significant issues. The Bridge Apartments, for example, did not have proper ventilation installed, and exhaust fumes engulfed the apartments. Even today, this development is unable to satisfactorily mitigate all of the highway's externalities.

> "If the windows are open, the noise is most deafening on the middle floors, and people inside find that they need to raise there voices to hold a conversation or talk on the phone. The winds carry vehicle exhaust upward, which is especially noticeable on terraces. And on most floors, the vibrations of trucks can clearly be felt, along with those of any construction equipment."[4]

These difficulties, coupled with the exponential cost premium of developing in air space over highways, made growth at the urban fringe cheaper and more compelling to developers. Moreover, as government policies increasingly supported and facilitated an easy move to the urban edge, consumer desires became synonymous with the amenities of a suburban lifestyle. Consequently many urban centers deteriorated. This deterioration was further compounded by the continued construction of the interstate highway system. To make way for large urban highway corridors, thousands of homes and businesses were demolished in downtown neighborhoods throughout the country, leading to a significant diminution of municipal tax base and a fragmented urban street system.

Other than a few significant highway air rights projects in Boston, New York and Washington D.C., this type of development was relatively absent in most cities during the 1970s and early 1980s. However, as community members and policy makers became increasingly aware of the social, economic and environmental consequences of the suburban sprawl, developers began to again focus their attention on the redevelopment and infill of existing downtowns. Fueled by the *smart growth* and *new urbanist* movements, interest in revitalization was renewed. Urban infill and redevelopment strategies were employed not only to slow the consumption of land at the urban fringe, but also to revitalize areas with the downtown as cities sought to maintain or restore their cultural, economic and social vitality. Throughout the late 1980s and 1990s, urban land values escalated dramatically in cities throughout the country. Vacant and underutilized parcels were redeveloped and urban land available for development diminished.[5]

As undeveloped parcels become scarce, the air rights above existing land with development potential becomes increasingly desirable. While the demand for such space clearly depends upon a number of factors, including the real estate market of a given location, the technologies and financial feasibility of air rights construction, and the opportunities and challenges facing adjacent neighborhoods, air rights development is frequently cited as a source of socioeconomic benefit and economic reward for both public and private stakeholders.

Massachusetts Turnpike in Boston

In April 1952, the Massachusetts legislature authorized the creation of the Massachusetts Turnpike Authority, an independent entity charged with the construction and operation of a toll highway from the New York border east to the newly completed route 128 on Massachusetts. By May of 1957, the new highway was complete and was soon extended into downtown Boston, providing motorists with a modern and efficient means of commuting from Boston's western suburbs.[6]

The Massachusetts Turnpike was planned and constructed in an attempt to revitalize Boston's depressed economy and provide direct and expedient access to downtown. However, as the City's economy recovered in the 1970s and 1980s, the consequences of this development became apparent. The Turnpike divided many neighborhoods, displacing both residents and businesses, created harsh and undesirable edges, consumed land that would have presented valuable development opportunities, and increased the pollution from automobile emissions within the City.[7] While these issues were critical, the economic conditions effecting the development environment in Boston at that time made air rights development over the turnpike an impracticable solution to this set of urban issues. However, "this dynamic has changed in recent years as a scarcity of land and rising land values have made such projects economically viable."[8] According to Boston's Mayor Thomas Menino, currently, "the Turnpike air rights are among the most valuable development opportunities in the City of Boston."[9] They also represent an opportunity to "repair the physical, social and economic breach presented by the railroad and the Turnpike's cut through Boston."

The history of land development in Boston is one of innovation and experimentalism. Air rights development over the Massachusetts Turnpike is no exception.

> "Creating urban land where none existed before seems to be a Boston tradition. Dredging of the Charles River and leveling of hills in the 1800s transformed a shallow backwater into the stylish Back Bay neighborhood. Now developable "plots" are being created by leasing of "air rights" over the portion of the Massachusetts Turnpike that traverses downtown." [10]

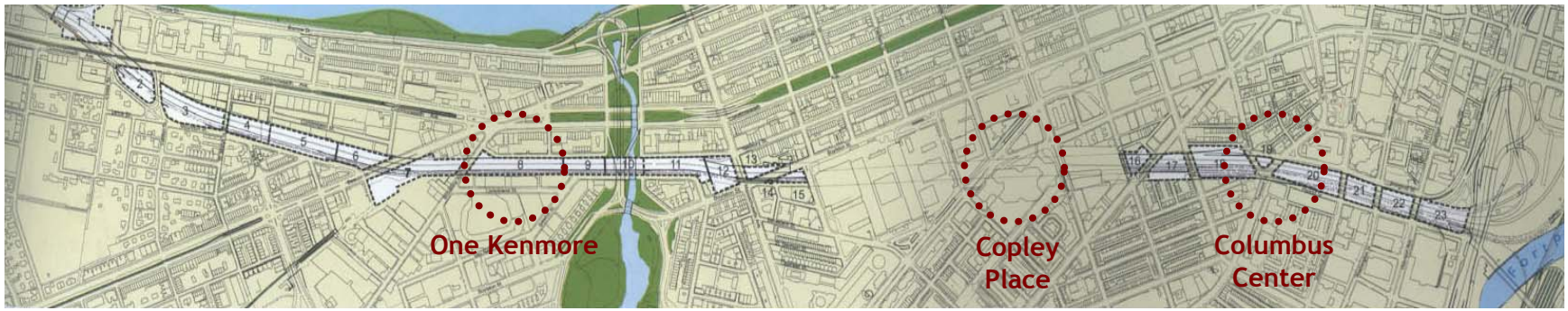
With completed developments, developments currently under construction, and several planned future developments, the Massachusetts Turnpike in Boston provides an excellent case history from which to learn and develop a set of best practices for air rights development over

highway corridors. For the purposes of this study, three cases of development over the Massachusetts Turnpike in Boston will be examined. While the issues and recommendations summarized in the final chapter of this study apply specifically to Boston, many other US cities, such as Chicago, New York, San Francisco and Seattle, are facing similar issues and stand to benefit from the recommendations.[11]

Overview of Case Studies

This study uses three case studies in order to extract some best practices for air rights developments over highway corridors. The projects selected include one completed development—Copley Place (completed in 1986); one planned development that has been successfully permitted—Columbus Center (expected to break ground in September 2004); and one development that is in the early stages of design and planning—One Kenmore in the Fenway/Kenmore Square neighborhood. This range of projects allows for a look at the evolving planning, design and development issues related to construction over the turnpike air rights corridor. The section below gives a brief overview of each case.

In later chapters of this study, the intricacies of each case, as they relate to specific air rights issues, are further evaluated.



Copley Place

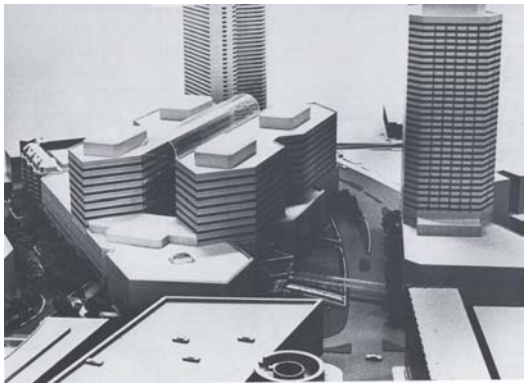
Until it was cleared in the late 1950's to make way for the Massachusetts Turnpike extension into Boston, the Copley Place site was a cornerstone of the Back Bay's architectural history. It was once home to the well-known S.S. Pierce Building at the corner of Huntington Avenue and Dartmouth Street, adjacent to the Boston Public Library and the Copley Plaza Hotel. However, after the clearing for highway construction, the site was a virtual "dead-zone" that created a real and perceived barrier between two already distinct neighborhoods— the wealthy Back Bay and the working class South End. Throughout the next decade, several planning recommendations for redevelopment of the site in conjunction with the Prudential Center and the John Hancock building were unsuccessful.

> "During this time, several developers and architectural groups attempted, without success, to create a feasible project on the Massachusetts Turnpike air rights site. The site's physical constraints, particularly the Turnpike and exit ramps, rail tracks and platform, and awkward vehicular access problems had discouraged development proposals."[12]

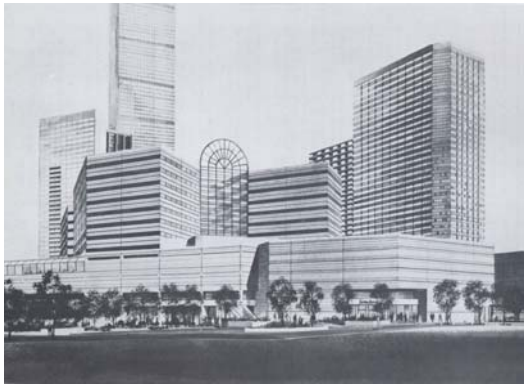
But as the regional market improved and demand for space in the area intensified, development of the site became more feasible. In March 1977, the development process began with a Memorandum of Understanding between the developer—Urban Investment and Development Corporation (UIDC), from Chicago, and the Massachusetts Turnpike Authority, who owned and controlled the air rights over the property.

> "The state decided that instead of requesting competitive proposals for development of the site, resulting in a costly, time-consuming "bidding" process, and in view of the

past failure of other developers to create feasible plans, it would work directly with a single developer from the beginning."[13]



Site planning and project design took place over the next three years. Initially, there was significant public protest and umbrage from the City, as the Turnpike's enabling legislation exempted the Copley air rights development from the City's typical public approval process, as well as from the statutes of Boston's zoning and building code requirements. Community members were concerned that the project would be a catalyst for neighborhood gentrification and displacement.[14] Sustained civic concern and the need for City support forced the developer (UIDC) to engage in a three-year community review process. Community involvement took the form of the Copley Square Citizens Review Committee (CRC), consisting of representatives from surrounding neighborhood associations, advocacy groups and governmental agencies. The highly participatory planning process aimed to make the permitting process less adversarial than was characteristic of large-scale developments in the City. The CRC reviewed the development proposals and submitted recommendations and guidelines to be followed in the design and implementation of the project. CRC guidelines had to do with "physical design, land use, jobs, pedestrian circulation, traffic, housing, wind and shadows, and economic impacts."[15]



According to documents from the review process, the developer was committed to the public involvement and review:

> "As the development of Copley Place evolves, Urban Investment and Development Co. will continue to provide status reports and access to pertinent public information. UIDC has maintained a posture of open review since the inception of Copley Place in early 1977 and welcomes the questions and opinions of all interested parties during the development of Copley Place."[16]

The final project design was formally submitted to the Massachusetts Turnpike Authority for review and approval in October 1980. The major barriers overcome by UIDC in completing this large-scale development included the community review process, technical construction difficulties with few development precedents, and the creation of a use program that would be economically viable.

Copley Place Use Summary

Completed in phases throughout the 1980s, the 3.4 million square foot Copley Place air rights development includes luxury and convention hotels, class A office space, high-end retail and restaurants, one hundred housing units, and parking.[17] The City was adamant that construction occur in consecutive phases, so as to minimize impact on abutting businesses and residential properties.

Use	Amount
Hotel (2 hotels)	
Hotel	1,652,110 SF (1,789 rooms)
Hotel Parking	275 spaces
Retail	520,630 SF
Office	771,400 SF
Parking	520,630 SF (1,357 spaces)
Housing	85,000 SF (100 units)
TOTAL	3,434,060 SF

Source: Urban Investment and Development Co., 1980

Financial Summary	
Hard and soft costs	$125,710,430
Air rights premium	$9,529,000
Project IRR	21.73%

Source: Savvides, 2002

The developer of Copley Place had established an agreement with the City during project planning that some amount of public funding provided to make the project economically feasible. "This amount was estimated to be approximately $9.5 million based upon the preliminary design concept."[18] The necessity of applying public funds to cover the premium site costs had been acknowledged from the outset of the project as land values in Boston were not yet high enough to justify a purely privately funded project.

The developer also applied for an Urban Development Action Grant (UDAG) from the US Department of Housing and Urban Development. "It had been determined that the exceptionally high costs of developing this unusual site made it impossible to develop without UDAG and public funding."[19] In addition, the rent payments and schedule as reflected in the leasing arrangement with the Massachusetts Turnpike Authority were "subsidized" in order to provide further economic feasibility relief to the developer.

Summary of Development Attributes

In many ways, the Copley Place development was the antecedent for a more sustainable pattern of development over the Massachusetts Turnpike in Boston. While the development of the Prudential Center in the 1960's demonstrated that air rights development was technically feasible and economically viable, it was intentionally designed to separate itself from

surrounding neighborhoods. The Prudential Center's potential to be a catalyst for neighborhood revitalization was not part of the development planning. In fact, an exaggerated concern for parking and security prevented street-level access, effectively cutting it off from the life of Boylston Street.[20] Furthermore, "the Prudential Center was grossly out of scale with its historic neighbors and intensified a growing sentiment that the rail and highway corridor through the heart of the city was unacceptable."[21] Two decades later, at the time the Copley Place development was being envisioned, there was a more deliberate acknowledgement among government agencies, neighborhood groups and within the development community, that connecting the development to the surrounding environment could actually make it more viable and more *sustainable*. However, "Copley Place illustrated the challenges of developing air rights in the absence of a very strong real estate market."[22] As a result, the project was also out of scale relative to its context and required extensive public subsidy. Arguably, in the name of financial feasibility, it did not go far enough to reconnect the street grid, enhance the public realm, and revitalize the areas adjacent to the highway corridor. Despite these shortcomings, the project proponent and the Citizens Review Committee felt that the development would forward the following goals:[23]

Social Equity Goals

- Fill a major gap in existing neighborhood and urban texture.
- Maximize the opportunity for community residents and groups to benefit from employment opportunities.
- Create pedestrian links that are appropriately scaled, safe and active.
- Leverage State housing funds to create affordable housing on-site to reinforce the mixed-income residential character of surrounding communities.

Environmental Goals

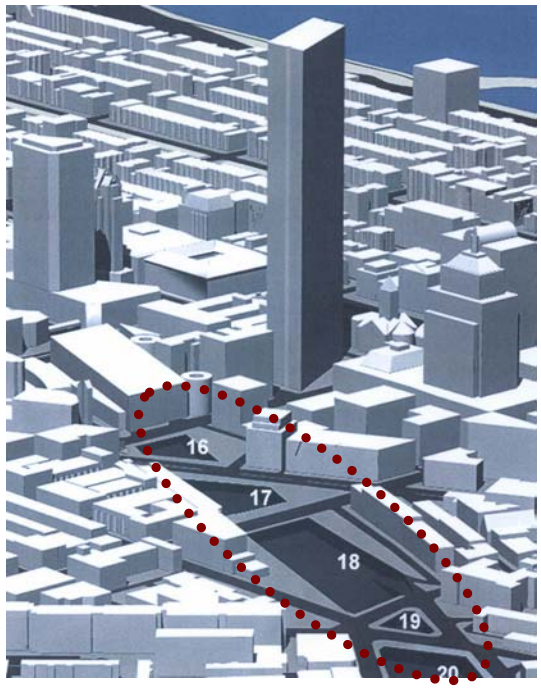
- Mitigate potential wind and shadow impacts of development and of the highway corridor.
- Encourage transit and pedestrian amenities to minimize automobile usage.
- Cover and ventilate the highway corridor to reduce carbon monoxide levels in the area.

Economic Goals

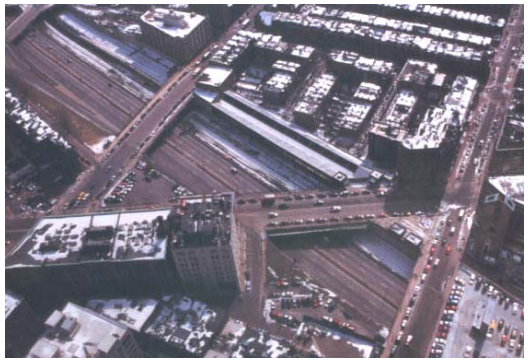
- Compliment and reinforce the commercial character of the Prudential Center and not undermine existing retail on Washington Street.
- Generate new tax revenue for the City.
- Create a mix of uses that is economically viable and provides necessary returns to developers and investors (including funding that was publicly subsidized).

Columbus Center

The Columbus Center development site is located in downtown Boston over the part of the Massachusetts Turnpike corridor that currently divides the Back Bay, Bay Village, and South End neighborhoods. The site is comprised of four air rights parcels and totals approximately 7 acres, bound by Clarendon and Arlington streets and bisected by Berkeley Street and Columbus Avenue.

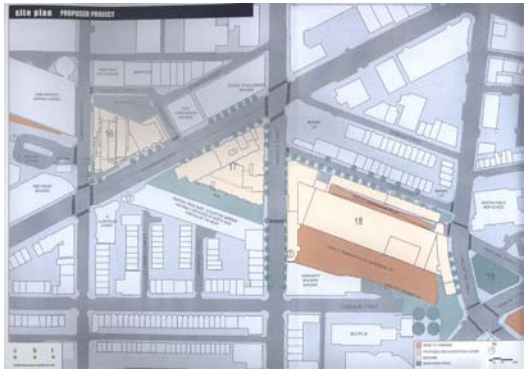


The developer, Winn Development of Boston, was selected by the Massachusetts Turnpike Authority in 1996 via a sole source negotiation process. Over the next few years, the developer proceeded with site design without engaging in a review process, as the Massachusetts General Law Chapter 81A did not require such a process for air rights development that was technically under the purview of the Turnpike Authority and not the City of Boston. However, due to growing concerns about the impacts of such developments on the surrounding community, in



1997, the Massachusetts Legislature required the Turnpike Authority to enter into a Memorandum of Understanding with the City of Boston outlining a review and approval process for air rights development. The result was a city-appointed committee that worked to produce *A Civic Vision for Turnpike Air Rights in Boston,* a guiding document that: 1) established a clear baseline (advisory, not regulatory) for what may be developed on air rights parcels; and 2) described a public/City review and approval process for the future permitting of such developments.[24]

Upon the adoption of the Civic Vision in June 2000, the developers of Columbus Center presented their proposal to a Community Advisory Committee (CAC) of neighbors, stakeholders and government representatives, set up as specified in the Civic Vision. "Despite being 80% consistent with the Civic Vision's recommendations, releasing the plan to the CAC was a huge tactical error, which engendered mistrust and destroyed Winn's creditability."[25] Ultimately, despite having spent nearly $2 million on planning and design, Winn Development started over with "a blank sheet of paper" and worked within the community process for the next 18 months to create a mutually acceptable design.



