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Transit Joint Development in the United States



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# FOREWORD

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The views and opinions expressed in this report are solely ours and do not necessarily represent those of the U.S. Department of Transportation, the Federal Transit Administration (formerly the Urban Mass Transportation Administration), or any other contributors to this study. We take full responsibility for any errors or misrepresentations in the report.

## ABSTRACT


### TRANSIT JOINT DEVELOPMENT IN THE UNITED STATES
**A Review and Evaluation of Recent Experiences and an Assessment of Future Potential**

This report reviews transit-linked development in over two dozen U.S. cities, the history of joint development, and the evolving role of the Federal Transit Administration (formerly the Urban Mass Transit Administration). The report attempts to classify and catalogue existing joint-development projects by size, type, location, and year of completion. Included as an appendix are brief descriptions of the more than one hundred existing U.S. joint-development projects. An analysis was made on the financial impact joint development has had on the capital budgets of transit agencies that pursue joint development and the policy framework in which it occurs.

In addition, the study presents the results of a survey of transit officials responsible for negotiating joint development agreements and their appraisal of its effect on their agency's operating and financial performance as well as other goals.

Finally, the study uses quasi-experimental and multi-regression analysis to measure the effects of joint development and transit service on commercial real estate market performance indicators such as office rents, office absorption rates, and vacancy rates. From the transit side, a similar analysis was done to measure the effects of joint development on system ridership and revenues. These analyses show that transit service and presence of joint development are statistically correlated with unique benefits to the real estate market, namely higher rents, lower vacancy rates, and faster absorption rates.

The study concludes with an assessment of the institutional and market conditions necessary for successful joint development and recommendations to FTA for promoting and facilitating local joint-development efforts.

# EXECUTIVE SUMMARY

## Background

Transit-linked joint development in the United States arose due to three key factors: 1) rising transit operating deficits, which necessitated innovative non-farebox revenue strategies; 2) a growth in new rail transit systems and rebuilding of old systems, and 3) the rebirth of the downtowns in major cities, accompanied by increased commercial activity and rising real estate values.

To date, there are 114 completed projects, 10 projects under construction, 6 projects for which negotiations are complete, and at least 14 more planned or proposed joint-development projects in the United States. A comprehensive inventory of these projects indicates that individual projects can be classified into three broad categories: 1) cost-sharing arrangements (39 percent); 2) revenue-sharing arrangements (22 percent); and 3) combinations of these two types (34 percent). In joint development, developers make financial contributions to the transit agency in cash payments or by building improvements, recognizing the enhanced development potential that transit access has provided to their parcels. The most projects are found in only a few cities -- namely, New York, Washington, D.C., Boston, Philadelphia, and Atlanta.

The following factors have slowed the growth of joint development in the U.S. and may limit the number of future joint-development projects: 1) limits on transit agency participation in development schemes due to public distrust, laws and regulations, or opposition from elected officials; 2) most transit agencies have limited experience and little comparative advantage in engaging in any kind of entrepreneurialship, including real estate development; 3) most commercial development today is occurring in suburban locations ill-suited to mass transit; 4) real estate development, prior to the late 1970s, was not viewed by agencies as particularly lucrative, and has always been associated with high risk; and 5) reliable federal subsidies in place through the 1970s removed the incentive to seek out non-farebox revenue sources.

Twenty-five transit systems currently administer joint-development projects. Only the Washington Metropolitan Area Transit Authority (WMATA), however, views joint development as a central policy consideration. In 1981, WMATA initiated its Station Area Development Program (SADP) to facilitate the agency's relations with developers and to integrate development with transit stations. Today, joint development is fully institutionalized at WMATA, and the agency has negotiated 22 projects worth $8.5 million in annual lease payments.

By contrast, the Metropolitan Atlanta Regional Transit Authority's joint-development efforts have been more modest. First, MARTA is prohibited by law from acquiring more land than is necessary for construction of the system. In addition, most development in the region is locating in the suburbs, not in downtown Atlanta. At downtown station areas, however, the city has actively raised the allowable floor area ratio (FAR) for parcels near or adjacent to stations. The result is that most new office development in the city has clustered near MARTA stations. Despite this, MARTA has never pursued a formal joint-development policy. MARTA's current annual lease revenues for six projects was $686,000 in 1989.

The older transit systems in Philadelphia and New York have been successful in retrofitting joint development within existing stations despite a lack of land suitable for development and numerous institutional constraints. The New York City Transit Authority (NYCTA) is aided in its negotiating efforts by the New York City Planning Commission. The Commission has mandated subway station access improvements be built and maintained by developers as a condition of building permit issuance. The vibrant Manhattan real estate market in the 1980s has helped the NYCTA enter into 45 cost-sharing arrangements with developers.

The Southeast Pennsylvania Transportation Authority (SEPTA), which serves the Philadelphia Metropolitan Area, has been able to attract developers to renovate 19 suburban stations through its Lease and Maintain Program (L&M). This has been achieved despite a cool real estate market and an institutional environment that restricts SEPTA's ability to negotiate with developers by leaving land use decisions to townships and other units of local government. To date, the L&M program has attracted $2.4 million worth of station renovations and has saved an estimated $7,000 in annual station maintenance costs.

The San Diego Trolley system has a unique joint-development strategy whereby it locates stations at sites where private investment is already scheduled. By "piggy-backing" station construction with private office development, the developer's and the agency's costs are reduced. In this manner, the MTDB, the Trolley's parent agency, has saved an estimated $8 million in construction costs.

Metropolitan Dade County (Florida) has established a program of "Fixed-Guideway Rapid Transit System Development Zones" to help foster joint development along its Metrorail line. This program provides opportunities for real estate development to financially assist transit development and to foster desirable patterns of urban development.

The first joint-development project completed under this program is Datran Center, a 1.6-million-square-foot mixed-use development at Miami's Dadeland South Station. Metro Dade Transportation Authority (MDTA), the operator of Metrorail, receives annual lease payments of

$300,000 from the developer. In addition, MDTA estimates the project has saved the agency $4 million through the use of shared facilities such as parking, emergency generators, and ventilation equipment.

A mail survey of officials responsible for administering joint development at 117 U.S. transit agencies was conducted to compile background information for this research. Completed surveys were received from 93 agencies, yielding a 79 percent response rate. Twenty-three responding agencies, or about one-quarter, indicated that they had negotiated some form of joint-development project. According to survey respondents, the average time to negotiate a joint-development agreement was 25 months. Projects involving new construction or large-scale development, in general, took longer.

Most officials did not cite revenue as the most important goal for pursuing joint development. More likely, agreements were seen as a catalyst for development or redevelopment or as a means to shape urban growth. Agencies with revenue-generating projects such as air-rights leases, however, tended to be primarily concerned with the revenue potential of joint development. Agencies that have negotiated cost-sharing projects placed more importance on non-financial goals. Two of the chief difficulties encountered involved coordinating activities with other public agencies and setting specific dollar figures for private-sector contributions. Agencies with the most joint-development experience reported the fewest problems.

A key assumption of joint development is that improved accessibility confers added value to nearby land parcels. To test this hypothesis, the study used quasi-experimental analysis and multiple-regression analysis to compare commercial land values and other land market indicators with measures of transit service quality and the presence of joint development. Real estate market indicators such as commercial office rents, office space absorption rates, and vacancy rates were chosen as dependent variables. These were statistically compared with transit-linked independent variables like ridership, service frequency, fares, and existence of joint development. To control for regional influences, employment levels, average commercial rents, and vacancy rates were also included as independent variables.

## Quasi-Experimental Findings of Land Market Impacts

In this analysis, station areas with joint development were compared with similar commercial areas without transit (control areas) for the period 1978-1989. For Atlanta, Lenox Square Station was compared with Perimeter Center and the Northeast Freeway Corridor, its chief competitors. Also, the land market around MARTA's Arts Center Station was compared with the Northwest Freeway Corridor's. In Washington, D.C., land market comparisons were drawn between the Ballston station area versus Tysons Corner, and the Bethesda and Silver Spring Stations versus Rock Springs Business Park.

Lenox Square Station averaged rents $3.50 more per square foot than for similar space at its two major freeway-oriented competitors. Over the 12-year study period, the Arts Center Station experienced three times as much office space additions as its suburban competitors and an average rent premium of $2.00 per square foot. The largest rise in rents in the Arts Center area occurred immediately after the opening of the MARTA station. Many brokers in the Atlanta area attribute the Art Center area's rent premium and massive office towers to the presence of MARTA and the area's permissive zoning.

For most of the 12-year study period, commercial rents at the freewill-served Rock Springs Business Park exceeded those in downtown Bethesda and Silver Spring. In 1988, however, rents in the Bethesda station area eclipsed those around Rock Springs. As at Arts Center in Atlanta, rents in Bethesda increased most sharply immediately following the opening of the METRO station.

**Multiple Regression Findings of Land Market Impacts**

A series of 13 regression models were estimated that compared rail transit variables with measures of office market performance using a database pooled across five stations in Washington, D.C., and Atlanta over a 12-year period. The analysis revealed that systemwide ridership best explained office rents in station areas. For every 100,000 additional daily passengers, station-area rents increased by nearly $4 per square foot, all else equal. Freeway access and transit access were both shown to be good predictors of office rents, although changes in ridership more closely tracked shifts in rents than did changes in nearby freeway traffic. The exception was for terminal stations, which averaged lower rents.

The presence of a joint-development project at a station was correlated with a rent premium of between $2.77 and $3.93 per square foot. This variable functions as a proxy for such factors as pedestrian amenities, convenient transit access, and, in general, well planned development. Station areas with joint development had average office vacancy rates 11 percentage points below stations without such projects and almost 50 percent lower than the regional average.

Joint development has not proved to be a significant source of additional system ridership, although concentrated office development near stations has no doubt increased patronage. To date, joint development in the U.S. has earned transit agencies tens of millions of dollars in lease revenues and developer-funded capital improvements. Still, this income represents only a miniscule part of most agencies' capital budget -- on average, for less than 1 percent. Given that significant and tangible real estate benefits were found wherever transit investments and private commercial ventures are coordinated, it would appear that most transit agencies are failing to fully exploit the revenue potential of joint development. Simply put, the revenue benefits to transit agencies appear to lag far behind the land value benefits enjoyed by most property holders.

**Conclusions**

Four conditions are necessary for successful joint development. First, a healthy local real estate market is crucial, since no joint development, however well conceived, can overcome a weak market. Second, the agency negotiating joint-development agreements must have an entrepreneurial outlook. Third, coördination between the transit agency and other public agencies is essential to bring about zoning changes and a conducive developmental environment, to build public support, and to gain developer confidence in the process. Fourth, transit agencies need to recognize that the benefits of joint development go beyond revenue generation. They can also include increased ridership, improved station-area environments, and the furthering of other planning and development objectives.

In the near future, several factors will likely conspire to limit joint-development opportunities. First, there are currently few funding commitments for new rail transit systems in the U.S. Therefore, new joint-development projects will probably be in the handful of cities that already have existing rail transit-linked joint development. Second, most office markets are presently overbuilt; the next window of opportunity for pursuing real estate deals may be several years off. Third, tight credit markets will reduce the amount of office construction activity in general and speculative ventures in particular.

On the positive side, higher-density residential development may now prove feasible in many station-area markets. Residential development will obviously have a lower revenue potential than commercial projects, however. Second, many agencies and developers now have a base of successful experiences negotiating projects. Third, transit agencies increasingly have more realistic expectations of joint development. Finally, many systems have significant expansion or renovation plans that can potentially include joint-development ventures.

To further promote joint development in the U.S., the following policy initiatives are recommended.

First, FTA should emphasize joint development as a means to achieve regional transportation goals such as reducing congestion and improving air quality. Projects should not necessarily be rejected because they do not provide substantial or direct revenue benefits to a transit agency. All projects, however, should be financially as well as economically sound. Second, federal agencies should recognize the variety of joint-development strategies rather than focus on one or two prototypes. This would ensure that joint-development options are properly adapted to the physical, financial, and socio-economic environment of a station area. Third, to augment local capability, FTA should sponsor workshops to develop negotiations skills among transit officials. This was underscored by the large number of transit officials who indicated they had trouble setting private financial contributions and finalizing the terms of agreements.

Please note that in the text of this report, the Federal Transit Administration is referred to by its former name: the Urban Mass Transportation Administration, or UMTA.

# CHAPTER ONE:
# Joint Development and Urban Mass Transit

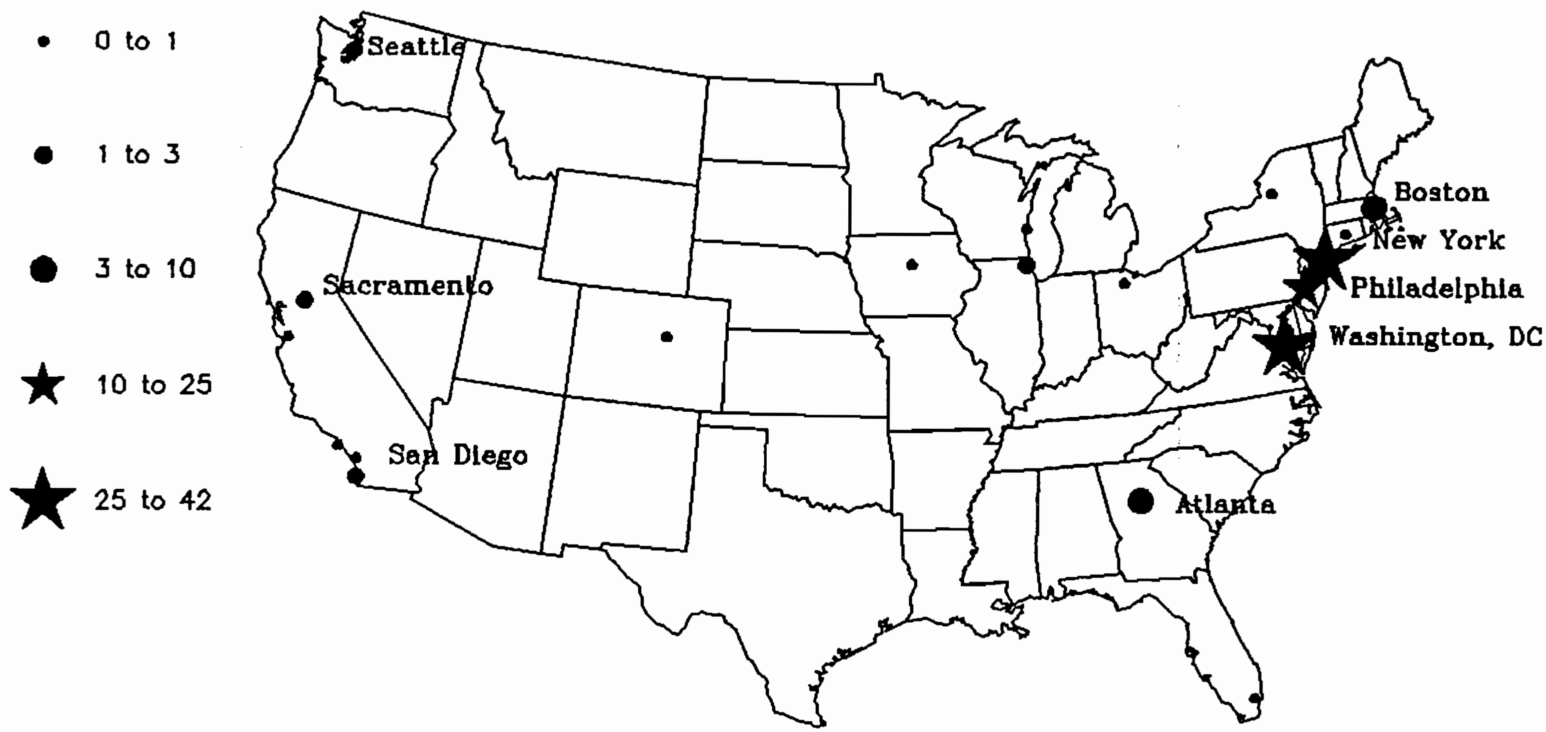
## A. Introduction

The joint development of urban transit facilities with private real estate projects has become an accepted practice in the United States over the past decade. Increasingly, urban rail transit systems, like Washington's Metrorail and Atlanta's MARTA, are linking station investments and improvements with commercial real estate ventures in recognition of the fact that the two can mutually benefit one another. As of October 1990, 114 joint-development projects had been completed in more than two dozen cities in the U.S., ranging from the modest upgrading of old stations and their surrounding areas -- for example, Philadelphia's commuter rail stations -- to the construction of major mixed-use facilities atop new stations, such as Ballston Center in suburban Washington, D.C. (see Map 1-1).

The basic idea behind joint development is simple. In exchange for the right to develop a real estate project at, above, below, or adjacent to a mass transit facility, a private developer either assumes some of the cost of developing (or renovating) the facility or makes a direct payment to the transit operator. Thus, joint development is based on the idea of a *quid pro quo* -- a benefitting private developer returns the favor to the transit agency by either sharing costs or sharing revenues. Besides securing a stream of lease income, the transit authority may also profit from the increased ridership generated by the nearby development. Retailers may benefit from having more customers delivered to their front doors. And developers and land owners may benefit from the higher land values, and thus potentially higher rental and occupancy rates, that improved accessibility confers. In principle, by improving the quality of transportation services to a geographically defined area, a transit investment can benefit both the public and private sectors, resulting in a "win-win" situation.

Yet because each development deal is different, and because each transit operator has evolved its own approach to joint development, the reality of joint development is both richer and more complicated than these basic premises. As a result, the nature and impacts of joint development are often widely misunderstood. For example, several large commercial projects near transit stations that have been widely touted as "successful" joint-development projects, when examined more closely, did not involve any real sharing of revenues or costs. Similarly, the costs and benefits of joint development to both the transit agency and the private developer have not been comprehensively studied to date. Instead, press accounts and anecdotes describe most of

Map 1-1: Completed
Joint Development Projects by City



what we know about the impacts of transit investments and joint-development projects. Finally, joint-development projects are usually examined individually, as good "deals," instead of as outcomes of local development planning or deliberate public policy.

This report examines the broad policy context in which joint development of urban transit facilities has taken place in the United States. Its purposes are five-fold:

1. to classify and catalogue joint-development initiatives by type, location, size, and year of completion (Chapter 3; Appendix V);

2. to review the local policy contexts within which joint-development projects have occurred, including discussions of important regulatory and planning issues which affect joint development and the negotiation process surrounding it (Chapters 4 and 5);

3. to examine the range of impacts that transit investments have on localized land markets, focusing on measurable impacts on commercial and office land values, leasing rates, occupancy rates, and employment and building densities (Chapter 6);

4. to measure the impacts of joint development from the transit agency's perspective, in terms of the effects on system ridership and revenue receipts (Chapter 7);

5. to assess future prospects for joint development in the U.S. (Chapter 8).

This study breaks new ground in a number of areas. First, unlike most earlier studies, it attempts to provide a clear definition of what transit joint development is and build a more rigorous framework for classifying joint-development projects in their many versions. Second, to the extent that data were available, it provides a comprehensive listing of joint-development projects entered into in the U.S. to date. Third, it recognizes that joint-development projects are essentially local initiatives, and as such reflect local market conditions, local policy priorities, local institutional relationships, and local entrepreneurial capabilities. Put another way, the local policy context *matters*. Fourth, and perhaps most important, it empirically assesses the wide array of measurable impacts of joint development to date in the U.S., including the private benefits (higher rents, lower vacancy rates, and greater densities); the financial benefits accruing to transit operator (through cash contributions, fees, and cost-sharing); and the station-area and system ridership benefits. Overall, this study exlamines whether the "win-win" potential of joint development has been translated into reality. It is hoped that the findings of this report -- by providing a clear understanding of the forms, politics, and impacts of joint development -- can assist policymakers and project developers in making more informed decisions about joint development in the future.

## B. Joint-Development Definitions

To date there has been considerable confusion over exactly what constitutes joint development. For purposes of this study, *joint development* is defined as:

> Any formal agreement or arrangement between a public transit agency and a private individual or organization that involves either private-sector payments to the public entity, or private-sector sharing of capital costs in mutual recognition of the enhanced real estate development or market potential created by the siting of a public transit facility.

Thus defined, joint development of transit facilities can take on two basic forms: (1) revenue-sharing arrangements, or (2) cost-sharing arrangements. Since joint development is ultimately a financial proposition, this two-part distinction frames joint development along the lines of a financial accounting sheet: some initiatives work on the revenue side, benefitting the transit agency by securing a stream of revenue income, while others aim to relieve transit authorities of some of the cost burden of constructing, maintaining, or rehabilitating transit facilities. As useful as it is, this simple dichotomy between revenue-sharing and cost-sharing cannot begin to describe the richness and variety of joint-development projects that have evolved to date.

About two out of five joint-development projects completed to date in the U.S. have involved cost-sharing (Figure 1-1). Around one out of four have involved revenue-sharing. And one-third of the completed joint-development projects have involved some combination of both cost-sharing and revenue-sharing arrangements. The many possible forms of joint development, organized under the broad headings of "revenue-sharing" and "cost-sharing," are discussed in greater detail below.

*Revenue-Sharing*

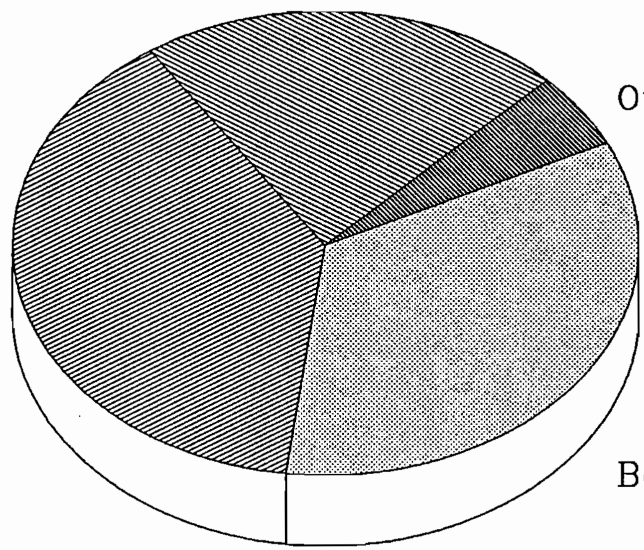
1. <u>Leases:</u> Under this arrangement, the transit agency leases land parcels, development rights, or unimproved space to private developers or commercial tenants. This is one of the most common forms of joint development in the nation.

    A. *Lease of property adjacent to a transit station.* Typically, this is land acquired by the public authority during the development of the transit system, or voluntarily sold to the transit agency by a private landholder. In general, public transit agencies in the United States are prohibited by law from acquiring land through eminent domain in excess of that needed to construct and operate the facility, the general exception being supplemental acquisition of remnant or unusable land parcels.

    B. *Lease of air or subterranean rights.* In dense, high-value markets, publicly owned land either above or below transit stations and lines may be leased to private developers.

2. <u>Facility Connection Fees/Station Interface Fees:</u> Under this arrangement, a fee is collected from a landowner or private tenant for the right to physically connect a project,

Figure 1-1: Completed Joint Development Forms by Type (as of October 1990)




N = 114 Projects

Source: IURD Joint Development Survey

usually a retail store, to a transit station via a passageway of some sort. Facility connection fees can take the form of either a one-time fee or an ongoing rental payment. Facility connections are a popular form of joint development, having been most aggressively pursued in Washington, D.C.

3. Land Sales: Rather than leasing, a transit agency can sell land holdings to private developers. Referred to as a Hold-Sale arrangement (in contrast to Hold-Leases), such practices are uncommon since few public entities have either the capital resources or the legal authority to engage in land banking or real estate speculation.

4. Benefit Assessment Districts: These are specially designated districts around transit stations, for which landowners make cash contributions (usually pro-rated on the basis of land area, assessed property values, or distance from the transit station) to help finance the public facility. In principle, such assessments seek to operationalize the notion of "value capture" -- enabling the public entity to share in the gains in property value capitalized from improvements in site accessibility. Typically, a majority of property owners within a geographically defined zone must agree to the creation of such a district. Because of the difficulties inherent in creating benefit assessment districts, they have not been widely used as a mechanism for promoting joint development. Benefit assessment is, however, the cornerstone of the local financing of Los Angeles' new rail system, with benefit assessment expected to cover around 10 percent of the total construction costs of the Wilshire corridor starter line.

5. Tax Increment Financing: Under this approach, the property tax base within a specially designated area is frozen at a certain point in time. All incremental gains in property tax receipts above the base level are earmarked for retiring the bonds of major public transit investments made within the district. In reality, tax increment financing involves less public-private sharing of revenues than an earmarking of property taxes to a specific area, usually a redevelopment district. As such, it involves a redistribution rather than an augmentation of tax receipts. Downtown stations along San Francisco's BART system have been partially financed through tax increment financing.

6. Transit Impact Fees: Under these programs, developers of new projects are required to make a one-time contribution to a revolving account earmarked for funding transit services and facilities needed to accommodate new growth. Nationwide, the only city to have enacted a system of transit impact fees is San Francisco. In many ways, this initiative does not fall under the purview of joint development since it represents a mandatory rather than a voluntary contribution of private-sector resources. As such, transit impact fees are not further considered by this study.

7. Negotiated Payments: With this approach, either a one-time or ongoing contribution is made by private land owners to finance a public improvement. While there have been several instances of small contributions made by landholders for the right to site a building facing a transit entrance, for the most part such practices appear to be rare in the urban transit field. Negotiated payment proffers and exactions have been much more common for financing highway improvements.

8. Other Revenue-Sharing Arrangements: Several other sources of revenue are commonly secured by all transit properties, including the leasing of subway station space to commercial concessions and the leasing of station and corridor easements to private telecommunications ventures for the purposes of stringing fiber optic cable and other

telecommunications equipment. Since these arrangements are not directly linked to land development activities *per se*, they are not treated as joint development and, as such, are not further considered in this study.

*Cost-Sharing*

9. Voluntary Agreements: These are agreements between transit agencies and developers that reduce the development costs of both parties through coordinated construction and by taking advantage of opportunities for economies of scale. Examples include shared parking facilities (for transit patrons and commercial establishments) and shared ventilation, heating, and cooling systems. Development economies may also be realized through shared land assemblage and purchases.

10. Incentive-Based Agreements: Under this arrangement, public authorities grant real estate developers some form of development bonus (usually a density bonus or the transfer of development rights) in exchange for partial or full funding of other on-site public infrastructure. Such infrastructure may include pedestrian amenities or passageway connections between a transit station and nearby office tower. This form of joint development has been widely used in New York City.

11. Mandatory Programs: Under this arrangement, developers constructing projects within designated districts are required to finance pedestrian entrances as a precondition to receiving building permits. Such a program currently exists for five special districts in Manhattan.

12. Other Cost-Sharing Arrangements: In several cases, private developers and landholders have financed entire transit systems. Most of these projects, however, have been private people-movers confined to specific commercial ventures (e.g., Tampa's Harbor Bay and Disney World).[1] While several privately financed rail projects have been discussed in the Dallas area and other places in the U.S., nothing has materialized to date. As such, private financing of rail facilities will not be further considered in this report.

All of these definitions cast joint development in terms of a "*quid pro quo*" -- private interests agree to make a financial contribution to the transit agency in recognition that transit access or service has enhanced the value or development potential of their land parcels. Yet joint development has the potential to be more than just financial deal-making. Since joint development is about the development of real estate projects, it also becomes an instrument for achieving larger public policy land use objectives, such as encouraging redevelopment, accelerating land use conversions, or helping to create an entirely new suburban town center. Indeed, as noted in Chapter Five, joint-development activities are often promoted by local transit agencies and

[1]In fact, this is possibly the oldest form of joint development, as most turn-of-the-century urban rail projects in the United States were privately financed. Such practices continue to flourish in Japan, where private consortiums package new transit systems with various commercial ventures.

governments less for financial reasons than as a way to increase transit patronage and promote a more desirable form of urban growth.

Joint development, as defined in this section, is not the only type of development that occurs at or near transit facilities. Increasingly, other forms of transit-linked property development are being pursued which, although not involving a formal or legally binding agreement, nonetheless represent public-private coordination of activities. Called *co-development* in this study, such practices involve the coordinated timing, siting, and overall planning of public investments (often including transit) and private real estate ventures, ostensibly to the benefit of both parties. Co-development differs from joint development in that it does not involve the direct sharing of revenues or costs between private interests and a transit agency. In a way, co-development is an indirect form of joint development. While such co-development is not directly examined in this report, situations where it has occurred are discussed in several case study summaries.[2]

## C. Data Sources and Issues

The first step toward understanding where and why joint development has occurred is to compile a comprehensive inventory of all completed and planned joint-development projects. This was accomplished by canvassing and reviewing previous studies -- in order to separate joint-development from co-development projects -- and through a telephone survey of all major transit operators in the United States.[3]

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[2]San Francisco's BART system is an example where there has been more co-development than joint development. In both downtown San Francisco and Oakland, for example, local redevelopment authorities have introduced public infrastructure improvements and zoning incentives near station areas to attract commercial real estate development. This has been in contrast to the scattered and functionally disaggregated commercial developments that have sprung up around a number of BART's suburban stations. In none of these cases has the BART authority itself received direct cash contributions or development-related leasing revenues. Rather, BART has benefitted from the increased patronage generated by high-rise commercial development near its downtown San Francisco and Oakland stations. And developers have likewise benefitted from the improved accessibility provided by BART. Thus, in the case of BART, there has been the coordinated planning, siting, and scheduling of public transit and private real estate developments near downtown stations, without any direct exchange of money, to the mutual benefit of all parties involved. That is, there has been "co-development" as opposed to "joint development."

[3]To obtain more detailed information on the size and cost of joint-development activities, as well as to better understand the project planning/negotiation process, the initial telephone survey was followed by a detailed mail survey of transit operators. A copy of the questionnaire form is included as Appendix I. Of the 117 questionnaires sent out, 93 were returned, yielding a 79 percent response rate. *[The survey was mailed to: (1) all transit agencies with rail facilities; (2) any public bus agency operating 75 or more buses; and (3) any public transit agency previously known to have participated in joint-development activities but not included in the above categories. The high response rate was achieved through a combination of mail-back*

To assess the financial impacts of joint development -- both to the private developer and to the transit agency -- this study compiled much more detailed background information for transit operations and joint-development projects in Washington, D.C., and Atlanta, two cities which have had extensive but varying experiences with joint development. Accordingly, we assembled a database of real estate market conditions and transit service variables for the Washington, D.C., Metrorail and Atlanta MARTA systems. This database, described in greater detail in Chapter Six, consists of pooled time-series, cross-section observations of selected Metrorail and MARTA stations. The complete database is presented in Appendix IV.

## D. Research Scope and Report Outline

*Research Scope*

While joint development can, in principle, apply to any of a number of public improvements and urban contexts, this research is limited to the following. First, as noted, we have restricted our analysis to bonafide joint-development projects, and, except where noted, have not investigated co-development. Second, only joint-development projects near urban rail transit stations, inter-modal and commuter rail facilities, and major bus terminal-transfer points are examined. Development activities related to highways, ports, airports, and inter-city rail facilities are generally ignored. Third, although recognizing that joint development has also been widely pursued in Canada and Western Europe, we have limited our inventory and analysis to the United States. Still, we believe the findings of this research provide policy lessons that can be extended beyond America's urban mass transit sector -- hopefully to other types of public-works projects and in other countries as well.

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*and telephone follow-up.]* Of these respondents, only 23 agencies indicated that they were currently involved in joint-development ventures. The results of these surveys are discussed in Chapter Five, and a tabulation of responses is included as Appendix II.

The responses to our requests for information were especially interesting because of what they revealed about how transit operators regard joint-development opportunities and activities. First, there were some agencies with joint-development activities that did not respond to the survey at all, in spite of repeated follow-ups. Second, most of the agencies that did respond provided only partial information. This was not, we concluded, because they were trying to conceal information or obfuscate the issue. Rather it was because most agencies lacked reliable records on the process of negotiating joint-development deals, on the costs associated with such projects, and on the revenues generated by the projects. Moreover, many agencies that did supply revenue or cost information presented it in very rough terms, usually absent any breakdown of joint-development project costs between the developer and the transit operator.

*Report Outline*

This report is organized into eight chapters. Chapter One summarizes the purpose and scope of the study, and defines what is meant by joint development in this study. Chapter Two reviews various historical, economic, and institutional factors that have lead to a revived interest in urban transit in general, and joint development in particular. Chapter Three provides a comprehensive inventory of joint-development projects by type and location. Chapter Three also profiles selected projects. Chapter Four discusses how different transit agencies in different cities -- Washington, D.C., Atlanta, New York City, Philadelphia, Miami, and San Diego -- have approached joint development and their experiences to date. Chapter Five presents the results of the survey of transit operator experiences with joint development, focusing on the process as opposed to the products of joint development. The next two chapters look at the products, or impacts, of joint-development specifications. Chapter Six empirically investigates the impacts of rail transit investments and joint development on station-area office and land markets. In this chapter, the private benefits of joint development at three Washington, D.C., stations (Ballston, Bethesda, and Silver Spring) and two Atlanta stations (Arts Center and Lenox) are measured. Chapter Seven examines the measurable benefits of joint development to the transit agency in terms of revenue streams as well as ridership. Chapter Eight concludes with a summary of the key research findings and a discussion of the future potential for joint development. Appendices I through V summarize the data used throughout this report. Appendix V provides a detailed listing and summary of all joint-development projects in the United States for which data were available.

## CHAPTER TWO:
## The Evolution of Joint Development -- A Brief History

Four main factors have shaped the evolution of joint development in the United States over the past two decades: (1) a revived public interest in the development of urban mass transit systems; (2) a growth of public and private development interest in undervalued central-city locations and suburban activity sites; (3) increased local interest and experience in a variety of public-private joint ventures; and (4) a desire by the federal government to promote transit joint development, first as a way of better coordinating urban capital investments, and, more recently, as a means for supplementing farebox revenues and reducing federal operating assistance. Each of these factors is discussed in greater detail below.

### A. The Urban Mass Transit Revival

Interest in transit joint development has grown out of a revived interest in developing urban mass transit systems as an alternative to the automobile. So strong has this interest been that the number of operational rail transit systems in American cities has more than doubled since 1970.

America's first transit era ran from the turn of the 20th century through the 1950s, and had a profound influence on the shape and character of the nation's cities. For the most part, America's first urban transit systems consisted of streetcars.[1] By 1917, streetcars were carrying 11.3 billion passengers on 60,000 cars operating over more than 29,000 miles of track (Middleton 1987). Transit usage peaked in 1926, when 17.2 billion riders were carried by streetcar, subway, and bus (Cudahy 1982). Just as the advent of electrification quickly led to the replacement of the horse-drawn streetcar, so too did the advent of the private automobile hasten the demise of America's streetcar systems. By 1939, total transit ridership was down nearly 50 per cent, to 12.8 billion passengers. Streetcar ridership enjoyed a brief resurgence during World War II (peaking at a record 23.5 billion in 1945), but then declined steadily after 1947 (Cudahy 1982).

In many urban areas, streetcar lines directed the growth of cities. Transit magnates such as Charles Tyson Yerkes in Chicago, F. E. "Borax" Smith in the San Francisco Bay Area, and Henry E. Huntington in Los Angeles used streetcars and elevated railroads to promote suburban real estate development on a huge scale (Demoro 1985, Ford 1977, Myers and Swett 1976, Post

[1]Prior to 1970, the only cities with heavy-rail transit systems were New York City, Boston, Philadelphia, and Chicago.

1989). As Orski (1986) points out, streetcar and trolley extensions were not necessarily expected to break even. Rather, the owners of the transit lines made their money from sales of newly subdivided lots. Thus, early on, the idea that transit lines could create value which could then be captured by the private sector was widely understood.

The need to continually cross-subsidize streetcar transit only hastened its demise. Because real estate development defrayed only the costs of system construction, not maintenance and operating costs, the finances of many systems were fundamentally weak. After 1945, when suburban development had advanced far beyond the technical limits of streetcar operation, it was no longer possible to pay for further system expansion through real estate promotion.

The current revival of interest in urban rail transit dates from the construction of BART, the Bay Area Rapid Transit system. In one of those wonderful historical ironies, the voters of San Francisco, Alameda, and Contra Costa Counties agreed, in 1962, to fund construction of a new commuter rail system linking San Francisco and Oakland through an underground tunnel, just four years after the unlamented end of streetcar operations on the San Francisco-Oakland Bay Bridge. When BART began operations in 1974, it was the first all-new large-scale transit system to open in the United States in 70 years.[2]

BART was built through a combination of state and local funding, without federal help. The systems that followed during the 1970s and 1980s, however, all received some federal funding through the Urban Mass Transportation Administration. The 1964 Urban Mass Transportation Act established the principle of matching local support with Federal grants; it was followed in 1970 by the Urban Mass Transportation Assistance Act, which committed at least $10 billion in federal funds to new system development over a twelve-year period.

Most of the resulting capital expenditures were concentrated on a relatively small number of rail systems in larger cities. These fall into two main groups (Table 2-1). The first group includes only a few systems but represents a large part of total investment expenditures. It consists of traditional *heavy-rail* systems in a few large cities: Washington, D.C., Baltimore, Atlanta, and Miami. Typically, these systems run underground in downtown areas, and rise to the surface in the suburbs with fully dedicated, grade-separated rights-of-way. Although more modern, these new systems are operationally similar to the heavy-rail systems of the earlier era. But, insofar as they penetrate some lower-density suburbs, suburban stations tend to be widely spaced.