The community process itself, however, was contentious and rife with conflict between stakeholders with different goals. Ultimately, the root of the tension was the disparity between what the community felt was an acceptable amount of development density and the amount of development necessary to make the project financially feasible. The result was an unprecedented amount of financial disclosure from Winn Development and extensive "linkage" concessions.[26] The other major issues that emerged during this process are further discussed in later chapters of this study.

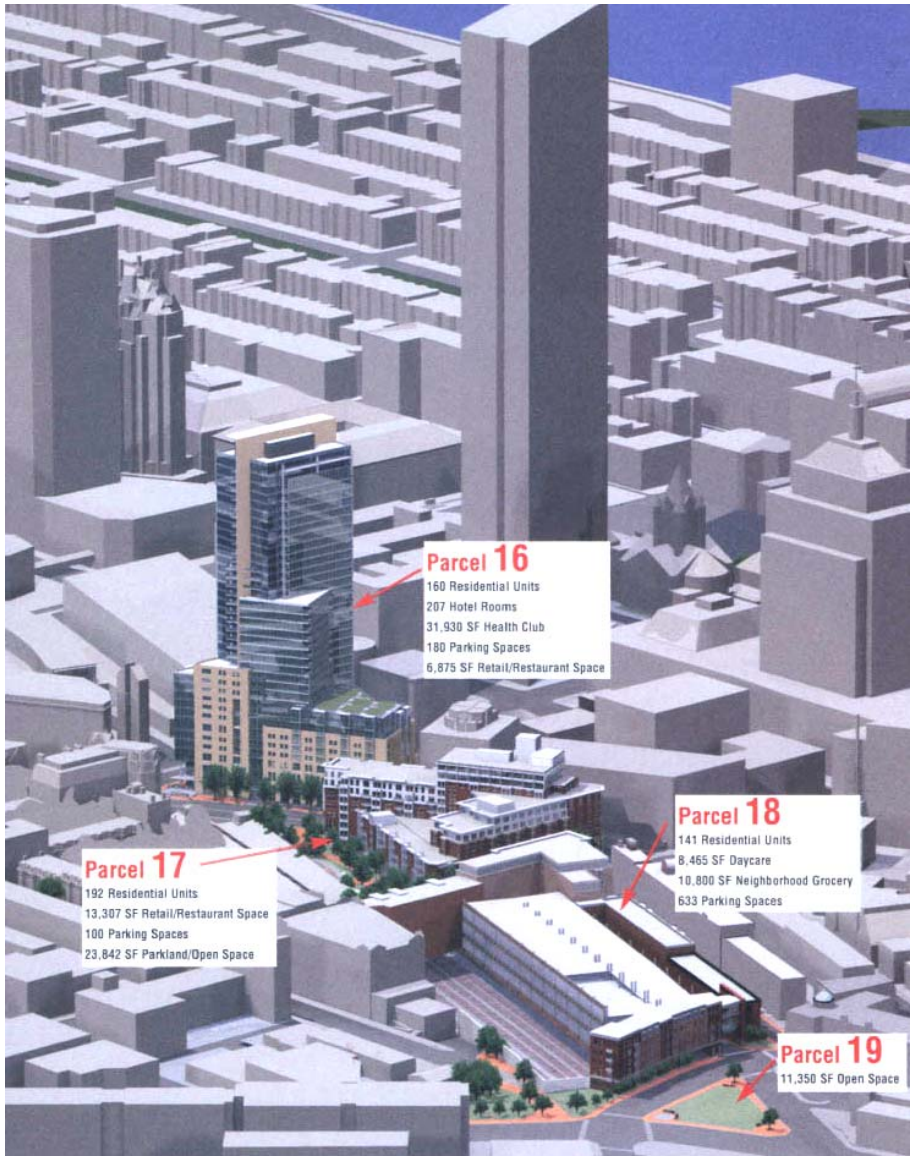
Following a long environmental review process, Columbus Center received all necessary permits and approvals to proceed with development in May of 2003. Construction is expected to begin in September 2004.

Columbus Center Use Summary

Columbus Center is a 7-acre mixed-use development that is attempting to "transform a three-block long canyon into a vibrant, pedestrian friendly community complete with landscaped sidewalks, residential entries and front gardens, small parks, and retail storefronts typical of the surrounding neighborhoods."[27]

Use	Amount
Hotel	163,300 SF (199 rooms)
Retail/Restaurant	41,804 SF
Health Club	29,700 SF
Residential	745,252 SF (517 units)
Parking/Service/Mechanical	346,510 SF (917 spaces)
Park/Open Space	37,183 SF
TOTAL	1,326,566 SF

Source: Columbus Center FEIR, 2003



Financial Summary	
Hard and soft costs	$536,000,000
Air rights premium	$10,800,000
Project IRR	18%

Source: Columbus Center FEIR, 2003

Despite major stumbling blocks in the approval process, site design, and project economics, the high land values that surround Columbus Center make the project profitable enough to overcome these encumbrances.

Summary of Development Attributes

One of the major distinctions between Columbus Center and its Copley Place predecessor is an attempt to genuinely connect the development to surrounding neighborhoods. This attempt can be seen not only in the physical design (with very complex engineering to ensure that pedestrians can enter the development at-grade throughout the site), but also in the combination of uses, the public realm benefits, and a commitment neighborhood oriented economic development (jobs for local residents, neighborhood retail, etc). Hence, Columbus Center goes further than its antecedents as a prototype for a more beneficial form of urban redevelopment. As planned, the developer claims that the project will do the following[28]:

Social Equity Goals

- Turnpike Coverage: Replace the canyon caused by the Turnpike with three new city blocks that stretch between Clarendon and Arlington.
- Open Space: Create neighborhood parks and open spaces for community use (including a half acre programmed park)

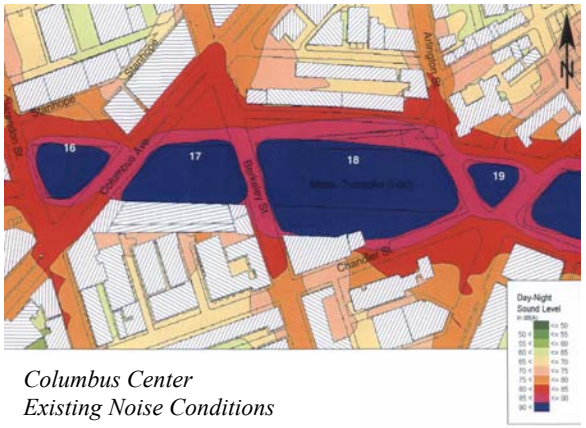
- Mix of Uses: Create a mix of uses that serve the neighborhood needs, including housing (10% affordable), grocery store, daycare center, and health club.
- Public Spaces: promote pedestrian activity and connectivity through streetscape amenities (lighting, sidewalks, planting) and connections between uses (retail spaces, cafes, etc)
- Linkage: Provide $800,000 in new linkage funds to mitigate the impacts of the development and promote social equity.
- Community Entrepreneurship: Subsidize commercial rent for local small business owners.

Environmental Goals

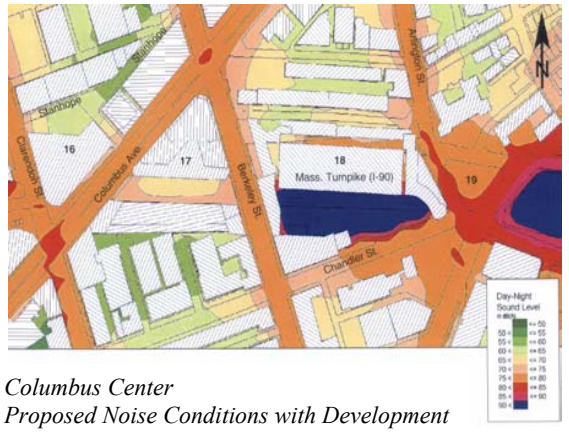
- Noise: Significantly reduce noise of Turnpike and rail corridors.
- Air Quality: Significantly improve the air quality over the corridor through coverage and appropriate ventilation.
- Wind: Wind will be reduced at many locations due to Turnpike coverage, project design, and new streetwalls.
- Groundwater: Ensure that project produces no adverse impact on local groundwater levels by installing groundwater monitoring wells and working with the Boston Groundwater Trust to find long term solutions to the groundwater depletion problem.
- Traffic Mitigation: Minimize vehicular traffic generation through improved transit connections (new MBTA orange line entrance), car sharing, and bicycle lanes and storage areas.

Economic Goals

- Employment: Create 350 new permanent jobs.
- Tax Revenues: Generate $4 million in new real estate tax revenue and $1 million in hotel tax revenue.

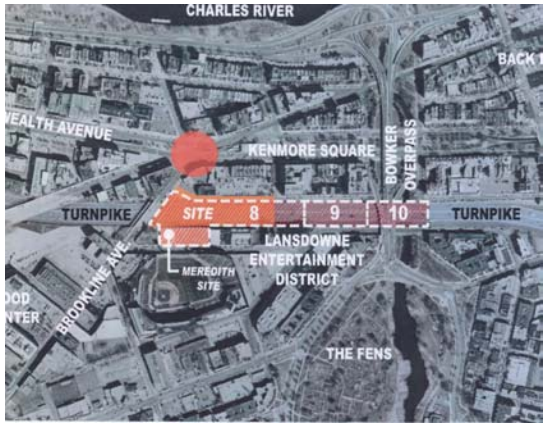


Columbus Center
Existing Noise Conditions



Columbus Center
Proposed Noise Conditions with Development

- Development: Provide developer, equity investors, and lenders with a credit-worthy development that provides fair risk-adjusted returns to all parties.



One Kenmore

The One Kenmore development is currently in the preliminary project design phase. The developer, Meredith Management, is presently engaged in informal discussions with the Boston Redevelopment Authority, community stakeholders, and design/development consultants. They have put together an initial site design and are preparing to submit the "Project Notification Form" to start the formal public review and permitting process in Fall 2004.

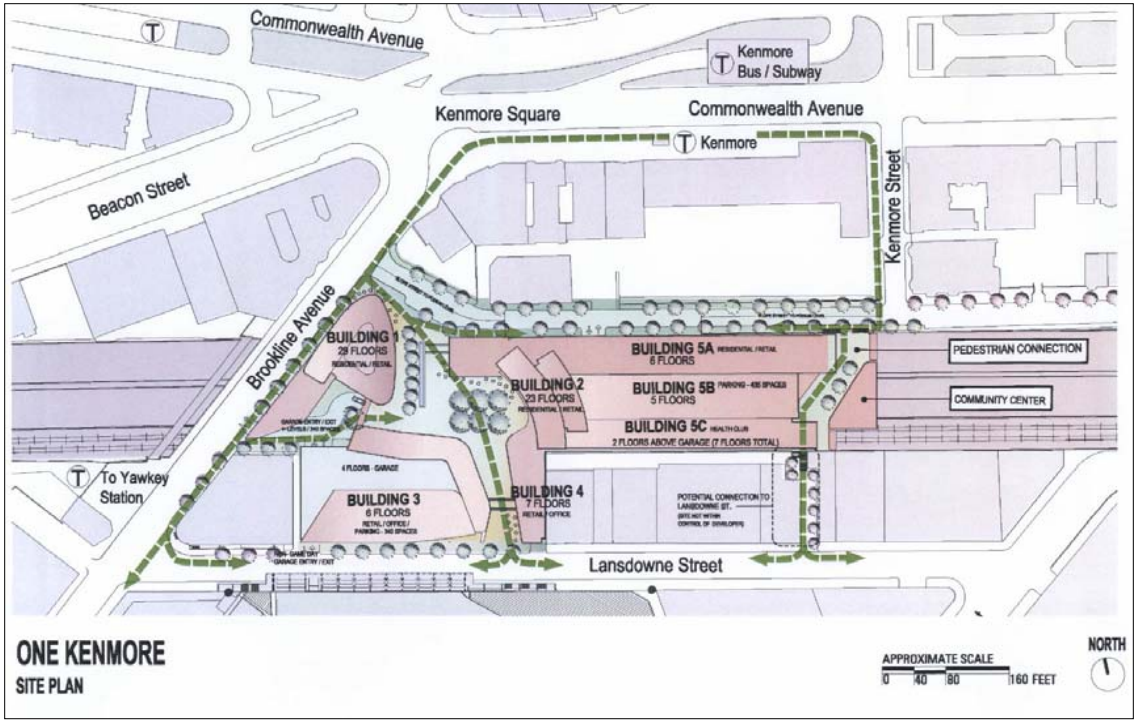
The development site is located above the Massachusetts Turnpike in Kenmore Square (Civic Vision Parcel 8), and includes terra firma parcels located at 49-67 Landsdowne Street. The site is bound by Landsdowne Street (adjacent to Fenway Park), Brookline Avenue, and Newbury Street.

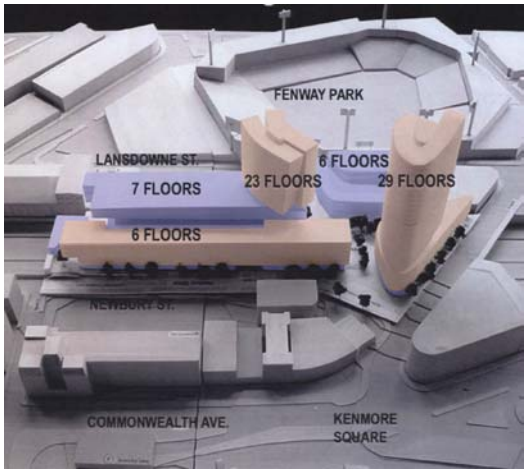
Throughout the preliminary project design phase, the Meredith Team spent considerable upfront time understanding and vetting issues related to programming and design by talking to key stakeholders, including community groups, the Boston Red Sox, Boston University and the Boston Arts Academy—all of whom are located near the site. While the air rights parcels in Kenmore Square were put out to bid via this competitive Request for Qualifications (RFQ) process, Meredith Management, with a significant development advantage in owning the terra firma on Landsdowne Street, was the only group to submit a proposal. They responded to the RFQ in August 2002, and were formally selected in June 2003. Since that time, Meredith Management has been working regularly with the BRA, the MTA, the MBTA and the newly

established Citizens Advisory Committee to create a design and program that can be permitted without the complications faced by Columbus Center.

One Kenmore Use Summary

The current development proposal is attempting to revitalize adjacent areas through a mixed-use, "smart growth" development.[29] "Our plan creates an exciting and balanced mixed-use residential, retail and entertainment development that mirrors the uses recommended in the Civic Vision." The development plan includes 500 new units of housing, including 10% affordable, and neighborhood oriented retail uses—such as restaurants, grocery, health club, community center and daycare facility—that will create year round (vs. seasonal) economic activity in Kenmore Square and the surrounding neighborhoods.[30] It also features significant open space, public plazas and pedestrian connections in order to reactivate the south side of Newbury Street, and link Kenmore Square with Landsdowne Street and Fenway Park.





Use	Amount
Office	46,000 SF
Neighborhood Retail/Restaurant	88,925 SF
Health Club	76,500 SF
Grocery	9,700 SF
Residential	623,200 SF (500 units)
Community Center	3,000 SF
Parking/Service/Mechanical	270,8575 SF (775 spaces)
Park/Open Space	35,000 SF
TOTAL	1,135,000 SF

Source: One Kenmore Draft PNF, 2004

Financial Summary	
Hard and soft costs	$350,000,000
Air rights premium	Not Yet Available
Project IRR	15%

Source: One Kenmore Draft PNF, 2004, and interview with John Rosenthal, 2004

Summary of Development Attributes

Of the three cases reviewed in this study, One Kenmore arguably goes furthest in advancing the notion that highway air rights presents an opportunity for a beneficial form of urban redevelopment. In an attempt to revitalize the Kenmore Square neighborhood, the economic,

environmental, and social attributes of the development plan strike a balance in genuine pursuit of this goal. The developer articulates the following goals in the proposed site plan:

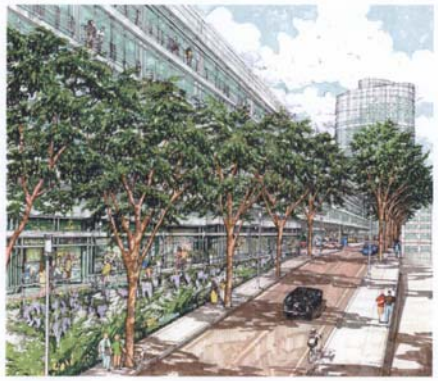
Social Equity

- Deck over 108,000 square feet of Turnpike and rail corridor.
- Activate a blighted section of Newbury Street with housing, restaurant and retail space.
- Create a year round neighborhood that currently suffers from a seasonal economy.
- Establish public realm benefits including pedestrian plazas, pocket parks, improved sidewalks and bikeways.
- New affordable rental and homeownership opportunities on-site (50 units) and a capital contribution for 25 additional units off-site.

Environmental

- The project is planned to reduce noise levels on portions of Brookline Avenue, Landsdowne Street, and Newbury Street due to decking over the Turnpike and rail lines.
- The project contemplates the implementation of Green Engineering and Sustainable Design techniques, including daylighting, waste reduction, passive solar energy, water conservation, etc., and with the further development of design and engineering will investigate the feasibility of Leadership in Energy and Environmental Design (LEED) Certification.
- Minimizes new automobile trips through: integration with the MBTA transit system, improved pedestrian environment/connectivity, support of shared vehicle service on-site (zip-car), shared parking facilities, and on-site bicycle amenities.

EXISTING NEWBURY STREET VIEW



PROPOSED VIEW OF NEWBURY STREET LOOKING WEST

EXISTING VIEW OF TURNPIKE

PROPOSED VIEW OF PEDESTRIAN PLAZA ABOVE TURNPIKE

Economic

- Approximately $4,000,000 in new annual real estate taxes which will support City fire, police, schools and other services.
- Over 350 new permanent jobs (retail, maintenance, parking, restaurant, etc.)
- Development is expected to help stabilize Kenmore Square by generating a more diversified set of uses that keep the area active 7-days a year, year-round (versus a seasonal economy based upon local universities, night clubs, and baseball)
- Provide fair risk adjusted returns to project investors and lenders.

The Future of Air Rights Development

City planners and policy makers nationwide almost universally acknowledge the damage that has resulted from the construction of the urban highway system in the 1960s.[31] As these professionals are joined by citizens, designers, government officials and developers, communities throughout the US are seeking ways to restore their cities' urban fabric, revitalize their neighborhoods and improve the quality of life for all residents.

Despite favorable market conditions that support the development of air space over highway corridors, there are several impediments that continue to stifle this unique type of development. These impediments can be classified as planning and policy complications, design and development obstacles, and financing and leasing hurdles. While some projects are able to overcome these barriers, they are important to evaluate, both generally and as they relate to specific cases, in order to create a comprehensive set of best practices that makes air rights development feasible and desirable.

Notwithstanding some variation, the Massachusetts Turnpike in Boston is a microcosm of the issues associated with air rights development over highway corridors. In particular, the three cases described above provide a recent history and account of the evolution of this distinct development typology. Through the varied programs, locations and stages in the planning and development process, lessons regarding best practices and preferred approaches emerge. As will be discussed in the final chapter of this study, these lessons can be useful in creating sustainable air rights developments over highway corridors in other major cities throughout the US.

Study Organization

The remainder of this study will discuss the issues that distinguish air rights development over highway corridors from other types of urban redevelopment. It will examine these issues generically and as represented in the selected cases. It will conclude with some recommendation that address the issues identified to help advance air rights as a form of beneficial urban redevelopment in Boston. These recommendations can also be useful for other major US cities facing similar issues regarding air rights development. The study includes the following chapters:

- Planning and Policy Considerations
- Design and Development Considerations
- Financing and Leasing Considerations
- Conclusions and Recommendations

[1] City of Ventura, CA, Ventura Village Initiative Air Rights Study, 2003
[2] Highway Research Board, Joint Development and Multiple Use of Transportation Right-of-Ways. Proceedings from conference, Washington, DC, November 1968
[3] Highway Research Board, Joint Development and Multiple Use of Transportation Right-of-Ways. Proceedings from conference, Washington, DC, November 1968
[4] Chen, David W., *Traffic in the Basement*, The New York Times. June 18, 2004.
[5] Clancy, Sean P., Air Rights Development: Is it different from traditional land development?, MIT Masters Thesis, Massachusetts Institute of Technology, 1998.
[6] Tsipis, Yanni, *Using the Turnpike to Our Best Advantage*, The Boston Globe, April 23, 2004, Pg. A23
[7] Civic Vision, 2000
8 Civic Vision, 2000
[9] Civic Vision, 2000
[10] McCown, James. *Boston Air Rights,* Architecture Week, September 2002
[11] Bressi, 1989, Russell 1990, Dickens-Wagner, 1981
[12] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980, pp.2
[13] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980, pp.2
[14] Clancy, Sean P., Air Rights Development: Is it different from traditional land development?, MIT Masters Thesis, Massachusetts Institute of Technology, 1998.
[15] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980, pp.2
[16] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980
[17] Watts, Elemuel. Copley Place: The Design Development of a Major Environmental Intervention, MIT Masters Thesis, Massachusetts Institute of Technology, 1982
[18] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980
[19] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980
[20] http://www.iboston.org/, Contemporary Boston Architecture: The Prudential Center.
[21] Civic Vision, 2000
[22] Civic Vision, 2000
[23] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980
[24] Civic Vision, 2000
[25] Interview with Chris Fleming, Winn Development 7/7/04
[26] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04, Interview with Chris Fleming, Winn Development 7/7/04
[27] Winn Development Brochure, 2004
[28] Winn Development Brochure, 2004, Final Environmental Impact Report, EOEA #12459R: Columbus Center, May 15, 2003.

[29] Project Notification Form, One Kenmore, Meredith Development Group LLC, Submitted to the Boston Redevelopment Authority, January 2004
[30] Project Notification Form, One Kenmore, Meredith Development Group LLC, Submitted to the Boston Redevelopment Authority, January 2004
[31] Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002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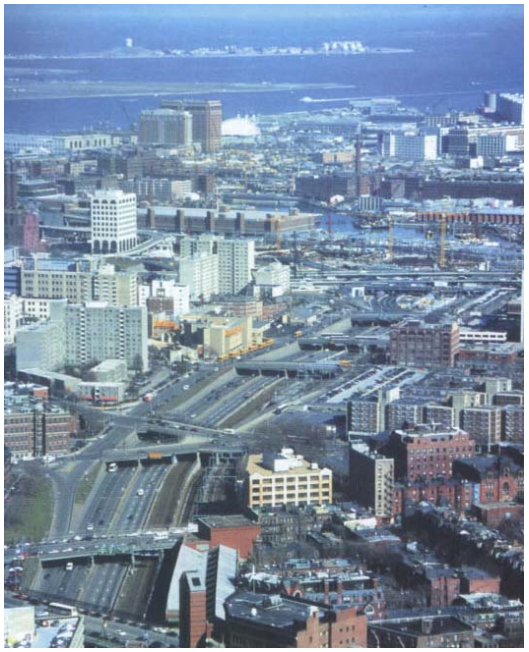
Chapter III: Policy and Planning Considerations



"The development of air rights is not so much a technical problem as it is a matter of broad policy."[1] Planning and policy approaches to air rights development over highway corridors vary significantly between municipalities. Even within a given municipality, the treatment of air rights development has generally not been systematic or consistent across projects. This chapter describes the generic policy considerations that impact air rights development over transportation corridors and provides an overview of the current planning and policy environment in the City of Boston as reflected in three case studies. The final chapter of this study includes some recommendations for planning and regulating air rights development.

While there is no single policy approach to planning an air rights development over a highway corridor, scholars and practitioners have explored the merits of several types of government intervention. According to Andreas Savvides,

> "The key catalyst is a clear set of guidelines prepared by municipal and highway planning agencies laying down the rules for development. Not only does such a document cut through intergovernmental bureaucracy and jurisdictional confusion but it also inspires confidence both in the community, which has an input in crafting it, as well as the air rights developers and financiers who become intimately knowledgeable with the rules of the game."[2]

Despite the best efforts of practitioners, air rights development is often encumbered by unique and sometimes ambiguous policy impositions and governmental regulations that differentiate it from other types of development. This is not only due to the "un-charted waters" nature of developing air space over highways, but also to the unique public/state interest in the

construction and outcome of these projects. For this reason it is useful to investigate the following general policy questions: Why is it that government intervention is necessary in the development of the air rights over the state owned highway corridors? If economic conditions make development over highways feasible and profitable, than why is there a need to create government incentives and controls over development?

Government has a direct interest in promoting and controlling the level and character of development over state owned highway corridors for several reasons. Foremost, the government has an unusual stake in the design outcome of air rights development over highway corridors as the space itself is considered "public land" (or at least quasi-public— in the case of Boston, the highway and its air space is owned by the Massachusetts Turnpike Authority). This means that to the extent that the government will be expecting a return on any investment through the sale or lease of air rights (be it a financial return or a social return), they have a stake in the design of air rights developments. To some extent, the positive public externalities that result from the development will define the value of the air rights to the government. This gives the government some incentive to intervene to protect and enhance the public investment. In Boston, the Massachusetts Turnpike Authority views itself as having a fiduciary responsibility to seek leasing fees for the use of air rights to promote the public interest.[3]

A second argument for government intervention in air rights development involves the shear scale and intensity of development necessary to make a project feasible. Costs for constructing a deck over the highway corridor can range between $400 and $700 per square foot above the cost of foundation development on *terra firma*. This premium creates an aberrant pressure to develop "high-intensity uses" and large-scale projects. Such uses may significantly impact public welfare—particularly in adjacent neighborhoods. This premium also means that the necessary balance between economic feasibility and public realm benefits may only be

achievable during strong real estate cycles. Government intervention is necessary to strike this balance regardless of the overall economic climate.

Finally and perhaps most intuitively, the government has a responsibility to preserve the function of the public right of way. The state must ensure that the highway operates normally and without interference from any air space development.

For these reasons, the planning and regulatory considerations for air rights development differ substantially from those governing other types of redevelopment. Unfortunately, many cities lack jurisdictional and regulatory clarity about developing in the air space over highway corridors. While the extent of this regulatory uncertainty varies, cities such as San Francisco, New York and Boston have all encountered issues when trying to regulate development over transportation corridors.[4] In the case of the Massachusetts Turnpike in Boston, state law provides an exemption from municipal zoning in the air space over turnpike property, giving city officials very little control over the size and character of air rights development. As clarified in a 1997 Memorandum of Understanding between the MTA and the City of Boston:

> WHEREAS, pursuant to M.G.L. Chapter 81A, Section 15, the MTA is exempt from building, fire, garage, health and zoning laws, ordinances, rules and regulations in the use of the Extension Air Rights.[5]

The result is a conflict of interest between the two government entities— the Massachusetts Turnpike Authority, who wants to maximize the development return in hopes of securing substantial leasing revenues, and the City of Boston, who is interested in protecting the health, welfare and interests of the community. This jurisdictional murkiness is not unique to Boston.

Municipalities throughout the country are struggling with the laws and regulations that apply to the air space above highway corridors.

While the existing regulatory and planning arena is unclear, it is worthwhile for the purposes of this study to evaluate the universe of planning and policy tools that are available to influence the outcome of air rights developments. Public policy objectives are achieved through intervention and support by both government and non-governmental organizations. Effectively choosing the policy tool that will have the desired effect often depends upon the relationship between the public and private sector that is necessary for government to accomplish its goals. Some of the tools common in the realm of urban design and planning include zoning, design review, street and building standards, environmental review processes, and financial mechanisms such as incentives or taxes. Scholars and practitioners have attempted to sort and classify the different types of government interventions in an effort to help policy makers understand the tools and their attributes such that a public policy problem can be effectively and innovatively addressed. This chapter evaluates the spectrum of possible government interventions in air rights developing using the Schuster/de Monchaux/Riley framework,[6] which classifies interventions into the following five primary categories: regulation, public operation, property rights, incentives, and information.

None of these tools **alone** can provide a satisfactory policy framework to direct air rights development over highway corridors. An innovative combination of these tools is necessary to realize viable and beneficial development outcomes.

Regulation of Air Rights

Regulation is a direct form of government intervention used to ensure a particular outcome. The act of regulating is in effect forcing a landowner to abide by a law or procedure that is

binding. There are clear consequences for non-compliance and a degree of coerciveness inherent in the act of regulating.

According to David Throsby,[7] there are two types of regulation—hard and soft regulations. Soft regulation involves a group of individuals agreeing to behave in a certain way and then monitor one another to ensure compliance. This type of regulation is voluntary and government often has a very limited role in enforcing or implementing this tool. Conversely, hard regulation is generally a government law or procedural requirement that is enacted to ensure a particular behavior or outcome. Examples include zoning, mandatory design standards and building codes.

While there are several arguments that identify the problems with regulation as the single intervention in urban planning and design (inefficiencies, cost, and corruption to name a few), there is a role for regulatory mechanisms in addressing air rights development over the highway corridors. According to Throsby, when there is a high risk of social damage, "regulations have the advantage of being direct and deterministic in their outcome."[8] As applied to air rights development, because the scale and size of potential projects will have such significant impacts on the physical, social and economic environment of surrounding neighborhoods and a city as a whole, some certainty around the design outcome is clearly beneficial. Certain restrictions on scale and uses, similar to those specified by zoning, may be warranted to protect the public interest.

Despite its effectiveness, regulation can also be problematic as a tool for controlling the character of air rights development. Due to the complicated design requirements and exorbitant project costs commanded by this unique type of development, flexibility is essential. Each parcel has a different context and set of development issues, which,

constrained by regulations, could discourage development. In discussing the joint development and multiple use of highway corridors in the 1960s, the Highway Research Board noted:
"It may frequently occur that major multiple use projects may require exceptional consideration and possibly waivers of existing zoning or other use controls that were not enacted with such innovative developments in mind. If present zoning ordinances do not provide effective district controls for such projects, the appropriate Federal agencies, such as the Department of Housing and Urban Development and the Department of Transportation might initiate the development of recommended zoning district definitions and regulations for consideration by local jurisdictions at county or city level."[9]

One form of policy that could accommodate this need for flexibility is a regulatory *process* rather than a specific use regulation. While almost any air rights development is required to go through an environmental process, there may be a need for a different type of regulatory process that is rigorous in evaluating and protecting a diverse set of community and stakeholder interests.

Public Ownership and Operation

Another mechanism by which a government can intervene in the private market to achieve a development outcome is through actual ownership and operation of the built environment. According to Christopher Leman, "rather than using regulation to force action by a business, non-profit organization, or individual, a government agency can take that same action itself."[10] While there are clearly limits to the capacity of government to use this intervention, particularly in the face of limited financial resources,[11] development of the air rights over public transportation corridors inherently has a component of government ownership and operation. As the owner of the highway and the air rights above it, the state intrinsically has some degree of control over the development of that space. This ownership can be leveraged

to set up "mixed ownership and operation schemes" in which public-private partnership promote the desired development outcomes.[12] Leasing arrangements with private developers, for example, can have performance criteria and design guidelines associated with them.

Direct government ownership and operation of components of an air rights development (ownership of actual buildings on the site) is another mechanism used by some municipalities to advance the planning and policy objectives of the state. This upfront public investment provides the private developer with some guaranteed cash flows and financial certainty, possibly reducing the premium to develop over the turnpike. This financial boost gives developers increased flexibility, and in some cases the incentive to provide the public amenities not otherwise feasible. Government ownership and operation in this capacity additionally allows for a degree of design control or at least design influence.

Finally, the ownership and operation of the public infrastructure in and around an air rights development is critical. From the standpoint of sustainability, one of the key objectives of most air rights developments over highway corridors should be to connect the project with surrounding neighborhoods. Filling development gaps and re-knitting the street grid back together are viewed as essential components of successfully designed projects. Intervening through the design, ownership and operation of these amenities is a valuable tool in controlling the design outcome of the development as a whole. Purely through the design and construction of this infrastructure (e.g., reconnecting the street grid, connecting public spaces, etc.), government can have an enormous impact on the quality of an air rights development.

Property Rights

According to John J. Costonis, "government can stimulate desired social policies by defining property rights in ways that facilitate behavior in the private sector that is consistent with

these policies."[13] Using property rights as a tool to encourage specific development outcomes, government can sever, transfer, and even lease rights that in aggregate make up the bundle of property rights. This tool is one of the most important interventions in controlling and encouraging development of the air rights over highway corridors. Air rights development would not even be possible without the innovative disaggregation of development rights between those that apply to terra firma (the ground on which the property lies) and the air rights above that ground. The origin of the legal recognition of this disaggregation of property rights dates back to two landmark Supreme Court cases, Pennsylvania Coal Co. v. Mahon (1922) in which the court held that the "surface rights" and the "subsurface rights" to a piece of land could be assigned to different parties, and Penn Central Transp. V. New York City (1978) in which the court recognized different rights associated with terra firma and air space.[14]

The parsing out of these rights make it feasible to pursue air rights development over highway corridors. Moreover, the fact that these rights can be traded, transferred, sold, and leased makes this 'property rights' tool more flexible and thus more accommodating to private market behavior. The unbundling of property rights in effect creates the private market for developers to pursue air rights projects.

There are other "property rights" tools that serve the objective of controlling and encouraging beneficial development over highways. Many air rights development proposals face opposition because of issues of density and bulk (presumably to compensate the developer for the increased cost of construction) that are not compatible with surrounding neighborhoods. A system of transferring development rights (TDRs) to density receiver zones (either within the development site or elsewhere in the City) serves the dual purpose of protecting abutters and ensuring the necessary return to developers.

Incentives

Incentives work in tandem with some of the interventions described above as well as as stand alone catalysts to influence the design and character of urban development over transportation corridors. Incentives are appealing because they allow for private decision-making by providing some return for a desired behavior. The voluntary nature of compliance can also, however, mean that the outcomes of incentives can be difficult to predict, as the decision to take advantage of a given incentive can be idiosyncratic and inconsistent. Nonetheless, incentives are an important tool in addressing the urban design challenges of air rights development.