[2]Seattle's monorail, opened in 1958, served a very limited part of the downtown area.

**Table 2-1:**
**CHARACTERISTICS OF U.S. RAIL TRANSIT SYSTEMS**

| City | Year Built | System Type | Total Route Miles | Rail-Linked Joint Development? |
|---|---|---|---|---|
| Pittsburgh | 1870 | Light rail | 44.2 | YES |
| Chicago | 1892 | Heavy rail | 108.1 | YES |
| Boston | 1897 | Light rail/heavy rail | 77.9 | YES |
| Newark | 1898 | Light rail | 4.1 | NO |
| New York | 1904 | Heavy rail | 261.5 | YES |
| Philadelphia | 1905 | Light rail/heavy rail | 155.9 | YES |
| New Jersey/PATH | 1908 | Heavy rail | 13.7 | YES |
| San Francisco | 1911 | Light rail | 28.9 | NO |
| New Orleans | 1923 | Light rail | 14.9 | NO |
| Cleveland | 1955 | Light rail/heavy rail | 32.3 | YES |
| Seattle | 1958 | Light rail | 2.6 | NO |
| New Jersey/PATCO | 1969 | Heavy rail | 14.4 | NO |
| San Francisco Bay Area | 1974 | Heavy rail | 71 | NO |
| Washington | 1976 | Heavy rail | 69.5 | YES |
| Atlanta | 1979 | Heavy rail | 31.9 | YES |
| San Diego | 1981 | Light rail | 33.1 | YES |
| Baltimore | 1983 | Heavy rail | 41.2 | YES |
| Buffalo | 1984 | Light rail | 6.4 | NO |
| Miami | 1984 | Heavy rail | 22.3 | YES |
| Sacramento | 1985 | Light rail | 18.2 | YES |
| Portland | 1986 | Light rail | 14.9 | NO |
| San Jose | 1987 | Light rail | 8.6 | NO |
| Dallas | 1990 | Light rail | 19.8 | NO |
| Los Angeles | 1990 | Light rail/heavy rail | 62.2 | YES |

Source: Janes Urban Transportation Systems, 1990.

Notes of special interest:
1. Baltimore has 27.3 miles of LRT currently under construction.
2. Detroit has plans for 15 miles of LRT.
3. Dallas has plans for 19.8 miles of LRT.
4. Seattle has a 1-mile monorail and a 1.6-mile tourist tram.
5. Los Angeles has 22.3 miles of LRT, 19.8 miles of planned LRT, and 20 miles of planned heavy rail.
6. San Diego has an additional 11.1 miles of LRT scheduled to open in 1991.
7. Philadelphia has 98.1 miles of urban LRT lines and 33.6 miles of suburban LRT lines.
8. New York's heavy rail total includes the 14.3-mile Staten Island Railroad.

The second group consists of a much larger number of *light-rail* -- essentially, streetcar -- systems in a wider range of medium-sized cities. Light-rail systems have been or are being developed in San Diego (1981), Buffalo (1984), Sacramento (1985), Portland (1986), San Jose (1987), Dallas (1990), Los Angeles/Long Beach (1990), and Detroit (1990). The downtown sections of these systems are usually underground, or run on transit malls.[3] Their limited suburban stretches, however, often run on fully reserved rights-of-way, sometimes in highway medians, and with partial grade separation. Whether heavy- or light-rail, all the systems developed since 1970 are essentially radial in character, connecting downtown commercial cores with the suburbs. They typically serve areas within a 10-15 mile radius of the downtown core, penetrating some post-World War II suburbs, but rarely reaching their farthest limits. In addition to totally new systems, some older systems (such as Boston) have been extensively modernized and expanded in recent years.

Opportunities for joint development vary according to the characteristics of the transit system. At one extreme, light-rail systems running along downtown transit malls and highway median strips -- such as in Sacramento, Portland, or San Jose -- offer relatively few joint development opportunities because so little land is acquired for their rights-of-way. On the other hand, a new heavy-rail system with extensive underground sections and large suburban parking lots -- as in Washington or Atlanta -- offers the best prospects for joint development around both downtown and suburban stations. Additionally, some older systems that have undergone refurbishment, such as Boston, offer joint-development possibilities around some stations, especially in key downtown locations.

## B. Private Development Trends and Rail Transit

*The Rise of Suburban Employment Centers*

Fueling the revived interest in rail transit has been a rise in the demand for new office space in both downtown *and* suburban locations. As the employment base of the U.S. economy shifted from manufacturing to services, the number of office workers and amount of office space has swelled (Table 2-2). Most of the growth in office workers and office space occurred during the late 1970s and early 1980s. Between 1980 and 1989, office space inventories increased by 125 percent in the Atlanta metropolitan market, by 168 percent in the Dallas-Ft.Worth market, by 141 percent in the Denver market, by 198 percent in the Los Angeles area, by 226 percent in

[3] A notable exception is Buffalo, whose light-rail system runs at surface downtown and below surface in the suburbs.

Table 2-2:
OFFICE SPACE INVENTORIES FOR SELECTED METROPOLITAN AREAS

OFFICE SPACE INVENTORY (in millions of sq.ft.)

| Metropolitan Area | 1980 | 1989 | Average Yearly Growth 1980-89 | Percent Change 1980-89 |
|---|---|---|---|---|
| Atlanta | 36 | 81 | 5.0 | 125% |
| Baltimore | 11 | 36 | 2.8 | 227% |
| Boston | 38 | 93 | 6.1 | 145% |
| Chicago | 95 | 150 | 6.1 | 58% |
| Dallas/Fort Worth | 44 | 118 | 8.2 | 168% |
| Denver | 29 | 70 | 4.6 | 141% |
| Hartford | 7 | 24 | 1.9 | 243% |
| Houston | 86 | 166 | 8.9 | 93% |
| Los Angeles | 48 | 143 | 10.6 | 198% |
| Miami | 14 | 31 | 1.9 | 121% |
| Milwaukee | 9 | 20 | 1.2 | 122% |
| Minneapolis/St. Paul | 25 | 47 | 2.4 | 88% |
| New York City | 294 | 352 | 6.4 | 20% |
| Northern New Jersey | 60 | 134 | 8.2 | 123% |
| Philadelphia | 19 | 62 | 4.8 | 226% |
| San Diego | 11 | 33 | 2.4 | 200% |
| San Francisco/Oakland | 66 | 105 | 4.3 | 59% |
| San Jose | 14 | 28 | 1.6 | 100% |
| Seattle | 21 | 50 | 3.2 | 138% |
| Washington, D.C. | 95 | 210 | 12.8 | 121% |

Source: Urban Land Institute: Market Profiles: 1990.

Note: Downtown office markets highlighted with an (*) use 1986 data.

Philadelphia, and by 138 percent in Seattle. According to some estimates, more new office space was constructed between 1980 and 1989 than had previously existed.

The absolute majority of this space was constructed at low densities in suburban locations. According to the Office Network, 57 percent of all office space in the United States in 1980 was located in urban centers and 43 percent in the suburbs; by 1986, the situation was reversed -- 60 percent was in the suburbs, as compared with 40 percent in the cities. As Cervero (1989) points out, the suburbanization of office function really represented the third phase in the suburbanization process. The first phase, dating from the 1950s, had involved the suburbanization of residents, while the second phase, the suburbanization of retail functions or the "malling" of America, occurred during the 1960s and 1970s.

Much (but by no means all) of the new suburban office space was organized into clusters,[4] either in the form of corridors, office and business parks, or so-called "urban villages" (Leinberger 1988).[5] As Cervero (1989) has documented, a guiding precept in the planning and development of suburban office clusters has been to maximize their accessibility to suburban office workers. Thus, most suburban office centers have been developed in one of two ways: either on top of previously developed suburban centers (as in the cases of Bellevue, Washington, or Walnut Creek, California) or, more frequently, at previously undeveloped sites located at the confluence of two or more major highways.

Given their high levels of accessibility, it is not surprising that suburban rail transit stations have been a natural focal point for the development of suburban office clusters. Since the early 1970s, the development of Greenwich, Connecticut -- by most accounts, the nation's first suburban office center -- has been tied to the Greenwich train station. In Washington, major new suburban office centers have been developed around Metro stations at Crystal City and Ballston. Metro rail service has also fueled intense office construction at two longstanding suburban centers: Bethesda and Silver Spring. In the San Francisco Bay Area, new office centers in the suburban communities of Concord and Walnut Creek have clustered adjacent to BART stations. MARTA service has fueled office construction in suburban Decatur. More recently, the development of Datran Center in suburban Dade County has followed the construction of Miami-Dade MetroRail. Generally speaking, the development of suburban office centers at or around suburban transit facilities has been accomplished entirely through the private real estate market: on land purchased from private owners, and with private equity and financing.

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[4]Also known as suburban activity centers and suburban employment centers.

[5]Examples of the corridor form of suburban employment center include the zip strip in central New Jersey and the Katy Free "hi-tech" corridor in west Houston.

*Downtowns Reborn*

While the suburbs were capturing the absolute majority of new office space construction, a significant amount of new office development was also occurring in central business districts. As recently as 1987, more than 10 million square feet of new office space was under construction in downtown Chicago. In the same year, more than nine million square feet was under construction in New York, and 6.2 million was under construction in Washington, D.C. (Urban Land Institute 1990). Even smaller markets, such as Hartford and Minneapolis, experienced a significant downtown office building boom in the 1980s. In many metropolitan areas, downtown office development occurred concurrently with suburban office growth: at the same time that expanding service and finance firms would centralize their "back-office" employees in large suburban office parks, they would centralizing their executive and external function in downtown office structures.

The construction of new office building led the revitalization of old downtowns, but it was by no means the only source of new development activity. As tourism and convention business expanded, cities and private developers discovered a growing market for large mixed-use hotel projects. Retail uses, which had fled central cities in the 1950s, 1960s, and early 1970s, took on new forms -- as festival marketplaces and mixed-use centers. According to Frieden and Sagalyn (1989), almost four dozen downtown festival marketplaces and downtown retailing centers were developed in major American downtowns between 1980 and 1985, almost double the number developed during the 1970s. Regardless of the type of development, "big" was in: thanks to new-found international financing sources and a succession of ever more liberal federal tax and depreciation laws, knowledgeable developers found it easier and profitable to undertake large new commercial projects of all types.

The rising popularity of downtown development also reflected the fact that many of the public investments made by city governments during the 1960s and 1970s were finally beginning to pay off. In addition to the development and renovation of rail transit systems, such investments included land-banking and land write-downs, the subsidized provision of development-supporting infrastructure, property tax forgiveness, and direct public funding of private development. The late 1970s and early 1980s also witnessed a major shift in the relationships between the public and private sectors. Whereas previously the public sector's role had been to undertake the long-term investments that would make private development profitable (and thus realize a public gain through increased tax revenues), increasingly, public officials came to see themselves as partners in the development and operation of major downtown developments. Each side in such "public-private partnerships" brought something to the table. The private sector brought development skill, access to financing, and the promise of long-term revenues. The public sector brought land, development approvals, investments in related infrastructure, and occasionally even cash. The process of rebuilding cities through public-private partnerships was time-consuming and complex, but even the complexity itself served a purpose -- keeping out smaller developers, and thus helping the larger ones avoid unwanted competition.

Although rail transit operators rarely saw themselves as part of such public-private partnerships, from the outset investments in rail transit and central city redevelopment were viewed as complementary. For city officials and business interests, the development of a rail transit system (usually together with the attraction of a professional sports team) was viewed as a measure that they had become "big-time." Rail transit investment was popular with city planners because it provided a way for the growing number of suburban workers to get to central-cities job locations without using their automobiles. For private office developers, being close to a transit station meant that they could forego the construction of large and costly parking facilities. And for retail developers, being adjacent to a transit station meant that downtown office workers could combine shopping trips with work trips -- making downtown locations competitive with suburban shopping malls.

**C. The Revival of Joint Development**

Although the term "transit joint development" is relatively new, the idea of linking transit extensions and real estate development goes back at least to the horsecar era. As early as 1866, Henry M. Whitney and his associates in the West Coast Land Company had formed the West End Street Railway for the purpose of developing farmland on the outskirts of Boston. Whitney's development would eventually become the city of Brookline (Warner 1962). Similar linkages between streetcar extensions and *suburban* development shaped the formation of Shaker Heights in Cleveland, of Chestnut Hill in Philadelphia, and of Friendship Heights in Washington, D.C. (Orski 1986). The expectation that investments in transit would spur private real estate development was also behind numerous *larger-scale downtown* real estate projects undertaken during the first half of the twentieth century, including New York City's Grand Central Terminal Complex, and Rockefeller Center (Witherspoon 1982).

Despite these early and important examples, the term "joint development" seems to have first been used by federal policy-makers in the 1950s not in relation to new mass transit investment, but rather as a way to help finance federal highway projects. The term was also widely applied in airport planning at the behest of the Federal Aviation Administration as a means to recoup economic returns from federal airport investments (Burkhardt, Hurd, and Moore 1978).

As applied to urban mass transit, the term "joint development" dates from the Urban Mass Transportation Act of 1964. The Act implied that some forms of urban development are preferable to others, and that appropriate investments in mass transportation might help reinforce desirable urban development patterns (Lutin and Bergan 1983).

In this context, the "joint" part of joint development was meant to be between different federal programs, not between the public and private sectors. Accordingly, first preference in the allocation of federal transit development funds was to be given to projects which supported other federally-assisted development programs, including urban renewal and community development. In fact, one of the first five capital grants made under the 1964 Act was for the transit portion of the Nicolet Mall in Minneapolis; concurrent funds for street furniture were provided by the Housing and Home Finance Agency (which, prior to 1968, also housed federal mass transit programs) under its urban beautification program (Burkhardt, Hurd, and Moore 1978).

The 1968 transfer of all federal mass transportation program to the Urban Mass Transportation Administration in the newly established Department of Transportation severed the connection between urban mass transportation and urban development. Some Section 9 planning funds remained with the Department of Housing and Urban Development (the successor agency to HHFA) to assist local agencies in planning for urban development related to public transportation investment. By 1973, however, most of these funds had been spent, and the balance was transferred to UMTA.

As with many federal policy initiatives, the modern view of joint development -- as a mutually beneficial financial venture between the public and private sectors -- was spearheaded at the local level. As early as 1961, the Washington Metropolitan Area Transit Authority (WMATA) had developed its own internal policy guidelines for acquiring and disposing of real estate properties (Cord 1978). These were followed in 1969 with a second set of guidelines known as Commercial Tie-Ins with Metro Stations, which stipulated how WMATA should negotiate with private land owners whose property values would increase through tie-ins with the Metro system. The Commercial Tie-ins guidelines would, in turn, be superseded by an explicit policy known as the Station Area Development Program in 1975.

In some cases, cities, transit agencies, and private developers worked together on development projects at transit stations without federal involvement (Lutin and Bergan 1983). For example, in Philadelphia, the Rouse Company entered into a partnership with the city's Redevelopment Authority to plan and construct the Gallery I, a downtown shopping mall located above a SEPTA rail station.[6] Construction of the Gallery I was completed in 1977 with no federal funding or strings (Lutin and Bergan 1983).

## D. The Evolution of Recent Federal Joint-Development Policy

Not until the passage of the Young Amendment to the National Mass Transportation Act of 1974 would UMTA become directly involved in joint development. Named for then-Atlanta Congressman Andrew Young, the Young Amendment authorized the use of UMTA Section 3 discretionary funds for a variety of joint-development activities, including the establishment of public or quasi-public transit corridor development corporations or entities. The Young Amendment was essentially a federal response to a local issue: in this case, the planning of Atlanta's MARTA system had demonstrated the need for greater flexibility in how UMTA capital assistance funds could be allocated.

Under the Young Amendment, UMTA funds could be used for the acquisition of land "within the entire zone affected by the construction and improvement of transit improvements, including station sites." UMTA's Administrator, Richard S. Page, repeatedly invited local governments to use this provision, but intentionally refused to set regulations in fear that they would prove to be a constraint, preferring to let individual transit authorities take the initiative instead.

The Surface Transportation Act of 1978 further liberalized how federal capital assistance could be used by eliminating the corridor-planning emphasis of the Young Amendment. It made specific provision for fixed-guideway facilities such as rapid transit systems, busways, and transit malls, and for new technologies such as downtown people movers. In addition to land acquisition and rolling stock, "eligible costs" under the 1978 Act included outlays for demolition of existing structures, site preparation, burying utilities, laying building foundations, building walkways, and maintaining open space. The Act also provided for the acquisition, construction, and improvement of facilities needed for intermodal transfers (such as terminals, transit malls, and park-and-ride lots).[7] In addition, the 1978 Act stipulated that the disposition of property value increases resulting from transit investments should be agreed upon prior to project approval, and that all beneficiaries of such investments should pay a "fair share" of the cost of such facilities through rental payments or other means acceptable to the grantor.

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[6]Because the Gallery I project did not include arrangements for revenue-sharing or cost-sharing with SEPTA, the local transit agency, it does not qualify under the definition of joint development used in this study. Rather, it is a good example of what we call co-development.

[7]Under the original Young amendment, intermodal transfers had not been eligible, save for those portions that directly affected the transit system.

Perhaps most important, the 1978 Act allowed federal funds to be spent on joint development projects. Nationwide, an annual funding ceiling of $200 million was placed on federal capital assistance for joint development projects (USDOT 1978; Burkhardt, Hurd, and Moore 1978). In spite of the authorization, no funds were allocated until 1979, when the Carter Administration, as part of its Urban Initiatives Program, earmarked UMTA Section 3 discretionary funds for joint development projects. These included inter-modal facilities and transit malls, office and apartment buildings, and other kinds of urban real estate projects related to transit. Several projects around the country were being financed by these grants from 1979-80 onwards (Lutin and Bergan 1983; USDOT 1983).

The role of joint development changed dramatically under the Reagan Administration. Whereas the Carter Administration had viewed joint development primarily as part of a comprehensive urban reinvestment strategy, the Reagan Administration saw joint development as an opportunity for local transit operators to raise needed revenues, and thereby reduce their dependence on federal operating subsidies.[8] In fact, the search for alternative local transit operating revenues had become urgent. Between 1970 and 1980 farebox revenues as a source of transit operating expenses had declined from 80 percent to less than 40 percent (National Council for Urban Development 1989).

Upon taking office, the Reagan administration had announced its intention of reducing, if not eliminating altogether, federal assistance to local transit operators. Over the objections of Congress, the Reagan Administration gradually reduced UMTA's program budget from 4.6 billion in 1981 to $3.15 billion in 1989. The effect of such cuts at the local level was to gradually reduce the federal contribution (Table 2-3) for capital and operating assistance. Between 1982 (the first year of the Reagan budget) and 1989, operating assistance to local transit operators, measured in nominal terms, declined from $1.005 billion to $867.6 million per year. Over the same period, capital assistance remained roughly constant at $2.5 billion dollars. Measured on a per-passenger-mile basis, federal assistance declined from about $.105 per passenger mile of transit service in 1981, to $.083 per passenger mile in 1989. As gentle as these cuts sound, measured in real terms, they constituted a 44.9 percent reduction in aid.

The initial popularity of joint development within the Reagan Administration reflected both practical and ideological concerns. On the practical side, an expanded joint development

[8]In fact, although the Reagan Administration terminated President Carter's Urban Initiatives Program shortly after taking office, it continued to make UMTA Section 3 funds available for joint development activities -- but on a competitive basis. As with grants made under the Carter program, the federal share was limited to 80 percent, with 20 percent local match required (Lutin and Bergan 1983).

Table 2-3:
UMTA OPERATING AND CAPITAL ASSISTANCE TRENDS: 1975-1989

| Year | UMTA Operating Assistance (Millions) | UMTA Capital Assistance (Millions) | Total Passenger Miles (Millions) | Operating Assistance per Passenger Mile | Capital Assistance per Passenger Mile | Total UMTA Assistance per Passenger Mile |
|---|---|---|---|---|---|---|
| 1975 | 301.8 | 1,287.1 | | | | |
| 1976 | 442.9 | 1,954.8 | | | | |
| 1977 | 584.5 | 1,723.7 | | | | |
| 1978 | 689.5 | 2,036.9 | 38,267 | $0.018 | $0.053 | $0.071 |
| 1979 | 855.8 | 2,101.6 | 39,646 | $0.021 | $0.053 | $0.074 |
| 1980 | 1,093.9 | 2,787.1 | 39,854 | $0.027 | $0.069 | $0.097 |
| 1981 | 1,095.1 | 2,945.7 | 38,482 | $0.028 | $0.076 | $0.105 |
| 1982 | 1,005.4 | 2,544.1 | 37,124 | $0.027 | $0.068 | $0.095 |
| 1983 | 827.0 | 3,161.6 | 37,602 | $0.021 | $0.084 | $0.106 |
| 1984 | 995.8 | 2,876.0 | 39,424 | $0.025 | $0.072 | $0.098 |
| 1985 | 939.6 | 2,510.3 | 39,581 | $0.023 | $0.063 | $0.087 |
| 1986 | 911.5 | 3,138.2 | 40,448 | $0.022 | $0.077 | $0.100 |
| 1987 | 955.1 | 2,474.7 | 40,390 | $0.023 | $0.061 | $0.084 |
| 1988 | 950.2 | 2,520.8 | 41,362 | $0.022 | $0.060 | $0.083 |
| 1989 | 867.6 | 2,589.5 | 41,850 | $0.020 | $0.061 | $0.082 |

Source: APTA Transit Factbook, 1990.

program could become the mechanism by which UMTA might reduce its capital and operating assistance commitments. On the ideological side, joint development was entirely consistent with the Reagan Administration's domestic agenda of using private initiative to complement and perhaps eventually replace public expenditures.

The most recent national transportation policy statement, unveiled by President Bush and Transportation Secretary Skinner in early 1990, placed a renewed emphasis on private sector involvement in America's transportation sector. The policy specifically encourages joint public-private initiatives for financing transportation facilities and operations, and calls for the elimination of legal and regulatory barriers to private participation in planning, financing, building, and maintaining transportation facilities. With regard to joint development, the policy emphasizes the use of creative financing of transit investments and improvements through benefit assessments and other value-capture methods.

## E. Conclusion

Joint development has had a rich, illustrious history, starting with the linkage of streetcar and real estate development at the turn of the century, and leading to a host of efforts today that seek to revitalize central cities and strengthen the role of mass transit. The actors that have shaped joint development's history have included land speculators, real estate developers, civic-minded citizens, community leaders, transit administrators, city planners, and federal legislators. Motivated for different reasons, the interactions of these various actors have led to the wide assortment of transit-related joint-development activities that are found in the U.S. today. As to the scope and characteristics of contemporary joint-development programs, we turn to the next chapter.

# CHAPTER THREE:
# A Profile of Joint-Development Programs in the U.S.

## A. An Overview

The term "joint development" is widely used and misused. As noted in Chapter One, joint development is more than just real estate projects being built at or near transit stations. Joint development involves a contractual arrangement between a private developer and a transit agency covering the sharing of the revenues and costs associated with private real estate ventures and public transit facilities.

As of October 1, 1990, 114 joint-development projects of various kinds have been completed in the United States (Table 3-1; Figure 3-1; Appendix V). Eleven projects are currently under construction, and construction is pending for another nine projects. As of late 1990, an additional 23 joint-development projects were in various stages of planning. To date, four projects which were constructed as joint development are either vacant, have gone bankrupt, or no longer qualify as joint development. Lastly, there are sixteen planned and completed transit-related development projects, which, although often referred to as joint development, technically are not; that is, the transit agency did not directly financially participate in or benefit from the development process.

When people visualize what is meant by joint development, they commonly think of large new office towers or retail facilities built over or next to transit stations. This image is only somewhat accurate: to date, large new development projects have accounted for about 30 percent of joint-development activity. The majority of joint-development activity has involved fairly small-scale projects, station connections, or modest cost-sharing arrangements between private landowners and local transit operators.

### *Joint-Development Forms*

To gain some understanding of the full variety of joint-development projects, a comprehensive inventory of joint-development projects was undertaken. This inventory drew on available literature and reports, as well as information gathered from telephone interviews with officials from most major metropolitan transit agencies. The telephone interviews were followed up by a more detailed mail survey (Appendices I and II). In all, nine distinct types of joint-development projects were found which were either completed, in progress, or planned. These include:

**Table 3-1:**
**SUMMARY OF U.S. JOINT-DEVELOPMENT ACTIVITIES, AS OF OCTOBER 1990**

| **Joint-Development Projects by Status** | **Number** | **Percent** |
|---|---|---|
| Completed | 114 | 70.3% |
| Under Construction | 11 | 6.7% |
| Construction Pending | 9 | 5.5% |
| Proposed | 24 | 14.8% |
| Vacant or Bankrupt | 4 | 2.4% |
| Total | 162 | 100.0% |

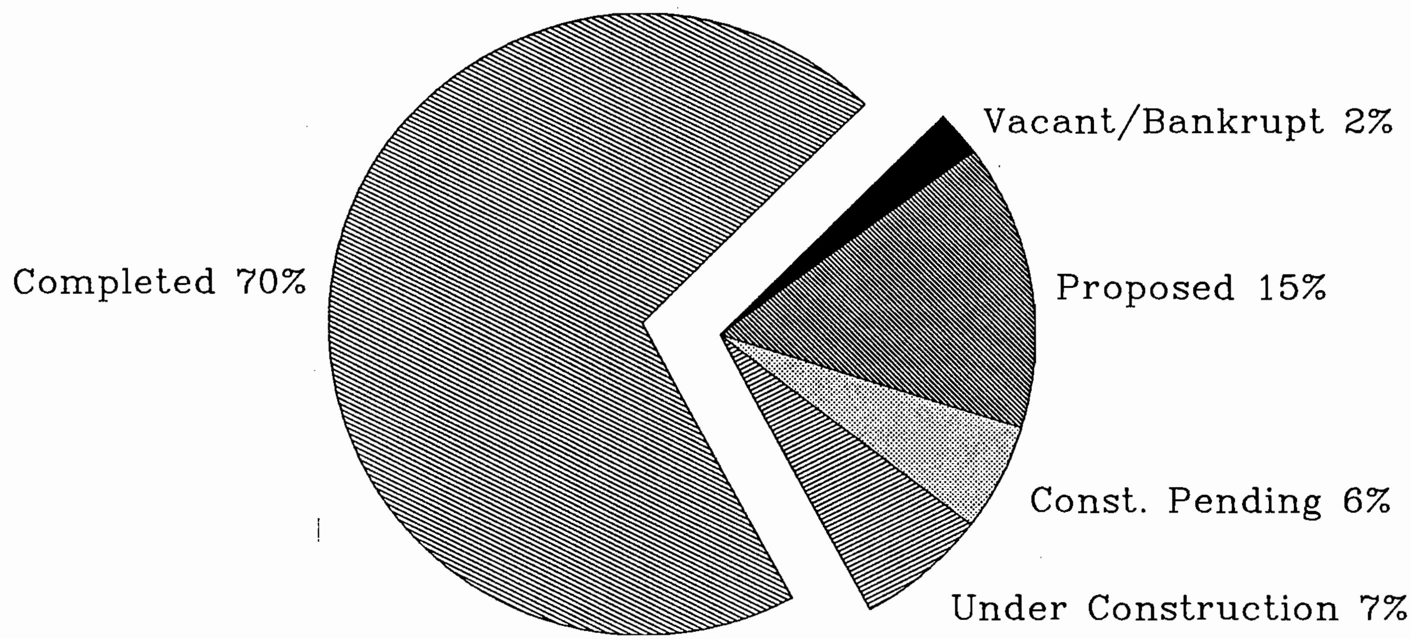
| **Joint-Development Projects by Type** | **Number** | **Percent** |
|---|---|---|
| Cost-sharing | 75 | 46.2% |
| Station Development | 31 | 19.1% |
| Concessions | 29 | 17.9% |
| Station Interface/Connection | 22 | 13.5% |
| Incentive Agreements | 17 | 10.4% |
| Benefit Assessment | 6 | 3.7% |
| Non-station Development | 2 | 1.2% |
| Joint Use | 2 | 1.2% |
| Total* | 162 | 113.5% |

| **Joint-Development Projects by Transit Mode** | **Number** | **Percent** |
|---|---|---|
| Heavy Rail | 64 | 58.1% |
| Commuter Rail | 20 | 18.1% |
| Light Rail | 6 | 5.4% |
| Bus | 12 | 10.9% |
| Inter-modal Transfer | 7 | 6.3% |
| Other | 1 | 0.9% |
| Total | 110 | 100.0% |

| **Joint-Development Projects by Date of Completion** | **Number** | **Percent** |
|---|---|---|
| Before 1980 | 8 | 14.8% |
| 1980-85 | 22 | 40.7% |
| 1986-89 | 21 | 38.8% |
| 1990 | 3 | 5.5% |
| Total | 54 | 100.0% |

Source: IURD Joint-Development Survey.
Notes: Responses sum to more than 100% because of multiple categories.

Figure 3-1: Status of Joint Development Projects as of October 1990




N = 162 Projects

Source: IURD Joint Development Survey

1. Station Leases and Development: A private developer purchases, leases, or exchanges commercial or residential space at, above, or adjacent to an existing or planned transit station for the purpose of constructing or renovating a commercial or residential project.

2. Non-Station Leases and Development: A private developer purchases, leases, or exchanges commercial or residential space at, above, or adjacent to non-station-sites owned by the transit agency. Such sites may include rights-of-way, maintenance and parking yards, or any other non-station site.

3. Station Interface or Station Connections: A private developer purchases or leases the right to physically connect a commercial building to a transit station. In addition to paying a connection fee, the developer usually builds and finances all physical improvements related to the passageway. The developer also generally pays a periodic fee for the exclusive right to connect to the transit station.

4. Benefit Assessment District: The transit agency establishes a benefit assessment district around planned or existing transit stations or facilities. All or a portion of the subsequent increase in property tax revenue accruing to planned or existing projects within the district are then paid to the transit agency.

5. Incentive Agreements: Transit agencies and local planning authorities exchange capital improvements for some kind of development bonus. Bonuses may include density/height bonuses, free easements through public land, and variance of permitted land use. In exchange, transit agencies can receive agreements that cover anything from maintenance to station renovation to new station construction.

6. Cost-Sharing Agreements: Transit agencies and private developers benefit by sharing the cost of coincident construction. Underground stations may be built with large footings in place in anticipation of development in the air rights above the station. Developers and transit agencies can coordinate their projects to share the costs of excavation, staging sites, infrastructure realignments, structural footings, heavy equipment, labor, etc. Coordinating construction activities can save the cost of later tearing up and rebuilding.

7. Joint-Use/Construction of Facilities: Transit agencies and developers share the use of equipment such as heating/ventilating/air-conditioning systems, elevator/escalator systems, parking lots, and garages.

8. Operational Assistance: A private developer provides the transit infrastructure in whole or part. Tracks, vehicles, or maintenance facilities are provided by the developer rather than the transit agency. The developer may even operate the system for the transit agency, but the system is not considered a private one. This type of joint development is rare.

9. Concession Leases: Transit agencies lease space in their facilities to development companies or independent retailers. Retailers benefit from direct access to patrons, and transit agencies benefit from the lease revenue. Unlike traditional concession leases at transit facilities (such as newspaper kiosks), joint-development concession leases involve the cooperative design and development, or renovation and rehabilitation, of station space. This study includes only large-scale concessions; the typical newsstand or shoe-shine counter is ignored.

Of these nine types of joint development, the first four involve revenue-sharing while the fifth through the eighth are forms of cost-sharing. The ninth, concession leases, are more incidental sources of revenue, although they can involve appreciable private contributions to transit budgets in some instances.

Of the 114 completed joint-development projects, the largest number (75) involve an on-going cost-sharing arrangement between the transit agency and a private landowner or property tenant (Figure 3-2). Thirty-one completed joint-development projects have involved new private sector development at or above transit stations, mostly in the form of air rights leases. Twenty-two completed joint-development projects involve system interfaces; that is, a private developer has paid or leased the right to connect their project to a planned or existing transit station. Another 17 joint-development projects have been organized around such incentive-based agreements as density bonuses. Six joint-development projects involve the establishment of a special benefit assessment district tied to transit stations. Two projects have been completed at transit locations other than stations. Another two joint-development projects involve the joint use of common facilities between a private developer and the transit agency.

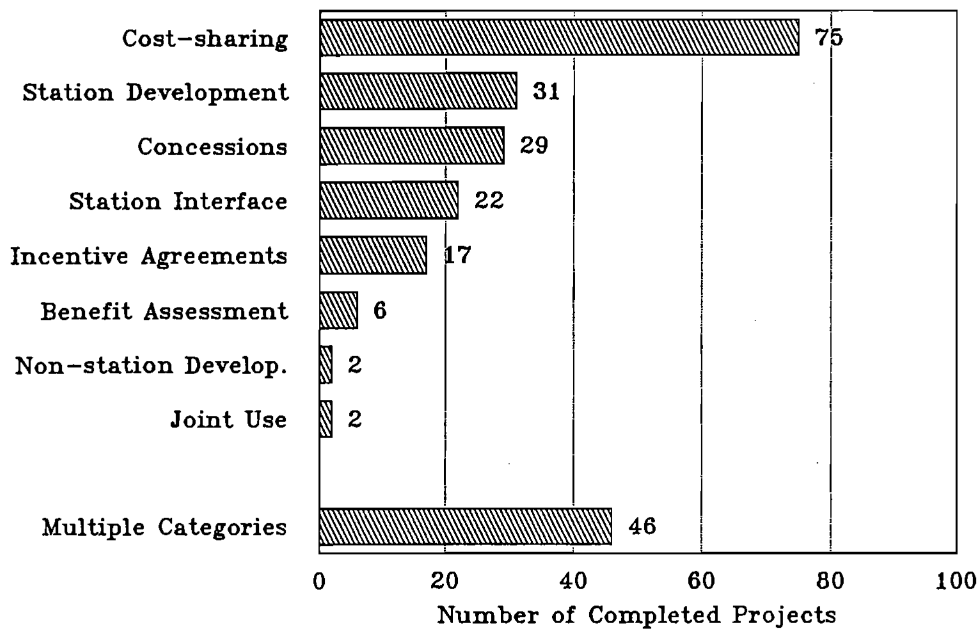
Forty-eight projects have consisted of two or more forms of joint development (Figure 3-3). Of these multiple-form joint-development projects, the most common (23) are those in which private developers lease station space and share the cost of station construction or rehabilitation. Another 15 joint-development projects have combined incentive agreements with station cost-sharing. Several other multiple joint-development projects link station connection fees with cost-sharing agreements.

*Joint-Development Projects by Mode and Date of Completion*

The vast majority of completed joint-development projects (58 percent) have occurred near the stations of heavy-rail transit systems (Figure 3-4). Another 18 percent of projects have sprung up around commuter rail facilities. Bus stations account for 11 percent of joint-development activity, while inter-modal transfer facilities account for 6 percent. Only 5 percent of joint-development projects completed to date have been developed around light-rail facilities.