According to J. Mark Schuster, incentives can be classified as either direct or indirect incentives.[15] A direct incentive is one in which the government offers direct financial assistance for a desired outcome. Whether provided through a competitive and/or discretionary process (as is often the case for grants), direct incentives provide private market individuals with a subsidy for producing a particular outcome. In the case of air rights development, there are a few state and federal grant programs that help to encourage redevelopment over highway corridors. One example of such a program is the Urban Development Action Grant (UDAG). These grants are authorized by the federal government for "cities and urban counties which are experiencing severe economic distress to help stimulate economic development activity needed to aid in economic recovery."[16] UDAG grants have been used in several air rights development across the country to help cover the cost of decking.

An indirect incentive involves no direct transfer of money, and no state expenditure is recorded.[17] Instead, indirect incentives take the form of reduced obligations (usually fiscal). Indirect incentive tools offer the most opportunity for controlling and encouraging air rights development over transportation corridors. One incentive-based tool involves the leasing arrangement established between the private developer and the highway authority. This

leasing arrangement can be set up in a way that incites developers to ensure that the development meets the objectives described by the state in exchange for reducing or subsidizing the fiscal liabilities reflected in the terms of the air rights lease. It can be structured such that the lease payments are tied to the future performance of the development, providing an incentive for the developer to create a well-designed project while lowering the upfront costs of doing so[18]. This strategy is further described in the chapter on financing and leasing considerations later in this study.

The government can also encourage air rights development by issuing financing at below market rates. Because it is expensive and risky, this support is sometimes necessary to entice the private market to pursue air rights development. This type of incentive can improve the financial feasibility of a development without creating the need for additional development intensity. Similarly, tax abatement or real estate tax reduction programs are indirect incentives that can encourage development and reduce development costs.

Non-fiscal incentives are also used in some cases to encourage the desired urban design outcome for air rights development. For example, density bonuses (and other types of development bonuses or development assistance) awarded in exchange for a desired development action or amenity can serve the public interest and give developers a competitive advantage over adjacent locations.

While incentives can clearly be a helpful device in eliciting and rewarding a desired behavior, there is less empirical information as to the quantifiable benefits of incentives relative to the other tools.[19] Specifically, it is difficult to quantify the costs and social benefits achieved, particularly in the case of more qualitative incentives like the density bonus. In the case of air

rights development, this means that incentives may have a very different outcome depending upon the specifics of the site and the development deal.

Information

Because air rights development over highway corridors is generally risky, complicated and uncommon, information is an important tool for government in controlling and encouraging this type of development. While some policy makers view information as the "softest most lenient tool," information can in some cases be more powerful and effective than other planning and policy tools.[20] According to J. Mark Schuster, there are three main reasons to use information as a tool to serve government objectives: to inform stakeholders that various laws and tools exist; to inform the public of existence of some desirable amenity and reasons to preserve them; and to spur others into action to help the cause.[21] Vedung and Doelen describe information as a public policy instrument to influence people through the transfer of knowledge, communicate of a reasoned argument, and achieve moral suasion in order to accomplish a policy result.[22]

Information is used throughout the country by policy makers to promote air rights development. It takes several forms. Most commonly, information regarding air rights development over transportation corridors takes the form of identification, promotion and procedural clarification of the development process. As previously stated, one of the key barriers to developing over highway is the complicated institutional and regulatory environment in which a project must seek approval. Multiple jurisdictions and a lack of coordination add to a development's time and expense. Using information as a way to coordinate and streamline this process helps encourage air rights development. Information can support the permitting process so that it becomes more transparent and seamless.

Information regarding successful development precedents is also a useful tool in reducing risk and promoting this unique type of urban typology.

Another important type of information used in planning air rights development is design guidelines, particularly in municipalities that lack robust regulating authority. Design guidelines can provide specific concepts and parameters that reflect community interests and give the developer direction that will facilitate a straightforward approval process. This is the approach taken by the City of Boston, as described in the section below.

Planning and Policy in the City of Boston

While air rights development raises many issues that a city normally addresses through zoning regulations, the exemption of air rights parcels from the statues of zoning in some places (including Boston) deprives municipalities of an essential tool in protecting the public environment. Moreover, potential developers have no clear baseline from which to propose projects, leaving them vulnerable to opposition, Additionally, abutting communities have little protection against potential project impacts on their own property and in their neighborhood.

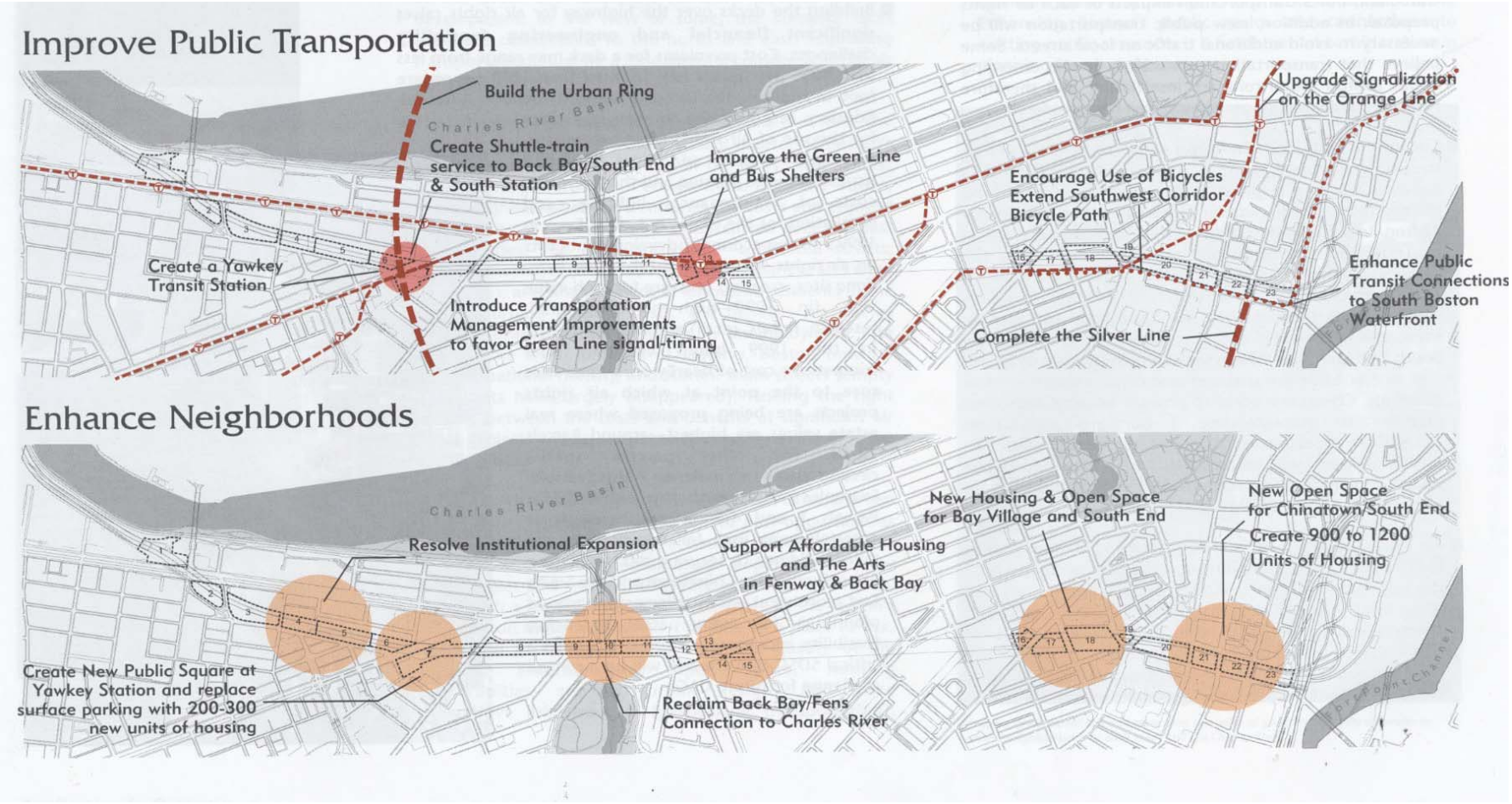
In response to this uncertainty, some cities have created air rights development "guidelines," which ostensibly function as a form of soft regulation and information. In Boston, the City government under the direction of Mayor Menino and the Massachusetts Turnpike Authority jointly commissioned a group of staff and stakeholders (including residents, businesses, institutions, planners, architects, and developers) to design a "comprehensive plan for reknitting the urban fabric along the Turnpike corridor."[23] The resulting *Civic Vision for Turnpike Air Rights in Boston* describes the government's goals for realizing successful air rights development projects. This effort came after years of conflict between the City and the

Massachusetts Turnpike Authority over air rights development. This advisory document provides goals, specific design recommendations and implementation strategies for development throughout the Turnpike corridor in Boston. According the Vision, successful projects should:[24]

- Enhance neighborhoods in the air rights corridor by accommodating a mix of housing and business opportunities, producing neighborhood specific recommendations, and creating necessary community facilities;
- Foster increased use and capacity of public transportation and decreased reliance on private automobiles by taking tangible steps to expand public transportation and other alternatives to the automobile, improve the pedestrian realm, and limit parking;
- Invest in city building by accommodating Boston's world class science and technology opportunities, supporting Mayor Menino's affordable housing initiatives, creating important cultural and entertainment facilities; and
- Promote the public realm by planning new pedestrian friendly connections, creating neighborhood parks, and mitigating the visual impact of the highway.

A Civic Vision for Turnpike Air Rights in Boston: Design Rendering

A Civic Vision for Turnpike Air Rights in Boston: Goals


Improve Public Transportation
Build the Urban Ring
Charles River Basin
Create Shuttle-train service to Back Bay/South End & South Station
Improve the Green Line and Bus Shelters
Upgrade Signalization on the Orange Line
Encourage Use of Bicycles Extend Southwest Corridor Bicycle Path
Create a Yawkey Transit Station
Introduce Transportation Management Improvements to favor Green Line signal-timing
Enhance Public Transit Connections to South Boston Waterfront
Complete the Silver Line
Enhance Neighborhoods
Charles River Basin
Resolve Institutional Expansion
Support Affordable Housing and The Arts in Fenway & Back Bay
New Housing & Open Space for Bay Village and South End
New Open Space for Chinatown/South End
Create 900 to 1200 Units of Housing
Create New Public Square at Yawkey Station and replace surface parking with 200-300 new units of housing
Reclaim Back Bay/Fens Connection to Charles River

In addition to design guidelines and goals (which are described in more detail in the next chapter of this study), the Civic Vision explicitly sets forth an 11-step development review process—a quasi-regulatory process which gives the City of Boston increased jurisdiction over project review and the developer selection process. The Civic Vision calls for the following development process for Turnpike Air Rights projects in the City of Boston:[25]

1. Turnpike Authority notifies the BRA and announces potential air rights development opportunity, which triggers the following steps.
2. Turnpike Authority, after consultation with the BRA, issues a Request for Qualifications (RFQ) that includes the Strategic Development Study Committee Civic Vision Guidelines for the parcel(s).
3. Mayor of Boston appoints a Citizen Advisory Committee (CAC), as provided by the MOU.
4. Potential developers submit qualifications submissions (including description of how each team would respond to the Guidelines).
5. CAC solicits community comments and reviews the developers' qualifications submissions.
6. CAC submits comments on developers qualifications submissions to the Turnpike Authority.
7. Turnpike Authority, after consultation with the mayor, selects the short list of developers. Such consultations should include the construction and use of proposed projects or other matters that preserve and increase the amenities within the City of Boston.
8. Short-listed developers submit detailed development and design proposals.
9. CAC reviews the developers' proposals and solicits community comments.
10. CAC submits comments on developers' proposals to the Turnpike Authority.
11. Turnpike Authority selects developer after consultation with the Mayor.

A Civic Vision for Turnpike Air Rights in Boston: Guidelines

The Guidelines respond to certain opportunities and challenges that are common for all parcels:

1. **Filling the gaps between neighborhoods and along major public streets by lining these streets with shops (emphasizing local businesses, not national franchises), cafés, exhibit spaces, and other lively uses, creating a variety of new pedestrian links, public spaces and parks; and paying special attention to the ways in which buildings and public spaces can enrich the public realm.**
2. **Promoting use of public transportation by reducing parking provisions below levels prevailing at the time of this report and improving public transportation.**
3. **Creating architecture that combines respect for Boston's unique historic character and expression of the vitality and character of our era.**

Other Guidelines focus on the unique characteristics and needs of each community along the corridor:

Allston-Brighton, Audubon Circle, Boston University: Parcels 1 and 4-6

- Create a "landmark" cultural or academic use facing the Charles River on Parcel 1, together with a state-of-the-art research campus adjacent to BU on Parcels 4-6.
- Create a small park and landscaped buffer adjacent to Audubon Circle and new paths to the Charles River; and a lively pedestrian realm along Commonwealth Avenue and Beacon Street.
- Set taller buildings back from the neighborhood.
- Accommodate the Urban Ring and any other public transportation improvements.

Audubon Circle, Kenmore Square, Fenway: Parcels 7-10

- Locate housing next to Audubon Circle together with a mix of research, office, entertainment, hotel, and similar uses closer to Kenmore Square.
- Accommodate the Yawkey multimodal Station, integrate it with new buildings, and connect it to Beacon Street by a lively public square.
- Locate and design buildings to link nearby neighborhoods to Kenmore Square along Beacon Street and Brookline Avenue.
- Scale buildings up from the existing residential and commercial buildings toward Kenmore Square.

Fenway, Back Bay : Parcels 11-15

- Maintain the natural northern exposure for the historic Fenway Studios.
- Emphasize housing and other low-traffic generating uses, with careful attention to transportation improvements and impacts in this highly congested area.
- Line public sidewalks along Massachusetts Avenue and Boylston Street with shops and other pedestrian-friendly uses, avoiding internal retail malls.
- Accommodate waiting and lobby facilities for Green Line and bus patrons.
- Create no more than one taller building (over 15 stories) on these parcels.
- Respect the Back Bay Architectural District.

Back Bay, Bay Village, South End: Parcels 16-19

- Emphasize housing and other low-traffic generating uses, again with careful attention to transportation impacts.
- Line Clarendon Street, Columbus Avenue, Berkeley Street, and Arlington Street with a mix of shops and other uses that engage pedestrians—avoid internal retail malls.
- Provide no more than one taller building (over 150') on these parcels, and carefully scale buildings up from historic neighborhoods to preserve sunlight for Bay Village (which is located to the north of these parcels).
- Explore the opportunity to link development on a potentially very valuable site (Parcel 16) to support creation of a neighborhood park on Parcel 18.
- Respect the South End Landmarks District and the Bay Village Historic District.

Bay Village, Chinatown, South End: Parcels 20-23

- Emphasize housing, a park, and other public and community uses that reinforce livability and provide economic opportunity for Chinatown and nearby dense neighborhoods, carefully considering traffic impacts.
- Link Chinatown to the South End with a mix of shops, a park, and other uses that engage pedestrians along Shawmut Avenue, Washington Street, and Harrison Avenue.
- Scale building height up from the historic row-houses of Bay Village.
- Explore opportunities to create a mix of market-rate and affordable housing, which would require taller buildings.
- Respect the South End Landmarks District and the Bay Village Historic District.

Planning and Policy Lessons from the Massachusetts Turnpike

Critiques of the Civic Vision

The Civic Vision is an important step in helping shape the outcome of air rights development over the Massachusetts Turnpike in Boston. However, critics argue that this document alone is insufficient for several reasons.[26]

First, the scope of the planning guidelines set forth in the Civic Vision is limited. Although the 'neighborhood context' of surrounding communities was extensively evaluated during the creation of the Civic Vision, the design recommendations themselves are limited to the linear public right-of-way over the turnpike. The planning guidelines do not extend to privately held parcels on either side of the corridor, resulting in two major pitfalls. Were the air rights parcels to be evaluated more holistically, including consideration of the land on either side of the Turnpike (outside of the public right-of-way), a more efficient, financially feasible pattern of development may emerge.

> "The ability to incorporate terra firma parcels into the Civic Vision planning would have increased opportunities for development flexibility, density and financial feasibility. Devoid of broader planning for the parcels that connect the corridor to the rest of the city, the Civic Vision is akin to holding the tail of an elephant and pretending the rest of it doesn't exist."[27]

In addition to limiting the efficiency and feasibility of development, planning exclusively for the air rights corridor can also have the effect of creating a "wall" of development between adjacent neighborhoods. While the Civic Vision guidelines do attempt to emphasize connectivity and the reknitting of neighborhoods, the flexibility to include public and privately owned parcels would have made these connections more realistic.[28]

A second criticism of the Civic Vision has to do with financial feasibility (a topic that is addressed in more detail in Chapter V of this study).

> "The ability to finance a project is directly related to the cost of constructing the deck and the amount of density allowed to be built on top of the deck. If the density described in the Civic Vision is not enough to generate revenues that will cover the cost of the deck, development will not be economically feasible."[29]

While it is intended merely to be a negotiating document—a starting point for development proposals—some developers feel that the Civic Vision is flawed because it doesn't reflect economic reality. This becomes a problem when community members and stakeholders lean on the Civic Vision as though it is a form of regulation. According to some, in the absence of harder forms of government intervention, the public and the BRA rely too much on the guidelines set forth in the Civic Vision.

Lack of Robust Regulation

With only the Civic Vision guiding development over the turnpike, one of the major deficiencies in ensuring predictable development outcomes for projects over the Massachusetts Turnpike in Boston is a lack of robust regulation. Because Chapter 81A of the MTA's enabling legislation exempts air rights from zoning regulation, a developer does not have clear parameters from which to propose a project.

> "The City's lack of zoning deprives it of an essential tool in protecting the public environment. Without the development "rights" that zoning confers, the City, the Turnpike Authority and potential developers have no clear baseline in terms of uses or scale of a development—a situation that leaves large projects particularly vulnerable to opposition."[30]

Despite this lack of regulatory authority, the City of Boston still controls the distribution of project permits (construction permits, building occupation permits, etc). A developer must therefore get the necessary project permits from the City of Boston in order to proceed with construction. It is through this mechanism that the City attempts to influence the development outcome. However, this process can result in extensive uncertainties and inefficiencies for both the developer and the community, as can be seen in the case of Columbus Center.

Prior to the completion of the Civic Vision, the developers of Columbus Center spent significant time and money developing a project proposal for the air rights above the Turnpike between the Back Bay and the South End. Originally, they felt that the lack of zoning was one of the biggest advantages of the site. "We thought the zoning exemption was going to give us carte blanche. It turned out to be our biggest disadvantage."[31] As it worked out, when the Columbus Center development sought permitting from the City of Boston, the BRA mandated a public

process to ensure that the development was acceptable to stakeholders. However, without any development rules or parameters in place, nothing proposed by the developer was *by right*, or entitled by law.

> "As a result, community members had complete control over the permitting process, and the ability to extract concessions from the developer that had little or no relationship to the impacts of the development. Without rules like there would have been under zoning, we were subject to the whim of every stakeholder who walked through the door. It was just mind-boggling—a complete food fight."[32]

The developer estimates that this lack of regulation ended up costing them almost $3 million in extra time and work for project permitting and linkage concessions. Ultimately, after the Civic Vision was adopted, project proponents for Columbus Center were sent back to the drawing board and had to redesign a proposal from scratch. In the end, the developer remarked, "Zoning would have made our lives easier." [33]

While the Civic Vision has helped to establish some clear guidelines for developers, some critics argue that it doesn't go far enough. Without a policy intervention with "regulatory teeth," a developer can still invest significant time and money in creating a project design without having any real sense as to whether or not it will be permitted.[34] Such is the case for the One Kenmore development proposal as it continues to work through several iterations of site design.

> "After running what seemed like a hundred different design scenarios to come up with something financially feasible and also acceptable to the BRA and the CAC, the project was suddenly and unexpectedly blocked from submitting a formal Project Notification Form (PNF) by the leverage of a few powerful stakeholders."[35]

This unclear regulatory process has already added significant time, uncertainty and expense to the permitting process for One Kenmore. Without any government regulation protecting the investment of the developer, this possibility has consequences for the feasibility and desirability of pursuing air rights projects.[36]

This lack of zoning also leaves neighborhoods and property owners with significant uncertainty. Without any clear laws protecting community members from development that is incompatible with or has deleterious impacts on adjacent neighborhoods, stakeholders are likely to be adverse to the idea of air rights development.[37] This opposition has been visible to varying degrees in all three cases. In the case of Copley Center, community stakeholders and city officials felt that the initial proposal, and to some extent the final development, was grossly out of scale with surrounding neighborhoods. Some felt that, were there zoning in place, Copley Center would never have been permitted.[38] Columbus Center went through an arduous, and arguable inefficient public review process to ensure that the uses and scale of the development was compatible with surrounding neighborhoods. One Kenmore is encountering some significant opposition from key stakeholders, like the Boston Red Sox, who is concerned about protecting their property value in the face of unregulated adjacent land uses.[39]

While traditional zoning may not be the most effective tool in ensuring flexible and predictable development outcomes, it is worth exploring other forms of regulation, such as overlay districts, Planned Area Development reviews or other forms of regulatory review to address this issue.

Need for Competition

Another planning and policy issue related to turnpike air rights in Boston is the need for a competitive bid process in the selection of developers. Because air rights development is technically challenging and involves sophisticated understanding of urban design, selecting a development team that is competent and can handle these complexities is essential. One criticism directed at both the case of Copley Place and Columbus Center was the Turnpike Authority's award of the contract via a sole source negotiation, without competition from other development teams.[40] The community and the BRA felt that a competitive bid process would have generated more innovative approaches to development and helped to establish credibility before the permitting process began.[41] The BRA has since made arrangement with the MTA to ensure that all future turnpike air rights project are awarded through a competitive RFQ process. Despite this arrangement, the Kenmore Square parcels were awarded to the *only* developer that submitted a proposal. This may indicate that while there is ostensibly room for development competition under current policy, the barriers and uncertainties that surround this type of development are prohibitive to most developers.

Unclear jurisdictional issues

Another policy issue hindering air rights development over the Turnpike in Boston is the muddled jurisdictional authority of government agencies. Because air rights development is uncommon, the responsibility, purview and authority shared by the City of Boston, the Massachusetts Turnpike Authority, the MBTA, the State of Massachusetts and the Federal Highway Administration is erratic and inconsistent between development projects. A series of loose and sometimes contradictory MOUs govern the policy and procedures by which an air rights project must comply. As a result, the extensive permits and approvals that are required for air rights development can be a disincentive for developers.

Table 2-3: List of Permits

Agency	Permit/Approval
Federal	
Amtrak	Coordination of Construction Over or Adjacent to Right-of-Way
Federal Aviation Administration	Notice of Construction of Structure Exceeding 200 Feet
State	
Executive Office of Environmental Affairs, MEPA Office	Review and Approval
Executive Office of Transportation and Construction	Construction over Railroad Land (if required)
Massachusetts Bay Transportation Authority	Development Rights Agreement
Massachusetts DEP	Sewer Extension/Connection Permit
Massachusetts Historical Commission	Determination of No Adverse Effect or Memorandum of Agreement
Massachusetts Turnpike Authority	Air Rights Lease(s) and Development Agreement
Massachusetts Turnpike Authority Advisory Board	Review
Metropolitan Highway System Advisory Board	Review
Local	
Boston Air Pollution Control Commission	Parking Freeze Exemption/Permit
Boston Fire Department	♦ Assembly Permits ♦ Fire Alarm/Sprinkler Systems
Boston Committee on Licensing	♦ Fuel Storage License ♦ Permit to Operate Parking Garage
Boston Redevelopment Authority	Project Review as defined in the MOU between the MTA and BRA
Boston Water and Sewer Commission	Sewer Extension/Connection Permits
City of Boston Inspectional Services Department	Building and Occupancy Permits
City of Boston Public Health Commission	Restaurant Licenses
City of Boston Public Improvement Commission	♦ Surface Restoration Plan Review ♦ Tieback Agreement - for below-grade construction ♦ Canopies and Awnings
City of Boston Public Works Department	♦ Curb Cut Permits ♦ Street and Bridge Occupancy Permits

List of project permits required for Columbus Center.

One of the major manifestations of this uncertain jurisdictional environment is the application of zoning to parcels that are within the Turnpike right-of-way, but are terra firma parcels. While the MTA's enabling legislation exempts the Turnpike air rights from City zoning, it is unclear as to whether or not this exemption extends beyond the air space. This ambiguity was the cause of considerable debate in the permitting of Columbus Center. According to the Final EIR,

> "With respect to zoning of the sites, pursuant to state statutes, MTA turnpike extension air rights are exempt from City of Boston zoning regulations. The Proponent (Winn Development) believes that this exemption extends to the land and other air rights adjoining MTA air rights which are acquired by the MTA and reasonably included as part of an air rights development. This interpretation of the legislation is consistent with the Memorandum of Understanding between the City of Boston and the MTA governing development of air rights over the turnpike extension and with the Civic Vision."[42]

However several aggrieved stakeholders challenge this notion,

> "The Metropolitan Highway Systems Act includes two very different provisions addressing two different types of development on Turnpike property. One portion of the legislation, Section 15 of the rewritten Chapter 81A, addresses Turnpike air rights. That provision states that when the Turnpike leases air rights over the portion of the Turnpike in Boston, the project constructed on the deck over the Turnpike air rights must comply with the state building code but "shall not be subject to any other building, fire, garage, health or zoning law, rule or regulation applicable in the city of Boston." By contrast, Section 16 of the revised Chapter 81A authorizes the Turnpike to lease to private parties lands which are "no longer required for the maintenance, repair, reconstruction, improvement, use, administration or operation of the turnpike"

and states that projects built on such land "shall be subject to the building, fire and zoning laws, ordinances or bylaws" of the city or town in which they are located."[43]

The Future of Planning and Policy for Air Rights Development

In order for air rights development over highway corridors to emerge as a beneficial form of urban redevelopment, policy and planning tools in Boston and cities throughout the US (including cities like San Francisco, New York, Chicago and Seatle[44]) need to address the issues discussed in this chapter. A straightforward, systematic review process that addresses relevant stakeholder interests; clear development parameters that have the regulatory assurance giving developers some level of indemnity; and a transparent permitting process where the purview of government agencies is clearly defined, are all ingredients for creating an innovative set of policy tools to ensure that this complex form of redevelopment is sustainable.

[1] Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002
[2] Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002
[3] MOU between Massachusetts Turnpike Authority and The City of Boston, acting by and through the Boston Redevelopment Authority, entered into as of June 1, 1997
[4] Dickens-Wagner, Lois, "San Francisco Air Rights," Interior Design, August 1981.
[5] MOU between Massachusetts Turnpike Authority and The City of Boston, acting by and through the Boston Redevelopment Authority, entered into as of June 1, 1997
[6] J. Mark Schuster, John deMonchaux, and Charles Riley II, ed., Preserving the Built Heritage: Tools for Implementation. Hanover, New Hampshire: University Press of New England, 1997
[7] David Throsby, "Making Preservation Happen – the Pros and Cons of Regulation," in Schuster, et. al., *Preserving the Built Heritage*.
[8] David Throsby, "Making Preservation Happen – the Pros and Cons of Regulation," in Schuster, et. al., *Preserving the Built Heritage*.
[9] Highway Research Board, Joint Development and Multiple Use of Transportation Right-of-Ways. Proceedings from conference, Washington, DC, November 1968
[10] Leman, Christopher, "Direct Government," in Salamon, *The Tools of Government*.
[11] Stefano Bianca, "Direct Government Involvement in Architectural Heritage Management: Legitimation, Limits, and Opportunities of Ownership and Operation," in Schuster, et. al., *Preserving the Built Heritage*.
[12] Stefano Bianca, "Direct Government Involvement in Architectural Heritage Management: Legitimation, Limits, and Opportunities of Ownership and Operation," in Schuster, et. al., *Preserving the Built Heritage*.
[13] John J. Costonis, "The Redefinition of Property Rights as a Tool for Historic Preservation," in Schuster, et. al., *Preserving the Built Heritage*.
[14] Mandelker, Daniel R. Land Use Law, Michie Company Publishers, Charlottesville, Virginia 1993.
[15] J. Mark Schuster, "Inciting Preservation," in Schuster, et. al., *Preserving the Built Heritage*.
[16] Section 5318. Urban development action grants, US Code of Law
[17] J. Mark Schuster, "Inciting Preservation," in Schuster, et. al., *Preserving the Built Heritage*.
[18] As is being proposed by Todd McGrath and AdvisoRE for the Kenmore Square air rights development.
[19] J. Mark Schuster, "Inciting Preservation," in Schuster, et. al., *Preserving the Built Heritage*.
[20] Evert Vedung and Frans CJ van der Doelen, "The Sermon: Information Programs in the Public Policy Process—Choice, Effects, and Evaluation," *Carrots, Sticks and Sermons*. 1998
[21] J. Mark Schuster, "Information as a Tool for Preservation Action," in Schuster, et. al., *Preserving the Built Heritage*.

[22] Evert Vedung and Frans CJ van der Doelen, "The Sermon: Information Programs in the Public Policy Process—Choice, Effects, and Evaluation," *Carrots, Sticks and Sermons*. 1998
[23] A Civic Vision for Turnpike Air Rights in Boston, 2000
[24] A Civic Vision for Turnpike Air Rights in Boston, 2000
[25] A Civic Vision for Turnpike Air Rights in Boston, 2000
[26] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04, Interview with Chris Fleming, Winn Development 7/7/04
[27] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[28] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[29] Interview with Chris Fleming, Winn Development 7/7/04
[30] A Civic Vision for Turnpike Air Rights in Boston, 2000
[31] Interview with Chris Fleming, Winn Development 7/7/04
[32] Interview with Chris Fleming, Winn Development 7/7/04
[33] Interview with Chris Fleming, Winn Development 7/7/04
[34] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[35] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[36] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[37] Interview with Donavan Walker, Community Member, 7/2/04
[38] Interview with Donavan Walker, Community Member, 7/2/04
[39] Interview with John Rosenthal, Meredith Management, 7/14/04
[40] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04
[41] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04
[42] Final Project/Environmental Impact Report for Columbus Center [EOEA #12459R]
[43] Final Project/Environmental Impact Report for Columbus Center [EOEA #12459R], Public Comment by the Conservation Law Foundation, 6/27/03
[44] Bressi, 1989, Russell 1990, Dickens-Wagner, 1981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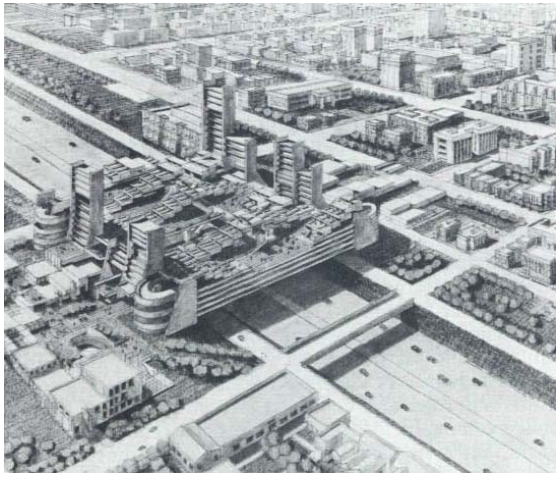
Chapter IV: Design and Development Considerations

"The character of a city's blocks, buildings, public open spaces, and streets has a profound effect on the livability of its neighborhoods."[1] For this reason, thoughtful design and development strategies are essential in ensuring that air rights development is a form of sustainable development.



An unrealized proposal for a mixed-use project over the John Lodge Freeway in Detroit, Michigan, 1968

Air rights development over transportation corridors requires a unique approach to design and development for several reasons. Foremost, air rights projects must be designed in such a way that they do not jeopardize the operation and utility of land use on the ground. In the case of highway corridors, development in the air space above must not impede the flow of vehicular traffic. Likewise, the development itself must respond to a complicated set of external circumstances. First, it should mitigate the negative externalities associated with the highway function, such as noise, vibration and air pollution. Second, air rights developments need not only be sensitive to abutting uses, but in many cases they are expected to function as a catalyst for reconnecting neighborhoods that have for decades been severed by the highway corridor.

To further complicate these considerations is the fact that most air rights projects are *joint development* and *multiple use* projects, and must respond to a diverse set of public and private interests. This necessitates a sometime complex interdisciplinary approach to urban design and development. Municipalities may, for example, take on the responsibility of providing infrastructure, such as road connections and pedestrian networks, while the private developer may be responsible for implementing a use program that is financial feasible and acceptable to surrounding neighborhoods. In general, design becomes uniquely important not

only to ensure that the project supports or improves surrounding neighborhoods, but also to ensure the long run viability of the development itself.

For these reasons, it is essential to think about the following questions regarding the design and development of air rights projects over transportation corridors: What design issues must be considered in attempting to re-knit neighborhoods that have been severed by highway construction? What are the unique technical construction issues faced by air rights developments? This chapter outlines some broad design and development considerations that shed light on these questions. An evaluation of these considerations as reflected in the case of the Massachusetts Turnpike in Boston is included at the end of this chapter.

Design Considerations

The technical complexities that are inherent in developing the airspace over highway corridors have historically meant that "urban design has been a stumbling block."[2]

> "According to some critics, the design ideas promoted in the early days by the Bureau of Public Roads, FHWA's predecessor, showed "erector-set" projects that paid little attention to the neighborhood and the surrounding context."

Critics point to Boston's Prudential Center as an example of this lack of connection and responsiveness to neighborhood context. The 52-story glass tower, completed in 1959, contrasts sharply with Victorian low rises characteristic of the surrounding neighborhoods.