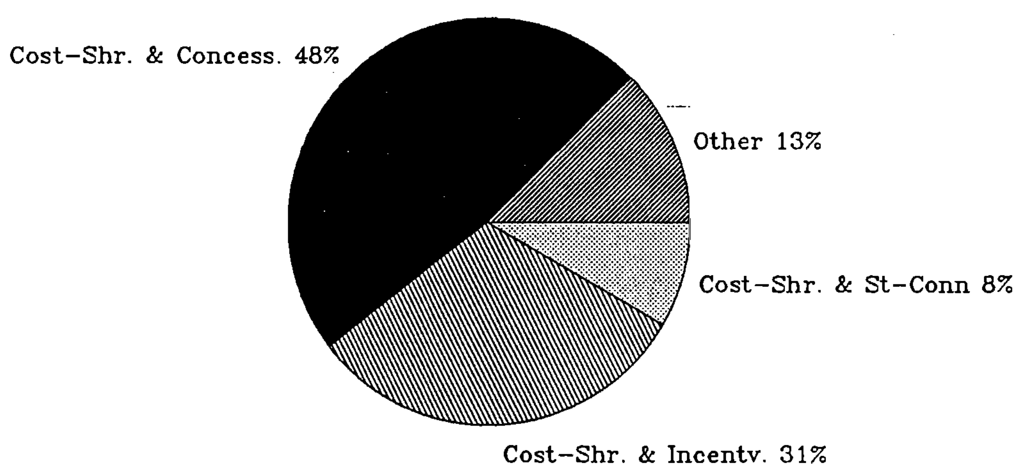
Joint development is mainly a post-1980 phenomenon. Of the 54 projects for which data were available, the largest share (22 projects, or 41 percent) were completed between 1980 and 1985 (Figure 3-5). An additional 21 projects were developed between 1986 and 1989. Only eight joint-development projects were in existence prior to 1980. Finally, three joint-development projects were completed in 1990. Up to 1990, the majority of joint-development projects have

Figure 3-2: Types of Joint Development Projects Completed as of October 1990




Source: IURD Joint Development Survey

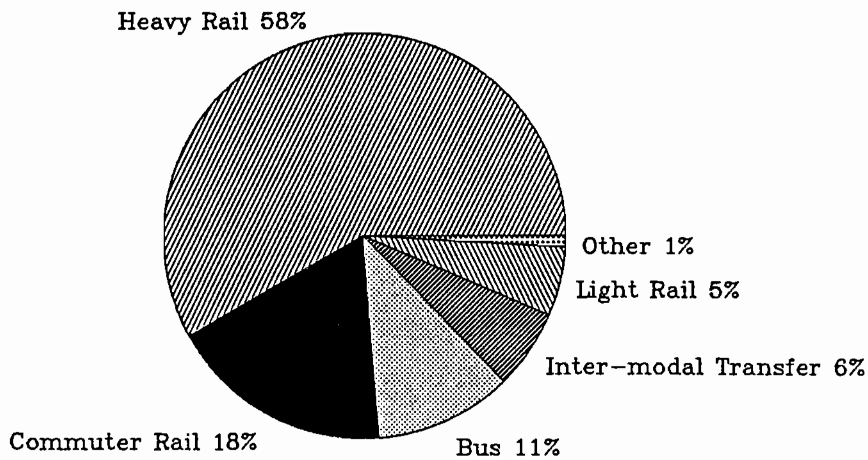
Figure 3-3: Breakdown of Joint Development Projects Involving Multiple Forms




N = 48 Projects

Source: IURD Joint Development Survey

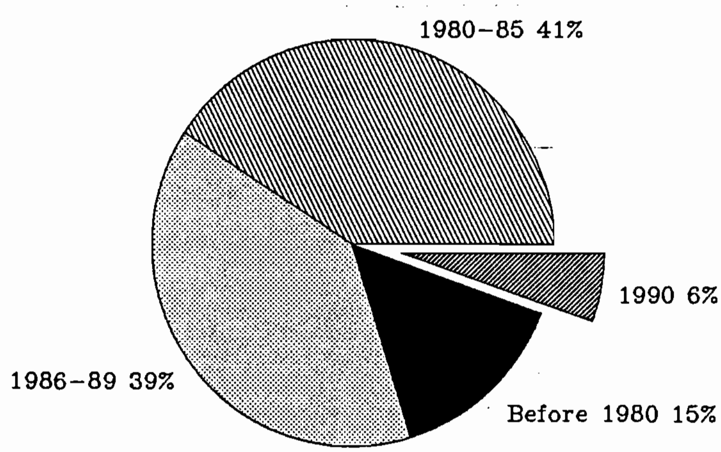
## Figure 3-4: Completed Joint Development Projects by Transit Mode




N = 114 Joint Development Projects

**Source: IURD; as of October 1990**

## Figure 3-5: Completed Joint Development Project by Date of Completion




N = 54 projects

**Source: IURD: as October 1990**

occurred around heavy-rail facilities (Figure 3-6). The three 1990 programs, however, were all linked to bus terminals.[1]

## B. Where is Joint Development Occurring?

Many cities and transit agencies are currently pursuing joint-development opportunities, but, to date, the vast majority of completed joint-development projects have been concentrated in five cities: New York City, Washington, D.C., Philadelphia, Atlanta, and Boston (Figures 3-8 and 3-9). In addition to these five, only two other U.S. cities -- Sacramento and Seattle -- have participated in three or more joint-development projects to date. Not surprisingly, the dominant form of joint development varies city-by-city. As noted below, factors that appear to have some bearing on the adopted forms of joint development are: the type of transit system, the age of the system, development and redevelopment opportunities in the local real estate market, and the receptiveness of the local transit operator and community leaders toward particular types of development.

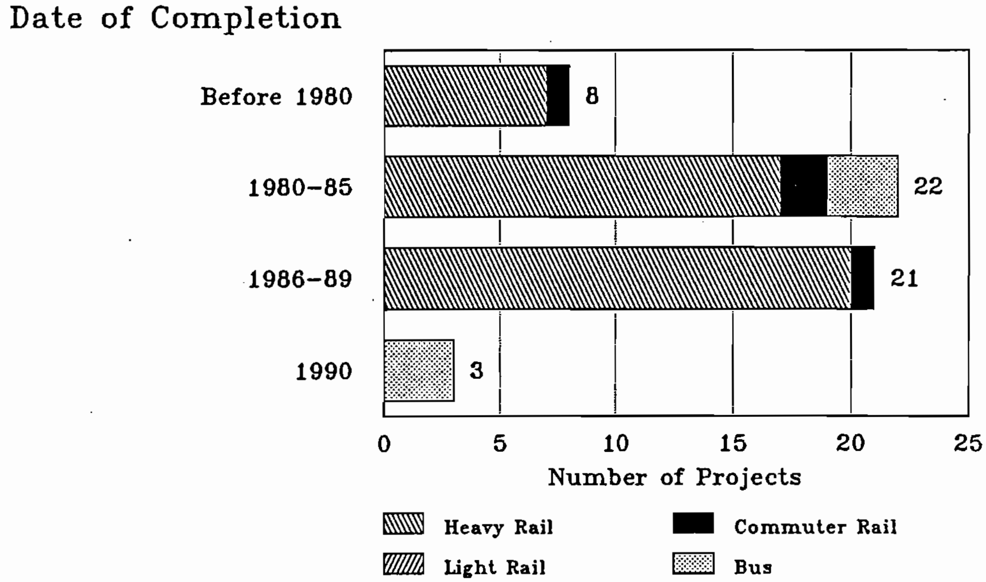
Given the immense size of its transit system, it is not surprising that the largest number of joint-development projects have surfaced in New York City. Typically, however, New York City's projects have tended to be small and not particularly capital-intensive: the vast majority have involved either incentive agreement or cost-sharing arrangements. To date, only one entirely new high-rise commercial building, the CitiCorp Tower in Long Island City, has been developed at a subway station.

In contrast to New York City, joint-development projects in Washington, D.C. have tended to be big and development-oriented. Altogether, revenue-sharing has occurred in the form of nine separate leases near Washington, D.C., Metro stations and another 11 service connection arrangements. Relatively few joint-development projects in Washington, D.C., have involved cost-sharing or incentive agreements.

Philadelphia's joint-development program consists entirely of cost-sharing agreements between commercial tenants and SEPTA, the Southeastern Pennsylvania Transportation Authority. Of the 24 joint projects developed to date in Philadelphia, all have involved cost-sharing agreements in one form or another. And unlike New York or Washington, D.C., in which

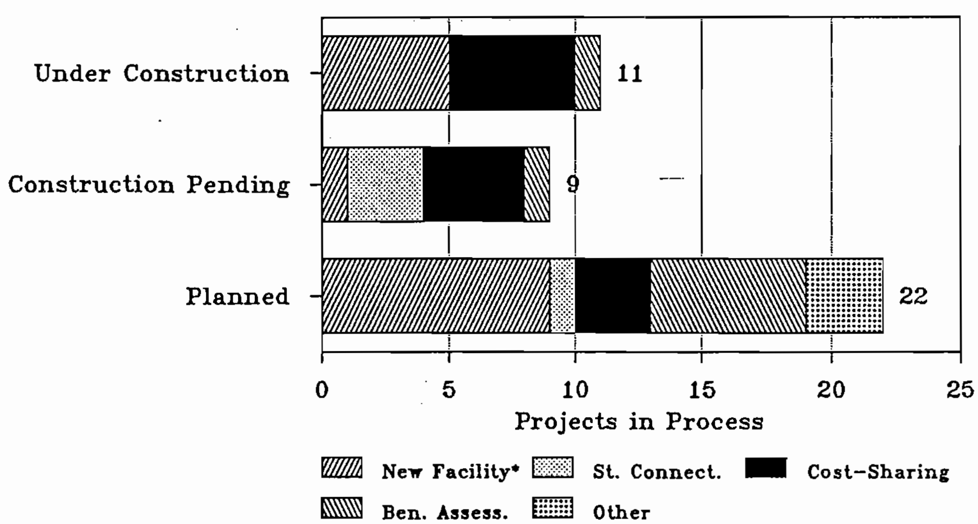
[1]Eleven joint-development projects were under construction as of October 1990, and construction was pending on nine more (Figure 3-7). Half of the projects currently under construction involve the leasing or purchasing of space at or near station areas; the other half involve some form of cost-sharing. Twenty-two additional joint-development projects are slated for the future, although funding has not yet been committed. Six of the planned projects would be developed under a benefit-assessment framework. This represents a substantial shift from the 1980s, when relatively few joint-development projects involved benefit-assessment funding.

Figure 3-6: Completed Joint Development Projects by Mode and Date of Completion



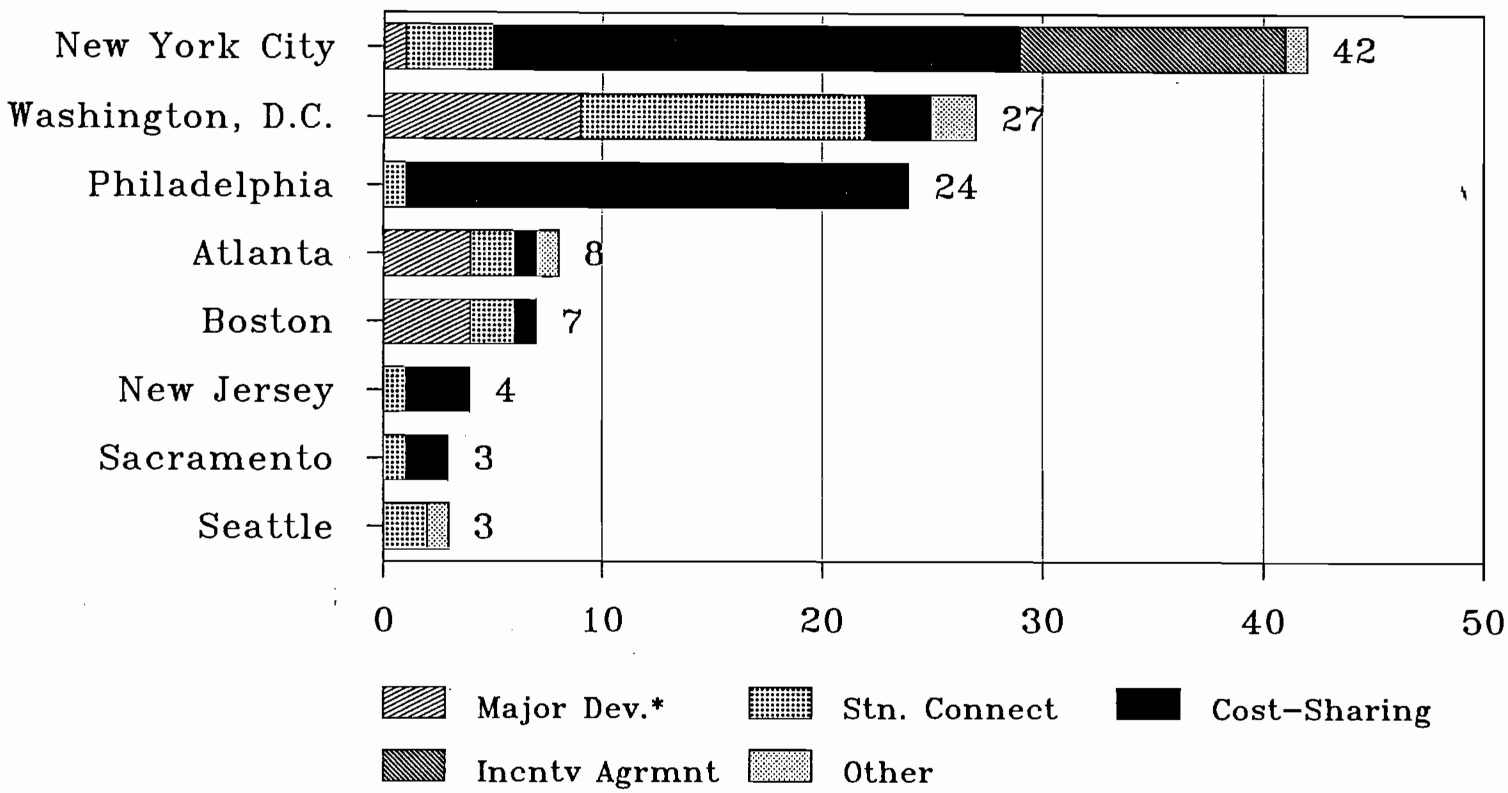

Source: IURD: as of October 1990

Figure 3-7: Joint Development Projects in Process by Type (as of October 1990)




Note: * private project developed using the sale, lease, or exchange of development rights at transit station

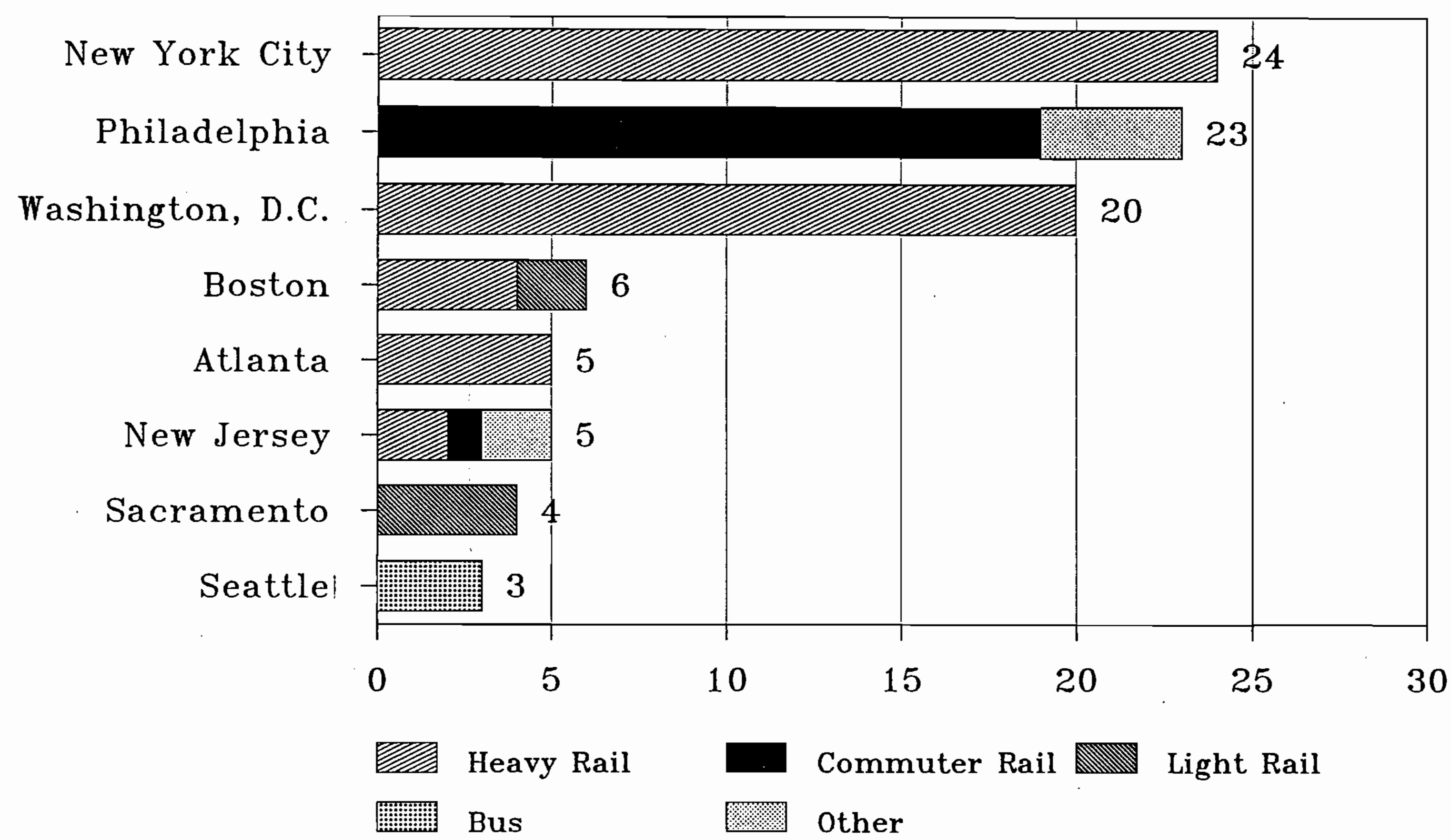
## Figure 3-8: Completed Joint Development Projects by City (as of October 1990)




Notes: * indicates purchase, lease or exchange of develop. rights at station

Source: IURD Joint Development Survey

Figure 3–9: Completed Joint Development Projects by City and Transit Mode




Source: IURD; as of October 1990

joint-development activity has been focused on heavy-rail transit, joint-development activity in Philadelphia has occurred primarily at commuter railroad stations (Figure 3-9).

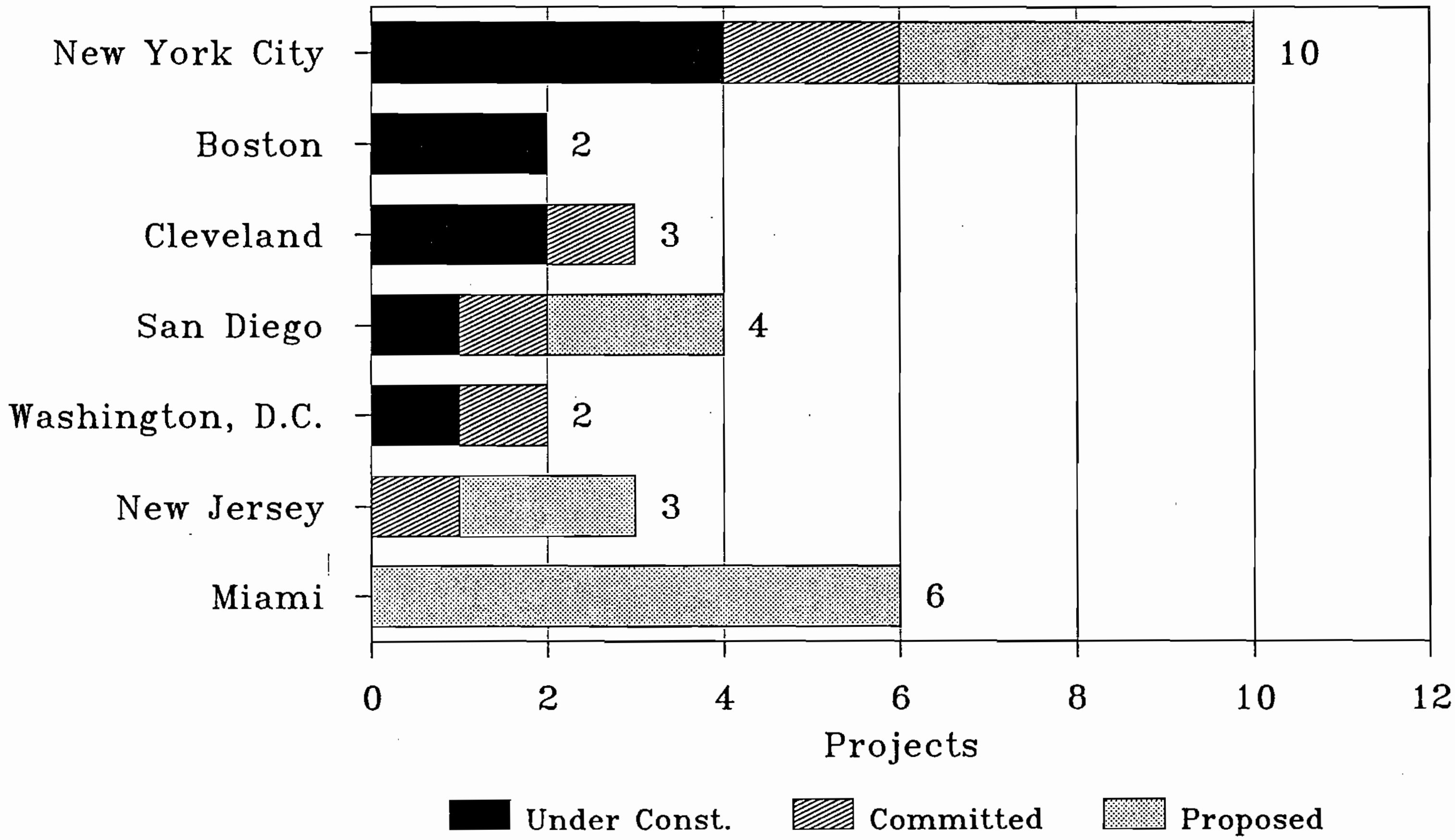
Atlanta has had far fewer joint-development projects than Washington, D.C., although both of their rail systems have been in operation for roughly the same length of time. Three joint-development projects have been constructed in Atlanta at or above MARTA -- the IBM Tower at the Arts Center station, the Southern Bell Tower at the North Avenue station, and the Georgia State Office Building at the Georgia State station. The latter two projects were developed simultaneously with the MARTA system. Another three projects -- Atlanta Plaza, Resurgens Plaza, and Rich's Department Store -- connect to MARTA stations.

Seven joint-development projects have been constructed in Boston, ranging from the rehabilitation of the Downtown Crossing MBTA accessway to the major reconstruction of the South Station. In Boston, joint-development projects have evolved in a rather ad hoc fashion, driven by market conditions rather than any comprehensive joint-development policy. Four Boston projects have involved private development above or near stations; one (Powerplant Condominiums at Lincoln Wharf) has taken place along MBTA right-of-way, and two have been in the form of station connections.

Similar joint-development projects have emerged in Sacramento (at its light-rail system) and Seattle (in connection with the downtown transit tunnel). In both places, the regional transit operator has worked closely with private developers to improve access between transit stations and existing or proposed real estate ventures; what development has occurred has been exclusively on privately owned land. In addition, both Sacramento and Seattle have pursued cost-sharing arrangements.

As of this writing, ten more joint-development projects are under construction -- four in New York City, two each in Boston and Cleveland, and one each in San Diego and Washington, D.C. (Figure 3-10). Negotiations have been completed for six additional joint projects (although construction has not yet begun), and proposals have been put forth for another fourteen projects. The majority of the committed and proposed projects are in two cities: New York City and Miami.

Figure 3–10: Joint Development Project in Process by City (as of October 1990)




Source: IURD

## C. Joint-Development Project Examples

*New Development at Transit Stations*

New development at or adjacent to a transit station is the most visible form of joint development, and, to date, 31 such projects have been completed (Table 3-2). Seven additional station projects are under construction or committed, and nine more have been proposed. The overwhelming majority of station projects have been developed around heavy-rail systems.

Station development projects tend to be big, upscale, and expensive. They also tend to involve complicated negotiations over development rights and lease payments. Examples include:

- Atlanta: Southern Bell Tower At the same time that the Metropolitan Atlanta Regional Transit Authority (MARTA) was constructing its North Line during the 1970s, the Southern Bell company was planning to consolidate its offices into a single downtown office tower on Atlanta's North Avenue -- the same site planned for the MARTA North Avenue Station. In exchange for a permanent easement through Southern Bell property, MARTA provided development air rights to Southern Bell at its North Avenue Station. As part of the agreement, Southern Bell promised to scale back the planned parking supply (MARTA's North Avenue Station would reduce the need for employees to drive to work), and MARTA promised that the station's opening would coincide with the completion of the new Southern Bell office building. The Southern Bell Tower was completed in 1981, but when construction delays at Peachtree Center Station threatened to delay the opening of the North Avenue station, MARTA opened a single track to North Avenue in order to honor its agreement with Southern Bell.

- Boston: South Station Boston's South Station is a stop on the Massachusetts Bay Transportation Authority (MBTA) Red Line and the terminus of AMTRAK's Northeast Corridor service. As the commercial revitalization of downtown Boston extended to the South Station Area, the MBTA sought out a private developer who could best develop the site while preserving the historic South Station structure. The MBTA spent $60 million restoring the building shell before turning the project over to the selected developer, the Beacon Company. The developer constructed 100,000 square feet of office space and 25,000 square feet of retail space above and adjacent to the station. The project was completed in 1989. In exchange for the development air rights, the developer agreed to pay 50 percent of the annual operating expenses of the transit station, which the MBTA expects to be about $750,000 per year. In addition, the developer provided a higher quality of building finish and Heat Ventilation and Air Conditioning (HVAC) than is normal for MBTA transit stations.

*Development Above Transit Rights-of-Way*

There are four cases in which development projects have been constructed or are planned above transit rights-of-way, rather than at transit stations (Table 3-3). Three of theses cases are in Boston, including Brattle Square. There, a private development company has proposed to build a 95,000-square-foot retail/office center on a site near Harvard Square in Cambridge. Half of the developer's site is atop an MBTA bus tunnel. A 99-year lease was negotiated which permits the developer to build above the tunnel in exchange for an annual rental payment and a

**Table 3-2:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS INVOLVING THE SALE, LEASE, OR EXCHANGE OF DEVELOPMENT RIGHTS AT TRANSIT STATION**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Atlanta | Georgia State Office Building | Completed in 1982 | Heavy Rail |
| Atlanta | IBM Tower | Completed in 1987 | Heavy Rail |
| Atlanta | Resurgens Plaza | Completed in 1988 | Heavy Rail |
| Atlanta | Southern Bell Tower | Completed in 1981 | Heavy Rail |
| Baltimore | Bank of Baltimore Building | Completed in 1987 | Heavy Rail |
| Baltimore | Penn North | Not Yet Built | Heavy Rail |
| Baltimore | Reisterstown Road Plaza | Not Yet Built | Heavy Rail |
| Baltimore | Signet Tower | Completed in 1986 | Heavy Rail |
| Boston | Auditorium Station | Completed | Heavy Rail |
| Boston | Bennett Street | Construction Pending | Heavy Rail |
| Boston | Garage/Commercial Alewife | Completed | Heavy Rail |
| Boston | Lynn Station Garage Complex | Under Construction | Heavy Rail |
| Boston | Newton Center Re-use | Completed | Heavy Rail |
| Boston | South Station | Completed in 1989 | Heavy Rail |
| Cedar Rpds | Downtown Transit Terminal | Completed | Bus |
| Chicago | Central Street Station | Completed in 1988 | Heavy Rail |
| Chicago | Cumberland Parking Garage | Completed in 1988 | Heavy Rail |
| Chicago | Tinley Park | Not Yet Built | Heavy Rail |
| Cleveland | Puritas Station | Under Construction | Heavy Rail |
| Cleveland | Tower Properties @ Union Terminal | Under Construction | Heavy Rail |
| Davenport | Davenport Ground Trans Center | Completed | Bus |
| Denver | One Civic Center Plaza | Completed in 1984 | Bus |
| Hartford | Union Station | Completed in 1987 | Heavy Rail |
| Miami | Coconut Grove Station | Not Yet Built | Heavy Rail |
| Miami | Dadeland North | Not Yet Built | Heavy Rail |
| Miami | Datran Center/Dadeland South | Completed in 1985 | Heavy Rail |
| Miami | Douglas Station | Not Yet Built | Heavy Rail |
| Miami | Overtown Joint-Development Project | Not Yet Built | Heavy Rail |
| New Jersey | Hudson River Waterfront/NJT | Not Yet Built | Light Rail |
| New Jersey | Railroad Viaduct/NJT | Completed in 1959 | Commuter Rail |
| New York | Coliseum/59 St. | Not Yet Built | Heavy Rail |
| New York | Newkirk Station | Completed | Heavy Rail |
| San Diego | 47 St. Station | Completed | Light Rail |
| San Diego | MTS Tower | Completed | Light Rail |
| Santa Ana | Transit Center (SATT) | Completed in 1987 | Bus |
| Santa Cruz | Metro Ctr Intermodal Transfer Facility | Completed in 1984 | Bus |
| Spokane | CenterPlace | Under Construction | Bus |
| Washington, D.C. | 4250 Van Ness Ave/Van Ness UDC | Completed in 1963 | Heavy Rail |
| Washington, D.C. | Ardmore Triangle New Carrollton | Construction Pending | Heavy Rail |
| Washington, D.C. | Ballston Metro Center | Completed in 1989 | Heavy Rail |
| Washington, D.C. | Bethesda Metro Center | Completed in 1985 | Heavy Rail |
| Washington, D.C. | Chevy Chase Metro Bldg/Friendship Hgts. | Completed in 1984 | Heavy Rail |
| Washington, D.C. | Columbia Square/Metro Center | Completed in 1987 | Heavy Rail |
| Washington, D.C. | Connecticut Connection | Completed in 1978 | Heavy Rail |
| Washington, D.C. | Dupont Circle Building | Completed | Heavy Rail |
| Washington, D.C. | Far East Trade Center/Gallery Place | Under Construction | Heavy Rail |
| Washington, D.C. | McPherson Square Station | Completed in 1983 | Heavy Rail |
| Washington, D.C. | Rosslyn Metro Center | Completed in 1979 | Heavy Rail |

Source: IURD Joint-Development Survey, 1990.

### Table 3-3:
### LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING THE SALE, LEASE, OR EXCHANGE OF DEVELOPMENT RIGHTS AT LOCATIONS OTHER THAN STATIONS

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Boston | Brattle Square | Under Construction | Heavy Rail |
| Boston | Eagle St. Power Substation & Bus Garage | No Longer Joint Devel. | Heavy Rail |
| Boston | Powerplant Condominiums/Lincoln Wharf | Completed | Heavy Rail |
| New Jersey | Hudson River Waterfront/NJT | Not Yet Built | Light Rail |

Source: IURD Joint-Development Survey, 1990.

### Table 3-4:
### LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING STATION INTERFACE AGREEMENTS OR CONNECTION FEES

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Atlanta | Atlanta Plaza | Completed in 1986 | Heavy Rail |
| Atlanta | Rich's Department Store | Completed in 1979 | Heavy Rail |
| Baltimore | Johns Hopkins Hospital Metro Ext. | Construction Pending | Heavy Rail |
| Boston | Bennett Street | Construction Pending | Heavy Rail |
| Boston | Cambridge Center Kendall | Completed | Heavy Rail |
| Boston | Washington St. Station | Completed | Heavy Rail |
| Miami | South Miami Station | Not Yet Built | Heavy Rail |
| New Jersey | Gateway @ Penn Station AMTRAK | Completed | Intermodal Facility |
| New York | 599 Lexington Ave | Completed in 1984 | Heavy Rail |
| New York | 875 Third Ave | Completed in 1983 | Heavy Rail |
| New York | LIC-Citicorp | Completed in 1986 | Heavy Rail |
| Sacramento | Swanston Station | Completed | Light Rail |
| San Diego | Grossmont Center | Construction Pending | Light Rail |
| Seattle | 1202 Third Ave Bldg | Completed in 1990 | Bus |
| Seattle | UNICO Bldg | Completed in 1990 | Bus |
| Washington, D.C. | Chevy Chase Pavilion/Friendship Hgts. | Completed in 1977 | Heavy Rail |
| Washington, D.C. | Connecticut Connection | Completed in 1978 | Heavy Rail |
| Washington, D.C. | Crystal City | Completed in 1977 | Heavy Rail |
| Washington, D.C. | Hecht's Metro Center | Completed in 1986 | Heavy Rail |
| Washington, D.C. | International Square/Farragut West | Completed in 1983 | Heavy Rail |
| Washington, D.C. | L'Enfant Plaza | Completed in 1977 | Heavy Rail |
| Washington, D.C. | Mazza Gallerie | Completed | Heavy Rail |
| Washington, D.C. | McPherson Square Station | Completed in 1983 | Heavy Rail |
| Washington, D.C. | Olmstead Bldg/Clarendon | Completed in 1987 | Heavy Rail |
| Washington, D.C. | Pentagon City | Completed in 1989 | Heavy Rail |
| Washington, D.C. | Union Station | Completed in 1988 | Heavy Rail |
| Washington, D.C. | Woodward & Lothrup/Friendship Hgts. | Completed | Heavy Rail |
| Washington, D.C. | Woodward & Lothrup/Metro Center | Completed in 1977 | Heavy Rail |

Source: IURD Joint-Development Survey, 1990.

share of net revenues from the project. Because of the link with the MBTA, the city of Cambridge agreed to reduce the required number of parking spaces and increase the allowable project height.

*Station Interface and Station Connection Agreements*

Station interfaces or connections are the least expensive and potentially most lucrative form of joint development. System connection projects are found at 24 transit stations around the country, and are under construction or committed in three more (Table 3-4). System interface agreements are the joint-development form of choice in Washington, D.C., where 13 separate station connection agreements have been negotiated with the Washington Metropolitan Area Transportation Authority (WMATA). Because they can improve shopper access, system interfaces are especially popular with retail developers.

- Washington, D.C.: Friendship Heights Friendship Heights is typical of WMATA's station interface agreements. The station features a circular rotunda at one end where various connecting tunnels meet. The first agreement at Friendship Heights was reached in the early 1970s (the station did not open until 1984) between the Woodward and Lothrop Company and WMATA. Under the terms of the agreement, Woodward and Lothrop paid WMATA a one-time fee of $300,000 for the right to connect to the station rotunda. The developer also paid for the design and construction of the tunnel.

  In 1983, a second agreement was made with the Mazza Gallerie Shopping Center to connect its center with the rotunda at Friendship Heights. Whereas WMATA financed the design and construction of the passageway, Mazza paid $737,000 in exchange for access rights for fifty years.

  In 1988, a third station interface agreement to the Friendship Heights Metro Station was reached between WMATA and the developer of the Chevy Chase Pavilion. The developer agreed to construct a third passageway at its own expense, pay a one-time tie-in cost of $775,000, and pay an annual rent of $75,000 for 30 years.

- New York City: CitiCorp Tower The Citicorp Tower is an example of both station interface and cost-sharing forms of joint development. In 1989, Citicorp opened a 45-story office tower in Long Island City to house its growing back-office activities. The building was erected on a site one subway stop from Citicorp's Manhattan headquarters. The neighborhood in which the tower was developed is a mixed residential/light-industrial area covered by New York City's Special Hunters Point Mixed Use District. Prior to the construction of the Citicorp Tower, this special district designation did not require the developer to mitigate transit-related impacts. However, because of the project's immense size, the New York City Department of City Planning established the Court Square subdistrict, which allows construction to proceed at a higher density upon completion of "as-of-right" transit improvements.

  Since the establishment of the subdistrict, CitiCorp has undertaken substantial improvements to the subway stop serving its development. Foremost among these was the relocation of the E, F, G, and 7 subway lines serving the site, and the partial reconstruction of the subway station. Additional improvements include a new control area, and direct escalator access from the Citicorp building to the subway mezzanine.

*Benefit-Assessment Districts/Tax-Increment Financing*

Benefit-assessment districts and tax-increment financing are mechanisms through which the public sector can both finance and recapture some (or all) of the costs of developing public infrastructure. As such, they are one of the purest forms of "value capture" financing available to transit agencies. However, they have also been one of the least used forms, due to substantial legal and political constraints. Most states require specific state legislation for the creation of "benefit assessment districts" around transit stations, and the political climate is not always conducive to such legislation.

Benefit, or "special," assessments are fees imposed in addition to the regular property tax levy. Unlike general taxes, they may be imposed only upon landowners who derive particular benefits from the construction of a capital improvement. The proceeds of an assessment are typically used to retire long-term bonds issued by the public agency constructing the improvement. In most cases, landowners who especially benefit from an improvement are geographically proximate -- hence, benefit assessments are almost always assessed on property within defined "districts." The assessment paid by a given property may be based on distance from the improvement, assessed value, square footage, street frontage, or a combination thereof.

The types of capital improvements that may be funded through benefit-assessment districts vary from state to state. Traditionally, the mechanism was used only to finance improvements, such as street lighting, curbs, and sewerage, that exclusively served the land taxed. Indeed, many state constitutions and statutes continue to limit the use of benefit assessments to this narrow class of improvements. Some states, however, have passed legislation permitting the use of benefit assessment districts to fund improvements that, while disproportionately benefitting landowners within the assessment district, also provide substantial benefits to people outside the district.

The use of benefit assessments to fund transit improvements is undoubtedly on the cutting edge of this trend. Several cities have experimented with benefit assessment for transit improvements (Table 3-5). The first application of benefit-assessment financing in the transit field was in Minneapolis, where downtown property owners paid 75 percent of the cost of financing the $3.8 million Nicollet Mall/busway project in downtown Minneapolis in the mid-1960s. Since then, Denver, Seattle, and Minneapolis have used the mechanism to fund bus-related improvements, while Dade County, Florida, has partially funded a "people-mover" system with assessments. Boston, Sacramento, and Portland (Oregon) are currently considering benefit-assessment financing as well.

The most ambitious effort yet to implement benefit assessment is under way in Los Angeles. In 1983, state legislation was passed that empowers the Southern California Rapid

**Table 3-5:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING BENEFIT ASSESSMENT DISTRICT/TAX INCREMENT FINANCING**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Cleveland | Dual Hub Corridor | Construction Pending | |
| Columbus | Transit Mall | Built; Not Joint Devel. | Bus |
| Denver | Cross Mall | Not Yet Built | Bus |
| Denver | Transit Mall | Completed in 1982 | Bus |
| Fort Lauderdale | People Mover | Status Unknown | People Mover |
| Honolulu | Honolulu | Not Yet Built | Expected to be Rail |
| Los Angeles | All Transit Stations | Completed in 1989 | Heavy Rail |
| Miami | Metro Mover | Completed | People Mover |
| Minneapolis | Nicollet Transit Mall | Completed in 1966 | Bus |
| Portland | Benefit Assessment Districts | Not Yet Built | Light Rail |
| Rochester | Downtown Transit Improvements | Completed in 1989 | Bus |
| Sacramento | 8th Street Mall | Not Yet Built | Light Rail |
| Sacramento | K Street Mall | Not Yet Built | Light Rail |
| San Francisco | Market St. Tax Increment Financing District | Completed in 1981 | Heavy Rail |
| Seattle | Downtown Transit Tunnel | Completed in 1990 | Bus |

Source: IURD Joint-Development Survey, 1990.