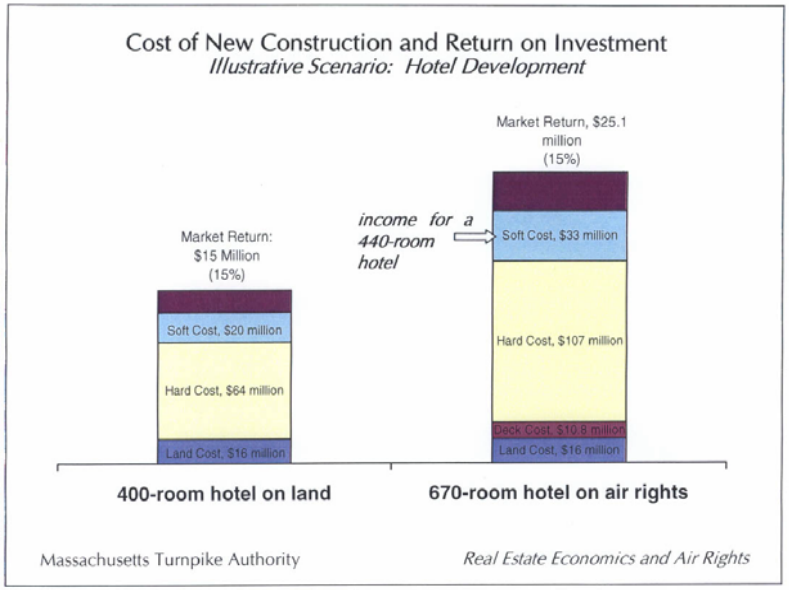
A study completed in 2001 in the City of Boston found that community concerns in neighborhoods abutting potential air rights parcels are primarily concerned with three design

issues: project design and massing, increased vehicular traffic, and safe pedestrian circulation.[3]

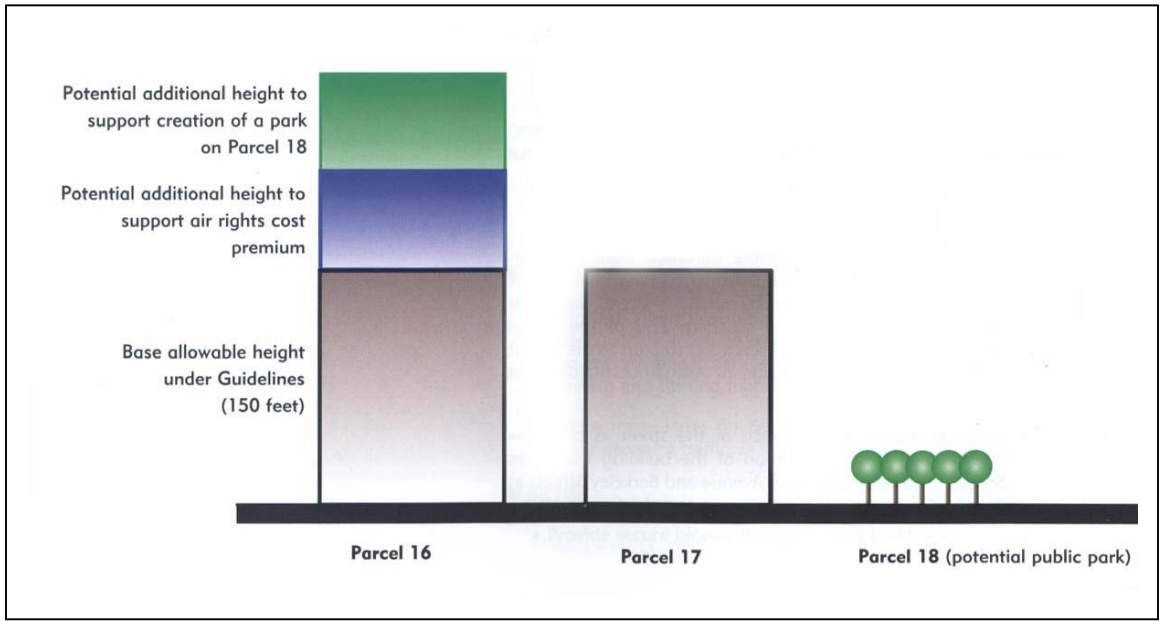
Currently, the design timeframe for an air rights project is an average of 20% longer than that of a similar development on terra firma.[4] Some of this time differential is due to engineering and technical complexities, while some is the result of design considerations that are unique to highway air rights development. The three major urban design considerations that distinguish highway air rights development from traditional development include: scale and massing, connections, and public realm improvements.[5]

Scale and Massing

Some air rights proponents contend that only large-scale developments, with considerably tall buildings, make it feasible to justify the expense of building over highway corridors. Conversely, community members sometimes argue that "large-scale development threatens both the character and livability" of smaller scaled neighborhoods in close proximity to highway corridors.[6] In general, air rights projects do require development at a larger than normal scale to account for the difficulty and expense of construction over the highway (this premium is further discussed in the Financing and Leasing chapter of this study). For this reason, design is crucial. Mitigating height and massing along the street fronts, for example, is one way in which design can ensure more appropriate transitions between new development and adjacent neighborhoods. The scale of development should also be deliberate in encouraging the behaviors of public and private users. Placement and



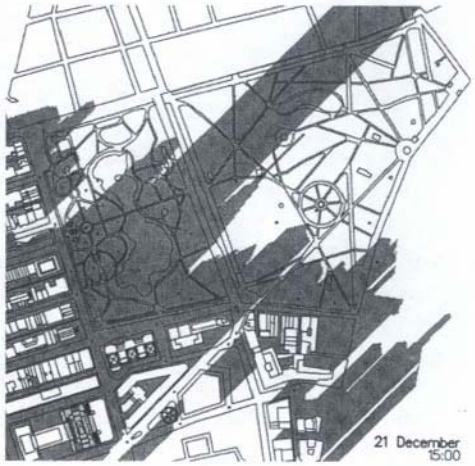
Consolidating density can allow for increased public amenities. (Civic Vision)



design of buildings can work to engage pedestrians at the street level and can define the nature of activity that occurs in the public realm.

One of the biggest design barriers for air rights projects to overcome is related to street-level building uses. Because designers are unable to sink elevator pits below the ground floor, it is difficult to have entrances at the grade of the street. However, it is increasingly recognized that in order to really connect the development to surrounding areas, street level uses must be active.[7] Therefore, urban designers and architects have had to innovate in the realm of interior architecture of air rights buildings, creating entrance floors that are at street level and also accommodate the utilities usually put below grade.

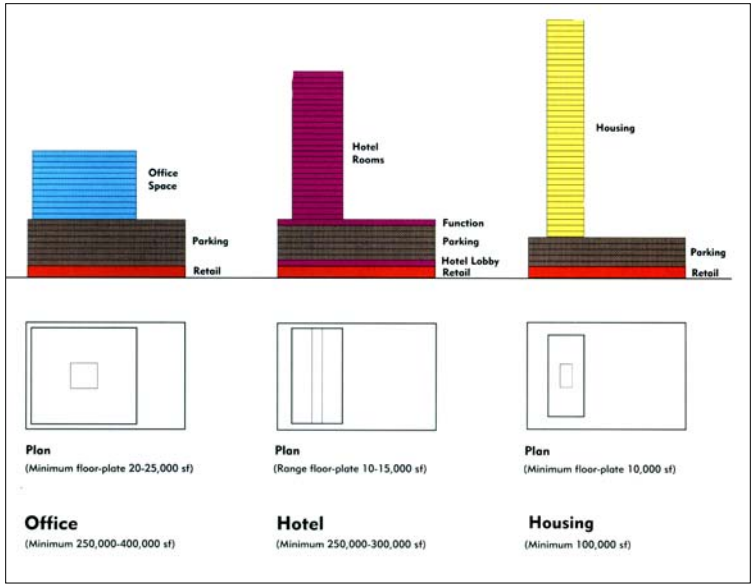
The design and placement of building should also be cognizant of preserving existing view corridors and creating new ones. New buildings should be configured such that they do not wall off the adjacent community, but compliment and integrate with surrounding development.[8] Additionally, air rights projects have a unique advantage in that they can leverage the high visibility of sites by highway users and can function as neighborhood gateways, locations that distinguish the development and give prominent buildings a sense of identity.



Shadow impact analysis

Finally, the arrangement of buildings on air rights parcels needs to take into account issues of sunlight and shadows for both new and existing development. The intensity of development and building height required to make air rights projects financially feasible can mean that these project have significant impacts related to sunlight and shadows. Additionally, development adjacent to a highway corridor is often lower density, due to lower land values as a result of the highway encroachment, and is therefore uniquely vulnerable to the impacts of air rights projects. Careful shadow/sunlight modeling and innovative building design can address this issue.

In general, the space and use requirements of different land uses have a strong influence on the height and massing requirements of air rights development. The diagram below was developed for the Civic Vision in Boston to show the relative minimum scale of development for different uses.



Prototypical building footprints of different uses.

Connections

Sensitivity concerning connections is a fundamental component of successful highway air rights development. Well-conceived and well-designed pedestrian connections, vehicular connections and connections between land uses are essential for a project to strike a balance between economic/market feasibility, social equity, and environmental integrity.

Of particular importance are the connections over the edges of the highway corridor. According to urban planning expert Kevin Lynch,

> "Edges are linear elements not used or considered as paths by the observer. They are the boundaries between two phases, linear breaks in continuity: shores, railroad cuts, edges of development, walls. Such edges may be barriers, more or less penetrable, which close one region off from another."[9]

Air rights development provides a new opportunity to establish connections between neighborhoods that have been "edges," plagued by a lack of cohesion due to the intrusion of the highway. Because highways have historically contributed to the deterioration of these "fringe" areas, the manner in which connections are restored is extremely important to the long run viability of the project. Strategies for designing connections for air rights development should consider:[10]

- The appropriate scale and density for each part of the neighborhood;
- Transitions between different areas;
- Building materials; and
- Environmental concerns (light, air, open space, trees, etc.).

Through the implementation of well-designed connections, "air rights development can create safe, comfortable, and attractive streets and walkways between currently isolated neighborhoods."[11] By reconnecting the street grid, scaling roads and walkways such that they are amenable to pedestrian and vehicular traffic, and buffering pedestrians from noise and wind, air rights development can contribute to the overall livability of the neighborhood, making it a model of sustainable development.[12]

Public Realm

Because air rights projects over highway corridors are generally constructed in "public air space," sensitivity and attention to the public realm—public land uses and their users—is an important design consideration. Such uses can include open spaces, public buildings, connections and paths linking uses and spaces (e.g. streets, sidewalks, bridges, paths), transit and parking, and pedestrian/bikeways.

Enhancement and attention to public realm uses and improvements can help to mitigate the development intensity that is required in air rights projects. Community members and residents in abutting neighborhoods may be more willing to absorb density if it is accompanied by public realm amenities. In terms of urban design and the public realm, there are several strategies to consider when designing an air rights project for a specific location:

- How can structures be consolidated in order to make room for open space parcels (parks, plazas etc)?
- What kind of adjacent uses and open space programming would be necessary to activate the public realm and draw users from adjacent neighborhoods?
- How can the public realm uses and spaces be connected such that the project fits seamlessly into the context of surrounding neighborhoods?

Development Consideration

There are several issues related to the technical feasibility and construction of air rights development over highway corridors. According to practitioners, the complexities associated with air rights development "extends the construction period by at least another year, beyond that for a similarly scaled development on terra firma. "[13] First, it is expensive and technically complicated to create the structural deck over a traffic corridor that is necessary to support extremely large building loads. This impediment is exacerbated by the need to minimize disturbance to the flow of traffic on the highway corridor during the construction period—leading to significant delays in the total development time. The time and public inconvenience associated with temporary lane closures, locating construction equipment staging areas and other activities normally associated with the construction process is exacerbated and further complicates development predictability. Furthermore, the agency that oversees the operation of the highway corridor has the unique challenge of balancing public sector infrastructure demands (i.e., the needs of highway users) and the requirements of this complex construction process.

From the point of view of construction feasibility, the biggest advantage an air rights development site can have is terra firma parcels (either privately held or public right-of-ways) on either side of the highway corridor. This helps mitigate construction issues in two ways. First, the tall buildings that are necessary to make air rights development financially feasible have tremendous lateral loads that need to be transferred to the project foundation.[14] If terra firma parcels are available adjacent to the corridor, this lateral load can be transferred to foundations in this land. Conversely, in the absence of terra firma, the developer must construct extremely expensive slurry walls and cantilever systems, in the narrow linear right-of-way at the edge of the highway corridor. A second constraint related to a lack of terra firma is the inability to sink elevator pits below grade. For structures over five stories (for which

hydraulic elevators are not an option), the ability to put the elevator mechanical system below grade enables the project to more easily provide pedestrian access at street level.[15]

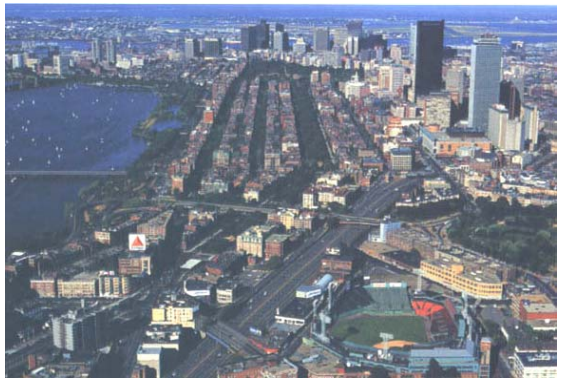
These issues of constructability can be greatly reduced by prudent long range planning on the part of the highway authority. Designing highway corridors with wider medians to enable structural support for the decking, adequate clearances to reduce conflicts between construction activities and highway use, and public right-of-ways on terra firma parcels adjacent to the highway corridor could significantly lower the complexity and expense of doing air rights development. While this may require a premium on the upfront cost of highway construction, it also makes the air rights above the highway and potential leasing revenues more valuable.

Design and Development Lessons from the Massachusetts Turnpike

Design and development considerations are of particular importance in the case of air rights projects over the Massachusetts Turnpike in the City of Boston. There are seven different neighborhoods that abut the Turnpike in Boston, many of which are among the City's densest and most desirable. "In fact, almost 25% of Boston's population lives within one-half mile of the Turnpike corridor." [16] For this reason, projects proposed and built in the air space over the Massachusetts Turnpike have faced several issues related to design and development.

Urban Design Issues

The urban design of development over highway corridors inevitably involves a creative, non-traditional approach to site design. In a city like Boston, where development in some neighborhoods has steadfastly clung to 19th century traditions and designs, new paradigms of development can be met with serious community resistance.[17] For this reason, not only is it



important to ensure that the development style and urban design strongly respects cues from adjacent development, but the developer must engage the community in getting comfortable with proposed project design.

> "The project team and the City need to help community members get comfortable with the change of scale and architectural style that is characteristic of air rights development over highway corridors. While historic neighborhoods unarguably deserve protection from over scaled projects, communities need to recognize that in order to build the deck, the developer must build up."[18]

This issue of development density has played a role in the design of all three cases. In the case of Copley Place, initial schemes showed coverage of the entire site, with emphasis on low-rise construction, and system of pedestrian walkways and courtyards connect that program elements. "The planners clearly attempted to reduce the perceived scale of large structures by stepping tall buildings away from the Huntington/Dartmouth intersection."[19]

Project designers for One Kenmore, on the other hand, feel that Kenmore Square might benefit from taller buildings as a way of creating neighborhood identity.[20] According to the Chair of the Civic Vision Committee, the One Kenmore site is well-positioned to handle more density than some downtown air rights sites. "While an important part of the City, Kenmore Square is visually identified most prominently by the Citgo sign. However, at the terminus of the Commonwealth Mall, the site could benefit from a taller gateway building,"[21] that gives the area a greater sense of place. This design strategy has had mixed reaction from stakeholders.

Programmatically, cases in Boston have shown that it is very important to be creative with air rights development. Because the intensity of development must be greater, finding the mix of uses that fits within the context of neighboring communities can help to minimize this bulk.

Moreover, this mix of uses can actually be used as a negotiating point with community members. "If a neighborhood gets something they want, they may be willing to make a trade-off in terms of the height or density of the development."[22] In all three cases, the developers diverged from the building program that would have yielded the highest economic return based upon market conditions in order to accommodate community desires and to acknowledge the fact that air rights development occurs within the public domain.

Technical and Construction Issues

The major construction related issue facing all three cases is technical coordination between the developer and the Massachusetts Turnpike Authority. In general, developers do not have an upfront agreement or understanding of the MTA's enforcement of Means and Methods that manage the interruption of traffic flows during the construction period. In the case of Columbus Center and One Kenmore, the Turnpike Authority will provide specifications about lane closure allowances and the locations and durations of construction staging areas at the time construction commences. While the MTA legitimately has a responsibility to balance public demands on highway infrastructure and the needs of the air rights developer, this delay adds increased time and uncertainty to the development process.[23]

All three cases also highlight the benefit of long range planning on the part of the Turnpike Authority in order to accommodate future air rights development opportunities. Such foresight can help the MTA support air rights development through such things as expansions of non-vehicular right of ways, medians that can accommodate support structures for the development deck, and construction staging areas that minimize disruption to highway users.

The Future of Design and Development for Air Rights Projects

With an innovative approach to design and development, air rights projects can serve the economic, environmental, and social goals in Boston and in neighborhoods throughout the country. The issues described above can be addressed with long-range highway planning and right-of-way acquisitions that support the design and development of air rights projects. Moreover, as projects continue to be built and construction technology advances, developers and urban designers will discover improved ways of integrating air rights projects into the fabric of the community.