Transit District (RTD) to create assessment districts to fund Los Angeles' new heavy-rail transit line, known as Metro Rail. The legislation also authorized RTD and the local redevelopment authority to acquire supplemental properties around stations and to implement performance zoning. Pursuant to this legislation, RTD established benefit assessment districts around all five stations on the initial 4.4-mile segment of the system, in order to raise $130 million, or about 10 percent, of the estimated $1.25 billion capital cost.

Under the plan, landowners within approximately one-half mile of any station would pay an annual assessment based on the square footage of improvements or parcel size, whichever is greater. A combined benefit assessment district for the four downtown stations effectively blankets the entire central business district. The assessment structure, like most property tax schemes, contains exemptions for parcels owned and used either by the public or by non-profit charitable organizations. All residential properties (except hotels and motels) are exempt from assessments. Finally, industrial and warehouse buildings, as well as parking, are defined by the plan as "unassessable," meaning that they are not included in the calculation of square footage.

The assessment is currently set at 30 cents per square foot, but can increase to as much as 42 cents, according to the RTD Board's resolution. On the other hand, because the contribution of benefit assessment to Phase 1 of Metro Rail is to be constant ($130 million), the assessment will likely decrease over time, as the amount of assessable square footage increases.

Additional districts have already been proposed for several stations on the second phase of Metro Rail, which will complete the 18.6-mile line. These assessments have an estimated yield of $75 million over the life of the project, and should cover about 3 percent of the capital cost of Phase 2.

The assessment plan took effect in 1986, and RTD collected about $1 million in assessments that first year. However, the RTD board, on a motion from downtown businesspeople, decided to discontinue collection of the assessments until Phase 1 of the project is complete. Hence, assessments will not be collected again until sometime in 1993.

Meanwhile, as of this writing, the legal status of the Metro Rail benefit-assessment plan is being contested. In a case brought by a consortium of railroads owning land in the Union Station area, an appellate court recently struck down the plan. The California Supreme Court has agreed to hear an appeal of the decision; a final resolution could come sometime during 1991, according to RTD officials. If RTD ultimately loses in court, the Los Angeles County Transportation Commission (LACTC), which is now in charge of construction, will seek new state legislation curing the defects in the voting procedure and expressly allowing a residential exemption.

Because of the program's uncertainty, RTD has foregone the sale of $200 million worth of construction bonds based on the benefit assessment revenue stream.

*Incentive-Based Agreements*

Incentive-based agreements utilize land-use incentives such as zoning variances or floor area ratio (FAR) bonuses to leverage developer-funded transit improvements. There are presently 21 joint-development projects nationwide that use incentive-based agreements, eleven in New York City, nine in Seattle, and one in Los Angeles (Table 3-6). Significantly, the New York incentive-based approach is administered by the New York City Planning Department, not the Metropolitan Transit Authority.

In New York City, density bonuses are available at 25 stations in Manhattan for commercial districts zoned at FARs of 10 and above. For large-scale transit access improvements or station renovations, a developer's FAR bonus can be up to 20 percent over the maximum allowable density in these districts.

The first zoning bonuses granted by the City Planning Commission were for compliance with Special Urban Design Guidelines, such as the creation of urban open space and covered pedestrian spaces.[2] Lately, the City Planning Commission has been reluctant to grant FAR bonuses for further civic improvements unrelated to transit. Consequently, bonus provisions today are invoked almost exclusively to leverage developer-funded transit station improvements approved by the Metropolitan Transportation Authority (MTA).

One of the more noteworthy examples is the 599 Lexington Avenue project. This project was completed in 1989 following the successful completion of two nearby joint-development projects at the 53rd Street Station, 875 Third Avenue, built in 1981, and 885 Third Avenue, built in 1984. Prior to issuance of a building permit, the developer of 599 Lexington Avenue was required to relocate a subway entrance stair from the center of the sidewalk to an off-street location within the building's lot line. This station access improvement was stipulated under the mandatory provisions of the Special Midtown District. In addition, to secure a floor area bonus, the developer offered to fund additional transit improvements.

Most recently, Seattle Metro has embarked on one of the most ambitous incentive programs in the nation to help finance its 1.3-mile downtown transit tunnel. Design constraints made it necessary to construct station entrances within existing or planned buildings along the downtown alignment. To help finance these connections, the city of Seattle and Seattle Metro entered into an agreement which granted a FAR bonus if property owners provided, without charge to

[2]Sections 37-01 and 37-02, New York City Zoning Ordinance.

**Table 3-6:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING INCENTIVE-BASED AGREEMENTS**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Los Angeles | Home Savings Portal | Completed in 1990 | Heavy Rail |
| New York | 33 Maiden Lane/Fulton St. Station | Completed in 1983 | Heavy Rail |
| New York | 60 Wall Street/Morgan Bank | Completed in 1989 | Heavy Rail |
| New York | 599 Lexington Ave. | Completed in 1984 | Heavy Rail |
| New York | 875 Third Ave. | Completed in 1983 | Heavy Rail |
| New York | 885 Third Ave. | Completed in 1984 | Heavy Rail |
| New York | Citicorp/53 & Lexington Ave. | Completed in 1979 | Heavy Rail |
| New York | Kalikow Hotel | Not yet built | Heavy Rail |
| New York | LIC-Citicorp | Completed in 1986 | Heavy Rail |
| New York | Phillip Morris/42 Street | Completed in 1981 | Heavy Rail |
| New York | Rudin/50 & Lexington | Completed in 1980 | Heavy Rail |
| New York | Worldwide Plaza/50 St. | Completed in 1986 | Heavy Rail |

Source: IURD Joint-Development Survey, 1990.

Seattle Metro, sufficient property for a station entrance. Developers have been offered bonuses of up to 35,000 square feet of allowable buildable space in exchange for allocating space for a station easement at their sites.[3] To date, nine agreements between Seattle Metro and private developers have saved an estimated $16 million in land acquisition costs. So far, incentive-based joint-development deals have been entered into with developers at the International District Station (multi-use office and retail project), Pioneer Square Station (redevelopment project), University Street Project (high-rise office tower), and Westlake Station (large retail project).

*Cost-Sharing Agreements*

Seventy-two joint-development projects have involved cost-sharing agreements between transit agencies and private developers. Sixty-one projects have been completed, seven are under construction or committed, and four have been proposed. The vast majority of cost-sharing agreements have been undertaken by just two transit agencies: New York City's Metropolitan Transportation Authority (MTA), and Philadelphia's SEPTA (Southeastern Pennsylvania Transportation Authority). Indeed, cost-sharing agreements are the dominant form of joint development in both New York City and Philadelphia (Table 3-7). Cost-sharing agreements have also been undertaken in Sacramento, San Diego, and Washington, D.C. Of all joint-development forms, cost-saving agreements are the most varied in terms of size, scope, and revenue yield. Thus, the examples that follow, although indicative of how cost-sharing agreements work, are hardly typical.

- Philadelphia: Jenkintown Station/Stasi Milani This project is the largest joint-development project yet undertaken by SEPTA. Jenkintown is one of 19 projects built at stations in suburban Philadelphia under SEPTA's Lease and Maintain (L&M) program. The L&M program is a sophisticated version of a concession lease agreement. In this case, the developer agrees to pay an annual rent, similar to a conventional lease, for retail or office space within a commuter rail station. The L&M program, however, requires that a developer or owner of such businesses also renovate the public areas of the station, rehabilitate the space to be occupied, and contribute to the maintenance of the facility. Because it involves development of common areas, the L&M program involves more than just simple leasing.

  In 1986, Jenkintown Enterprises, the private developer, renovated 600 square feet of the station actually used for transit and another 4,000 square feet occupied by a restaurant (formerly Greenwood Grill, now Stasi Milani). The developer spent $1.4 million to renovate the station and build the restaurant. Station improvements include a renovated ticket office, rest room, and passenger waiting area. In addition, Jenkintown Enterprises assumes all maintenance duties for the station. In return, SEPTA granted the developer a 20-year lease with a 10-year rent credit valued at $54,000 per anum. SEPTA

[3]If a structure is delayed or built at a later date, the city and Seattle Metro have agreed that this bonus could be "banked" for later use.

**Table 3-7:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING COST-SHARING AGREEMENTS**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Atlanta | Atlanta Plaza | Completed in 1986 | Heavy Rail |
| Boston | Auditorium Station | Completed | Heavy Rail |
| Los Angeles | Home Savings Portal | Completed in 1990 | Heavy Rail |
| Milwaukee | Bus Shelters | Completed in 1986 | Bus |
| New Jersey | Allied Junction/Secaucus Transfer Station | Not yet built | Commuter Rail |
| New Jersey | Exchange Place/PATH | Completed in 1989 | Heavy Rail |
| New Jersey | Grove Street Station/PATH | Completed in 1989 | Heavy Rail |
| New Jersey | Pavonia/Newport Headhouse/PATH | Completed in 1988 | Heavy Rail |
| New Jersey | South Brunswick/NJT | Construction Pending | Commuter Rail |
| New York | 140 Liberty St./Fulton St. | Completed in 1985 | Heavy Rail |
| New York | 1568 Broadway/49 St. | Completed in 1988 | Heavy Rail |
| New York | 30 Old Slip/Broad St. | Construction Pending | Heavy Rail |
| New York | 33 Maiden Lane/Fulton St. Station | Completed in 1983 | Heavy Rail |
| New York | 45 Broadway/Wall St. | Completed in 1985 | Heavy Rail |
| New York | 599 Lexington Ave | Completed in 1984 | Heavy Rail |
| New York | 60 Wall St.-Morgan Bank/Wall St. | Completed in 1989 | Heavy Rail |
| New York | 750 Lexington/59 St. | Completed in 1987 | Heavy Rail |
| New York | 875 Third Ave. | Completed in 1983 | Heavy Rail |
| New York | 885 Third Ave. | Completed in 1984 | Heavy Rail |
| New York | Albee Square Mall/Dekalb Ave. | Completed in 1982 | Heavy Rail |
| New York | Alexanders Rego Park Mall/63 Dr. | Construction Pending | Heavy Rail |
| New York | Americas Tower/47-50 St. | Under Construction | Heavy Rail |
| New York | Atlantic Term PDC Rose/Atlantic Ave. | Not Yet Built | Heavy Rail |
| New York | A&S Plaza/34 St. Herald Square | Completed | Heavy Rail |
| New York | Battery Park City/Chambers St. | Completed in 1987 | Heavy Rail |
| New York | Coliseum/59 St. | Not Yet Built | Heavy Rail |
| New York | Dollar Dry Dock/59 St. | Under Construction | Heavy Rail |
| New York | Eichner 87 St.-Broadway/86 St. | Completed in 1986 | Heavy Rail |
| New York | Herald Center/34 St. Herald Square | Not Yet Built | Heavy Rail |
| New York | LIC-Citicorp | Completed in 1986 | Heavy Rail |
| New York | Marriott Hotel/Rector St. | Under Construction | Heavy Rail |
| New York | Metro Tech/J St. Borough Hall | Under Construction | Heavy Rail |
| New York | One Union Square/14 St. | Completed in 1985 | Heavy Rail |
| New York | Phillip Morris/Grand Central | Completed in 1979 | Heavy Rail |
| New York | Rose 52 St./8 Ave. | Completed in 1986 | Heavy Rail |
| New York | Rudin/50 & Lexington | Completed in 1980 | Heavy Rail |
| New York | Shearson AMEX/Franklin St. | Completed in 1988 | Heavy Rail |
| New York | Solomon Equities/50 St. | Completed in 1988 | Heavy Rail |
| New York | UJA 59 St.-Lexington/59 St. | Completed in 1986 | Heavy Rail |
| New York | Worldwide Plaza/50 St. | Completed in 1986 | Heavy Rail |
| New York | Zeckendorf 57 St./59 St. | Completed in 1985 | Heavy Rail |
| New York | Zeckendorf Union Sq/Union Square | Completed in 1987 | Heavy Rail |
| Philadelphia | Ambler | Completed | Commuter Rail |
| Philadelphia | Ardsley | Completed | Commuter Rail |
| Philadelphia | Berwyn Station | Completed | Intermodal Facility |
| Philadelphia | Chestnut Station | Completed in 1985 | Commuter Rail |
| Philadelphia | Cynwyd | Completed | Commuter Rail |
| Philadelphia | Elkins Park | Completed | Commuter Rail |

[TABLE 3-7 continued]

## Table 3-7:
## LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING COST-SHARING AGREEMENTS
## [continued]

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Philadelphia | Glenside | Completed | Commuter Rail |
| Philadelphia | Gwynedd Valley | Completed | Commuter Rail |
| Philadelphia | Haverford Station | Completed | Intermodal Facility |
| Philadelphia | Jenkintown Railroad Ctr | Completed in 1986 | Commuter Rail |
| Philadelphia | Lansdale | Completed | Commuter Rail |
| Philadelphia | Noble | Completed | Commuter Rail |
| Philadelphia | North Wales Station | Completed | Commuter Rail |
| Philadelphia | Penllyn Station | Completed | Commuter Rail |
| Philadelphia | Perkasie Station | Completed | Commuter Rail |
| Philadelphia | Philmont Station | Completed | Commuter Rail |
| Philadelphia | Rosemont Station | Completed | Intermodal Facility |
| Philadelphia | Rydal Station | Completed | Commuter Rail |
| Philadelphia | Swarthmore | Completed in 1985 | Commuter Rail |
| Philadelphia | Upsal Station | Completed | Commuter Rail |
| Philadelphia | Westtown Station | Completed | Commuter Rail |
| Philadelphia | Willow Grove Station | Completed | Commuter Rail |
| Philadelphia | Wynnewood Station | Completed | Intermodal Facility |
| Pittsburgh | Steel Plaza/One Mellon Bank Center | Completed in 1985 | Light Rail |
| Sacramento | 16 Street Station | Completed | Light Rail |
| Sacramento | Saint Rose of Lima | Completed | Light Rail |
| San Diego | Great American Plaza | Under Construction | Light Rail |
| San Diego | Grossmont Center | Construction Pending | Light Rail |
| Santa Cruz | Intermodal Transfer Facility | Completed in 1984 | Intermodal Facility |
| Toledo | Pedestrian Concourses | Completed in 1980 | Bus |
| Washington, D.C. | Hecht's Metro Center | Completed in 1986 | Heavy Rail |
| Washington, D.C. | L'Enfant Plaza | Completed in 1977 | Heavy Rail |
| Washington, D.C. | Woodward & Lothrup/Metro Center | Completed in 1977 | Heavy Rail |

Source: IURD Joint-Development Survey, 1990.

estimates that for 19 stations with joint development, this program saves the agency $133,000 per year in station maintenance expenses.

- Washington, D.C.: Woodward and Lothrup The first joint-development project in the Washington, D.C., area was planned well before the Metro system opened. In 1969, the newly formed Washington Metropolitan Transportation Authority (WMATA) and the Woodward and Lothrup Department Store entered into an agreement by which Woodward and Lothrop would build an underground retail mezzanine to connect its north and south buildings. The mezzanine was built above a Metro subway tunnel, with WMATA and Woodward and Lothrop sharing the development cost. According to officials at WMATA, this arrangement saved the transit agency an estimated $250,000 (1970 dollars). As part of the agreement, Woodward and Lothrop also granted a permanent easement to WMATA at an estimated 50 percent of market rate.

- Secaucus, New Jersey: New Jersey Transit station The most extreme case of cost-sharing is when private developers have paid the full bill for a transit investment. Such was the case for New Jersey Transit's Secaucus station located along the Suffern, New York, and Hoboken, New Jersey, railroad line. During 1977-78, Hartz Mountain Industries, Inc., funded the entire $300,000 tab for the rail station. This was not a case of "enlightened benevolence" on the part of the company, however. Rather, it was in the interest of Hartz Mountain to have a rail station in Secaucus to serve its 750-acre Harmon Cove development, which consisted of 1,200 condominiums and 15 million square feet of office space and warehouse distribution facilities. The company has also sponsored a shuttlebus connection to the station for Harmon Cove's residents and employees.

*Joint-Use-of-Facility Agreements*

Joint-use agreements involve the shared use of equipment and ancillary functions (such as heating-ventilating and air conditioning systems, elevators, parking lots, and garages) between the private developers and the transit agency. Four joint-use agreements have been struck so far, all in Washington, D.C. (Table 3-8). Metrorail's Farragut West Metro station taps into the International Square office and retail project's heating and air conditioning system; meanwhile, at the outlying Bethesda Station, heat generated by the transit system is being harnessed and recycled into an integrated mixed-use office-commercial-housing project. Developer-financed bus bays and kiss-and-ride spaces at the Van Ness and Bethesda stations, moreover, saved WMATA an estimated $2.1 million (1982 dollars) in construction costs.

*Concession Leases*

In this form of joint development, transit agencies lease space to retail companies and independent venders. Unlike traditional concession leases at transit facilities (such as newspaper kiosks), joint-development concession leases involve the cooperative design and development, or renovation or rehabilitation, of station space. Table 3-10 lists the 29 cases of large-scale concession leases. The great majority of them have been in Philadelphia.

**Table 3-8:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS**
**UTILIZING JOINT-USE-OF-FACILITIES AGREEMENTS**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Washington, D.C. | Connecticut Connection | Completed in 1978 | Heavy Rail |
| Washington, D.C. | International Square/Farragut West | Completed in 1983 | Heavy Rail |
| San Diego | MTS Tower/Joint-Use Parking | Completed | Light Rail |
| San Diego | Theater Joint-Use Parking | Completed | Light Rail |

Source: IURD Joint-Development Survey, 1990.

**Table 3-9:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS**
**UTILIZING OPERATIONAL ASSISTANCE AGREEMENTS**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| New Orleans | Riverfront Transit | Status Unknown | Light Rail |

Source: IURD Joint-Development Survey, 1990.

**Table 3-10:**
**LISTING OF JOINT-DEVELOPMENT PROJECTS UTILIZING THE LEASE OF CONCESSION SPACE**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Boston | Brattle Square | Under Construction | Heavy Rail |
| Boston | Garage/Commercial Alewife | Completed | Heavy Rail |
| Boston | Lynn Station Garage Complex | Under Construction | Heavy Rail |
| New Jersey | Gateway @ Penn Station AMTRAK | Completed | Intermodal Facility |
| New Jersey | Hoboken Terminal/PATH | Completed | Intermodal Facility |
| New York | Newkirk Station | Completed | Heavy Rail |
| Philadelphia | Ambler | Completed | Commuter Rail |
| Philadelphia | Ardsley | Completed | Commuter Rail |
| Philadelphia | Berwyn Station | Completed | Intermodal Facility |
| Philadelphia | Chestnut Station | Completed in 1985 | Commuter Rail |
| Philadelphia | Cynwyd | Completed | Commuter Rail |
| Philadelphia | Elkins Park | Completed | Commuter Rail |
| Philadelphia | Glenside | Completed | Commuter Rail |
| Philadelphia | Gwynedd Valley | Completed | Commuter Rail |
| Philadelphia | Haverford Station | Completed | Intermodal Facility |
| Philadelphia | Jenkintown Railroad Center | Completed in 1986 | Commuter Rail |
| Philadelphia | Lansdale | Completed | Commuter Rail |
| Philadelphia | Noble | Completed | Commuter Rail |
| Philadelphia | North Wales Station | Completed | Commuter Rail |
| Philadelphia | Penllyn Station | Completed | Commuter Rail |
| Philadelphia | Perkasie Station | Completed | Commuter Rail |
| Philadelphia | Philmont Station | Completed | Commuter Rail |
| Philadelphia | Rosemont Station | Completed | Intermodal Facility |
| Philadelphia | Rydal Station | Completed | Commuter Rail |
| Philadelphia | Swarthmore | Completed in 1985 | Commuter Rail |
| Philadelphia | Upsal Station | Completed | Commuter Rail |
| Philadelphia | Westtown Station | Completed | Commuter Rail |
| Philadelphia | Willow Grove Station | Completed | Commuter Rail |
| Philadelphia | Wynnewood Station | Completed | Intermodal Facility |

Source: IURD Joint-Development Survey, 1990.

*Co-Development*

Co-development projects are real estate projects at or adjacent to transit facilities that do not involve any direct financial transaction between a developer and a transit operator. Rather, benefits accrue from the coordinated siting and staging of private real estate projects and new transit investments. Table 3-11 includes a partial list of co-development projects that have surfaced to date. Many of the projects listed in Table 3-11 (including Atlanta's Underground Atlanta, Detroit's Riverfront West, New York City's Zeckendorf Plaza, Portland's Gateway Transit Center, and San Diego's E Street Station) have been widely referred to as joint development.

## D. Summary

To date, nearly one-half of joint-development projects in the U.S. have involved some form of cost-sharing. One out of five has taken the form of private-sector leasing or purchase of station area space and air rights, while the remaining projects have been a mixture of consession leases, connection-fee arrangements, benefit-assessment financing, and joint use of ancillary facilities. The majority of these projects has been associated with heavy-rail systems, followed by commuter rail and conventional bus systems. Relatively little joint-development activity has taken place around light-rail transit lines, although this could change during the 1990s as more transit systems are extended or completed.

Joint development in the U.S. is largely a post-1980 phenomenon. Well over two-thirds of joint-development projects to date have been in three cities: New York City, Washington, D.C., and Philadelphia. New York City has benefitted from private-sector financing of pedestrian ameneties in and around existing Manhattan stations. In Washington, D.C., a mix of air-rights leases and station connection-fee arrangements have been entered into. And in Philadelphia, private interests have helped finance the refurbishment of a number of aging downtown subway and commuter rail stations. Outside of these three cities, a wide assortment of programs can be found, ranging from the leasing of air rights above subway lines in Boston to benefit-assessment financing of a substantial share of new facilities along Los Angeles' Wilshire Starter line.

**Table 3-11:**
**LISTING OF CO-DEVELOPMENT PROJECTS;**
**TRANSIT AGENCY NOT INVOLVED IN THEIR DEVELOPMENT**

| City | Project Name | Status | Transit Mode |
|---|---|---|---|
| Atlanta | Underground Atlanta | Completed | Heavy Rail |
| Baltimore | Johns Hopkins Hospital Metro Ext. | Construction Pending | Heavy Rail |
| Baltimore | Lexington Market | Completed | Heavy Rail |
| Buffalo | Oak St. Redevelopment Project | Completed | Light Rail |
| Chicago | 63 Street Redevelopment Corridor | Construction Pending | Heavy Rail |
| Chicago | Loop Transportation Center | Completed | Intermodal Facility |
| Detroit | Riverfront West | Completed | Commuter Rail |
| Long Beach | Bus Transportation Center | Completed | Busx |
| Madison | State Street Transit Mall | Completed | Busx |
| Miami | Brickell Station | Not Yet Built | Heavy Railx |
| Minneapolis | Galleria | Completed | Bus |
| Minneapolis | Nicollet Mall | Completed | Bus |
| Philadelphia | Gallery I & II | Completed | Intermodal Facility |
| Philadelphia | One Reading Center | Completed | |
| Portland | Gateway Transit Center | Completed | Light Rail |
| Providence | Capital Center Project | Not Yet Built | |
| San Diego | E Street Station | Completed | Light Rail |
| San Diego | Trolley Plaza | Completed | Light Rail |
| San Francisco | Pleasant Hill | Not Yet Built | Heavy Rail |
| San Francisco | Walnut Creek | Not Yet Built | Heavy Rail |
| Tampa | Harbor Island People Mover | Completed | People Mover |
| Washington, D.C. | Silver Spring | Completed | Heavy Rail |

Source: IURD Joint-Development Survey, 1990.

## CHAPTER FOUR:
## Joint Development as Public Policy

### A. Introduction

There are at least four reasons why joint development has never been a high priority for most of the nation's transit agencies. The first relates to agency mission. Most transit agencies are organized around the central purpose of providing rail and bus service. To most, real estate operations have traditionally meant the leasing out of small station spaces to concessions. Until just recently, real estate operations as property development was rarely recognized as a legitimate function for a publicly chartered agency.

Second, transit agencies, like most public service providers, are usually organized bureaucratically into function-specific divisions. This organizational form is at odds with the entrepreneurial character of most real estate development companies. And as public entities, transit agencies are unaccustomed to assessing or taking the types of risks inherent in real estate development. Keeping the trains and buses running are their primary charge.

Third, until the late 1970s, transit agencies didn't necessarily see themselves as having anything to bring to the development negotiating table. Land, the most important ingredient to the development process, was typically in short supply. Most transit facilities were either underground (in the case of heavy rail), along public rights-of-way (buses and light-rail facilities), or limited to dedicated rights-of-way (commuter rail systems). Existing transit systems were usually in "cold" real estate markets, places where relatively little development was occurring. State and local charter restrictions made it difficult for those transit agencies developing new systems to acquire the excess land parcels which might later be used for development or for leveraging real estate deals. Mostly, however, the vast majority of new real estate development was occurring in suburban areas, and at low densities -- precisely the types of places that transit agencies found it difficult to serve, as well as to compete with the private automobile.

Fourth and finally, real estate development in general, and joint development in particular, had never been viewed as particularly lucrative. As operating costs steadily rose throughout the post-WWII period, transit agencies turned either to fare increases or federal assistance to help cover deficits; given the rising size of such deficits, the cash potential of non-farebox revenue sources was seen as minimal. With a ready cache of federal and state subsidy bail-outs, few transit managers felt any pressure to go after real estate money.

What turned things around? First, there was increasing pressure on transit agencies from the federal government and states to operate more efficiently and seek out additional revenue sources. The nation's abrupt economic downturn in the early 1980s, combined with the pro-marketplace philosophy of the Reagan Administration, prodded more and more transit agencies to put their fiscal houses in order. Second, beginning in the mid-1970s, once-moribund central-city real estate markets began to boom across America. Suddenly what had been largely worthless excess land holdings were worth a lot. Finally, the private development community came to see that it could in fact "do deals" with public agencies. Public-private partnerships became fashionable and profitable.

It would, however, be a mistake to see these latter trends as universal. Except perhaps in Washington, D.C., joint development has not yet been adopted *as a major element or centerpiece of transit agency policy*. If anything, in the cities in which joint development has occurred, it has occurred in different ways and for different reasons, often through the leadership of individuals who were not employees or officials of a transit authority.

This chapter looks at how and why joint development has occurred, and some of the measurable impacts it has had, in six different cities: Washington, D.C., Atlanta, New York City, Philadelphia, San Diego, and Miami. (Selected characteristics of the transit systems in place in all six cities are summarized in Table 4-1.) The first two cases, Washington, D.C., and Atlanta, are cities which experimented with joint development as they were building major heavy-rail rapid transit systems during the 1970s. Since that time, Washington, D.C., has emerged as the national leader in joint development. Atlanta has also experienced continued commercial and residential growth around transit stations; however, as we note below, not as a result of transit agency policies. The second two cities, New York City and Philadelphia, are examples of older cities which have used joint development, each in different ways, to pay for station modernization. The last two cases, San Diego and Miami, are examples of cities with new transit systems where the relationships between transit, local land uses, and joint development are still being worked out.

## B. Joint-Development Pioneers: Metrorail and MARTA

The 1970s saw the development of not one but three new heavy-rail mass-transit systems: BART in the San Francisco Bay Area, MARTA in Atlanta, and Metrorail in Washington, D.C. In all three cases, system planners recognized that the systems they were developing would have major impacts on the growth and economic development of their respective regions, and on future land use patterns. Moreover, there was widespread recognition that the greatest land use changes would occur in and around the station areas.

## Table 4-1:
## JOINT-DEVELOPMENT CASE STUDY CITIES

| City - System | Annual Unlinked Passenger Trips (1000) Heavy Rail | Light Rail | Commuter Rail | Route Miles (All Modes) | Stations (All Modes) | Farebox Recovery | Joint Develop-ment Projects |
|---|---|---|---|---|---|---|---|
| ATLANTA - MARTA | 65,908.0 | | | 31.9 | 29 | 29.1% | 6 |
| MIAMI - METRO | 10,406.2 | | | 22.4 | 20 | 28.4% | 1 |
| NEW YORK - MTA | 1,483,209.5 | | 151,989.8 | 261.6 | 491 | 64.0% | 35 |
| PHILADELPHIA - SEPTA | 98,477.9 | 42,759.0 | 25,450.1 | 155.9 | 236 | 44.2% | 19 |
| SAN DIEGO - TROLLEY | | 9,280.6 | | 33.2 | 30 | 68.2% | 7 |
| WASHINGTON - WMATA | 172,614.8 | | | 69.6 | 64 | 39.7% | 22 |

Sources: UMTA Section 15, 1988.
IURD, 1990.
Janes Urban Transportation Systems, 1990.

The system planners for each of the three systems treated their stations somewhat differently. BART, in the San Francisco Bay Area, was designed largely as a modern-day commuter railroad whose function was to bring suburban commuters to downtown San Francisco and Oakland. Thus, BART planners cleared large areas around suburban stations for use as commuter parking lots -- a decision which has made subsequent attempts at joint development extremely difficult.

MARTA planners saw their system as having two functions: as a commuter rail system for residents of outlying suburban areas, and as one part of a circulation system which would better integrate Atlanta's three business districts (Buckhead, Midtown, and Downtown). MARTA was intended to trigger private re-investment in and around stations, but primarily in the downtown area. Moreover, the form such development would take was to be left to the private sector.

Because so much of its right-of-way is underground, the construction of Washington, D.C.'s Metrorail's necessitated large-scale site clearance and excavation, especially in downtown Washington, D.C. Such activities, in turn, created widespread development and redevelopment opportunities. Even more significantly, the extension of Metrorail into northern Virginia coincided with an explosion of employment growth throughout the Washington, D.C., region. Thus Metrorail's Orange and Red lines became the primary conduit for new office and residential development in northern Virginia and suburban Maryland, respectively.

*WMATA's Station Area Development Program*

Of all the cities and transit agencies in the U.S. that have undertaken joint-development projects, WMATA (the Washington Metropolitan Area Transportation Authority) has been the most successful. More high-value commercial projects have been developed at more stations, with greater impact on both the surrounding area and on the transit operator, in Washington, D.C., than anywhere else in the nation.

Given WMATA's success at joint development, it is ironic that joint-development concerns were largely absent when the Washington Metro system was first planned. Indeed, in the years following WMATA's establishment in 1968, there was no clear conception of what the authority's involvement in local land planning would be, or if there was to be any involvement at all. WMATA came upon joint development almost by chance: as construction progressed on the Metrorail system, WMATA and adjacent property owners found it useful, on a project-by-project ad hoc basis, to share some land preparation, excavation, and construction costs and coordinate building schedules. These initial efforts led to the blossoming of joint development as practiced today.

The first of these ad hoc agreements was reached in 1969 between the newly formed WMATA and the Woodward & Lothrup Department Store. At the same time that WMATA was preparing the downtown site that would become its Metro Center station, Woodward & Lothrup was in the process of planning improvements to its downtown store. Each party recognized that their own improvements could benefit the other and an agreement was struck: WMATA was granted easements as well as ground and underground development rights at 50 percent of fair market value (1970), while Woodward & Lothrup was allowed to connect its planned underground mezzanine directly to the Metro Center Station. Anticipating that both entities would benefit from the increased pedestrian traffic, WMATA and Woodward & Lothrop agreed to share the cost of constructing the common elements of the mezzanine and the Metro tunnel below.

Despite WMATA's encouraging experiences with Woodward and Lothrup, the agency continued to see joint development only as an occasional opportunity, not as a regular part of the transit station planning process. Thus, it was not until 1975 -- six years after the Woodward & Lothrop agreement was negotiated -- that WMATA undertook a second joint-development project -- an office building at Farragut North Station. Under the terms of this deal, WMATA leased the development rights above its Farragut North Station in exchange for an annual $250,000 rent payment, and a percentage of net operating income. In addition, WMATA was able to locate cooling equipment atop the 11 story office building.

The success of these two joint ventures inspired WMATA to develop its own program of encouraging joint development. In introducing the *Station Area Development Program* (SADP) in 1981, WMATA's general manager summarized the benefits of joint development:

> As the Authority's construction program has progressed and more of the rail system has become operational, it has become increasingly evident that substantial advantages can accrue to WMATA's benefit by promoting more intensive development at or near appropriate station areas. These benefits include an increase in ridership and the provision for income to the Authority....
>
> It shall be the general policy of WMATA to promote, encourage, and assist in the creation of high-quality, more intensive development at or near appropriate station areas.
>
> It shall be the policy of WMATA to study the development potential which may exist at present or future station areas and to prepare a development program. This program shall be expressed in both an intermediate time frame, with a three to five year work program, and in a longer range time frame, which will identify actions and positions by the Authority to enhance or protect the longer range development potential.
>
> It shall be the policy of the Authority to advocate positions before the public, local governmental entities, the development community, and others which promote high-quality, more intensive development at or near station areas.

The stated objectives of WMATA's Station Area Development Program included the substitution of rail/bus trips for auto trips, reductions in travel time, the addition of real property to the tax roles, increases in the local tax base, and perhaps most importantly, the generation of revenue to WMATA to cover growing shortfalls. To implement this newly formulated program, WMATA established a Development Branch in its Office of Planning and Development to analyze potential development opportunities, to follow up with feasibility studies, to make recommendations to the general manager, and to administer joint-development contracts.

In the nine years since the establishment of the SADP, WMATA has fully institutionalized the joint-development process. Rather than simply reacting to developer proposals, WMATA staff actively searches for joint-development opportunities. WMATA staff and developers work together to design projects, and to structure financial deals that are mutually advantageous.

Unlike the examples of New York and Philadelphia which follow, WMATA approaches each joint-development opportunity as unique and different. For example, in the cases of Crystal City and Pentagon City (both in Arlington County, Virginia), WMATA's preference for joint development triggered a re-evaluation by county planners of the most appropriate land uses in and around transit stations. As a result, land parcels which had originally been zoned for low-density industrial and warehouse uses were re-zoned by the county for the construction of high-density office, retail, residential, and mixed-use projects. As higher-density development progressed at both locations, WMATA staff worked with private developers to fully integrate the Metro station into the development.

To date, WMATA has participated in the construction of 20 major joint-development projects through its Station Area Development Program (Table 4-2). A twenty-first project, Gallery Place, is currently under construction.

Perhaps WMATA's brightest joint-development success to date has been the Ballston Metro Center (Figure 4-1). Until 1985, Ballston Station had served as the temporary end of the line for WMATA's Orange Line. The site above the underground station was as a bus transfer lot for several northern Virginia Metrobus lines. Other uses in the vicinity included an outdated shopping centers, car dealerships, scattered offices, and residential buildings. Ballston's value as a bus transfer station ended in 1986, when the Orange Line was extended to Vienna. Even before the Orange Line extension, Arlington County officials had been planning the redevelopment of the Ballston area into the county's new "downtown." Private developers had assembled land near the station, and construction had already begun on several office, retail, and residential projects -- all in accordance with the County Plan. Once freed from its use as a bus lot, the Ballston station quickly emerged as the centerpiece of the Ballston area redevelopment program. To facilitate

## Table 4-2:
## JOINT-DEVELOPMENT PROJECTS IN WASHINGTON, D.C.

| Project Name | Status | Type(s) of Joint Development | Mode |
|---|---|---|---|
| 4250 Van Ness Ave./Van Ness UDC | Completed in 1983 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Ardmore Triangle New Carrollton | Construction Pending | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Ballston Metro Center | Completed in 1989 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Bethesda Metro Center | Completed in 1985 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Chevy Chase Metro Building/Fr. Hgts. | Completed in 1984 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Chevy Chase Pavilion/Friendship Hgts. | Completed | System Interface/Connection Fees | Heavy Rail |
| Columbia Square/Metro Center | Completed in 1987 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Connecticut Connection | Completed in 1978 | Air Rights/Land Lease--Incentive-based Agreement--Joint Use | Heavy Rail |
| Crystal City | Completed in 1977 | System Interface/Connection Fees | Heavy Rail |
| Dupont Circle Building | Completed | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Far East Trade Center/Gallery Place | Under Construction | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Hecht's Metro Center | Completed in 1986 | System Interface--Cost Sharing Agreement | Heavy Rail |
| International Square/Farragut West | Completed in 1983 | System Interface--Joint Use of Facilities | Heavy Rail |
| L'Enfant Plaza | Completed in 1977 | System Interface--Cost Sharing Agreement | Heavy Rail |
| Mazza Gallerie | Completed | System Interface/Connection Fees | Heavy Rail |
| McPherson Square Station | Completed in 1983 | Air Rights/Land Lease/Sale/Exchange--System Interface | Heavy Rail |
| Olmstead Bldg/Clarendon | Completed in 1987 | System Interface/Connection Fees | Heavy Rail |
| Pentagon City | Completed in 1989 | System Interface/Connection Fees | Heavy Rail |
| Rosslyn Metro Center | Completed in 1979 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Union Station | Completed in 1988 | System Interface/Connection Fees | Heavy Rail |
| Woodward & Lothrup/Friendship Hgts. | Completed | System Interface/Connection Fees | Heavy Rail |
| Woodward & Lothrup/Metro Center | Completed in 1977 | System Interface--Cost Sharing Agreement | Heavy Rail |

Source: IURD Joint Development Survey, 1990.

Figure 4-1
Ballston Metro, Arlington, VA

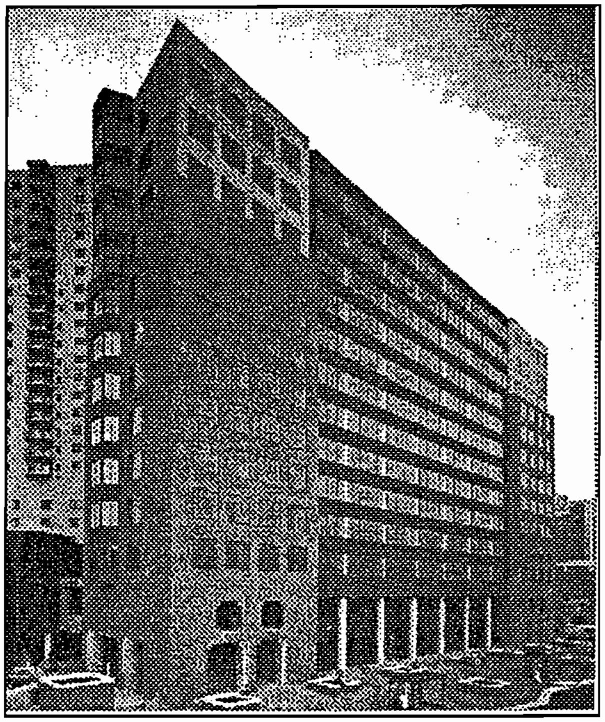
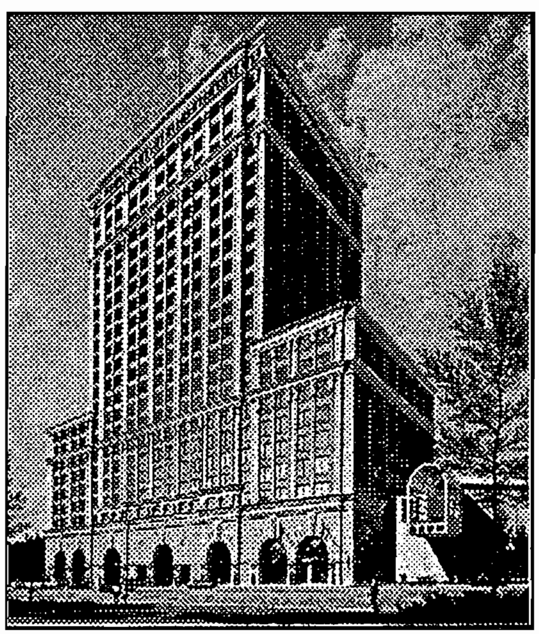


Figure 4-2
Resurgens Plaza, Atlanta, GA



and participate in Ballston's redevelopment, WMATA sold 15,000 square feet, and leased 72,118 square feet of the former bus transfer lot to the developers of what would become Ballston Metro Center. The resulting project, completed in 1989, consists of a 28-story mixed-use building that includes office and retail space, residential condominiums, and a hotel. Also included in the project are seven metrobus transfer bays. WMATA currently receives annual rental payments of $200,000 for the site. Already a commercial success, Ballston Metro Center has served as a catalyst for additional office, residential, and retail development.

*Metropolitan Atlanta Regional Transit Authority (MARTA)*

Joint-development activity in Atlanta has not been as extensive as in Washington, D.C., in spite of the fact that the two systems, MARTA and Metrorail, were planned and developed at about the same time. Altogether, six joint-development projects have been developed in the Atlanta area since 1977 (Table 4-3). All six are located in the City of Atlanta. (By contrast, only 15 of WMATA's joint-development projects have been located in Washington, D.C.; the remainder are located in suburban communities.)

MARTA's limited number of joint-development projects is especially surprising in light of the fact that the City of Atlanta was actively involved during the early 1970s in the process of planning for the densification of MARTA station areas. Indeed, prompted by the impending construction of MARTA, the city "up-zoned" numerous parcels around several proposed MARTA stations precisely to encourage higher-density development. Along Peachtree Street -- Atlanta's main north-south spine -- this strategy has worked quite well: most major office developments constructed in the city of Atlanta during the 1980s have been at or adjacent to MARTA stations along this corridor. In suburban locations, however, planned densification has met with community resistance.

Atlanta's lack of joint-development activity is also surprising because the region has had such a vibrant commercial real estate market. Until 1989, the Atlanta region regarded itself as largely immune to downturns in the national economy. Employment in Atlanta region swelled from 880,000 in 1980 to 1,308,000 in 1988, generating a demand for 40 million square feet of new office space. During this period, the region's average annual rents on competitive office space rose from $18-$26 per square foot to $22-$28 (Urban Land Institute 1990).

Four factors explain why joint development has not flourished to the extent expected in Atlanta. The first is that MARTA, as an entirely new entity formed for the purpose of constructing and operating a heavy-rail transit system, did not own a pre-existing supply of undeveloped and under-developed parcels which could be later sold or leased for joint

**Table 4-3:**
**JOINT-DEVELOPMENT PROJECTS IN ATLANTA, GEORGIA**

| Project Name | Status | Type(s) of Joint Development | Mode |
|---|---|---|---|
| Atlanta Plaza | Completed in 1986 | System Interface--Cost Sharing Agreement | Heavy Rail |
| Georgia State Office Building | Completed in 1982 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| IBM Tower | Completed in 1987 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Resurgens Plaza | Completed in 1988 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |
| Rich's Department Store | Completed in 1979 | System Interface/Connection Fees | Heavy Rail |
| Southern Bell Tower | Completed in 1981 | Air Rights/Land Lease/Sale/Exchange at Station | Heavy Rail |

Source: IURD Joint Development Survey, 1990.

development. Moreover, as part of its charter, MARTA was legally prohibited from using its condemnation powers to acquire property for the non-transit-related purposes. This restriction has served to further reduce the supply of land parcels under MARTA's control, and thus available for joint development.

Second, MARTA administrators have never pursued a formal or comprehensive joint-development policy. What they have pursued is an informal policy favoring development over transit stations through the sale or lease of air rights. But, unfortunately, opportunities for air-rights development have been rare in Atlanta. The higher densities that make air-rights development feasible are only permitted in downtown Atlanta -- not in suburban locations, or even other parts of Atlanta. And Atlanta office developers, although desirous of building near MARTA stations, have generally been unwilling to pay the higher construction costs needed to build over MARTA stations. The types of development incentives which have worked in places like New York City to encourage joint development have never been adopted in Atlanta. And until the mid-1980s, the downtown office market in Atlanta lagged well behind the suburban office market. Thus, the types of land parcels that office developers were looking for -- those with good freeway access and available parking -- were in suburban locations, not in central Atlanta.

A third reason why joint-development projects have not been more common in Atlanta is that they depend either on a close working relationship between the public and private sectors, or the establishment of development incentives. Historically, neither of these prerequisites have existed in Atlanta. Until very recently, the public sector has always been counted upon to provide only the basic infrastructure necessary to accommodate new private development. Financial participation by the public sector in private commercial ventures, such as in Washington, D.C., has been extremely rare in Atlanta. Equally rare have been zoning incentives and other public initiatives which promote joint development.

Fourth and finally, not only does joint development require coordination between the public and private sectors, it also requires long-term coordination among public agencies. In general, such coordination has been rare in Atlanta. Seeing itself first and foremost as a transit operator, MARTA has guarded its autonomy and limited its scope of decisionmaking. As a result, there is relatively little day-to-day dialogue between MARTA and other public agencies in the Atlanta area. Nor, until recently, has MARTA felt a need to pursue joint development as a means to raise revenues. In comparison to some other systems, its operating costs are low and its farebox recovery rate is high. Because its stations are so new, there are no pressing renovation needs. And to date, MARTA has had sufficient funding through other sources to finance line extensions.

Although MARTA has not vigorously pursued joint-development opportunities in the same way that WMATA has, it has not discouraged them either, particularly when they have involved the sale or lease of air rights over stations. Perhaps the best and most recent example of this type of joint development is Resurgens Plaza (Figure 4-2). Resurgens Plaza is a 400,000-square-foot office building constructed above MARTA's north line tracks adjacent to the Lenox Station north concourse. Completed in 1989, the history of Resurgens Plaza actually dates back to 1977, when the developer, Resurgens Plaza South Associates, entered into an air-rights lease agreement with MARTA. In exchange for development rights above the MARTA track, the developer agreed to pay MARTA an annual rent of $120,000, with increases tied to the Consumer Price Index. The lease runs for 50 years, with an option for an additional 50 years.

Resurgens Plaza is only part of what was originally a much larger development project above and adjacent to the rest of MARTA's Lenox Station. The completion of that project, known as Atlanta Center, has been stalled because of intense neighborhood opposition.

In recent years, MARTA has begun to move away from a policy of leasing surplus land, and toward selling land outright. Officials in MARTA's Real Estate section indicate that lease income is earmarked for agency operations, while sale income goes toward capital improvement programs. Because MARTA's Board of Directors feels that extending lines to complete the system is a high priority, securing large cash sums from land sales has taken precedence over generating relatively small amounts of leasing income.

## C. Retrofitting Joint Development: New York and Philadelphia

Most of the nation's established rail transit systems have not had the same opportunities as MARTA or Metrorail to plan for joint development. Older rail transit systems such as New York's MTA and Philadelphia's SEPTA have little or no land available for direct development as their rights-of-way pass under or through sites that have long been built-out. Real estate markets in many older cities, even New York City, have tended to be less buoyant and predictable than in newer cities, reducing the opportunities or increasing the risks for joint development. Most older systems suffer from large and persistent operating deficits, moreover, and thus lack the capital to seed joint-development opportunities. Finally, many established rail systems, being in older cities, are burdened with jurisdictional barriers that limit their ability to carry out a comprehensive, cross-jurisdictional program of joint development.

For these cities and their transit operators, the task of promoting joint development has focused on renovating and re-developing existing transit stations rather than on developing new stations or on promoting large new commercial projects adjacent to new stations. This section examines the process of joint development as undertaken by two older rail transit systems: New York's Metropolitan Transportation Authority (MTA) and Philadelphia's Southeast Pennsylvania Transportation Authority (SEPTA). In the case of New York, joint development has gone forward, often on a grand scale, because of the proactive stance taken by the New York City Planning Commission. In Philadelphia, joint development has occurred on a much more modest scale, in part because of the lack of coordination between SEPTA and other local jurisdictions.

*New York City Transit Authority*

The Metropolitan Transportation Authority (MTA) operates five semi-autonomous divisions, including the New York City Transit Authority (NYCTA). NYCTA operates subway trains in four boroughs, surface buses in five boroughs, and the Staten Island Rapid Transit (SIRT) commuter railroad.[1] Since 1980, MTA has been able to recover 50 percent of its operating expenses from the fare box. The rest of MTA's budget is obtained from various subsidy programs, including dedicated taxes (20.5 percent), bridge tolls (12 percent), local government assistance (10 percent), and federal subsidies (2.5 percent).

To date, New York City has been the most active city in the nation in pursuing joint development: as of 1990, 45 transit-related joint-development projects had been completed or were underway (see Table 4-4). The growth in joint-development activity in New York City has coincided with increases in jobs and office space. Even when New York City was losing population, throughout the 1970s and 1980s, it was gaining jobs. By 1989, more than 1.3 million workers were employed in New York City, up from 1.1 million in 1980. Not surprisingly, the city's employment boom ignited the local real estate market. As of 1989, the city's office inventory exceeded 350 million square feet, 50 million square feet more than in 1980. Over the same period, office rents rose from \$33 to \$37 per square foot in 1989 dollars (Urban Land Institute, 1990).

It was the growth and potential profitability of office development in New York City that fueled most joint-development initiatives. Like Donald Trump and other local real estate magnates, MTA relied on the rising tide of real estate values of the 1980s to finance and build new projects.

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[1]Other MTA operating authorities include The Long Island Rail Road Company (which provides commuter rail service in Nassau and Suffolk Counties and in New York City); the Metro-North Commuter Rail Road Company (which provides commuter rail service to New York City from Duchess, Orange, Putnam, Rockland, and Westchester Counties, and Connecticut); the Metropolitan Suburban Bus Authority (which provides bus service in the Boroughs of Queens, and in Nassau and Suffolk Counties); and the Triboro Bridge and Tunnel Authority (which operates seven bridges and two toll tunnels into and out of New York City).

**Table 4-4:**
**JOINT-DEVELOPMENT PROJECTS IN THE NEW YORK METRO AREA**

| Project Name | Status | Type(s) of Joint Development | Mode |
|---|---|---|---|
| 140 Liberty St./Fulton St. | Completed in 1985 | Cost Sharing Agreement | Heavy Rail |
| 1568 Broadway/49 St. | Completed in 1988 | Cost Sharing Agreement | Heavy Rail |
| 30 Old Slip/Broad St. | Construction Pending | Cost Sharing Agreement | Heavy Rail |
| 33 Maiden Lane/Fulton St. Station | Completed in 1983 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| 45 Broadway/Wall St. | Completed in 1985 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| 599 Lexington Ave. | Completed in 1984 | System Interface--Incentive-based/ Cost Sharing Agreement | Heavy Rail |
| 60 Wall St.-Morgan Bank/Wall St. | Completed in 1989 | Cost Sharing Agreement | Heavy Rail |
| 750 Lexington/59 St. | Completed in 1987 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| 875 Third Ave. | Completed in 1983 | System Interface--Incentive-based/ Cost Sharing Agreement | Heavy Rail |
| 885 Third Ave. | Completed in 1984 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Albee Square Mall/Dekalb Ave. | Completed in 1982 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Alexanders Rego Park Mall/63 Dr. | Construction Pending | Cost Sharing Agreement | Heavy Rail |
| Americas Tower/47-50 St. | Under Construction | Cost Sharing Agreement | Heavy Rail |
| Atlantic Terminal PDC Rose/Atlantic Ave. | Not Yet Built | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| A&S Plaza/34 St. Herald Square | Completed | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Battery Park City/Chambers St. | Completed in 1987 | Cost Sharing Agreement | Heavy Rail |
| Coliseum/59 St. | Not Yet Built | Air Rights/Land Lease--Incentive-based/ Cost Sharing Agreement | Heavy Rail |
| Dollar Dry Dock/59 St. | Under Construction | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Eichner 87 St.-Broadway/86 St. | Completed in 1986 | Cost Sharing Agreement | Heavy Rail |
| Exchange Place/PATH | Completed in 1989 | Cost Sharing Agreement | Heavy Rail |
| Gateway @ Penn Station AMTRAK | Completed | System Interface--Lease of Concessions | Intermodal Facil. |
| Grove Street Station/PATH | Completed in 1989 | Cost Sharing Agreement | Heavy Rail |
| Herald Center/34 St. Herald Square | Not Yet Built | Cost Sharing Agreement | Heavy Rail |
| Hoboken Terminal/PATH | Completed | Lease of Concessions | Intermodal Facil. |
| Hudson River Waterfront/NJT | Not Yet Built | Air Rights/Land Lease/Sale/Exchange | Light Rail |
| LIC-Citicorp | Completed in 1986 | System Interface--Incentive-based/ Cost Sharing Agreement | Heavy Rail |
| Marriott Hotel/Rector St. | Under Construction | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Metro Tech/J St. Borough Hall | Under Construction | Cost Sharing Agreement | Heavy Rail |
| Newkirk Station | Completed | Air Rights/Land Lease/Sale/Exchange-- Lease of Concessions | Heavy Rail |
| One Union Square/14 St. | Completed in 1985 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Park Tower/Times Square | Not Yet Built | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Pavonia/Newport Headhse/PATH | Completed in 1988 | Cost Sharing Agreement | Heavy Rail |
| Phillip Morris/Grand Central | Completed in 1979 | Cost Sharing Agreement | Heavy Rail |
| Railroad Viaduct/NJT | Completed in 1959 | Air Rights/Land Lease/Sale/Exchange at Station | Commuter Rail |
| Ronkonkoma Station | Not Yet Built | Air Rights/Land Lease--Cost Sharing Agreement | Commuter Rail |
| Rose 52 St./8 Ave. | Completed in 1986 | Cost Sharing Agreement | Heavy Rail |
| Rudin/50 & Lexington | Completed in 1980 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Secaucus Transfer Station/NJT | Not Yet Built | Cost Sharing Agreement | Commuter Rail |
| Shearson AMEX/Franklin St. | Completed in 1988 | Cost Sharing Agreement | Heavy Rail |
| Solomon Equities/50 St. | Completed in 1988 | Cost Sharing Agreement | Heavy Rail |
| South Brunswick/NJT | Construction Pending | Cost Sharing Agreement | Commuter Rail |
| UJA 59 St.-Lexington/59 St. | Completed in 1986 | Cost Sharing Agreement | Heavy Rail |
| Worldwide Plaza/50 St. | Completed in 1986 | Incentive-based/Cost Sharing Agreements | Heavy Rail |
| Zeckendorf 57 St./59 St.-Columbus Cir. | Completed in 1985 | Cost Sharing Agreement | Heavy Rail |
| Zeckendorf Union Square/Union Sq. | Completed in 1987 | Cost Sharing Agreement | Heavy Rail |

Source: IURD Joint Development Survey, 1990.

Because MTA owns so few parcels around its stations, the kind of joint development found in Washington, D.C, or Atlanta has been impossible in New York. Rather, MTA's joint-development strategy has been to enter into cost-sharing agreements with property owners, or with owners/developers of adjacent properties, to secure subway station improvements. Since MTA's jurisdiction over land use covers only stations and rights-of-way, it has had to rely on the legal authority of the New York City Planning Commission to create the kind of regulatory environment that would induce cost-sharing on a significant scale. In fact, it is only because the New York City Planning Commission and MTA have nurtured a good working relationship that joint development has prospered in the city. Both agencies see joint development as serving their respective missions: MTA is interested in rebuilding and renovating old stations, and the Planning Commission wants to stem Manhattan's ever-worsening traffic congestion.

To promote joint development, the New York City Planning Commission has modified the city's zoning ordinance in two ways: first, by including specific "transit provisions" in the New York City Zoning Resolution, and, second, through the dedication of Special Transit Districts. Each of these is discussed below.

<u>Transit Provisions:</u> The transit provisions of the New York City zoning ordinance stipulates subway station improvements that are to be completed by developers in exchange for zoning bonuses that allow up to 20 percent increases in floor area ratios (FAR). Station improvements are negotiated on a project-by-project basis, and focus primarily on facilitating pedestrian movements, providing free transfer points for subway riders, and improving station amenities. Between 1980 and 1988, NYCTA estimates that private developers constructed over $125 million in station improvements ($70 million in developer-sponsored capital improvements were budgeted for fiscal year 1987-88 alone). The transit provisions of the New York City Zoning Ordinance fall into three areas, each designed to improve pedestrian flow within and access to subway stations:

1. <u>Mitigation to Alleviate Building-Induced Impacts:</u> This element of the city's zoning resolution requires developers to mitigate the impacts their projects have on the surrounding area as identified in the project's Environmental Impact Statement (EIS). Required impact mitigation measures need not be transit-related.

2. <u>Mandatory As-of-Right Zoning:</u> Under this provision, developers are required to improve subway facilities that are adjacent to their projects regardless of whether they are seeking an FAR bonus. Typically, developers are required to relocate a subway entrance from the sidewalk to within the lot line, taking due care to incorporate the entrance aesthetically with the new development. Stairs and elevator entrances to the subway must be either located in the building lobby or in an adjacent outdoor plaza area.

3. <u>Floor Area Ratio Bonuses:</u> For significant improvements in station circulation and access, the City Planning Commission is empowered to award a floor area bonus of between 5 percent and 20 percent. Originally, these regulations only applied to the Midtown district. Since 1984, however, FAR bonuses have been available for any development in Manhattan with a current FAR of 10 or more. Most recently, program eligibility has been extended to the Court Square Subdistrict in Long Island City, where Citicorp has located a new high-rise office tower. Projects given higher priority are those offering construction of free transfer points or other significant access improvements.

The types of guidelines used by the New York City Department of City Planning to administer the above programs and to direct developer-financed subway station improvements are shown in Table 4-5.

<u>Special Transit Districts:</u> To further expand the scope and applicability of the transit provisions in the city's zoning resolution, the New York Department of City Planning established 33 special districts where transit improvements are needed and where development is likely to occur. Under the Special Transit District program, developers and regulators are allowed extra latitude in negotiating transit improvements.

Staff in the New York City Department of City Planning view the Greenwich Street District as a model. Whereas most special district programs provide for FAR bonuses on projects adjacent to a transit stations, within the Greenwich Street Transit District developers have been allowed to transfer their FAR bonuses to other sites. Lot improvements that indirectly improve subway access are also eligible for bonuses within this district; the provision of arcades, covered pedestrian spaces, or pedestrian connections also entitles developers to a density bonus. Finally, developers in the Greenwich Street District have the option of contributing to a fund in lieu of undertaking actual construction. This feature allows development to proceed while funds for future improvements are accruing in a reserve account.

The high level of coordination between MTA and the City Planning Commission notwithstanding, the potential of joint development in New York City is not without limits. The high land values and rents required to spark developer interest in density bonuses are present in only a selected few locations. To date, the city has been able to secure improvements to transit stations by offering FAR bonuses only in the Manhattan Central Business District, in downtown Brooklyn, and at the Citicorp site in Long Island City. To expand the Transit District and FAR bonus programs to other parts of the city, local planners must first attract some of the region's back-office market to convenient outer borough locations.

**Table 4-5:**
**GUIDELINES FOR DEVELOPER-PROPOSED TRANSIT IMPROVEMENTS, NEW YORK CITY AND THE METROPOLITAN TRANSPORTATION AUTHORITY**

*The following guidelines are used by the New York City Department of City Planning to direct developer-financed and developer-built subway station improvements.*

1) Floor Area Ratio bonuses are, in general, granted for agreement to construct a specified transit improvement and not for a developer financial contribution. This policy is intended to allow the MTA to reduce the high costs of using in-house resources to build improvements by taking advantage of the cost savings from private-sector construction. In addition, the policy eliminates the appearance that developers are "buying" zoning changes.

2) The developer's commitment to complete an improvement is secured with a letter of credit held by the NYCTA, to be claimed in the event a project is not finished as specified.

3) Developers that build new facilities or perform renovations are required to maintain the improvements.

4) Developer proposals that increase the operating expense for the station should be avoided (i.e. the addition of a token booth).

5) The MTA must verify the value to the agency or the station of developer-proposed improvements.

6) The NYCTA engineering staff must study the effects of each improvement on transit operations.

7) The Board of Estimates of the City of New York and the public must give final approval to all plans.

Source: New York City Department of City Planning, 1989.

A more recent challenge has been the downturn in the city's economy and commercial office market. With developers planning fewer and smaller projects, the types of office deals that make New York-style joint development work will be increasingly difficult to put together. For example, because of the city's weakening office market, MTA has recently abandoned plans for an air-rights development over the Caemerer railroad yard in midtown Manhattan. Had the project gone forward, it would have been the largest joint-development project yet undertaken in New York City.

*SEPTA's Lease and Maintain Program*

Philadelphia's Southeast Pennsylvania Transportation Authority (SEPTA) is the third-largest public transit agency in the country. SEPTA's jurisdiction includes the city and county of Philadelphia, Bucks County, Montgomery County, Delaware County, Chester County, and the scores of townships throughout the Philadelphia metropolitan region. SEPTA operates more than 1,500 diesel buses and 110 electric trolley buses. SEPTA rail operations include over 300 light-rail and 600 heavy-rail subway and commuter trains.

In recent years, SEPTA has been able to maintain an overall farebox recovery ratio across all the modes it operates of 48.7 percent. In addition to covering these operating deficits, SEPTA must also provide capital funding to maintain and renovate its aging infrastructure -- including vehicles, rights-of-way, and stations. These capital needs have prompted SEPTA management to explore options for generating non-farebox revenues, including private-sector funding for capital projects through public-private ventures.

In 1982, SEPTA's Real Estate Department began to explore techniques for using the system's property holdings to generate revenue, fund capital improvements, and reduce operating costs. Since then, SEPTA has successfully attracted private investment in needed capital improvements on its suburban heavy-rail lines through its Lease and Maintain Program.

The Lease and Maintain Program involves public-private cost-sharing in the purest sense. Under the program, private developers -- through a competitive bidding process -- lease commercial space within existing suburban rail stations, under the condition that they maintain or upgrade some stipulated part of the station proper. The primary distinction between the Lease and Maintain Program and a conventional commercial lease arrangement is that SEPTA grants a rent credit to the developer for completion of specified capital improvements. These improvements can include station renovations, the rehabilitation of commercial space, and developer-funded maintenance and property-management programs.

As of late 1990, SEPTA had 19 transit stations operating under the Lease and Maintain Program (Table 4-6). All of these stations were part of the suburban heavy-rail system and all projects except one were outside the city of Philadelphia. According to SEPTA, these 19 stations have attracted $2.4 million in private investment for station rehabilitation and have saved SEPTA approximately $7,000 per station in annual maintenance, cleaning, and utility costs.

The station areas typically consist of an older free-standing station building, a passenger platform, and adjacent commuter parking lots. Most existing Lease and Maintain projects are located in neighborhood retail districts or in areas zoned for residential use. Given the small scale of the SEPTA properties and the modest prospects for economic growth in these areas, SEPTA has tailored the program to fit the general economic conditions found along its suburban lines. Most development proposals received by SEPTA have been for small-scale commercial projects located entirely within the existing rail station complex. None of the completed projects involve owners or developers of adjacent land.

The Lease and Maintain Program faces a number of institutional constraints which have limited its use. SEPTA is allowed to condemn land with board approval for non-transportation projects. The agency is required, however, to conform to local zoning laws at all of its stations, and, because of local opposition, several proposed commercial projects and station renovations in residentially-zoned neighborhoods have been denied local approval.[2] SEPTA is seeking to bypass local zoning ordinances by requesting a broader definition of allowable uses at a transit facilities to include commercial uses.[3]

One dilemma is that SEPTA actually has very little control over how stations are to be improved. Current SEPTA budget constraints preclude the use of agency funds to renovate stations in the absence of private-sector contributions. Additionally, Pennsylvania state law requires state agencies like SEPTA to put capital projects out for competitive bid, and contracts may only be awarded to the bidder with the highest total value of capital improvements. The practice of choosing projects and developers by competitive bid has substantially constrained SEPTA's ability to negotiate project specifics (e.g. design standards, preferred uses, and

[2]In several instances, plans to renovate stations under the Lease and Maintain Program have been opposed by local communities. This opposition often surfaces in high-income residential neighborhoods, and the most oft-voiced concerns have been about litter, traffic, and loitering. SEPTA has responded to these concerns by informing community members of the agency's need to rely on private-sector contributions for station renovations.

[3]As a state agency, SEPTA is exempt from local taxes. Since local property taxes are only about 1 percent of a property's assessed value, however, the competitive advantage offered by tax exemption in itself has not been a major attraction for developers.

**Table 4-6:**
**INVENTORY OF EXISTING PROJECTS**
**FOR SEPTA'S LEASE AND MAINTAIN PROGRAM**

| Station | Uses | Rehabilitation | Annual Rent |
|---|---|---|---|
| Ambler | Coffee Shop | $39,000 | $2,400 |
| Ardsley | Florist | $12,644 | $1,860 |
| Chestnut Hill West | Bank | $450,000 | $24,024 |
| Cynwyd | Real Estate Office | N/A | $2,628 |
| Elkins Park | Real Estate Office | $150,000 | $10,500 |
| Glenside | Coffee Shop | $3,000 | $3,660 |
| Gwynedd Valley | Deli | $30,000 | $2,400 |
| Jenkintown | Restaurant | $700,000 | $54,000 |
| Lansdale * | Restaurant | N/A | $1 |
| Noble * | County Information Center | N/A | $1,200 |
| North Wales | Restaurant/Deli | $50,000 | $4,836 |
| Penllyn | Equipment Sales Office | $29,000 | $2,724 |
| Perkasie | Stove Store | $20,000 + | $3,000 |
| Philmont | Restaurant | $70,000 | $8,400 |
| Rydal | Office | $60,000 | $6,000 |
| Swarthmore | Coffee Shop/Offices | $140,000 | $10,224 |
| Upsal | Grocery Store/Offices | $30,000 + | $3,000 |
| Westtown | Ceramic Studio | $60,000 | $3,660 |
| Willow Grove | Art Studio | $20,000 | $3,921 |
| SUBTOTAL: SEPTA Revenue | | $1,863,644 + | $148,438 |
| STATIONS SUBSEQUENTLY CLAIMED BY AMTRAK: | | | |
| Berwyn | Art Studio/Architect | $60,000 | N/A |
| Haverford | Real Estate Office | $300,000 | N/A |
| Rosemont | Professional Offices | $325,000 | N/A |
| Wynnewood | County Information Center | $92,000 | N/A |
| TOTAL: Capital Improvements/Rent | | $2,640,000 | $148,438 |

In Fall 1990, SEPTA issued a request for expressions of interest for another 10 commuter rail stations.

* Project under negotiation

Source: SEPTA, 1990.

maintenance duties). The types of proposals received by SEPTA are entirely the prerogative of the individual developers submitting bids. To remedy this problem, SEPTA is seeking to revise state enabling legislation that would allow the agency to use Requests for Proposals (RFPs) as a method of choosing developers and projects under the Lease and Maintain Program. RFPs would enable SEPTA to select projects which offer capital improvements that meet particular design standards and development objectives.

AMTRAK policies have also been an impediment to the Lease and Maintain program. SEPTA currently leases 47 of its 174 suburban rail stations from AMTRAK, and had negotiated Lease and Maintain agreements at four of the stations: Berwyn, Haverford, Rosemont, and Wynnewood. Subsequent to the conclusion of these contracts, AMTRAK invoked a specific clause in its lease contract with SEPTA allowing it to reclaim authority over the operation of these stations. Thus it is AMTRAK, not SEPTA, that now receives the tenant income at these 47 stations. This type of conflict has prompted SEPTA to limit bids to those stations over which it retains clear title -- a constraint which has precluded the joint development of stations on the Northeast Corridor (NEC) and on the main line from Philadelphia to Harrisburg.

## D. Newer Systems: San Diego and Miami

History suggests that although transit extensions inevitably alter the shape and pattern of cities, such changes do not occur overnight. Not until a system has been in place for several years does the pattern of land use and land value impacts become apparent. As was true for both Washington, D.C., and Atlanta, joint-development opportunities often only become apparent after a period of five to ten years. In this section, we look at initial joint-development efforts and policies in two cities with new transit systems, San Diego and Miami.

### *San Diego*

In 1981, San Diego opened the first light-rail line built in the U.S. in over two decades. The inaugural 15.9-mile trolley segment from downtown San Diego to the Mexican border has since been augmented by an 18.1-mile eastern extension to El Cajon, and a new Bayshore extension that skirts the waterfront west of downtown. Long-range plans call for other extensions that would eventually make up a 70-mile regional LRT network, by far the largest of the new generation of light-rail systems built in America.

San Diego's trolley system was constructed quickly, inexpensively, and without federal assistance -- something in which San Diegans take great pride. Because of the desire to keep costs down, the decision was made to use existing transportation right-of-ways wherever possible.

The Metropolitan Transit Development Board (MTDB),[4] which operates the Trolley system through its San Diego Trolley subsidiary, has pursued a strategy of encouraging private real estate development at or near trolley stations, regardless of whether such development takes the form of joint development or co-development. In particular, MTDB has avoided direct leasing arrangements or benefit assessment zones in favor of a strategy of staging and siting stations in order to capitalize on private-sector investments already planned or underway. In this way, MTDB has been able to reduce its capital expenditures at new stations by physically merging the stations into new office and retail structures. In all, MTDB planners estimate that they have saved an estimated $8 million through such piggybacking.

While San Diego's LRT system has attracted numerous passengers and has been one of the more financially successful public transit operations in the U.S., to date it has had little effect on business activities or land development (San Diego Association of Governments, 1984). Except in the downtown area, the trolley rights-of-way are not near expanding office centers. Whereas the trolley system runs south and east of downtown San Diego, to date, most of the region's suburban office centers have been developed well north of the downtown. Thus, while the trolley system is eventually expected to generate new suburban development opportunities, for the time being at least, interest in joint development has been limited to the downtown area.

Thus far, only two major transit-related development projects have been completed in the downtown area: Great America Plaza, an example of joint development, and a co-development project at Imperial and 12th Streets. Great America Plaza (Figure 4-3) is a $200-million, 912,000-square-foot mixed-use development two blocks from San Diego's bustling waterfront. The project includes the 34-story Great America Plaza Tower, a 272-room hotel, a restaurant, a museum, and retail space. The project is architecturally integrated with the new Broadway and Kettner Transfer Station, linking the trolley's East and South lines with the new Bayside LRT extension. As part of this cost-sharing agreement, the developer, Starboard Development Corporation, will provide $4 million of the $5.2 million station construction costs.

The other project, located at the Imperial & 12th transfer station, is one of the more noteworthy examples of co-development in the U.S. The project is part of a new office complex

[4]San Diego has an array of mass transit services. In addition to the light-rail system, there are local and express bus services, and perhaps the richest mix of paratransit services anywhere in the U.S., including dial-a-ride vans, taxis, and jitneys. All of these operations fall under the jurisdiction of the Metropolitan Transit Development Board (MTDB), which serves as the policy-setting and overall coordinating agency for public transportation in the San Diego region. MTDB's main responsibilities include LRT development, short-range transit planning, transportation improvements programming, paratransit administration, and service coordination. Subsidiary companies, notably the San Diego Trolley, Inc., and the San Diego Transit Corporation, are responsible for operating specific transit services in the region.

Figure 4-3
Great American Building, San Diego, CA

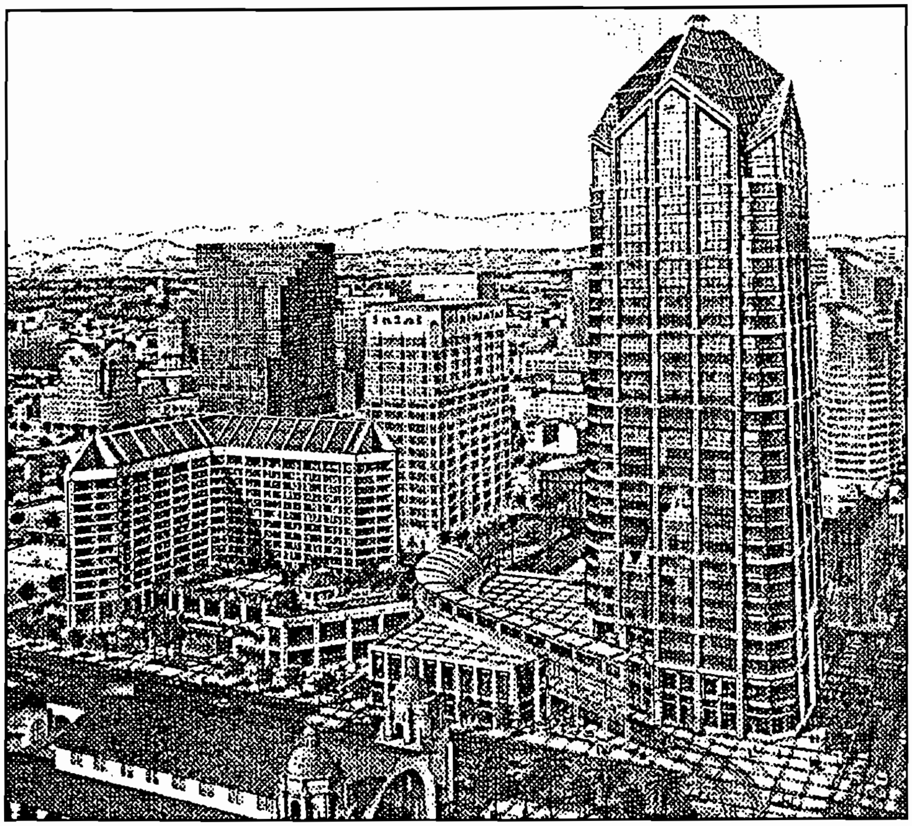
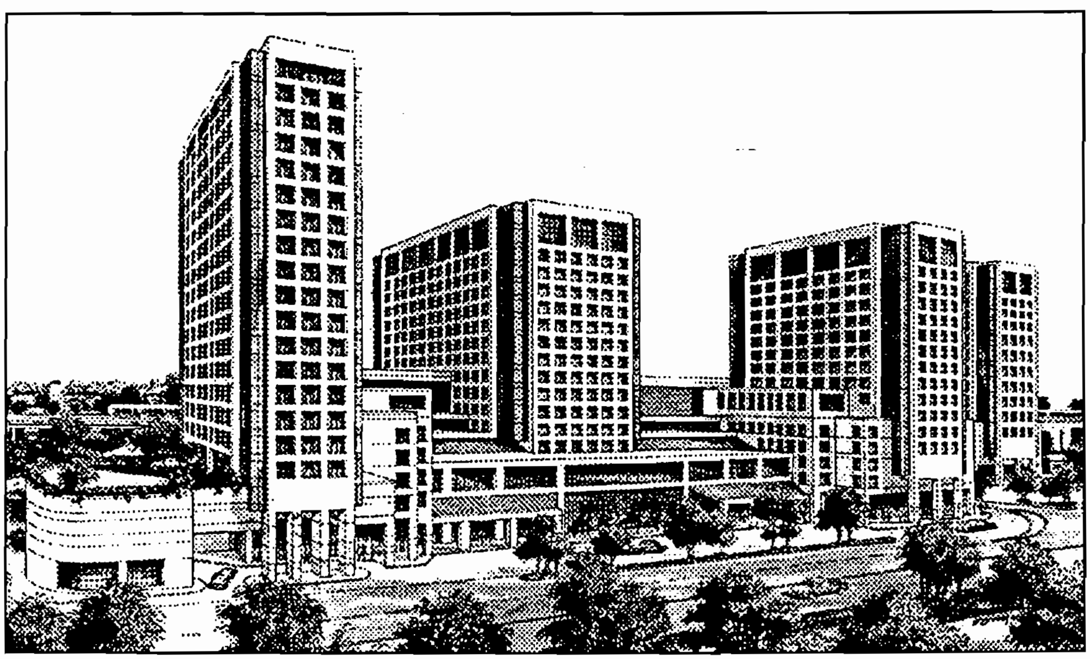


Figure 4-4
Datran Building, Miami, FL



that includes office space for MTDB, San Diego Trolley, and the County of San Diego, as well as an enclosed transit station. Altogether, the $43.6 million project includes a 180,000-square-foot 10-story office building with retail on the first floor, a multi-deck parking structure, the transit center (that is directly linked with the building), and a 16-story clock tower. The project is a co-venture between a private company, Starboard Development Corporation, and the MTDB; however, no revenues are being paid to the transit authority in recognition of benefits associated with being near the trolley station. Nor is there any significant cost-sharing between private and public parties.