[1] Civic Vision, 2000
[2] Bressi, Todd W. Freeway with a Fringe on Top, Planning. July 1989, 55, 7; page 8
3 Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002
[4] Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002
[5] Civic Vision, 2000
[6] Civic Vision, 2000
[7] Interview with Chris Fleming, Winn Development 7/7/04, Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[8] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[9] Lynch, Kevin, The Image of the City. MIT Press, Cambridge, MA, 1960.
[10] Civic Vision, 2000
[11] Civic Vision, 2000
[12] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[13] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[14] Interview with Chris Fleming, Winn Development 7/7/04
[15] Interview with Chris Fleming, Winn Development 7/7/04
[16] Civic Vision, 2000
[17] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[18] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[19] Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University, 2002
[20] Interview with John Rosenthal, Meredith Development. 7/14/04
[21] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[22] Interview with David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04
[23] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04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V. Financing and Leasing Considerations

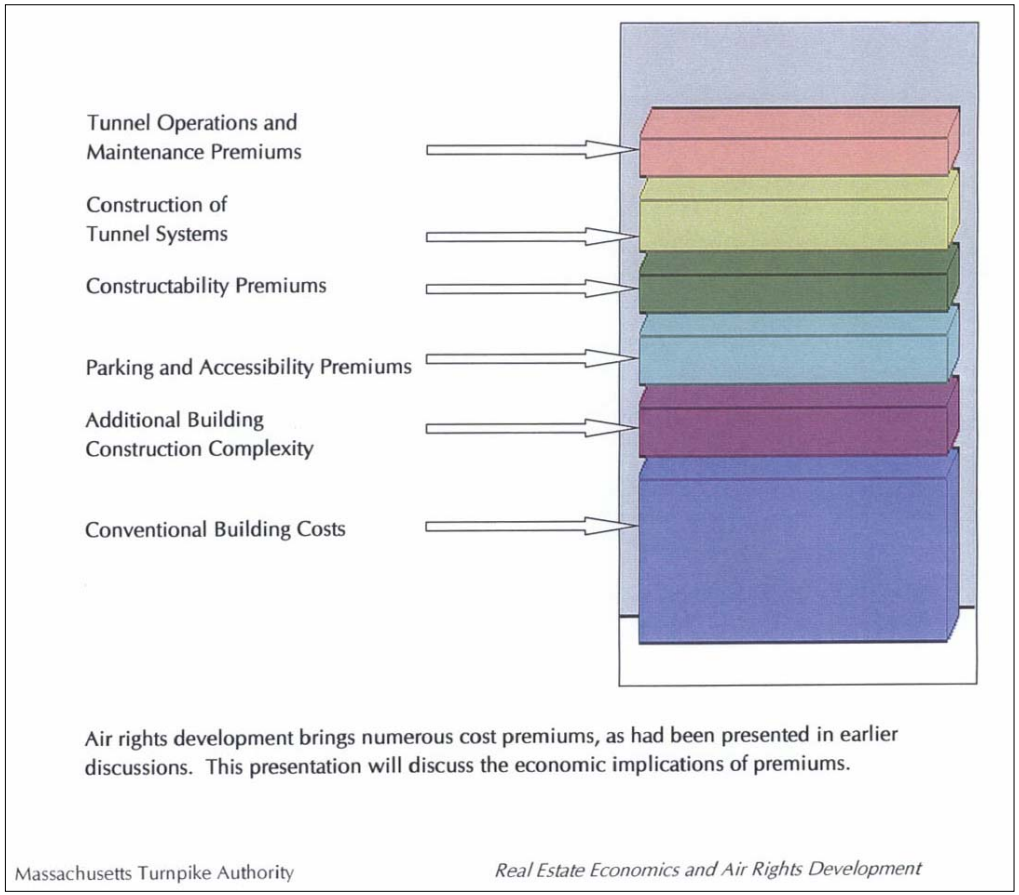
Despite the fact that developing over air rights corridors is complicated, expensive and risky, "developers are beginning to view freeway air rights as found land—the last big building sites in crowded downtowns."[1] In order to understand what makes air rights development distinct from development on terra firma, the unique intricacies of project financing and air rights leasing must be evaluated. This chapter discusses these characteristics generically and then looks at them as reflected in the case of the Massachusetts Turnpike in Boston.

Site Development and Financing

When air rights projects are pursued, the developer is essentially "creating land."[2] This act is the major feature distinguishing air rights development from ordinary development on terra firma. In fact, in most other respects—project financing, leasing, and organizing the development deal—air rights development is no different from other kinds of real estate development.[3] But this "creation of land" has several important implications.

Generally, the technical challenges of constructing and designing air rights development over highway corridors has meant that it continues to be relatively rare type of development. This means that there are few contractors and engineers that have experience with the design and construction complexities, such as decking, foundations, etc. As a result, developers are less confident that contractors and subcontractors will come in on schedule and on budget.[4] Moreover, while air rights development ostensibly has less subsurface work than terra firma development, there is enough foundation excavation required on land adjacent to the highway corridor to make air rights development have many of the same risks as terra firma development. The risks of subsurface contamination, soil issues, and the need for bedrock are

Premiums associated with air rights construction



similar, and therefore do not considerably *decrease* the time, expense or risk of air rights development relative to terra firma development.

These factors make "the creation of land through air rights much more uncertain than buying land that already exists."[5] This uncertainty leads to two types of risk. First, there is increased risk simply associated with the high costs of developing over highway corridors. "For most air rights projects, the major issue is cost."[6] The hard cost of building the deck over the highway, including construction and safety features such as exhaust fans and fire extinguishing systems, can range between $400 and $700 per square foot, depending on the load of the building to be constructed on top of the deck.[7] Subject to the FAR permitted on top of the highway deck, this can lead to overall development premiums of $50 to $70 per square foot above similar development on terra firma. This increased costs defines the equivalent cost of "creating land" for air rights development, which amounts to approximately double that of similarly zoned terra firma land.[8]

Second, there is substantial risk associated with the extended development period that is characteristic of air rights projects. According to practitioners, the complexities associated with air rights development "extends the construction period by at least another year beyond

that for a similarly scaled development on terra firma. "[9] This leads to a host uncertainties including interest rate risk in the construction financing, possibilities of union strikes and other labor issues, and most notably, less certainty about the market conditions toward which the development is targeted. The predicted cash flows and revenues for the project are based upon market assumptions that are more difficult to predict, as project completion is further in the future.

These two risks are magnified when project financing depends upon equity to carry the initial construction costs, as is normally the case.

> "You generally have to build the deck using equity- the most expensive money funding the project. So not only does construction get extended for an additional year, it's a year with a 20% premium on your money."[10]

This premium required on the equity is a result of the risk and uncertainty associated with decking over a highway corridor.

In sum, these considerations make air rights development extremely risky, expensive and uncertain relative to other types of infill and redevelopment. As a result, developers are forced to create building programs that yield revenues substantial enough to counterbalance these liabilities and premiums. "Developers must try to amortize down the cost premiums by building additional density."[11] This development intensity is often the source of significant contention among stakeholders. Developers argue that they need to develop at a higher than average density to obtain a market-based return on the development investment. "Because the cost of the deck is so expensive relative to terra firma, the amount you have to build to justify creating the land is generally more than you would want to build."[12] Striking the balance between the amount of development necessary to make the project economically feasible and

Air Rights Premiums: Summary of Additional Costs

Rail and Highway Facilities Construction	$1.2 million
Ventilation Operating Costs	
Lighting Operating Costs	
Life Safety Operating Costs	
Rail and Highway Operations	$1.2 million
Ventilation Operating Costs	
Lighting Operating Costs	
Life Safety Operating Costs	
Constructability	$0.4 million
Maintenance and Protection of Traffic	
Temporary Facilities	
Staging Areas	
Deck Costs	$8.0 million
Total Premium (40,000 square foot site)	$10.8 million

Massachusetts Turnpike Authority — *Real Estate Economics and Air Rights Development*

the amount acceptable to abutting communities emerges as perhaps the most critical consideration in evaluating air rights projects over highway corridors.

Leasing Considerations

There are several generic issues related to the leasing of air rights over highway corridors. Foremost, if a developer is creating value in the air rights by incurring the risk and cost of constructing the deck, to what extent does a highway authority have a claim on that created value? More theoretically, is it within the purview of a highway authority to be making development profits? How should the lease be structured and who should benefit from the terms of the lease? Finally, at what point in the development process should the terms of the lease be negotiated? These issues have a notable impact on the feasibility of air rights development.

The rights to the air space over a piece of land are commonly held by private owners, or by the state, particularly in the case of government-owned roadways. Transferring the rights to airspace such that legal ownership by a second party is established can be achieved through several means. According to most state and municipal codes, air rights may be leased, sold or transferred—allowing for additional development at another specified location. The most commonly used mechanisms include long-term and short-term leases, fee simple division, or the easement of airspace.[13]

Leasing arrangements for air rights projects can be structured around up front payments, payments with participation tied to future development cash flows or property sales, or some combination of these. Innovative leasing arrangements that are tied to the performance of the development give the developer some flexibility and reduced risk in meeting debt obligations. Such arrangements can help to make air rights developments more economically viable.

In general, the use of air rights does not radically alter a development deal structure with regards to ownership, taxation and financing. In fact, leasing arrangements as applied to air rights development over highway corridors are essentially identical to long-term ground leases on a terra firma parcels. The distinguishing feature in the case of highway corridors is that the owner of the air rights is most often a public or quasi-public agency. This has three important implications. First, if the highway authority's enabling legislation permits the agency to profit from air rights lease payments, this can be a significant source of revenue for public infrastructure funding. It can be a practical way of generating new value in an existing public amenity. Similarly, if an agency has the discretionary freedom to value its air rights, it can selectively incentivise revitalization of less desirable areas by charging below market value for the air rights.

Another important implication of public agency control is the timing of the lease negotiation. While private lease transactions usually get worked out before developers proceed with site planning, it is often the case that the leasing terms with public air rights owners do not actually get negotiated until late in the project permitting process. Therefore, the terms and conditions of payment, subordination of debt, and non-recourse assignment are often points of uncertainty as the initial site program is developed. This amounts to additional financial risk faced by the developer.

Finally, because the development has a direct impact on important public infrastructure, the lease must be explicit in assigning responsibility.

> "The lease guidelines must ensure the long-term accessibility and unrestricted use of the space. Problems with air rights development could adversely affect a necessary public service. Accordingly, it is essential that responsibility for ongoing maintenance

> and repairs for both air rights development and the underlying public use be clearly defined." [14]

This can be achieved through detailed and deliberate stipulations in the leasing agreement, which clearly define the obligations of all parties with regards to construction and maintenance of both the development and the underlying infrastructure.

Financing and Leasing Lessons from the Massachusetts Turnpike

Several important real estate financing and leasing observations emerge from the case of the Massachusetts Turnpike in Boston. For the purposes of analysis, they can be grouped into financial feasibility and disclosure issues and issues regarding leasing arrangements.

Copley Place completed development

Financial Feasibility and Disclosure

Financial feasibility has been the crucial constraint for development over the Turnpike in Boston. Even as early as the Copley Place development, planners and developers were struggling with strategies to make development feasible.

> "As a result of feasibility studies of early designs, its became clear to the developer that the construction costs required to bridge over the Turnpike, ramps and rail tracks would impose a penalty on the overall project cost, necessitating some form of public funding, and eventually requiring the plans to be expanded to absorb these costs."[15]

Similarly, in the case of both Columbus Center and Kenmore Square, the major issue upon which the permitting process hinged was the amount of development density needed to justify the financial expense and risk of constructing over the turnpike corridor. "There is always an

inevitable friction between intensity of use and financial feasibility."[16] While abutting neighborhoods, as represented by the City-appointed Community Advisory Committee (CAC), and officials from the Boston Redevelopment Agency generally acknowledge the need for dense development in order to ensure a fair risk adjusted return for the developer, it is the assumptions and analysis to support that claim that is called into question. "If a developer wishes to substantially deviate from the recommendations in the Civic Vision, which reflects the community consensus resulting from a two-year process, the burden for providing a compelling rationale is on them."[17]

Columbus Center development proposal

In conventional redevelopment projects, developers are not required or otherwise compelled to release information about their financial assumptions or internal rate of return. This information is generally regarded as confidential in order to maintain competitive advantage, secure exclusive terms with subcontractors, etc. In some cases, in order to qualify for state or federal grants, limited information about the financial returns may be required for submission to the agency overseeing the grant money.

However, despite this convention, in the case of Columbus Center, community and government pressure during the permitting process compelled the developer to release some detail about financial assumptions and expected returns in order to assess the assertion that the density of the design was necessary to make the project financially feasible. On a site not governed by zoning or other use regulations, and considered publicly owned land, this request was deemed to be reasonable.[18]

The way in which the developer, Winn Development, and the BRA dealt with this request resulted in significant controversy. The BRA negotiated a confidentiality agreement with Winn Development, by which an independent financial consultant would be hired and asked to assess

the financial assumptions upon which the development proposal was based. According to city officials, "Winn Development opened their books to the public more than any other developer in the City of Boston ever had."[19] However, for some aggrieved stakeholders, this amount of financial disclosure was insufficient. The limited information made public by the independent financial consultant precluded the CAC or other community stakeholders from proposing an alternative development program from the standpoint of financial feasibility:

> "It is impossible to evaluate the developer's economic justification for the size of the proposed project, and to weigh in on the legitimacy of the rejection of every alternative scheme presented for discussion during the review process, without full disclosure of all relevant financial terms."[20]

Ultimately, the community and the BRA were asked to rely completely upon the "expert opinion" of a single financial consultant, and were not provided with full financial disclosure. "It came down to 'trust me— everything the developer is asking for the developer needs.'"[21]

As the first air rights development proposed following the completion of the Civic Vision, Columbus Center was operating in somewhat uncharted waters. While some community members were displeased, it is difficult to pin down the appropriate level of financial disclosure for several reasons. Even if air rights development continued to attract developers should they be required to disclose all of their financial analysis, this disclosure does not guarantee buy-in from public stakeholders. Some community members, no matter how transparent the financial feasibility analysis, object to the amount of development required to make a project feasible and attack the project's underlying financial assumptions as a way to derail the process. "You can be completely straight forward and fair, but that will not appease all stakeholders."[22] Additionally, from the standpoint of the permitting agency, full financial

disclosure can set a dangerous precedent for evaluating project feasibility.[23] Because "all air rights parcels are not created equal," the risks and returns associated with air rights developments are rarely similar. Market variations, construction technicalities, and parcel configurations can result in vastly divergent proforma between different sites. For this reason it would be difficult for a permitting authority to justify the particulars of each unique development decision in any systematic way.

Leasing Issues

A few decades ago, when air rights development was seen as a catalyst for needed neighborhood revitalization in Boston, as was the case for Copley Place, turnpike leasing arrangements were generally favorable for the developer. The value of air rights as reflected in the lease was in essence subsidized in order to incent developers to pursue turnpike air rights projects.

However, as land values in Boston's downtown substantially increased, the Turnpike Authority became much more sophisticated and savvy in understanding how to price the value of air rights and maximize revenues from private development interests.[24] For this reason, leasing arrangements can be a major source of uncertainty for developers as they attempt to develop of over the air rights of the highway corridor.[25] At present, the MTA is unwilling to negotiate the specific terms of an air rights lease until the proposed project is fully permitted by the City of Boston. The Authority claims that this is necessary in order to accurately assess the value of the air rights as it relates to the final *approved* development program. Because air rights development over the Turnpike generally involves several design iterations throughout the community process, the MTA does not want to enter into negotiations until the design is finalized. As a result, project developers are forced to make assumptions about future leasing

liabilities when assembling a project proforma and assessing financial feasibility. Generally, this uncertainty means that project investors will require a slightly higher return.[26] Consequently, the intensity of development that is required to make the project financiable may be higher due to the delayed lease negotiation. In the case of Columbus Center, the developer had made a conjecture about the leasing terms and in the end, after the project was permitted, was faced with a difficult negotiation with the Turnpike Authority that resulted in lease payments 3-4 times higher than expected.[27] While this project may have set a precedent for Turnpike leasing terms in the future, developers, community members and members of the BRA continue to feel that this late and uncertain negotiation process is a major issue adding expense and inefficiency to the process of developing air rights projects over highway corridors in Boston.[28]

The Future of Financing and Leasing in Air Rights Development

The cost premiums associated with decking over a highway corridor can leave little rooms for designing a project with wider community benefits. As a result, financing air rights projects that genuinely benefit the community can be difficult. However, addressing the issues discussed in this chapter will advance this goal. Establishing a level of financial disclosure that assuages stakeholder concerns about density requirements; making lease negotiations transparent and predicable; and linking the future project liabilities (both lease payments and debt) to the performance of the project, will all help to reduce the risk, uncertainty and therefore cost of pursuing sustainable air rights development over highway corridors.

[1] Bressi, Todd W. Freeway with a Fringe on Top, Planning. July 1989, 55, 7; page 8
[2] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[3] Clancy, Sean P., Air Rights Development: Is it different from traditional land development?, MIT Masters Thesis, Massachusetts Institute of Technology, 1998.
[4] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[5] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[6] Bressi, Todd W. Freeway with a Fringe on Top, Planning. July 1989, 55, 7; page 8
[7] Multiple sources: Interview with W. Tod McGrawth, interview with Randi Lathrop, BRA, Civic Vision for the Massachusetts Turnpike in Boston.
[8] Multiple sources: Interview with W. Tod McGrawth, interview with Randi Lathrop, BRA, Civic Vision for the Massachusetts Turnpike in Boston.
[9] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[10] Interview with Chris Fleming, Winn Development 7/7/04
[11] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[12] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[13] Clancy, Sean P., Air Rights Development: Is it different from traditional land development?, MIT Masters Thesis, Massachusetts Institute of Technology, 1998.
[14] Clancy, Sean P., Air Rights Development: Is it different from traditional land development?, MIT Masters Thesis, Massachusetts Institute of Technology, 1998.
[15] Copley Place Project Information: Final Design, Urban Investment and Development Co., 1980
[16] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[17] Interview with David Lee, AIAC, Chairman of the Civic Vision Committee, 7/8/04
[18] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04
[19] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04
[20] Stephanie Pollack, Acting President of the Conservation Law Foundation, 6/27/03
[21] Interview with W. Tod McGrawth, AdvisoRE, 6/22/04
[22] Interview with Chris Fleming, Winn Development 7/7/04
[23] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04
[24] Interview with Chris Fleming, Winn Development 7/7/04
[25] Interview with John Rosenthal, Meredith Management/One Kenmore, 7/14/04.
[26] Interview with John Rosenthal, Meredith Management/One Kenmore, 7/14/04.
[27] Interview with Chris Fleming, Winn Development 7/7/04
[28] Interview with Randi Lathrop, Boston Redevelopment Agency, 6/23/04, Interview with John Rosenthal, Meredith Management/One Kenmore, 7/14/04.