MTDB planners see the Imperial and 12th St. project as having three types of public benefits. First, by structuring the deal as a joint venture with a private partner, MTDB and the County hope to realize significant construction and financing cost savings. Second, it is hoped that siting the station on the fringes of the downtown core will accelerate the redevelopment of what, until now, has been a transition zone. Finally, system planners estimate that, as a result of the development, the number of passengers passing through the 12th St. station will increase from the current level of 2,800 per day to 8,000 by the year 2000. These additional passengers will translate into substantially higher revenue receipts -- enough, according to MTDB planners, to finance the station and adjoining tower over the service lives of both investments.

In summary, MTDB has recognized that there are long-run fare revenue benefits from being sited within or near large commercial buildings. For this reason, MTDB -- perhaps as much as any other transit agency in the country -- is encouraging the co-development of new transit stations and commercial real estate projects.

*Miami*

Metropolitan Dade County contains nearly 1.9 million residents, and is the most populous county in one of the nation's fastest-growing states.[5] Metro-Dade Transit, the public transit authority that serves the Dade County area, operates buses, rail transit, and a downtown people-mover service.

Metrorail consists of 21 miles of elevated guideway stretching from Hialeah in the northwest portion of the county to Dadeland in the southwest corner, connecting both sections of the county with downtown Miami along an arc-like path. Stations are situated approximately every mile along the 21-mile corridor. Major rail stations include the Civic Center, downtown Miami, the University of Miami, the Brickell area, and Datran Center. For commuters, Metrorail

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[5]Miami is the urban center of a consolidated city-county government whose jurisdiction covers the entirety of Dade County.

connects with the 67-mile Tri-Rail system that stretches between Dade, Broward, and Palm Beach Counties. The Metrorail system also ties into the elevated Metromover at the downtown Government Center Station. Metromover connects nine stations along its 1.9-mile loop through downtown Miami. The people-mover has been particularly popular among downtown workers during lunch hour, providing an excellent way to access any number of destinations within the downtown core in a few minutes.

Over the years, Metropolitan Dade County has aggressively sought to coordinate rail transit and land development. Early in the Metrorail planning process, county officials established a system of "Fixed Guideway Rapid Transit System Development Zones" around proposed station sites to encourage high-density, mixed-used development. County Ordinance No. 78-74, adopted in 1978, and subsequently amended on several occasions, explicitly states:

> A maximum coordination of transportation and land use policy decisions is essential to optimize the role of transportation as a potent tool for implementing the desired patterns of metropolitan development (Section 33C-1, 1048.50.102).

The ordinance goes on to state that the "Fixed Guideway Rapid Transit System" should be planned and implemented in a manner that will:

(a) Provide maximum opportunities for development to serve as financial assistance to the system; and
(b) Provide incentive for joint development with the private sector.

Following passage of this ordinance, the county proceeded to form "Rapid Transit Development Impact Committees" around stations where significant growth was expected. The committee's primary charges were to develop land use plans for impact zones and elicit private-sector involvement in, and financial support of, station area development. To a large extent, joint development around Miami's Metrorail system was a direct outcome of these visionary efforts to coordinate land use and rail transit development.[6]

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[6]So far, one of the disappointments of the Metrorail system has been its inability to spark the redevelopment that had been hoped for around the Overtown Station. Once a vibrant black community, Overtown entered a period of rapid physical and economic decline during the 1970s and 1980s. By the time that Metrorail was built, a high percentage of nearby land was vacant or in marginal use. Aided by an Urban Initiatives grant from UMTA, a series of redevelopment plans were prepared calling for high-density mixed-use development around the Overtown Station (Public Technology, 1983). While a number of residential towers have been built over the ensuing years, the redevelopment district has not seen the scale of office and commercial development that had been hoped for. Despite the existence of Metrorail and the infusion of public funds for basic infrastructure improvements, the region's office and retail development has gravitated to either freeway corridors along the western portions of the city or to sites in the south county, such as Datran Center. Some local officials hope that the fortunes will change in Overland's favor when the Metromover is extended to the north and additional public improvements are made.

Perhaps the most tangible evidence of coordinated transit and land use planning in greater Miami is the Datran project above and adjacent to the South Dadeland Station (Figure 4-4). The Datran project represents a joint-development agreement in the purest sense. The property is in a prime location, situated off of the U.S. 1 expressway and the southern Metro-Rail line and is within walking distance of the 1.5-million-square-foot Dadeland Mall, the largest shopping mall in southern Florida. Recognizing the property's development potential, the Green Company approached county officials about a joint public-private venture in developing the site. At the end of negotiations, it was agreed by both parties that the Green Company would donate the entire property -- about six acres in all -- to the county while retaining all air rights. They then negotiated a 99½-year lease (55½-year direct lease and an option for a 44-year subsequent renewal). The terms of the master lease are as follows: the county is guaranteed a minimum annual income of $300,000 over the life of the lease -- $200,000 from the Green Company and $100,000 from the Marriott Corporation. Over time, these amounts will be indexed to the CPI. If greater, however, the county receives 4 percent of gross revenues received each year from office and retail rentals from the Green Company and from lodging and concessionary proceeds from the Marriott Corporation. In 1988, the first year that revenues were paid out to the county, proceeds from gross revenues exceeded the minimum guarantee. In total, the county received around $550,000 -- the $200,000 minimum from the Green Company and approximately $350,000 from the Marriott Corporation.

The Datran Center is also a notable example of cost-sharing. MDTA benefitted in part by connecting directly to the Datran Center and thus reducing some of the cost in excavating and building the station's foundation. The station and adjoining office tower also share several facilities, including ventilation systems and auxiliary generators. Moreover, the developer and county jointly built and own the 1,650-space parking garage through a condominium form of agreement, with 1,000 spaces belonging to the county and the remainder to the developer. In total, transit officials put the cost savings from the joint provision of these shared facilities at more than $4 million.

Although it is still far too early for a complete assessment, to date Datran Center's performance has been mixed. Interviews with the project's developers suggest that the coupling of the transit and mixed-use projects appears to have accelerated the pace of development and provided a slight rent premium for offices and commercial uses locating in the Dadeland area. In the late 1980s, the vacancy rate for suburban office space in southern Dade County hovered between 18 and 20 percent. At the Datran Center, the average vacancy rate over the 1985 to 1990 period was 13 percent. On the downside, Datran Center's developers note that Metrorail's ridership levels have only been about one-tenth of projections. As a result, the retail component of the office tower which connects to the station was recently reduced from the lower three to the lower two floors. In view of the station's low daily patronage, it would appear that a significant share of the Dadeland center's rent premium and lower-than-average vacancy rates are attributable to other factors, such as close proximity to the U.S. 1 expressway.

Several other joint-development activities are presently in the works in the Miami area. One is at the Government Center station, the main terminal-transfer point for Metrorail and Metromover systems. Presently, MDTA is contemplating a westward extension of the rail line to Miami International Airport, with the extension beginning at the Government Center station on the western edge of downtown Miami. The county has already secured a substantial amount of the required right-of-way from the Grand Central Corporation. MDTA expects to incur lower construction costs when building the new line's connection to the main Government Center station. This is because MDTA negotiated with the private developer of a large-decked parking garage to allot the necessary space and structural requirements in the design to eventually accommodate the planned rail connection. A developer who plans to build a massive mixed-use project that would interface with the station has also agreed to finance additional walkways, bus bays, and other improvements made necessary by the connection of the new western extension to the Government Center station.

In summary, Miami's Datran Center complex represents one of the more noteworthy examples of a successful air-rights leasing arrangements in the U.S. Datran Center is a classic case where a public investment interfaces with a private one, to the mutual benefit of both parties. Datran's developer opted to donate the six-acre site to the county in return for a guaranteed long-term lease. The dedication gave the developer significant tax advantages while also guaranteeing that a steady stream of patrons would be arriving at the building's doorstep each day. The negotiated leasing arrangement, then, was agreed to as an alternative to the payment of any form of connection fee by Datran's developer to the county. All parties have evidently been satisfied with the leasing arrangement to date, evidenced in part by the fact that a similar deal is presently being negotiated for a comparable development around the nearby Dadeland North station. In addition to the Dadeland area, several cost-savings agreements are being discussed for extensions of both the Metrorail and Metromover guideway systems.

## E. Summary

Although the idea of joint development is popular across the country, the extent to which joint development has been incorporated into the transit planning process varies widely. As noted throughout this chapter, successful joint-development projects and policies require continuing coordination between the transit authority, local government planning and development agencies, and private developers. To date, only three cities and transit agencies have really managed to institutionalize the joint-development process, each in a different way:

- The art and science of joint development are perhaps more advanced in the Washington, D.C., area than anywhere else in the country. To date, more than 20 major joint-development projects, yielding tens of millions of dollars in revenues, have been completed in the Washington, D.C., area. Working with private developers and city and county planning agencies, the Washington Metropolitan Area Transportation Authority has, over the past two decades, pursued a combination of air-rights leasing, service connection fee agreements, and cost-sharing agreements. Although aggressive in its pursuit of joint development, WMATA has nonetheless treated each joint-development opportunity as different and unique.

- Lacking WMATA's land holdings, New York City's MTA has instead worked hand-in-hand with the New York City Planning Commission to utilize city development regulations and incentive programs to leverage the private cost-sharing of subway station renovations and improvements. To date, this approach has worked quite well, yielding more than 40 joint-development projects. Because MTA's approach is regulatory, the extent of private developer contributions and cost-sharing varies widely according to project size, location, and value.

- The Southeastern Pennsylvania Transit Authority, through its "Lease and Maintain" Program, has managed to renovate more than two dozen commuter rail stations. SEPTA's approach is perhaps more properly viewed as of a creative extension of traditional station-leasing practices than as an entirely new development program. As such, the program has not generated large additional revenues. It has, however, provided an inexpensive and often free mechanism for station renovation.

Although it is comparable in age and size to Metrorail, Atlanta's MARTA system has lagged somewhat in its pursuit of joint development. Several factors account for Atlanta's lack of progress relative to Washington, D.C. First, MARTA lacks excess landholding in and around its stations. Second, MARTA's suburban stations are quite distant from Atlanta's suburban office centers. Moreover, intensive development at or near suburban MARTA stations has been blocked by neighborhood opposition. Third, until the mid-to-late 1980s, the downtown real estate market lagged behind the suburban market -- reducing somewhat the value of transit access. Finally, MARTA, unlike WMATA or MTA, has been unable to work closely or effectively on a continuing basis with local city planning and development officials.

The cases of two new transit systems -- Miami-Dade and San Diego -- also offer useful policy insights. The first lesson, drawn from Miami, is that no matter how good or well-conceived the joint-development planning process, the success of specific joint-development projects will be tied to the success of the transit system, in particular its ability to attract riders. Based on San Diego's experiences, it is apparent that in order to take the greatest advantage of potential joint-development opportunities, the transit authority must be committed, both institutionally and financially, to the concept of public-private partnerships.

From the outset of planning for the Miami-Dade Metrorail system, joint development in and around transit stations has been viewed as a high priority; indeed, it has been seen by some as the *raison d'etre* for the system. Although the Miami Metrorail system is only a few years old, to date ridership on the system has been far below expectations. And only one major joint-development project, Datran Center, has been completed. Although already a successful development project in its own right, the specific elements of Datran Center tied most directly to Metrorail have not met the developer's original expectations. Not until ridership substantially picks up will the dividends of joint development likely begin to pay off.

The case of San Diego is different still. Ridership on the San Diego trolley has been above expectations; high enough in fact to warrant system expansion. This has meant that the San Diego trolley system has not faced the kinds of revenue squeeze faced by most U.S. transit systems. This in turn has made joint development less of a financial imperative. Moreover, until recently, much of the trolley right-of-way has bypassed developing suburban office centers -- further reducing opportunities for joint development. Finally, and perhaps most important, in trying to encourage development at and around trolley stations, MTDB has chosen not to emphasize joint development at the expense of co-development.

# CHAPTER FIVE:
## Agency Perceptions of the Joint-Development Process

As discussed in the previous chapter, there is no one single successful approach to joint development. Rather, each transit operator and city has developed its own approach, depending on the nature of development opportunities, political and institutional influences, the existing regulatory environment, and physical characteristics of their transit systems. This chapter takes a more detailed look at the processes, outcomes, and problems associated with joint development as seen through the eyes of officials from 23 municipal and regional transit agencies.

To better understand the process of joint development from the perspective of the transit officials, a questionnaire was mailed to major public transit operators in the country. Of the 117 surveys sent out,[1] 93 were returned, for an overall response rate of 79 percent; of these respondents, only 23 indicated that they were currently or had recently been involved in a joint-development project. Table 5-1 presents the list of responding transit agencies. (The survey instrument is shown in Appendix I.) With two exceptions, Atlanta and Seattle, an official from every transit operator that has been involved with or undertaken joint-development project responded to the survey.[2]

### A. Initiating the Joint-Development Process

Someone -- either from the public or private sector -- has to initiate the idea to pursue joint development. Two-thirds of the responding transit agencies reported that the initial idea for undertaking joint-development projects in their city was directly theirs (Figure 5-1). Of the remaining transit agencies, the idea for joint-development projects came either from private developers (13 percent), from local governments (13 percent), or from some other quasi-governmental agency such as a redevelopment authority (4 percent).

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[1]The survey was mailed to: (1) all transit agencies with rail facilities, (2) any public bus agency operating 75 or more buses, and (3) any public transit agency known to have participated in a joint development project.

[2]Transit officials were asked specific questions about each joint-development project they had undertaken. They were also asked to outline the process by which their most recent joint-development agreement had been reached. Finally, they were asked to identify and rate the problems and benefits associated with joint-development projects undertaken in their communities. Responses to the survey questions are summarized below, as well as in Appendix II. For some questions, responses are not associated with specific cities in order to maintain confidentiality.

**Table 5-1:**
**JOINT-DEVELOPMENT SURVEY RESPONDENTS BY MODE**

*Rail Systems*

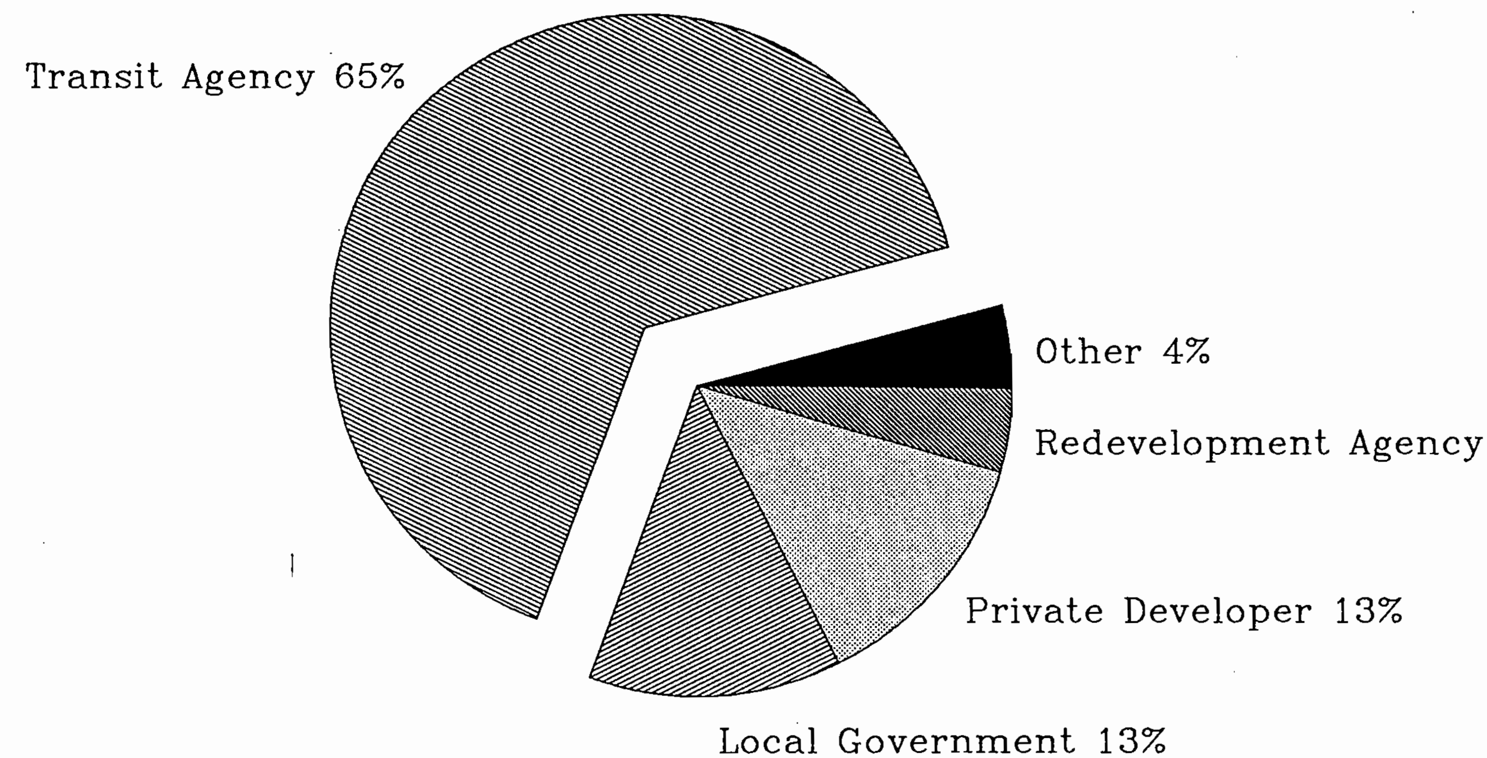
| | |
|---|---|
| Baltimore: | Mass Transit Administration |
| Boston: | Massachusetts Bay Transportation Authority |
| Chicago: | Chicago Transit Authority |
| Cleveland: | Regional Transit Authority |
| Los Angeles: | Southern California Regional Transit District |
| New York PATH: | Port Authority-Trans Hudson |
| New York MTA: | Metropolitan Transportation Authority |
| Philadelphia: | Southeastern Pennsylvania Regional Transportation Authority |
| Pittsburgh: | Port Authority of Alleghany County |
| Sacramento: | Sacramento Regional Transit District |
| San Diego: | Metropolitan Transit Development Board |
| Washington, D.C.: | Washington Metropolitan Area Transportation Authority |

*Bus Systems*

| | |
|---|---|
| Cedar Rapids: | Bus Department |
| Denver: | Regional Transportation District |
| Detroit: | Suburban Mobility Authority for Regional Transportation |
| Hartford: | Greater Hartford Transit District |
| Milwaukee: | Milwaukee County Transity System |
| Minneapolis: | Regional Transit Board |
| Rochester, NY: | Rochester-Gennessee Regional Transportation Authority |
| Santa Ana, CA: | Orange County Transit District |
| Santa Cruz, CA: | Santa Cruz Municipal Transit District |
| Spokane: | Spokane Transit Authority |

Source: IURD Joint Development Survey.

Figure 5-1:
Lead Responsibility for Undertaking
Most Recent Joint Development Project




N = 23 Respondents

Source: IURD Joint Development Survey;
as of Oct. 1, 1990

Lead responsibility for joint development rested with the transit agency itself in four of the five cities which have had significant joint-development activity -- Atlanta, Boston, Philadelphia, and Washington, D.C. In the case of New York City, the city with the greatest number of completed joint-development projects, the responsibility for planning a joint-development project rests with private developers, subject to the zoning and transit improvement regulations passed by the New York City Planning Commission.

Precisely which departments within the transit agency have the lead responsibility for negotiating joint-development agreements varies by city and transit agency (Table 5-2). Larger transit agencies, and those agencies which have institutionalized joint development, tend to delegate joint-development activities to their real estate departments. (None of the responding transit agencies have offices or divisions that are specifically empowered to negotiate joint-development agreements or deals.) Agencies with active real estate departments include Boston's MBTA, New York's MTA, and Washington, D.C.'s WMATA.

Among smaller transit agencies, or for those that have undertaken only one or two joint-development projects, the lead responsibility for negotiating agreements typically rests either with the agencies' executive staff or legal department. Nine of the twenty-three transit agencies responding to the survey reported direct executive involvement in negotiating their most recent joint-development agreement; nine also reported that their legal departments were closely involved.

## B. Negotiating Joint-Development Agreements

The process of reaching a joint-development agreement tends to depend much more on the give-and-take that occurs around the negotiating table than upon particular formulas or set procedures. For example, in negotiating their most recent joint-development project, seven of the twenty-three responding transit agencies reported that they used the Requests-for-Proposal (RFP) process to find a private-sector partner and as the basis for subsequent negotiations (Table 5-3, Figure 5-2). Another seven respondents relied on locally developed project-specific or area-specific cost and revenue rules as the basis for determining private participation. Two agencies, Denver's Regional Transit District and Milwaukee's County Transit System, used their own value-capture formulas to arrive at expected private contributions. And Miami's Metro, Pittsburgh's PAAC, and Santa Ana's OCTD relied on independent appraisals to help them negotiate with private developers. Finally, two respondents, Cedar Rapid's Bus Department and Spokane's Transit Agency, relied on federal and/or state guidelines to frame the single joint-development agreement they have thus far entered into.

**Table 5-2:**
**LISTING OF AGENCY WITH THE PRIMARY RESPONSIBILITY FOR UNDERTAKING JOINT-DEVELOPMENT ACTIVITY**

| City & Agency | Agency Departments with Lead Responsibility |
|---|---|
| Baltimore (MTA): | Real Estate Development; Management |
| Boston (MBTA): | Real Estate Development; Legal |
| Chicago (CTA): | Management; Planning |
| Cleveland (RTA): | Planning |
| Denver (RTD): | Legal; Management |
| Detroit (SMART): | Planning |
| Hartford (GHTD): | Management |
| Los Angeles (SCRTD): | Management |
| Miami (METRO): | Real Estate Development; Management |
| New York PATH: | Operations; Legal |
| New York MTA: | Real Estate; Legal |
| Pittsburgh (PAAC): | Engineering |
| Rochester (RGRTA): | Management |
| Sacramento (SRTD): | Legal; Planning |
| San Diego (MTDB): | Legal |
| Santa Ana (OCTD): | Legal; Real Estate |
| Santa Cruz (SCMTD): | Planning; Management |
| Spokane (STA): | Finance; Legal |
| Washington, D.C. (WMATA): | Real Estate Development |

Source: IURD Joint Development Survey.

Notes: *Management* refers to the primary executive officers of the transit agency.

**Table 5-3:**
**PROCEDURES USED FOR DETERMINING/NEGOTIATING PRIVATE CONTRIBUTIONS FOR THE MOST RECENT JOINT-DEVELOPMENT PROJECT**

| City & Agency | Types of Procedures/Guidelines |
|---|---|
| Baltimore (MTA): | Project-specific guidelines |
| Boston (MBTA): | Request for Proposals (RFP)/Negotiations |
| Cedar Rapids (BD): | Federal/State guidelines |
| Chicago (CTA): | RFP/Negotiations |
| Cleveland (RTA): | RFP/Negotiations |
| Denver (RTD): | Value capture-based formula |
| Detroit (SMART): | Project-specific guidelines |
| Hartford (GHTD): | Project-specific guidelines |
| Los Angeles (SCRTD): | Tax records for benefit assessment |
| Miami (METRO): | Independent appraisal |
| Milwaukee (MCTS): | Value capture-based formula |
| Minneapolis (RTB): | RFP/Negotiations |
| New York PATH: | Project-specific guidelines |
| New York MTA: | Project & area specific guidelines |
| Philadelphia (SEPTA): | Project-specific guidelines |
| Pittsburgh (PAAC): | Independent appraisal |
| Rochester (RGRTA): | RFP/Negotiations |
| Sacramento (SRTD): | Project-specific guidelines |
| San Diego (MTDB): | RFP/Negotiations |
| Santa Ana (OCTD): | Independent appraisal |
| Spokane (STA): | Federal/State guidelines |
| Washington, D.C. (WMATA): | RFP/Negotiations |

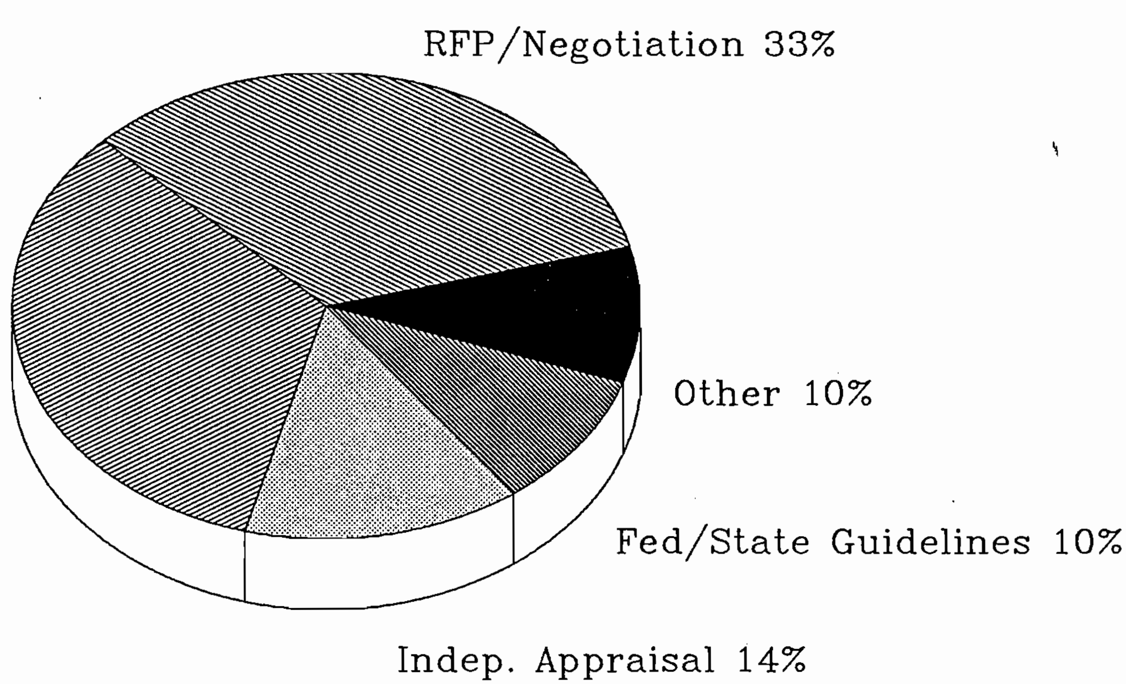
Source: IURD Joint Development Survey.

Notes: *RFP/Negotiations:* The transit agency chooses among competing responses to a Request for Proposal, and then negotiates with the selected developer.

*Project-specific guidelines:* The transit agency follows guidelines which depend on the type or location of the proposed project.

*Value-capture-based formula:* The transit agency negotiates a payment which is a fixed share of the increase in value of the project attributed to transit service.

## Figure 5-2: Procedures Used for Determing Private Contribution to Most Recent Joint Development Project




N = 22 Respondents

Source: IURD Joint Development Survey; as of Oct. 1, 1990

Among the four transit agencies most experienced in joint development that responded to the survey, the approach to soliciting developer participation varied. WMATA (Washington, D.C.) and the MBTA (Boston) have generally relied on Requests for Proposals from competing developers. By contrast, New York's MTA and Philadelphia's SEPTA have turned to project-specific and area-specific policies and guidelines to help them negotiate with developers.

Most joint-development agreements involve more than one form of developer contribution or payment (Table 5-4). Seven respondents, including New York's MTA, Philadelphia's SEPTA, and San Diego's MTDB, reported that their most recent joint-development agreement required the developer to build and pay for station improvements. Thirteen respondents reported that their most recent joint-development project involved an annual or monthly rent payment by the developer. As transit agencies become more comfortable with joint-development, they also seem to be willing to take on some of the risk involved in development: seven respondents (including Boston's MBTA) reported that their most recent joint-development projects involved the transit agency receiving either a percentage of project profits or some other surplus over the base rent level. By contrast, only two transit agencies, Sacramento's SRTD and Milwaukee's MCTS, required the developer to pay one-time fees.

According to the survey respondents, it took an average of about 25 months to reach agreement on their most recent joint-development project (Figure 5-3). Of the 23 respondents, only 4 were able to finalize an agreement in 12 months or less, whereas another 12 took between one and two years to finalize their last joint-development agreement. Six respondents reported taking more than two years to finalize their most recent agreement. It was not clear from the survey why it should take so long to negotiate joint-development agreements, nor whether the source of the delay rested with the transit agency or the private developer. What was clear was that joint-development agreements tend to be highly complex, protracted, and involve many different participants.

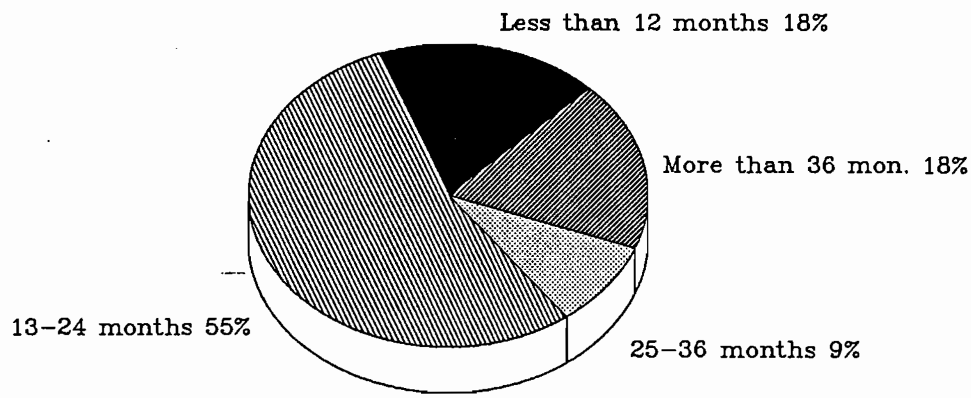
Once a joint-development agreement is finalized, project construction is usually completed in a timely manner. According to the survey, the average length of time between finalization of the joint-development agreement and project completion was 22 months (Figure 5-4). Six respondents reported that their agency's most recent joint-development project was constructed in less than a year; another six reported it was completed in under two years. All things being equal, the time it takes to negotiate and carry through a joint-development project is more reflective of the size and complexity of a project than of an agency's approach to or capacity to carry out joint development. For example, in Washington, D.C., where projects have tended to be large and

Table 5-4:
TYPE OF DEVELOPER CONTRIBUTION
FOR MOST RECENT JOINT-DEVELOPMENT PROJECT

| City & Agency | Types of Developer Contribution |
|---|---|
| Baltimore (MTA): | Base rent & overage |
| Boston (MBTA): | Base rent & overage; On-going cost-sharing |
| Cedar Rapids (BD): | Periodic rent payment |
| Chicago (CTA): | Periodic rent; On-going cost-sharing |
| Cleveland (RTA): | Periodic rent; Construction of improvements |
| Denver (RTD): | Base rent & overage |
| Detroit (SMART): | Construction of improvements; On-going cost sharing |
| Hartford (GHTD): | Construction of improvements |
| Los Angeles (SCRTD): | Benefit assessement |
| Miami (METRO): | Base rent & periodic adjustment |
| Milwaukee (MCTS): | Initial fee |
| New York PATH: | Construction of improvements |
| New York MTA: | Construction of improvements |
| Philadelphia (SEPTA): | Construction of improvements; Base rent |
| Pittsburgh (PAAC): | Periodic rent; Construction of improvments |
| Sacramento (SRTD): | Initial fee |
| San Diego (MTDB): | Construction of improvements |
| Santa Ana (OCTD): | Base rent & overage |
| Santa Cruz (SCMTD): | Base rent & overage |
| Spokane (STA): | Base rent & overage |
| Washington, D.C. (WMATA): | Initial fee; Periodic rent |

Source: IURD Joint Development Survey.

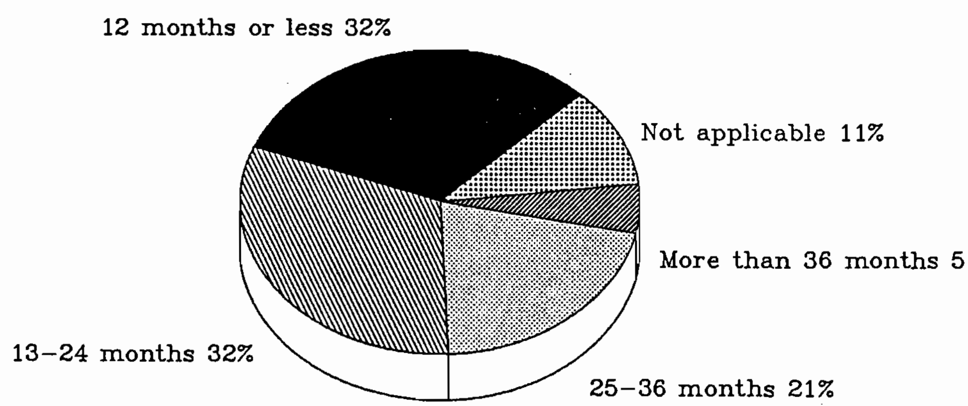
Figure 5-3: Time Between Project Conception and Final Agreement of Most Recent Joint Development Project




Time Between Conception and Agreement
(Mean = 25 months; 22 Respondents)

Source: IURD Joint Development Survey;
as of Oct. 1, 1990

Figure 5-4: Length of Time Between Joint Development Agreement and Occupancy for Most Recent Joint Development Project




Time Between Agreement and Occupancy
(Mean = 22 months; 19 Respondents)

Source: IURD Joint Development Survey;
as of Oct. 1, 1990

expensive, they typically take longer to negotiate and build. This is despite the fact that WMATA is one of the most experienced transit agencies in the country at putting together joint-development deals. Project times are much shorter in Philadelphia, where the joint-development process has focused on relatively low-cost station renovations.

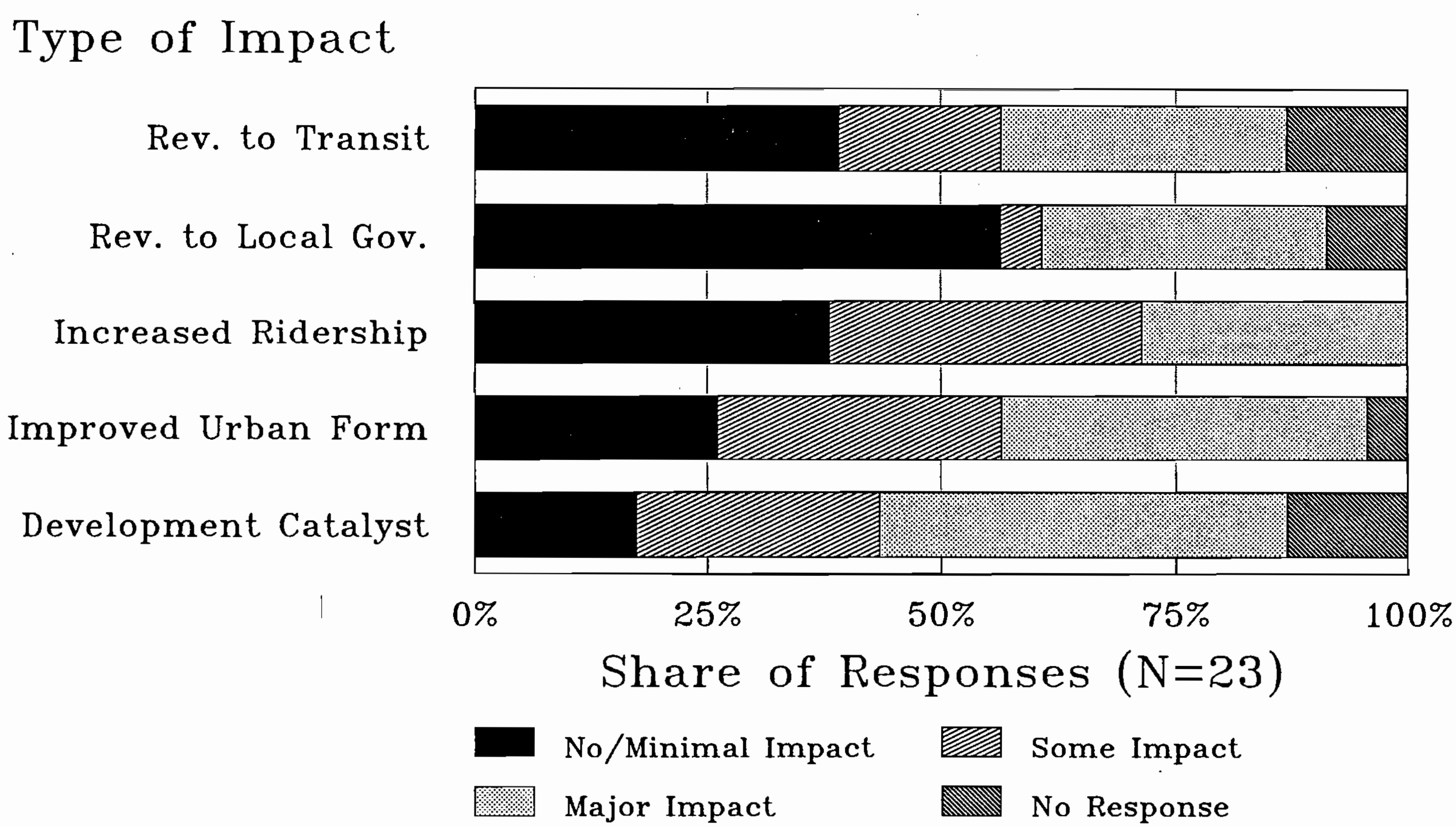
Most joint-development agreements have included formal provisions to guarantee compliance with all terms of the agreement. The vast majority of responding transit agencies included contract-monitoring provisions. Protection against future cost increases is more the exception than the rule, since only 35 percent of the respondents report having included cost escalation clauses in their most recent joint-development agreement. A somewhat larger share (43 percent) report that their joint-development agreements also contain provisions for renegotiation.

### C. Joint-Development Benefits and Problems

Interestingly, the responding transit officials did not see revenue-generation as the primary benefit of joint-development (Figure 5-5). Of the twenty-three respondents, nine felt that joint-development had a positive impact on urban form in and around transit stations. Ten regarded joint development as an effective development catalyst. Only seven respondents cited improved revenue yield to the transit agency as having been a substantial joint-development impact and only six believed that transit ridership was substantially increased. Not surprisingly, the manner in which a transit agency perceived the benefits of joint development depended on how it negotiated with private developers. Those agencies with revenue-sharing programs tended to see the benefits of joint development in direct financial terms. By contrast, those agencies with cost-sharing programs tended to stress the urban form and development potential benefits of joint development.

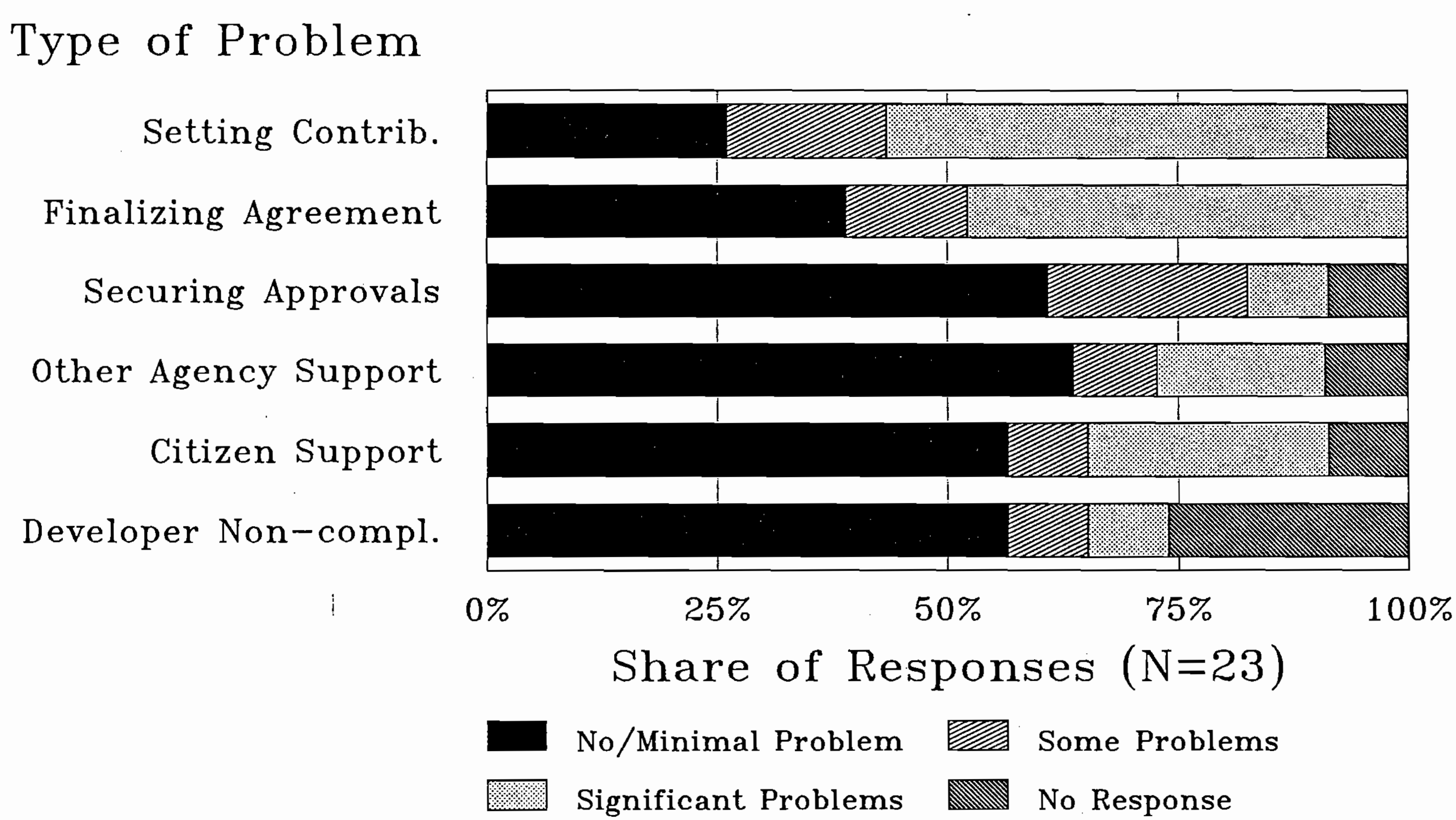
A major stumbling block to pursuing joint development continues to be setting the private-sector's dollar contribution (Figure 5-6). Eleven of the twenty-three respondents reported some difficulty in negotiating the amount and type of private contribution. Eleven respondents noted that finalizing the exact terms of the contract was often a problem. Building a base of citizen support for the project was considered to be a problem among only six of the twenty-three respondents. Finally, four responding transit officials reported some difficulty in coordinating their activities with other public agencies. Only two respondents reported that they encountered problems collecting revenues from the private developer following project completion. Not surprisingly, agencies that have had the most experience in undertaking joint-development projects, notably WMATA in Washington, D.C., and San Diego's MTBD, reported the fewest implementation problems with their joint-development programs. Having an established track

# Figure 5–5: Transit Agency Evaluation of Joint Development Impacts




Source: IURD Joint Development Survey; as of Oct. 1, 1990

Figure 5–6: Transit Agency
Evaluation of Joint Development Problems




Source: IURD Joint Development Survey;
as of Oct. 1, 1990

record with making joint-development deals appears to be an important factor in attracting developer interest and being able to reach agreements without too many complications or delays.

## D. Conclusions

Above and beyond the numerical distribution of responses, the results of the survey disclose three key things about joint development. The first is that experience counts. Cities and transit agencies get better at negotiating joint development agreements as they undertake additional projects. The process of negotiating the agreement doesn't necessarily get any easier, and the time-frame for negotiating the agreement doesn't necessarily get any shorter; rather, cities and transit agencies learn how to negotiate more realistic fees or rental payments, and how to work with private developers to plan and build better projects.

Second, in order for the joint development process to work, someone inside the transit agency must understand the development process from the perspective of the private developer. Put another way, someone in the transit agency must have an entrepreneurial perspective. Third and finally, because joint development inevitably involves reaching agreements with local governments as well as private developers, the transit agency must also be willing and able to work constructively with local governments. And as the experiences of WMATA and MTA suggest, better joint development projects result when the relationships between the transit agency and local jurisdictions are ongoing and based on mutual reward.

# CHAPTER SIX:
# Real Estate Impacts of Urban Rail Transit Investments and Joint-Development Initiatives

## A. Introduction

Joint development is based on the premise that transit investments which improve accessibility get capitalized into higher land value around transit stations. Higher site values, in turn, should give rise to higher commercial rents, densification, and a fairly rapid absorption of building space. In this context, the purpose of joint development is to enable the public sector to "recapture" some of the gain in site value. If the conditions which make joint development possible and desirable -- a rise in site values around station areas -- are present, then they should be measurable. That is, it should be possible to associate urban rail transit investments with positive real estate market changes around transit stations. Since a number of recent-generation urban rail transit systems have been in operation for over a decade, there should now be a sufficient history of land rent, density, and building absorption changes to gauge the extent to which theory is backed by reality.

Assessing the real estate and land use impacts of urban rail transit systems is nothing new. In-depth studies have been conducted on the development impacts of San Francisco's BART (Gannon and Dear, 1975; Webber, 1976) and San Diego's Trolley (San Diego Association of Government, 1984). Rather than studying a single system, some researchers have conducted comparative analyses of the land use impacts of several different systems (Knight and Trygg, 1977; Dunn, 1981; Cervero, 1984). In general, the conclusions of these studies have been similar: urban rail transit investments can be shown to produce significant land use and site rent benefits only if a region's economy is growing and if there are other complementary regulatory and investment programs in place. Such programs have been shown to include permissive zoning to allow higher densities and the provision of infrastructure improvements such as pedestrian plazas and street improvements.

The purpose of this chapter is to investigate whether the general theory linking urban transit investments with localized site value increases can be supported empirically. Specifically, the chapter presents the results of a series of statistical analyses which associate rail transit services and joint-development initiatives with land use changes over time near five rail transit stations in the Washington, D.C., and Atlanta areas. Data were pooled over a 12-year period for these five station areas to assess the impacts of rail transit investments and accompanying joint-development programs on office rents, vacancy and absorption rates, density, and overall growth patterns. The analysis concentrates on office and commercial land uses because almost all joint-development programs to date have involved these uses. To the extent that these impacts can be empirically measured and the link between rail transit and urban land markets made more explicit, the argument for expanding joint-development efforts is strengthened. If, on the other hand, transit investments, joint development, and site-value increases are not systematically linked, then the foundation on which joint-development projects are built must be regarded as rather more shaky.

## B. Analytical Approach and Data Sources

*Analytical Approach*

Two basic approaches were used to measure the impacts of rail transit investments and joint-development programs on station-area real estate markets. The first was a *quasi-experimental analysis*. Under this approach, land use changes near selected transit stations were compared to land use changes around otherwise similar "control" areas. These control areas were selected to be as comparable as possible to the case study sites, the only difference being that the control sites were not served by rail transit. To the extent that the "station" and "non-station" control areas are nearly identical, any observed differences in rental rates, absorption rates, or other market indicators may be partly attributed to rail transit and perhaps even joint development itself.

The second approach involved a more standard *multiple regression analysis*, in which various dependent variables (measures of real estate and land market performance) were systematically compared with a series of explanatory variables (such as the availability of transit service and joint development). The use of regression analysis made it possible to isolate the effects of rail transit service from other factors that may also influence property values and other land market characteristics. When estimating the predictive models which follow, particular attention was given to proper model specification and ensuring that the underlying assumptions of the estimation procedures were being met.[1]

The first step in both analyses is to choose case study sites. Ideally, the case study sites would be drawn from a random sample of transit station areas from around the country. Unfortunately, the absence of comparable and reliable data across rail transit systems prevents

[1]In combination, quasi-experimental comparisons and regression analysis provide a rich perspective into the land use impacts of rail transit services and investments. By triangulating the research design to include two basic approaches of analysis, a broader understanding of the link between rail transit and station-area land markets can be gained.

this. For this reason, the scope of analysis was limited to only two U.S. urban rail systems, Washington, D.C.'s Metrorail (Map 6-1) and Atlanta's MARTA (Map 6-2). Both the Washington and Atlanta metropolitan areas have generally experienced healthy economic growth over the past 10 to 15 years that their rail transit systems have been in operation. Moreover, in both cities, a significant building boom took place at select station sites during the 1980s. Thus, in a way, this chapter presents a "best case" analysis of what is possible when conditions are ripe for joint development to work as intended.[2]

Transit station areas where significant land use changes have occurred and where joint-development projects have been undertaken were identified in both Washington, D.C., and Atlanta. Following preliminary data analyses and discussions with real estate brokers and leasing agents in both cities, a decision was made to analyze real estate and office market development patterns at three station areas in Washington, D.C. (Ballston, Bethesda, and Silver Spring), and two station areas in Atlanta (Arts Center and Lenox Square). In the statistical analyses that follow, land use impacts were defined for specific areas with defined boundaries around each of these stations. In most cases, the boundaries of "impact zones" had already been defined by the two transit agencies or local planning authorities.

*Data Types and Sources*

In carrying out the empirical analyses, data were collected for four different sets of variables.

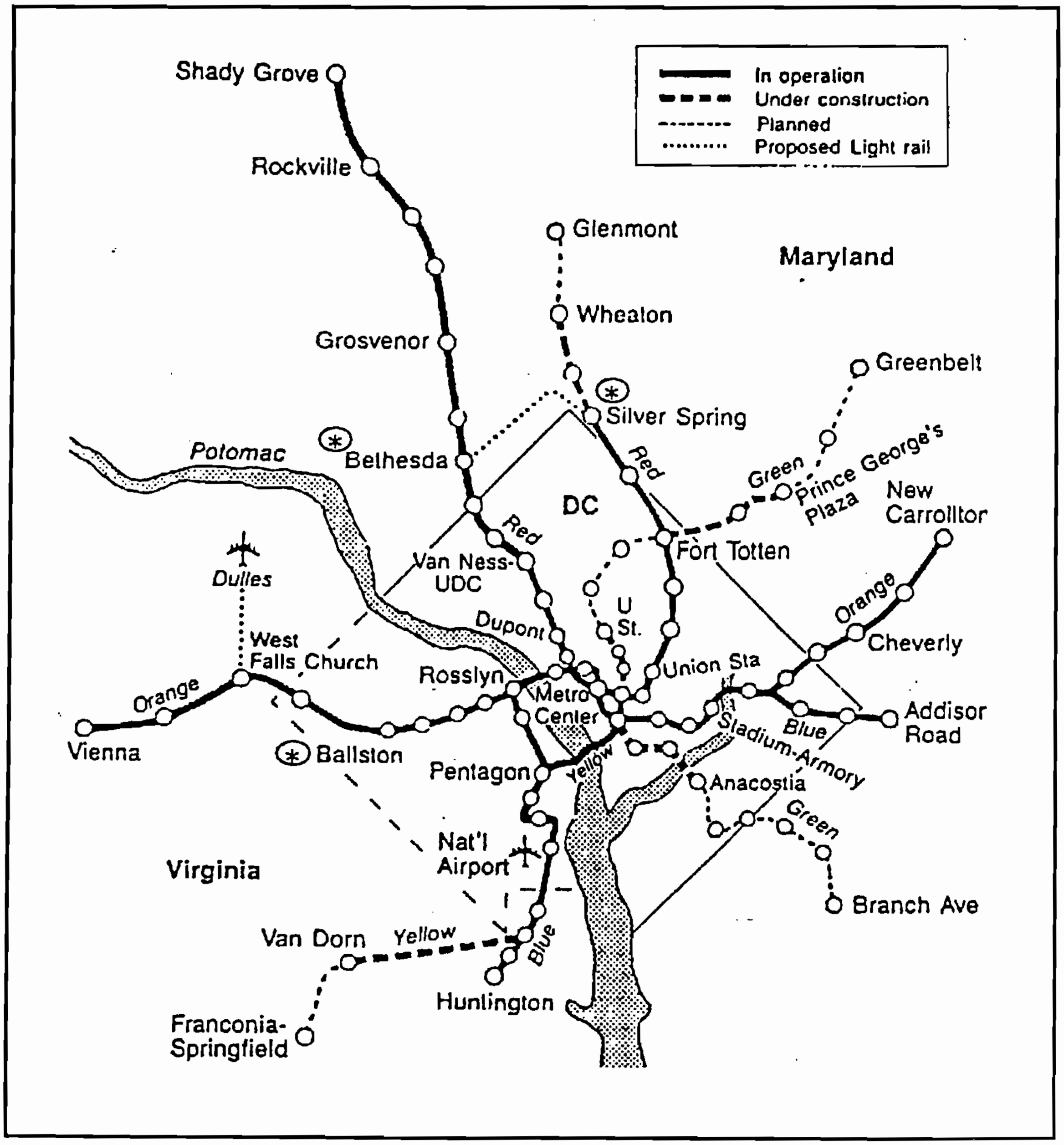
- <u>Station-area real estate market performance variables:</u> office rents, vacancy rates, absorption rates, and the total square footage of office and commercial floorspace. Table 6-1 presents 1989 station-area averages for the last three variables. *For most analyses in this chapter, these are the policy, or dependent, variables.*[3]

- <u>Transit service variables:</u> ridership, frequency of train service, average fares, and other characteristics of rail station and services (see Table 6-2). *These are the chief explanatory*

[2]Another important reason that these two cities were chosen was that data crucial to the analyses were readily available in both places. In particular, annual records could be compiled on average office and commercial rents, vacancy and absorption rates, and new construction additions, perhaps in large part because both cities have had and continue to have active real estate markets. Such rich data were generally not available in other cities across the country with relatively new rail transit systems.

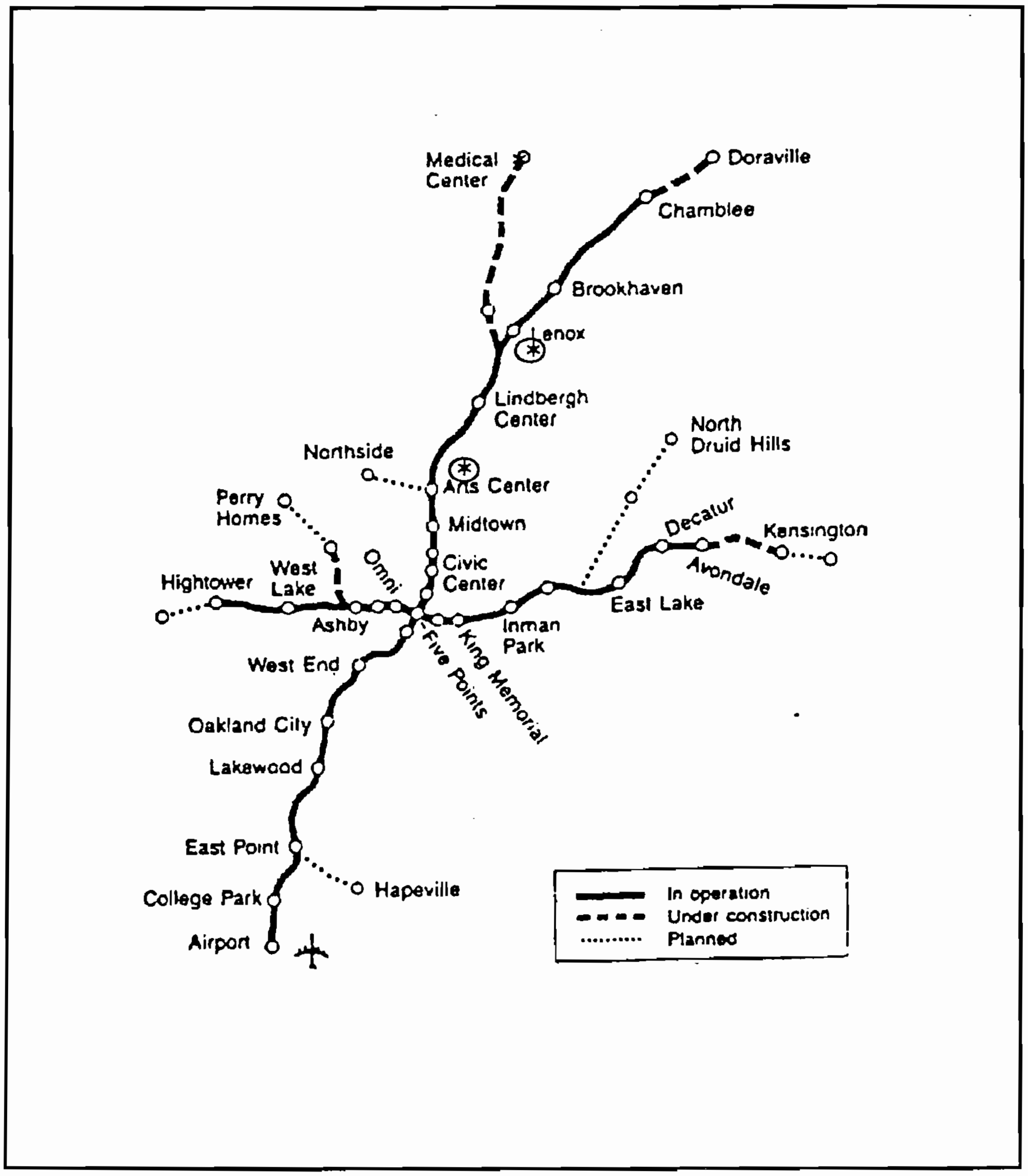
[3]In computing the variables, it was necessary to first compile data for individual land parcels for each point in time and then produce averages. In most cases, the arithmetic means of land rents, vacancy and absorption rates, square footage of new commercial and office additions, and other land use variables were measured. Thus, the analyses which follow are based on the most typical land parcels and commercial projects near the five station sites.

# Map 6-1 Washington, D.C. Metrorail System




⊛Case Study Station Areas

# Map 6-2 Atlanta MARTA System




⊛ Case Study Station Areas

**Table 6-1:**
**1989 OFFICE MARKET CHARACTERISTICS STATISTICS**
**FOR FIVE SELECTED TRANSIT STATIONS**

| | Atlanta MARTA Stations | | Washington MetroRail Stations | | |
|---|---|---|---|---|---|
| | Arts Center | Lennox | Ballston | Bethesda | Silver Spring |
| Date of Station Opening | 1983 | 1985 | 1980 | 1984 | Pre-1978 |
| Total Commercial Floorspace (Sq.Ft.) | 4,302,612 | 4,918,736 | 2,268,179 | 9,438,187 | 3,846,048 |
| Average Vacancy Rate (%) | 7.7% | 22.4% | 29.6% | 19.4% | 32.4% |
| Average Office Rent ($/Sq.Ft.) | $19.61 | $23.35 | $26.62 | $22.86 | $19.91 |
| Average Net Absorbtion Rate (%) | 14.9% | 8.9% | 21.1% | 3.0% | -1.9% |

Sources: Atlanta: Black's Guide and Frank Carter & Associates.
Washington: Black's Guide and Smithy Braedon.

**Table 6-2:**
**RIDERSHIP AND OTHER SUMMARY STATISTICS**
**FOR FIVE SELECTED TRANSIT STATIONS**

| | Atlanta MARTA Stations | | Washington MetroRail Stations | | |
|---|---|---|---|---|---|
| | Arts Center | Lennox | Ballston | Bethesda | Silver Spring |
| Date of Station Opening | 1983 | 1985 | 1980 | 1984 | Pre-1978 |
| Average One-Way Fare to Downtown Station (1989) | $0.85 | $0.85 | $1.12 | $1.58 | $1.64 |
| Average Weekday Passengers Entering Station (1989) | 10,596 | 6,766 | 8,902 | 7,305 | 15,729 |
| Freeway Directional Miles Within a 3-Mile Radius | 17 | 12 | 20 | 12 | 10 |

Sources: Metropolitan Atlanta Regional Transit Authority.
Washington Metropolitan Area Transportation Authority.

*variables of interest.* These data were collected from both published and unpublished in-house reports provided by Washington's WMATA and Atlanta's MARTA transit authorities.

- Regional economic and growth factors: metropolitan employment totals as well as regional averages for commercial rents, absorption rates, new office construction, and vacancy rates. *These are necessary control variables.* These data were compiled mainly from *County Business Patterns* (U.S. Census Bureau) and the data provided by Atlanta Regional Commission.

- Station-area transportation, infrastructure, and development characteristics: the extent of nearby freeway facilities, average daily traffic volumes on nearby roads, maximum floor area ratios, zoning requirements, and the existence of joint-development initiatives. *These are also control variables.* This information was culled from reports made available by local city planning offices whose jurisdictions included the station-areas studied.

The complete dataset is shown in Appendix IV.

In Washington, D.C., information for specific buildings within each market area was obtained fromtwo separate sources. The first was provided by *Black's Office Leasing Guide*, and the Smithy-Braden Company. This information was then aggregated by station area (or submarket), by year, for the period between 1978 and 1989. In calculating station-area average rents and vacancy rates, building size was used to weight the contribution of individual properties. For the greater Atlanta area, the primary data source was a series of summary reports for pre-defined office submarket areas provided by Frank Carter and Associates, a major commercial developer. Because all three of the data sources used rely on transactions data (not asking rents or prices), they are widely viewed as accurate. For most stations, published data were supplemented by proprietary information made available by various brokers, leasing agents, and real estate firms who were interviewed or approached during the course of this research.

## C. Quasi-Experimental Analyses

As previously noted, this approach involves comparisons of the "dependent" variables (e.g., average office rents and vacancy rates) between transit station areas and otherwise comparable office submarkets. To the extent that significant statistical differences exist, they can be attributed, at least in part, to the presence of rail transit. This approach is referred to as *quasi-experimental* because it is similar in design to actual experiments conducted in fields such as medicine.[4]

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[4]In a bona fide experiment, individuals are randomly selected and assigned to either an experimental group or control group. Those in the experimental group receive the vaccine or injection whereas those in the control group receive a placebo or innocuous injection. Any differences in disease or morbidity rates are attributed largely to the effects of the drug. Moral issues aside, while such experiments can be arranged in the biomedical field, in the social sciences, analysts rarely can exert such control over what is

In the Washington, D.C., area, comparisons of average office rents, vacancy rates, and relative increases in commercial square footage were made between three sets of office submarkets: (1) Ballston (station area) and Tysons Corner (control area); and between (2) Silver Spring and Bethesda (station areas) and Rock Springs Park (control area). For Atlanta, comparisons were made between: (1) Lenox Square (station area) and the Perimeter Center and Northeast Atlanta corridors (control areas); and between (2) Arts Center (station area) and the Northwest Atlanta corridor (control area). All of these submarkets, it should be noted, can be characterized as suburban-like: they are fairly new, are located in traditional suburban neighborhoods, and have abundant parking and good road access.

*Ballston vs. Tysons Corner*

In 1979, Metrorail's Orange Line was opened connecting downtown Washington, D.C., through Rosslyn to Ballston. At the time, Ballston was a commercial neighborhood surrounded by single-family houses and garden apartments. Various forces have since combined to transform Ballston into Arlington County's "new downtown." Major commercial developments now occupy most of the land parcels surrounding the Metrorail station, transforming the area from a once-sleepy crossroads to an urban-style center (Map 6-3).

During the first half of the 1980s, the total amount of built office space at Ballston was about half a million square feet. Vacancy rates were nearly zero. In the ensuing years, development was intense, and by 1990, Ballston's supply of office space exceeded three million square feet. Ballston's office rents have risen steadily with new supply. By 1989, office rents had risen to $22 per square foot, up from less than $13 per square foot during the early 1980s.

The major joint-development project in the area is Ballston Metro Centre, located above the Ballston Metro station. In addition to office space, this $87 million, 28-story project contains 200 hotel rooms, 284 condominium units, retail space, and a health club. WMATA receives periodic revenues in the form of base rent plus a percentage rent for the portion of WMATA-owned land leased to the developer.

Tysons Corner (Map 6-4) lies six miles southwest of Ballston in Fairfax County, Virginia. A county crossroads with only a general store two decades ago, Tysons today boasts over 60,000 predominantly white-collar workers within its 1,700-acre boundaries. Its 15 million square feet of office space is complemented by several regional shopping malls, numerous specialty shopping

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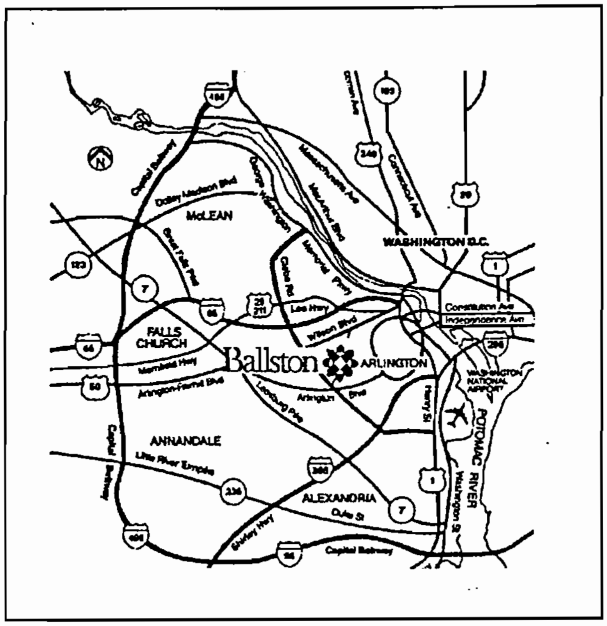
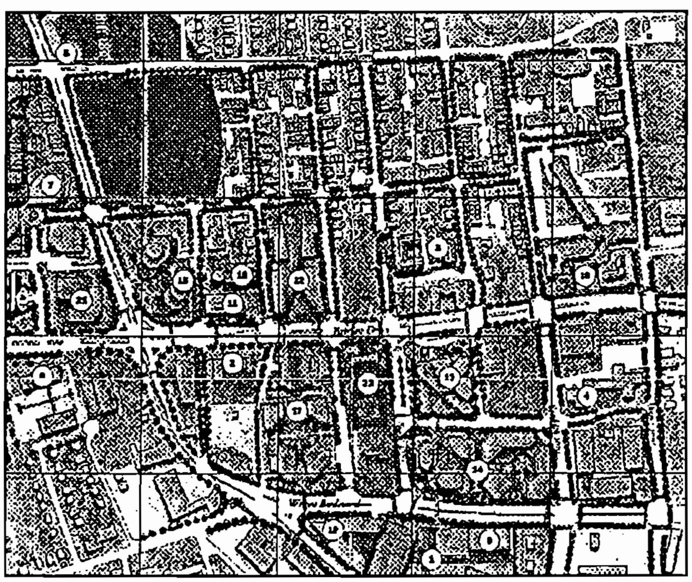
being studied and more often not are examining phenomena "after the fact."

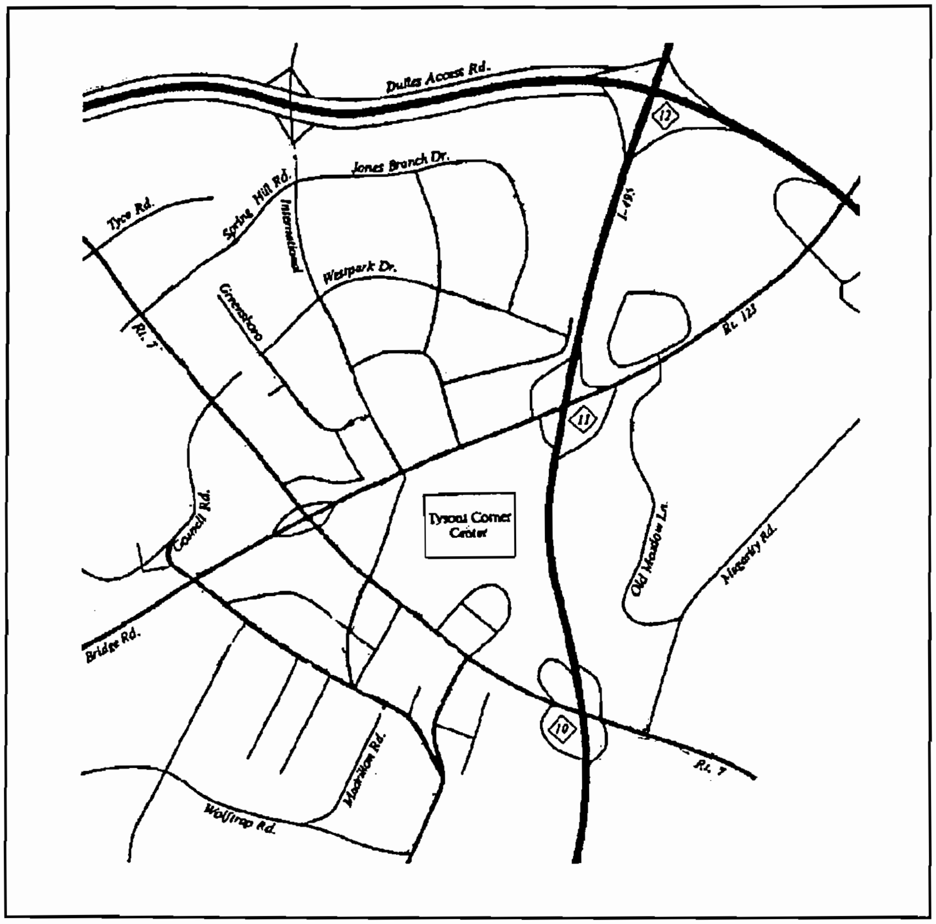
In this study market areas that were chosen as "controls" were widely recognized by local realtors as market competitors to the station sites under study. Therefore, this analysis is something less than a true experimental design -- it is, to use the accepted term, "quasi-experimental."



**Map 6-3 Ballston Station Area**

# Map 6-4 Tysons Corner Area (Virginia)



plazas, hotels, and garden apartments. While the scale of Tysons is many times greater than that of Ballston, the two are still regarded as primary competitors for new development.[5]

During the early 1980s, Tysons enjoyed a rent premium over the Ballston area. However, in 1985 the median rent for new office space in Ballston surpassed that at Tysons Corner. In fact, median lease rates per square foot of new office space in Tysons actually dropped from $26 in 1988 to $25 in 1989. Office vacancy rates for the two areas have historically been similar.

Table 6-3 summarizes mean differences between Ballston and Tysons Corner for five office market performance indicators during the period between 1978 to 1989. The table shows that Ballston offices enjoyed an average annual rent premium of over $3 per square foot (in nominal terms) over Tysons Corner during this 12-year period. This difference, however, was not statistically significant at the 5 percent probability level.[6] In terms of the ability of building owners to lease available office space, as measured through net absorption rates, the Tysons Corner's market was generally stronger between 1978 and 1989, although, again, the differences are not statistically significant. In sum, while Tysons is a much larger suburban office market than Ballston, Ballston has, over the years, managed to gain an increasing rent advantage over Tysons; some of this advantage may be attributed to the presence of Metrorail.

*Bethesda/Silver Spring vs. Rock Springs Park*

Bethesda and Silver Spring (Map 6-5) are two different stations on Metrorail's Red Line. Silver Spring is presently a terminus and Bethesda is an intermediate stop. Both stations lie just north of the District and together form two of the largest commercial centers in Montgomery County, Maryland. Bethesda has been a long-time suburban center in its own right, but has densified considerably since 1980. Bethesda Metro Center, located above the Bethesda Metro

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[5]Both Ballston and Tysons have nearly tripled their inventories of commercial space over the last ten years. Projections for the year 2000, however, show that while the rate of expansion at Tysons will slow significantly, the expansion at Ballston will nearly double its inventory of space. The ratio of commercial space in Ballston to commercial space in Tysons Corner is expected to increase from 1/6 in 1980 to around 1/3 by the year 2000.

[6]All of the statistical tests presented in this section involve a comparison of differences of means. The ratio of the difference of means to the standard error of the differences forms a t-statistic that follows a t distribution, with $N_1 + N_2 - 2$ degrees of freedom (wherein $N_1$ is the number of cases in group 1 and $N_2$ is the number of cases in group 2). An F test is used to determine whether to estimate the standard error using a pooled versus a weighted average of separate samples from the two groups. When the F statistic was sufficiently large to suggest the variances of the two groups are different, then separate variance estimates were used. When it was fairly small, however, then the data were pooled to estimate variances. The t-statistic subsequently generated can be assigned a probability value, representing the likelihood of obtaining as large a difference in sample means that was obtained if there were actually no differences between the means for the respective populations of the two groups.