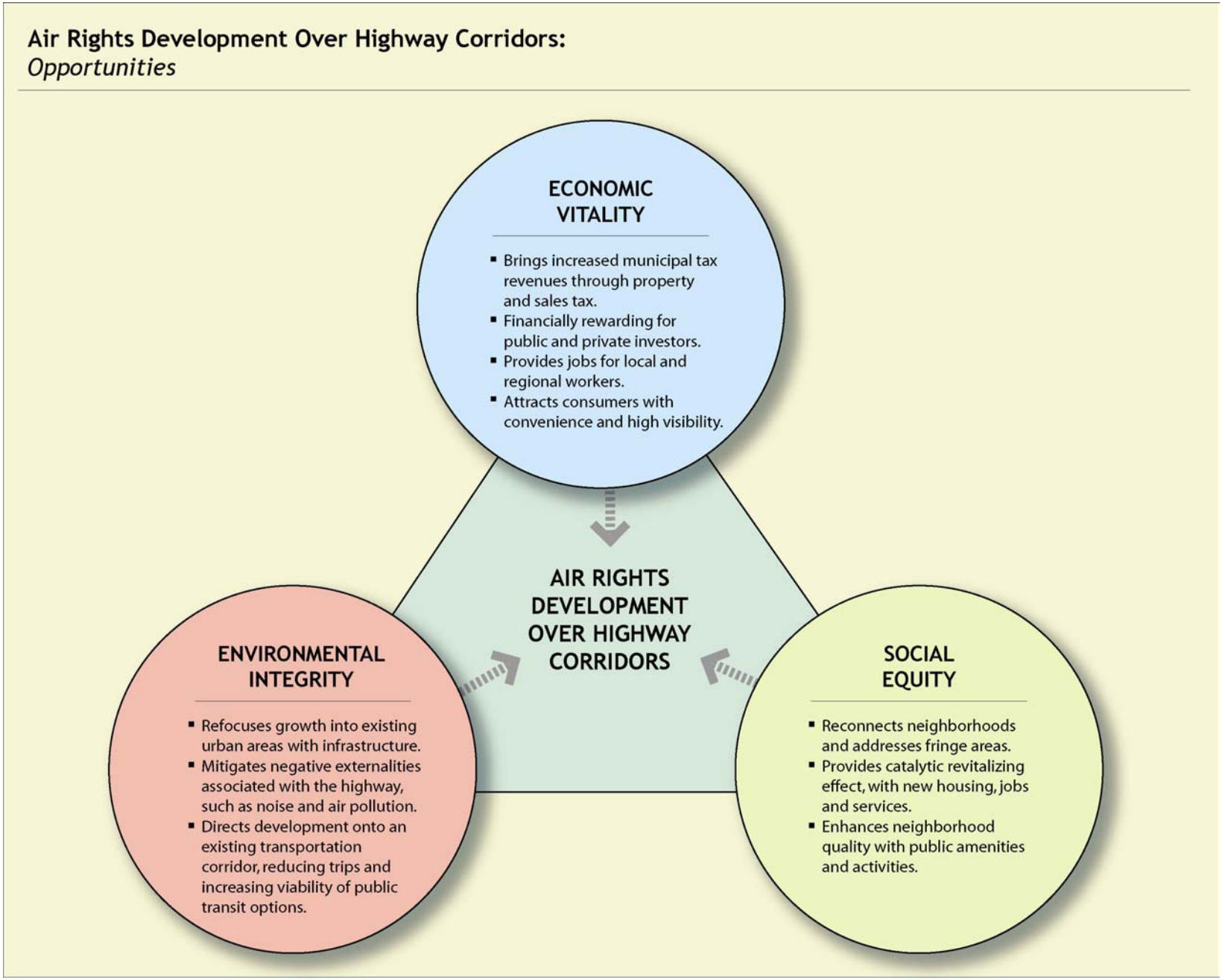
Chapter VI: Conclusions and Recommedations

VI. Conclusions and Recommendations

A variety of forces over the past decade have contributed to the desirability of downtowns in many U.S. cities. Increasingly, consumers are looking to the city center as a viable and appealing place the to live, work and play. As redevelopment and infill of underutilized space ensues to meet this demand, land available for new large-scale development has become scarce. As a result, in many cities, land values have escalated significantly. This increase has made the construction of large mixed-use projects over urban highway corridors both feasible and financially rewarding. Moreover, as cities continue their attempt to address the physical, social and economic consequences that resulted from the construction of major highways through the downtown core, air rights development has emerged as a tremendous opportunity. If executed innovatively, urban air rights projects can provide long-term benefits for the urban environment, economy and community.

While there are examples of highway air rights projects from earlier decades (most of which were heavily subsidized), it was not until recently, when these social and economic forces coalesced, that private developers really began to recognize the value in developing over highway corridors. Furthermore, as additional projects approach completion, private market interest is mounting. This market demand can be leveraged to benefit communities by creating a development environment that supports air rights projects.

In order to do so, it is essential to understand the ways in which air rights development over highway corridor is distinct from other types of redevelopment. Beyond the obvious differences in construction and design, there are policy and planning variations, and project financing distinctions that make air rights development unique and complex. Because this type of


Air Rights Development Over Highway Corridors:
Opportunities
ECONOMIC VITALITY
Brings increased municipal tax revenues through property and sales tax.
Financially rewarding for public and private investors.
Provides jobs for local and regional workers.
Attracts consumers with convenience and high visibility.
AIR RIGHTS DEVELOPMENT OVER HIGHWAY CORRIDORS
ENVIRONMENTAL INTEGRITY
Refocuses growth into existing urban areas with infrastructure.
Mitigates negative externalities associated with the highway, such as noise and air pollution.
Directs development onto an existing transportation corridor, reducing trips and increasing viability of public transit options.
SOCIAL EQUITY
Reconnects neighborhoods and addresses fringe areas.
Provides catalytic revitalizing effect, with new housing, jobs and services.
Enhances neighborhood quality with public amenities and activities.

development is not yet commonplace in most cities, many of these intricacies have not been adequately addressed by policy makers, planners, financers and developers. As a result, current air rights projects over highway corridors have faced myriad issues, resulting in inefficiencies and sometimes undesirable development outcomes.

The Massachusetts Turnpike in the City of Boston is a microcosm of the complexities surrounding air rights development over highway corridors. By examining cases that are in various stages in the development process, several issues become apparent with regard to policy and planning, design and development, and financing and leasing. Some of these issues have been addressed as new projects evolve. Other issues are more fundamental and applicable to cities across the US. The tables below summarize the issues, consequences and recommendations emerging from the case of Boston that can be more generally applied to other cities pursuing air rights development over highway corridors.

Policy and Planning Recommendations

ISSUE	CONSEQUENCE	RECOMMENDATION
Lack of robust regulation: With an exemption from the statutes of zoning, air rights over the Turnpike corridor are deficient in ensuring predictable development outcomes. While the zoning issue is specific to Boston, other cities, such as San Francisco and New York, have also struggled with the ability to apply strict regulation to air rights projects as compared to terra firma projects.	This lack of certainty leads to increased risk on the part of both the developer and community stakeholders. This risk adds time and expense to the development process. It also deter developers from pursuing air rights projects as they have little legal recourse for their investments in the project planning phases.	• Municipalities should provide clear development parameters that have the regulatory assurance giving developers some level of indemnity. • A systematic regulatory review process should be defined to address relevant stakeholder interests.
Jurisdictional overlap and ambiguity: Multiple government entities have a stake in or responsibility for the outcome of air rights development over highway corridors. As a result, the development process can become bogged down by a lack of coordination and confusion regarding development control and project permitting.	This jurisdictional ambiguity results in tension between the developer and community stakeholders over the project review process. Additionally, developers sometimes receive conflicting regulatory direction, adding time, uncertainty and expense to the development process.	• A transparent, predictable permitting process where the purview of government agencies is clearly defined and coordinated should be set up and conveyed to developers at the RFQ phase of project planning.

Design and Development Recommendations

ISSUE	CONSEQUENCE	RECOMMENDATION
Need for development intensity and bulk to justify project cost: The development density needed to make an air rights project over a highway corridor economically feasible is sometimes larger than would normally be considered compatible with the context of adjacent neighborhoods.	This need for building density can jeopardize a project's ability to effectively re-knit neighborhoods together, impede pedestrian and vehicular connectivity, and have other undesirable impacts such as shadows and a lack of open space.	• Provide information for potential developers on innovative design techniques that temper building massing, such as street front step backs. • Incorporate uses that compliment existing neighborhoods. • Require infrastructure improvements and amenities that enhance connectivity and pedestrian environment.
***Construction complexities without terra firma*:** In most of the Turnpike corridor, there is little or no terra firma in the right of way adjacent to the air highway. The absence of such land complicates foundation construction, efficient staging areas for construction activities, the locating of elevator pits and maintenance rooms, and street level building access.	In the absence of terra firma, construction becomes more complex, more expensive and less flexible with regards to design that benefits the community. It also significantly extends the construction period and adversely impacts the operation of the highway.	• Engage in long-range highway planning and right-of-way acquisitions that support the design and development of air rights projects.

Financing and Leasing Recommendations

ISSUE	CONSEQUENCE	RECOMMENDATION
Need for public financial disclosure to justify project density: While it is not customary for a developer to release information about the predicted financial performance of a proposed development, air rights development, built in quasi-public space, has been admonished by stakeholders for not clearly justifying otherwise objectionable building densities.	Air rights development would not attract developers if it could not generate a fair risk adjusted return. However, without transparent financial justification and disclosure, community members are likely to oppose and/or block the project due to the necessary density to produce this return. In the absence of disclosure, the permitting process takes significantly longer, increasing the overall development time and cost.	• Establish a systematic process for financial disclosure at the RFQ phase of development. • Educate community members and stakeholders about the basics of air rights financing. • Provide enough disclosure to allow community members to test the feasibility of their own design alternatives.
Late lease negotiation increases financial risk: The Turnpike Authority contends that it must wait until a final project design is permitted before it can accurately value the air rights and thus negotiate the lease terms. Developers are therefore unable to accurately predict future leasing liabilities when analyzing a project's financial feasibility.	As a result of this uncertainty, developers incur more risk and thus require a greater return on both debt and equity financing. This leads to a need for additional building density, aggrieving neighborhood stakeholders.	• Establish leasing parameters that make the terms of air rights leases more transparent and predicable. • To the extent possible, link the future lease liabilities to future development revenues, in order to reduce some of the up front risk to the developer.

Through the examination of cases from the Massachusetts Turnpike, the above recommendations are intended to help align public interests and private market opportunities to develop beneficial air rights projects in cities throughout the country. They provide direction to facilitate a more systematic evaluation of the public benefits of air rights development while ensuring that developers get a level of return commensurate with the risk and time associated with these complex development projects. As air rights projects over highway corridors continue to be built, new innovations and approaches will further this potential and support this unique type of urban infill in re-knitting the fabric of our communities.

Bibliography

Bibliography

Books

Bianca, Stefano. "Direct Government Involvement in Architectural Heritage Management" in Preserving the Built Heritage: Tools for Implementation. Ed. Schuster, et. al., University Press of New England, Hanover, NH, 1997.

Costonis, John J. "The Redefinition of Property Rights as a Tool for Historic Preservation" in Preserving the Built Heritage: Tools for Implementation. Ed. Schuster, et. al., University Press of New England, Hanover, NH, 1997.

Highway Research Board, Joint Development and Multiple Use of Transportation Right-of-Ways. Proceedings from conference, Washington, DC, 1968.

Hollister, Robert and Lee, Tunney. Development Politics: Private Development and the Public Interest. The Council of State Planning Agencies, 1980.

Lynch, Kevin. The Image of the City. MIT Press, Cambridge, MA, 1960.

Mandelker, Daniel R. Land Use Law, Michie Company Publishers, Charlottesville, VA, 1993.

Salamon, Lester, Ed. The Tools of Government: A Guide to New Governance. Oxford University Press, 2002.

Schuster, J. Mark, John deMonchaux, and Charles Riley II, ed., Preserving the Built Heritage: Tools for Implementation. University Press of New England, Hanover, NH, 1997.

Schuster, J. Mark. "Information as a Tool for Preservation Action," in Preserving the Built Heritage: Tools for Implementation. Ed. Schuster, et. al., University Press of New England, Hanover, NH, 1997.

Throsby, David. "Making Preservation Happen – the Pros and Cons of Regulation" in Preserving the Built Heritage: Tools for Implementation. Ed. Schuster, et. al., University Press of New England, Hanover, NH, 1997.

Vedung, Evert. and Frans CJ van der Doelen, "The Sermon: Information Programs in the Public Policy Process—Choice, Effects, and Evaluation" in Carrots, Sticks and Sermons: Policy Instruments and Their Evaluation. Ed. Vedung et al., New Brunswick, NJ, 1998.

Articles

Anderson, Grace. "Democracy at Work: Copley Place, Boston". Architectural Record, August 1986.

Bressi, Todd W. "Freeway with a Fringe on Top". Planning, July 1989.

Buckland, Jeffrey. "The History and Use of Purchase of Development Rights in the United States". Landscape and Urban Planning, August 1987.

Chen, David W. "Traffic in the Basement". The New York Times, June 18, 2004.

Dickens-Wagner, Lois. "San Francisco Air Rights". Interior Design, August 1981.

Galowitz, Sam W. "The Use and Abuse of the Term Air Rights". Real Estate Review, Spring 1996.

Mason, Nigel. "Not Above the Law: Air Right Contracts". Architect's Journal, October 1991.

McCown, James. "Boston Air Rights". Architecture Week, September 2002.

Russell, James. "When There's No Place to Go But Up". Architectural Record, September 1990.

Savvides, Andreas. "Regenerating Urban Space: Putting Highway Airspace to Work". Journal of Urban Design, February 2004.

Stammer, Heather. "Building Up, Not Out". Urban Land, December 1998.

Thompson, Nigel. "Vaulting Ambition: Air Rights Buildings". Architect's Journal, June 1991.

Tsipis, Yanni. "Using the Turnpike to Our Best Advantage". The Boston Globe, April 23, 2004.

Public Documents

A Civic Vision for Turnpike Air Rights in Boston, Boston Redevelopment Authority, Boston, MA, 2000.

Copley Place Project Information: Final Design, Urban Investment and Development Co., Boston, MA, 1980.

Draft Project Notification Form: One Kenmore, Meredith Development Group LLC, Submitted to the Boston Redevelopment Authority, January 2004.

Enabling Statute of the Massachusetts Turnpike Authority.

Federal Highway Administration. "Right of Way Project Development Guide" US Department of Transportation. May 2000.

Final Environmental Impact Report, EOEA #12459R: Columbus Center, Columbus Center Associates. Boston, MA, May 15, 2003.

Massachusetts Turnpike Authority. "Air Rights Parcels Inventory" January 1999.

Memorandum of Understanding between Massachusetts Turnpike Authority and The City of Boston, acting by and through the Boston Redevelopment Authority, entered into as of June 1, 1997.

Meredith Development Corporation. "Proposal for Turn Pike Air Rights Development in Kenmore Square" Draft 2003.

Parsons Brinckerhoff Quade and Douglass, Inc. "Air Rights Study Implementation Guidelines". Prepared for the Massachusetts Turnpike Authority, December 1992.

Summary of Workshops, Copley Square: Turnpike Site Citizen's Review Committee. August 1978.

City of Ventura, CA, Ventura Village Initiative Air Rights Study, 2003.

Miscellaneous Sources

Clancy, Sean P. Air Rights Development: Is it different from traditional land development?. MIT Masters Thesis, Massachusetts Institute of Technology, 1998.

Savvides, Andreas L., Reclaiming ground: Joint development of urban highway corridors, Harvard University Doctorate Thesis, Harvard University, 2002.

http://www.iboston.org/, Contemporary Boston Architecture: The Prudential Center.

US Code of Law. Section 5318: Urban development action grants.

Watts, Elemuel. Copley Place: The Design Development of a Major Environmental Intervention. MIT Masters Thesis, Massachusetts Institute of Technology, 1982.

Winn Development Brochure, "A Walk Through Columbus Center", 2004.

Informational Interviews

Chris Fleming, Winn Development, 7/7/04

Randi Lathrop, Boston Redevelopment Agency, 6/23/04

David Lee, FAIA, Chair of the Civic Vision Committee, 7/8/04

W. Tod McGrawth, AdvisoRE, 6/22/04

Donavan Walker, Community Member, 7/2/04

John Rosenthal, Meredith Management, 7/14/04

Tunney Lee, Former Copley Square Project Consultant, 7/23/04

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A Civic Vision for Turnpike Air Rights in Boston, Boston Redevelopment Authority, Boston, MA, 2000.

Copley Place Project Information: Final Design, Urban Investment and Development Co., Boston, MA, 1980.

Draft Project Notification Form: One Kenmore, Meredith Development Group LLC, Submitted to the Boston Redevelopment Authority, January 2004.

Final Environmental Impact Report, EOEA #12459R: Columbus Center, Columbus Center Associates. Boston, MA, May 15, 2003.

Highway Research Board, Joint Development and Multiple Use of Transportation Right-of-Ways. Proceedings from conference, Washington, DC, 1968.

Meredith Development Corporation. "Proposal for Turn Pike Air Rights Development in Kenmore Square" Draft 2003.

Winn Development Brochure, "A Walk Through Columbus Center", 2004.