**Table 6-3:**
**RESULTS OF OFFICE MARKET COMPARISONS BETWEEN BALLSTON AND TYSONS CORNER, 1978-1989**

| Office Market Indicator | 12-Year Averages for: Ballston | Tysons Corner | Difference | t-statistic | Probability |
|---|---|---|---|---|---|
| Weighted average office rental rate ($/sqft) | 20.45 | 17.19 | 3.26 | 1.59 | .132 |
| Average net office absorption rate (%) | 5.40 | 9.44 | 4.04 | 1.14 | .279 |
| Average office vacancy rate (%) | 15.66 | 14.60 | 1.06 | 0.20 | .845 |
| Average annual new square feet of office space | 178,387 | 1,255,550 | 1,077,163 | 4.03 | .002** |
| Average square footage of office development per site | 250,103 | 714,628 | 464,525 | 3.05 | .008** |
| Average percent of new regional office and commercial floor space | 10.78 | 11.63 | 0.85 | 0.13 | .900 |

** Significant at the 0.01 probability level
* Significant at the 0.05 probability level

*Definitions*

**Weighted average office rental rate:** For each year, this is the average rent paid per square foot of leasable space per year, weighted over all tenant leases and all properties in the study area. Both existing (relet) and newly added office space are included.

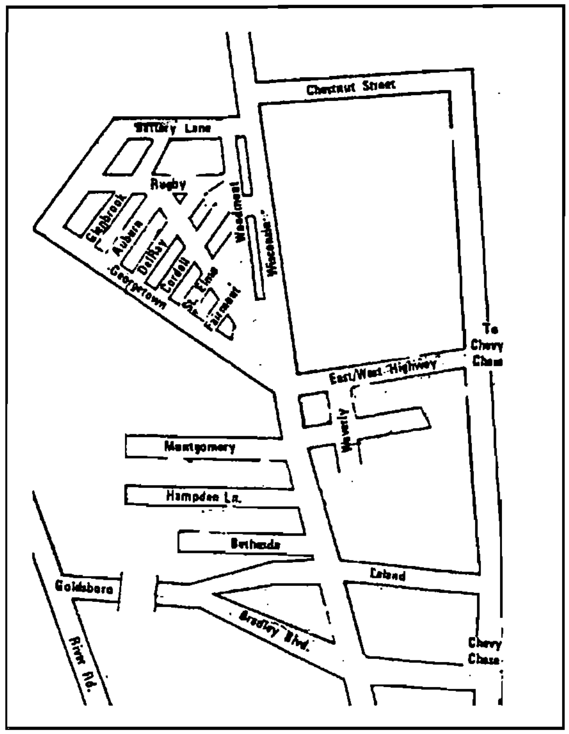
**Average net office absorption rate:** For each year, this is the share of newly leased office floorspace as a share of all office space, both new and existing.

**Average office vacancy rate:** For each year, this is the average share of total (new and existing) office floorspace that remains unleased (weighted over 365 days of the year).

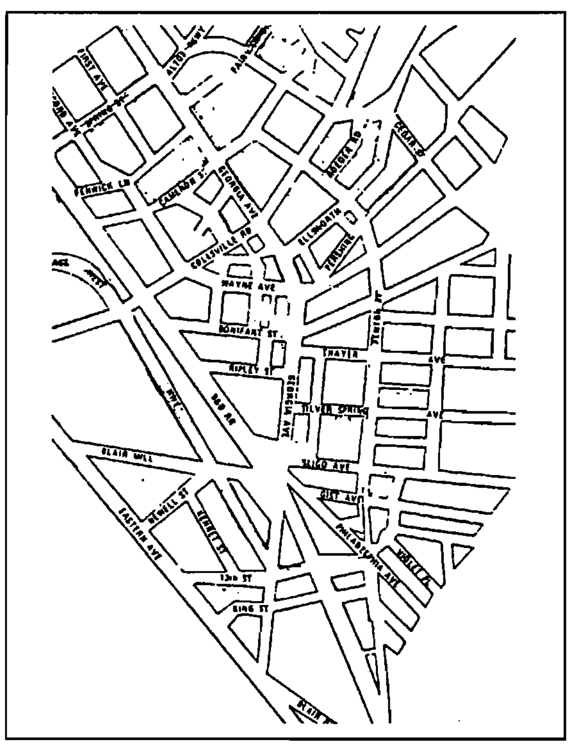
**Average square footage of office development per site:** For each year and including all large office projects (at least 100,000 square feet), this is the average size of office buildings, expressed in net leasable square footage; it provides a proxy for the average size and density of developments.

**Average percent of new regional office and commercial floor space:** For each year, this is the percent of new office and commercial floorspace built in the region that is in the particular market area.

## Map 6-5 Bethesda and Silver Springs Area (Maryland)

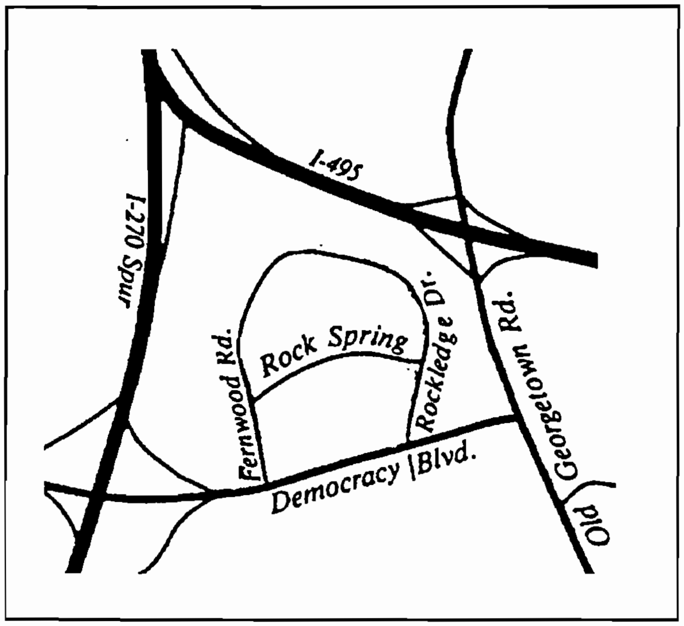



*Bethesda*




*Silver Springs*

## Map 6-6 Rock Spring Area (Maryland)



station, is a joint-development project involving the leasing of air rights for a three-building office, hotel, and retail complex.

Silver Spring, a much smaller suburban center, has not experienced quite the boom seen at Bethesda. The Silver Spring Metro station is the busiest station outside downtown Washington. It is presently surrounded by a large bus-transfer lot. While the lot offers tremendous opportunities for large-scale commercial development (particularly when the Red line is extended further north in 1991), to date there has been considerable local resistance to establishing a master redevelopment plan for the area.

Rock Springs Park (Map 6-6) is a master-planned business park nestled between the confluence of two major freeways (I-270 and I-495) in suburban Maryland. Rock Springs Park contains several million square feet of Class A office space and a large hotel with conference facilities. Several of the park's major corporate tenants, such as IBM, occupy attractive sites that house their regional headquarters. A major regional shopping mall is within a mile of Rock Springs Park, as are several thousand dwelling units.

Table 6-4 presents the difference-of-means results for these submarkets. One of the more significant differences is between average office rents, with Rock Springs Park enjoying an average advantage of over $4 per square foot (in nominal terms) over the 12-year study period. The difference in average rents between Bethesda and Rock Springs Park over this period was less than $2 per square foot; and in 1988, Bethesda's rental rates actually surpassed those of Rock Springs Park.

Other indicators in Table 6-4 also point to Rock Springs Park's market strength during the 1980s. Compared to Bethesda and Silver Spring, it averaged a higher absorption rate and lower vacancy levels. Moreover, Rock Springs Park captured a larger share of new metropolitan office additions than either of the station areas.

The most significant difference shown in Table 6-4, however, is between the average size of office developments. In general, the average office tower in central Bethesda and Silver Spring had over three times as much building space as its counterpart in Rock Springs Park. This measure serves as a proxy for "density" and confirms the fact that rail transit stations can perform an important clustering role. Thus, from a regional mobility standpoint, high densities near transit stations may in fact help divert workers from automobiles to transit.[7]

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[7]Recent evidence suggest that this is indeed the case. One study found that 25 percent of workers in office buildings within 2,000 feet of the Silver Springs Metrorail station travelled to work by transit (JHK & Associates, 1989). While value recapture and joint development do not relate to density *per se*, the resulting higher transit modal splits that stem from the close proximity of office towers near rail stations produce significant societal benefits nonetheless.

**Table 6-4:**
**RESULTS OF OFFICE MARKET COMPARISONS BETWEEN BETHESDA/SILVER SPRING AND ROCK SPRINGS PARK, 1978-1989**

| | 12-Year Averages for: | | | | |
|---|---|---|---|---|---|
| **Office Market Indicator** | **Bethesda/SS** | **Rock Springs** | **Difference** | **t-statistic** | **Probability** |
| Weighted average office rental rate ($/sqft.) | 15.75 | 19.87 | 4.12 | 1.67 | .107 |
| Average net office absorption rate (%) | 4.48 | 9.71 | 5.23 | 1.03 | .313 |
| Average office vacancy rate (%) | 14.78 | 9.59 | 5.19 | 1.44 | .160 |
| Average annual new square feet of office space | 387,996 | 227,401 | 160,595 | 1.03 | .314 |
| Average square footage of office development per site | 674,558 | 194,379 | 480,179 | 3.82 | .001** |
| Average percent of new regional office and commercial floor space | 7.67 | 11.81 | 4.14 | 0.60 | .561 |

** Significant at the 0.01 probability level
* Significant at the 0.05 probability level

*Definitions*

**Weighted average office rental rate:** For each year, this is the average rent paid per square foot of leasable space per year, weighted over all tenant leases and all properties in the study area. Both existing (relet) and newly added office space are included.

**Average net office absorption rate:** For each year, this is the share of newly leased office floorspace as a share of all office space, both new and existing.

**Average office vacancy rate:** For each year, this is the average share of total (new and existing) office floorspace that remains unleased (weighted over 365 days of the year).

**Average square footage of office development per site:** For each year and including all large office projects (at least 100,000 square feet), this is the average size of office buildings, expressed in net leasable square footage; it provides a proxy for the average size and density of developments.

**Average percent of new regional office and commercial floor space:** For each year, this is the percent of new office and commercial floorspace built in the region that is in the particular market area.

*Lenox Square vs. Perimeter Center and Northeast Freeway*

Atlanta's central business district stretches northward along Peachtree Street from the historical downtown to the Buckhead area. Lenox Square lies at the northern end of the Buckhead area. Historically, Lenox Square has been identified as a retailing area;[8] only recently has the area experienced significant office and related hotel development. In 1980, for example, the Lenox Square area contained about 2 million square feet of office space, or about 5 percent of the regional total. Nine years later, the inventory of office space in the Lenox Square area had increased to almost 5 million square feet. Throughout the 1980s, the rate of office growth rates and office absorption rates at Lenox Square substantially exceeded the regional average.

Perimeter Center lies north of Lenox Square near the junction of I-285 and Georgia 400, and within unincorporated portions of DeKalb and Fulton Counties. Perimeter Center began developing around a large regional mall in the mid-1970s. Today, over 17 million square feet of office space dot the two-square-mile area. No other location in the Atlanta metropolitan area, including the Central Business District, houses as many national and regional headquarters of Fortune 500 firms as does Perimeter Center.

The Northeast Freeway office market is about four miles northeast of central Atlanta, and consists of a series of smaller low-rise office parks which front on Interstate 85. In 1981, the Northeast Freeway office market included about 4.6 million square feet of office space, or about 11 percent of the regional inventory. By 1989, the office inventory along the Northeast Expressway totaled 5.6 million square feet, comprising just 7 percent of the regional inventory. During this period, office absorption rates for the Northeast Freeway substantially lagged those for the region as a whole.

The most significant differences between the Lenox Square submarket and the Perimeter Center and Northeast Freeway submarkets are among rents (Table 6-5). In nominal terms, office spaced leased for, on average, about \$3.50 more per square foot at Lenox Square than at either of its two freeway-oriented suburban competitors. Perhaps more so than in either of the Washington, D.C., Metrorail comparisons, it is widely believed within Atlanta's real estate community that Lenox Square owes a considerable share of its commercial rent premium to the existence of MARTA rail services. At a more micro-scale, in 1989, rents at Resurgens Plaza, an office building directly adjacent to MARTA's Lenox Station, were \$3 to \$5 higher than at other

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[8]In fact, the name Lenox Square is actually than of a super-regional shopping mall.

**Table 6-5:**
**RESULTS OF OFFICE MARKET COMPARISONS BETWEEN LENOX SQUARE AND PERIMETER CENTER/NORTHEAST FREEWAY CORRIDOR, 1978-1989**

| Office Market Indicator | 12-Year Averages for: Lennox Square | PC/NE | Difference | t-statistic | Probability |
|---|---|---|---|---|---|
| Weighted average office rental rate ($/sqft.) | 19.19 | 15.66 | 3.53 | 2.35 | .028* |
| Average net office absorption rate (%) | 7.78 | 6.06 | 1.72 | 0.63 | .535 |
| Average office vacancy rate (%) | 16.61 | 15.15 | 1.46 | 0.67 | .508 |
| Average annual new square feet of office space | 396,158 | 764,443 | 368,285 | 1.55 | .139 |
| Average square footage of office development per site | 590,438 | 894,315 | 303,877 | 1.89 | .065 |
| Average percent of new regional office and commercial floor space | 10.88 | 8.68 | 2.20 | 0.55 | .586 |

** Significant at the 0.01 probability level
* Significant at the 0.05 probability level

*Definitions*

**Weighted average office rental rate:** For each year, this is the average rent paid per square foot of leasable space per year, weighted over all tenant leases and all properties in the study area. Both existing (relet) and newly added office space are included.

**Average net office absorption rate:** For each year, this is the share of newly leased office floorspace as a share of all office space, both new and existing.

**Average office vacancy rate:** For each year, this is the average share of total (new and existing) office floorspace that remains unleased (weighted over 365 days of the year).

**Average square footage of office development per site:** For each year and including all large office projects (at least 100,000 square feet), this is the average size of office buildings, expressed in net leasable square footage; it provides a proxy for the average size and density of developments.

**Average percent of new regional office and commercial floor space:** For each year, this is the percent of new office and commercial floorspace built in the region that is in the particular market area.

nearby office buildings. Some of this difference must be attributed to Resurgens Plaza's proximity to the Lenox Square MARTA station.

For the other measures shown in Table 6-5, differences between the two submarkets are less striking. Rail services appear to have had little influence on net absorption rates or vacancy rates in the north Atlanta area. The average size of office developments, moreover, has tended to be smaller in the Lenox Square area, when compared to Perimeter Center or the Northeast freeway corridor. And compared to both control areas, Lenox Square has captured a slightly larger percentage of regional office and commercial growth during the 1980s.

*Arts Center vs. the Northwest Freeway Corridor*

Located midway between central Atlanta and the Buckhead Area, the Arts Center area was, until recently, a major cultural center, not a major office center. Indeed, until 1980, the Arts Center area included only three major office buildings, and only about 1.5 million square feet of office space. Not until the mid-1980s with the development of the 50-story Atlantic Center (also known as the IBM Tower) directly adjacent to the MARTA station did the Arts Center area become a major regional office node. Atlantic Center, in turn, encouraged the construction of several other office complexes. By 1989, total office square footage in the Arts Center submarket exceeded 4 million square feet.

The Northwest Freeway office submarket, like the Northeast Freeway submarket, is less a single office node than a collection of campus-style business parks fronting the Interstate. With little room to expand, the office inventory in the Northwest Freeway market has been roughly constant at about a million square feet since 1980. Despite their differences in scale, because they are relatively close to one another, the Arts Center and Northeast Freeway areas are widely recognized as office market competitors in the Atlanta region.

Table 6-6 compares the 1978-89 market performance of the Arts Center station area with that of its nearby non-rail competitor, the Northeast Freeway corridor. Throughout the 1980s, rents at Arts Center office buildings averaged $2 more per square foot than rents for comparable office space located along the I-85 freeway corridor. Even more significant is the difference in absorption rates. Over the study period, the inventory of leased office space at the Arts Center increased at a rate of about 10 percent per year. By contrast, the inventory of leased space in the Northwest Freeway submarket was fairly sluggish, growing only by about 1 percent per year. Also significant was the Arts Center's more than threefold edge in annual office floorspace additions, and substantially larger average size of office development. (The construction of the high-rise

**Table 6-6:**
**RESULTS OF OFFICE MARKET COMPARISONS BETWEEN ARTS CENTER AND NORTHWEST FREEWAY CORRIDOR, 1978-1989**

| Office Market Indicator | 12-Year Averages for: Arts Center | NW Freeway | Difference | t-statistic | Probability |
|---|---|---|---|---|---|
| Weighted average office rental rate ($/sqft.) | 15.89 | 13.74 | 2.15 | 1.56 | .152 |
| Average net office absorption rate (%) | 10.40 | 1.32 | 9.08 | 2.31 | .041* |
| Average office vacancy rate (%) | 12.80 | 13.07 | 0.28 | 0.07 | .948 |
| Average annual new square feet of office space | 374,883 | 116,140 | 258,743 | 2.09 | .081 |
| Average square footage of office development per site | 371,614 | 142,409 | 229,205 | 2.64 | .019* |
| Average percent of new regional office and commercial floor space | 11.82 | 1.46 | 11.36 | 2.16 | .067 |

** Significant at the 0.01 probability level
* Significant at the 0.05 probability level

*Definitions*

**Weighted average office rental rate:** For each year, this is the average rent paid per square foot of leasable space per year, weighted over all tenant leases and all properties in the study area. Both existing (relet) and newly added office space are included.

**Average net office absorption rate:** For each year, this is the share of newly leased office floorspace as a share of all office space, both new and existing.

**Average office vacancy rate:** For each year, this is the average share of total (new and existing) office floorspace that remains unleased (weighted over 365 days of the year).

**Average square footage of office development per site:** For each year and including all large office projects (at least 100,000 square feet), this is the average size of office buildings, expressed in net leasable square footage; it provides a proxy for the average size and density of developments.

**Average percent of new regional office and commercial floor space:** For each year, this is the percent of new office and commercial floorspace built in the region that is in the particular market area.

IBM Tower, by itself, accounted for a substantial share of the Arts Center area's impressive office growth.)

Overall, MARTA appears to have given rise to more compact growth and clustering around the Arts Center station than any other transit station outside of downtown Atlanta. Atlanta's unusually generous FAR levels and permissive zoning, coupled with Midtown's proximity to Peachtree Road, Atlanta's main northern artery, no doubt also deserve some of the credit for the rent premium and building boom in the Arts Center area.

## D. Regression Analysis

*The Regression Approach*

In contrast to quasi-experimental analysis, regression provides a much more robust and insightful framework for studying the links between rail transit investments and station-area real estate markets.[9] This is achieved by statistically controlling for the effects of other variables, rather than mechanically controlling for them as with quasi-experimental analysis.[10] Moreover, regression analysis allows prediction -- for example, one can estimate how much annual office rents per square foot could be expected to increase for every 10,000 additional daily passengers arriving at a nearby transit station.

This section presents a series of regression results on the effects of rail transit investments and joint-development projects on various station-area office market performance measures. The same data set of five Atlanta and Washington, D.C., station areas used in the quasi-experimental analysis is used here. Altogether, 60 data points were obtained by pooling information on the five station areas across 12 years of data (1978-89). In econometric parlance, this is referred to as a pooled time series/cross-section database.

Although quite rich in detail, pooled data sets pose special types of estimation and specification problems that need to be addressed. One problem is that the structure of the error, or

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[9]Quasi-experimental analyses compare "averages" and produce simple t statistics on the probability of producing sample differences. Regression analysis, on the other hand, provides a causal framework for studying economic and other kinds of relationships.

[10]With a quasi-experimental comparison, controls take the form of the analyst subjectively assigning cases to "experimental" versus "control" groups. Thus, statistical controls are introduced rather mechanically. With regression analysis, variables can be introduced based on their partial contributions toward explaining variance in the dependent variable that remains unexplained. Because variables enter the equation based on their unique explanatory power, in terms of their ability to explain variation in the dependent variable that variables already in the equation cannot, the effects of other variables are automatically statistically controlled for. Thus, regression analysis allows one to look at the unique influences of variables of interest, *ceteris paribus* -- that is, holding the effects of all other factors constant.

disturbance, term of the pooled model is likely to be a complex one.[11] This difficulty arises because the error term consists of time-series-related errors, cross-section errors, and a combination of both.

A second potential problem of pooled data is that even though the error terms of the cross-sectional data points are not usually serially correlated, error terms across time points quite often are. To the extent that error terms are autocorrelated, ordinary least squares (OLS)'s assumption of independence among omitted variables is violated; the result is inefficient and potentially biased coefficient estimates. To correct for the problem, first-order auto-regressive specifications were used.[12] In several cases, the presence of cross-equation correlations of error terms necessitated the use of two-stage least squares estimation (TSLS).[13]

In all of the modelling efforts which follow, a step-wise procedure was used to find the best-fitting and intuitively most revealing equations. Step-wise estimation is especially useful when, as in the current analysis, so many of the explanatory variables are correlated with each

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[11]In theory, if the regression coefficients are constant over time and over cross-section units, more efficient parameter estimates can be obtained if all data are combined and OLS estimation is applied. If the intercept terms of the regression equations vary systematically over time or over cross-section units, this information can be incorporated by creating dummy variables and producing a covariance model. While the creation of dummy variables for each cross-sectional case (less one) and time series case (less one) can improve overall model fit, at the same time, each new variable entrant reduces a degree of freedom in the estimate of regression parameters. For small data sets, this can produce serious problems. For further discussions of covariance models, see Pindyck and Rubinfeld (1981).

In the analyses which follow, covariance models were estimated and their error sum of squares were compared to the error sum of squares of OLS models to see if they significant improved fit. In none of the analyses was the model fit enhanced through a covariance model; thus a standard formulation was opted for. Error-components models were also attempted to test whether error terms are correlated across time and simultaneously across cross-section units. Again, fit was not improved by these specifications. From these results, then, the pooling of data across time points and cross-section units appeared to be statistically justified and did not require any significant alterations in how the model was specified.

[12]Under this technique, parameter estimates are derived by first differencing data points in the estimation process. When this is done, a random pattern of error terms over time usually results, improving the efficiency of the parameter estimates. Since the data set used in this analysis included cross-sectional and longitudinal data points, care was taken not to first-difference data across any of the five cross-sectional units. This was done by excluding the 1978 data points in fitting variables to the equation -- that is, first differences were taken between 1979 and 1978 data points; however, not between 1978 data points and data points from another cross-section. The removal of 1978 data points from all except autoregressive estimation reduced the pooled data set to 55 data points. The resulting improvements in parameter estimates, however, justified the loss of five cases in the analyses. For more discussions on autoregressive models, see Pindyck and Rubinfeld (1981, pp. 152-168).

[13]When there are simultaneous equations wherein dependent variables in one equation are used as explanatory variables in another, parameter estimates can be improved by TSLS estimation. This technique involves the creation of instrument variables that are highly correlated with the explanatory variable of interest but weakly correlated with the error term of the equation. For further discussions on TSLS estimation using instruments, see Pindyck and Rubinfeld (1981, pp. 178-193).

other. Step-wise analysis offers another advantage: it presents results that are often as noteworthy for the variables that do not enter the equations as for the variables that do.

The following analysis presents thirteen different and distinct regression models on station-area office market performance. Four models are presented which explain station-area office rents (Models I through IV) as a function of joint development, transit service, and local economic and real estate market conditions. Next, three models of station-area office vacancy rates (Models V through VII) are presented, as are three models of station-area space absorption rates (Models VIII-X). One regression model of average office building size -- a proxy measure for density -- is also presented (Model XI). Finally, two models are presented which explain the share of total office space (Model XII) and new office space (Model XIII) located at or near the five case study station-areas.

*Models on Station-Area Office Rents*

This section presents four regression models which explain changes in yearly average office rents at the five case-study station areas. Each model provides a slightly different perspective on which particular factors most strongly related to station-area office rent levels. Models I and II directly explain station-area office rents, while Models III and IV explain station-area office rents relative to the regional office market average.

As shown in Figures 6-1 and 6-2, average annual office rents at the five case study station-areas drifted continuously upward during the 1980s. Among Washington, D.C., station areas, Ballston averaged the highest rents, followed by Bethesda and then Silver Spring. In the case of Bethesda, office rents jumped noticeably in 1984, the first year of Metrorail service, and the following year when a joint-development program was initiated. Both Atlanta submarkets, but particularly the Arts Center area, experienced significant rent increases following the opening of MARTA stations.

<u>*Model I:*</u> The equation that best predicts average office rents for the five Washington, D.C., Metrorail and MARTA stations between 1978 and 1989 is shown in Table 6-7. In all, the four

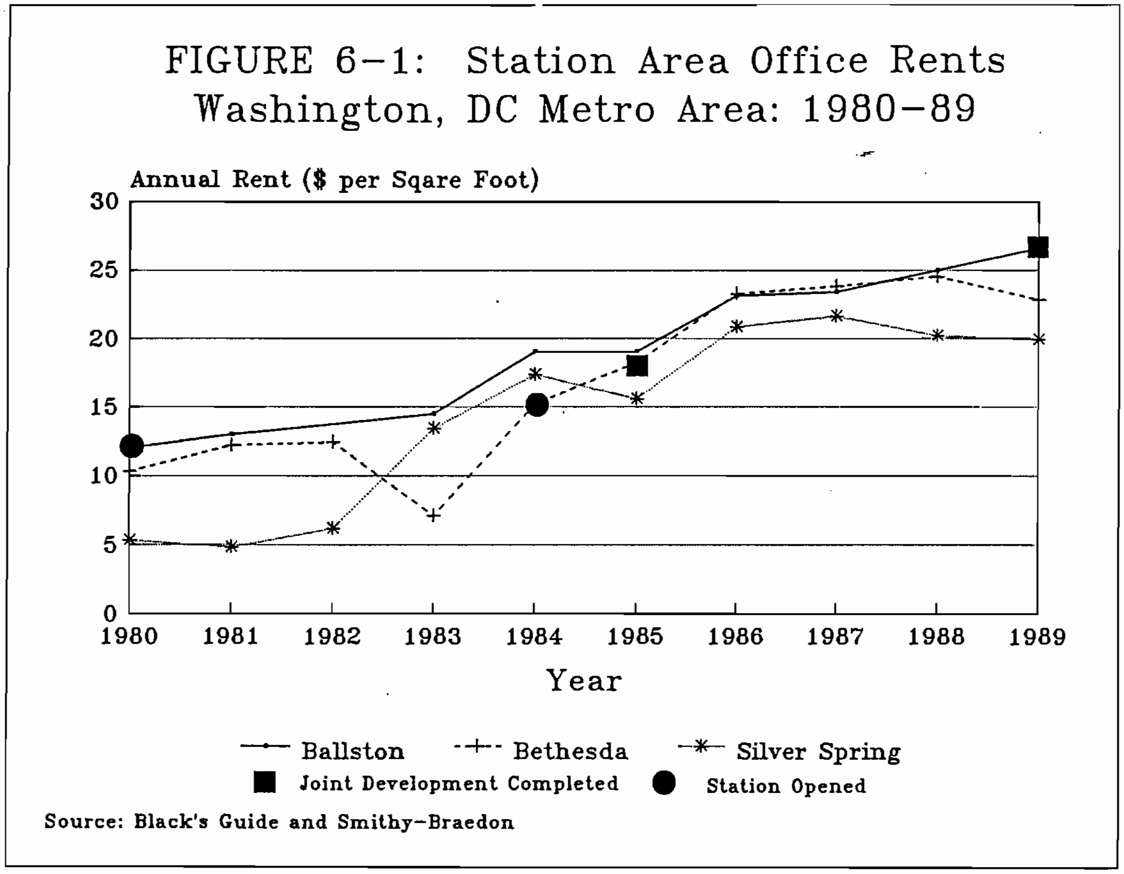
FIGURE 6-1: Station Area Office Rents
Washington, DC Metro Area: 1980-89
Annual Rent ($ per Sqare Foot)
30
25
20
15
10
5
0
1980
1981
1982
1983
1984
1985
1986
1987
1988
1989
Year
Ballston
Bethesda
Silver Spring
Joint Development Completed
Station Opened
Source: Black's Guide and Smithy-Braedon

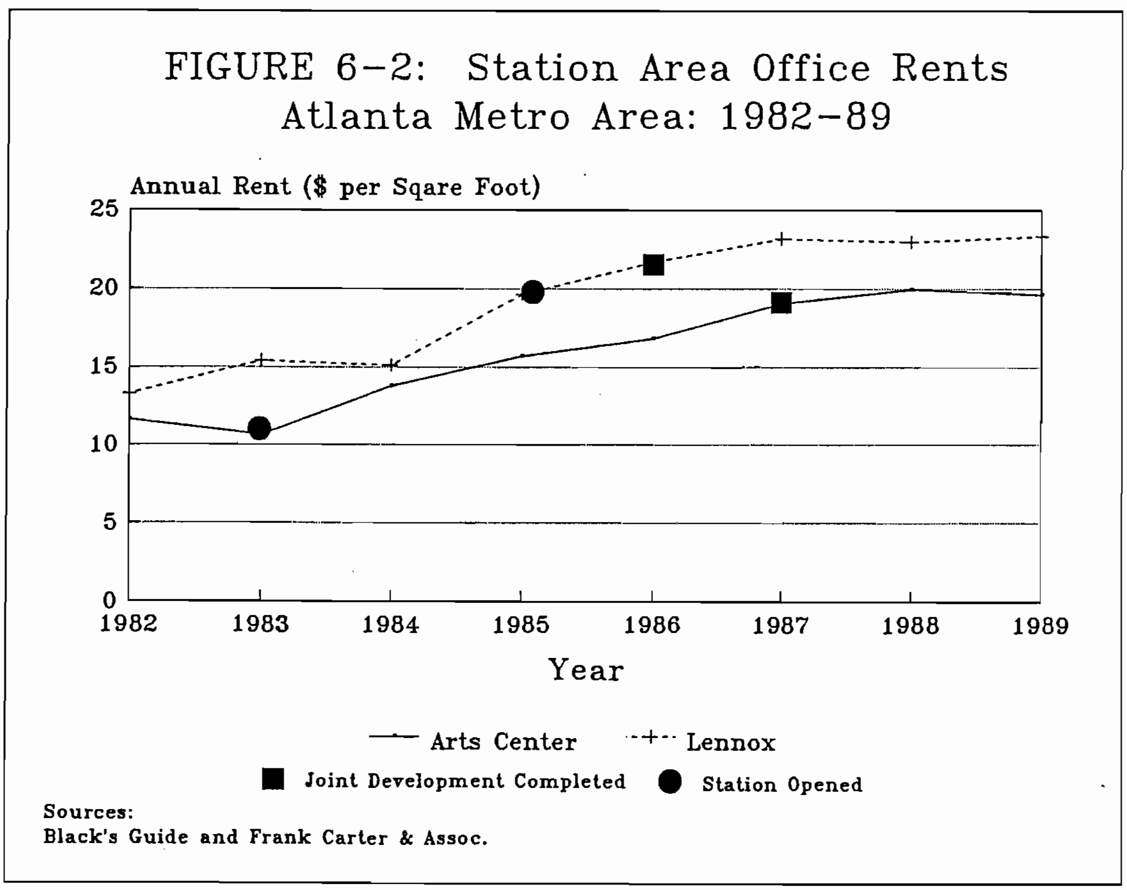
FIGURE 6-2: Station Area Office Rents
Atlanta Metro Area: 1982-89
Annual Rent ($ per Sqare Foot)
25
20
15
10
5
0
1982
1983
1984
1985
1986
1987
1988
1989
Year
Arts Center
Lennox
Joint Development Completed
Station Opened
Sources:
Black's Guide and Frank Carter & Assoc.

**Table 6-7:**
**MODEL I: PREDICTORS OF AVERAGE OFFICE RENT FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL OFFICE RENT PER SQUARE FOOT (in current dollars)

| Independent Variable | Coefficient | t-statistic | Significance |
|---|---|---|---|
| SYSTEM RIDERSHIP | 0.0396 | 3.72 | .001 |
| TERMINAL STATION | -3.3543 | -2.53 | .016 |
| JOINT DEVELOPMENT | 3.1718 | 2.46 | .019 |
| UNEMPLOYMENT RATE | -1.3755 | -2.16 | .038 |
| Constant | 15.2250 | 3.31 | .002 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .823 |
| F | = 31.61 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 2.223 |

*Variable Definitions:*

| | |
|---|---|
| SYSTEM RIDERSHIP | Daily systemwide rail ridership, paid passengers, in thousands. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line: equals 1 if a terminal station and 0 otherwise. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| UNEMPLOYMENT RATE | Regional unemployment rate, expressed as a percentage. |

predictive variables in the equation explain over 82 percent of the variation in office rents;[14] three transit-related variables and one regional market variable entered this best-fitting equation.

Model I indicates that, holding other factors constant, office rents near stations tend to increase as *Systemwide Ridership* increases. From the coefficient estimate, it appears that station-area office rents go up by $3.96 per square foot for every 100,000 additional daily passengers. The fact that it is system ridership variable instead of the passengers embarking at each station that entered the regression equation is important. It suggests that transit's influence on office rents is not so much related to ridership activity at specific stations as it is to overall system usage.

The next most significant variable included in Model I is a dummy variable signifying whether or not a station is a *Terminal Station* -- that is, whether it is at the end of the line. Controlling for other factors, offices near terminal stations rented for around $3.35 less per square foot than offices near non-terminal stations. These lower average rents likely reflect several factors. First, terminal stations tend to be farther out on the metropolitan periphery, where office markets are most competitive and rents lower. Second, terminal stations like Silver Spring on the Metrorail system are often major bus transfer points, and the presence of bus activity near these stations may have a somewhat depressing effect on rents.

Perhaps the most interesting finding from Model I is that the presence of a *Joint-Development* project at a station area is positively correlated with higher office rent levels. All else being equal, it appears that office rents are about $3 per square foot higher at station areas with joint-development projects. Of course, the relationship between joint development and office rents is both indirect and simultaneous. Joint-development projects induce greater building activity, promote higher densities, and improve station environments (as through the direct linkage of a station-concourse with an adjoining building); in tandem, these factors are likely to produce a rent premium.

The inclusion of a variable measuring the regional *Unemployment Rate* helps add an important macro-economic dimension to the model. Over time, every 1 percent increase in the

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[14]The percent of variation in the dependent variable explained by the model is represented by the R-squared statistic. Statistically, it equals one minus the ratio of the error sum of squares to the total sum of squares.

Coefficients were derived using first-order autoregressive OLS estimation. The resulting Durban Watson statistic, computed to test whether serial correlation is a serious problem or not, indicates that the effects of serial correlation were neutralized in the estimation process. The Durban Watson statistic indicates the strength of serial correlation between error terms. It can range from 0 to 4 in value. Zero indicates a perfect positive correlation and 4 indicates a perfect negative correlation of error terms. When there is a complete absence of correlation, the Durban Watson statistic equals two. For the number of cases used in these analyses, generally between 45 and 55, Durban Watson statistics that fall in the range of 1.4 to 2.6 are acceptable.

regional unemployment rate, *ceteris paribus*, is associated with a $1.37 drop in office rents per square foot. Clearly, under recessionary and high-unemployment conditions, the demand for office space slackens. Rents decline as a result. The inclusion of this variable, then, adds an important longitudinal control to the equation reflecting the influence of regionwide economic conditions.

From a policy standpoint, Model I provides several useful insights. It suggests that joint-development projects (such as air-rights leasing above a station, or a co-financed pedestrian-way between stations and major buildings) tend to make surrounding properties more valuable, resulting in higher rents. Model I also indicates that average office rents increase as systemwide ridership grows. This suggests that joint development and rising ridership reinforce each other to help raise office rents, and by extension, land values. By how much? We can get a sense through a simple scenario. From the model, we would estimate office space around a non-terminal station without joint development, on a system which averages 300,000 riders per day, and in a region where the unemployment rate is 4 percent, to rent for around $10.89.[15] If conditions were to remain the same, however an above-station air-rights lease and direct pedway connection to the concourse were introduced, and systemwide ridership rose to 320,000 riders per day (perhaps, in part, as a consequence of joint development), then we would estimate office space to rent for $14.14 per square foot.[16] This is a 30 percent increase, due specifically to the influence of mass transit ridership and joint-development activities.

<u>*Model II:*</u> Table 6-8 presents the results of a second model which provides additional insights into the relationship between office rents at station areas and transit service. Estimated using first-order autoregressive OLS, Model II has two of the same variables found in Model I -- *Systemwide Ridership* and the *Joint-Development* dummy variable. Expressing systemwide ridership in natural logarithmic form, however, improved the model's overall fit. The positive sign indicates that office rents near stations generally rose over time along with systemwide patronage; however, they rose at a decreasing rate.

From the joint-development dummy variable, we see that the rent premium associated with the existence of joint-development projects is even higher than in Model I -- around $3.93

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[15]Calculation: 15.225 + 0.0039(300)- 3.3543(0) + 3.1718(0) - 1.3755(4) = 10.89. This is in nominal, or non-inflation-adjusted, terms.

[16]Calculation: 15.225 + 0039(320) - 3.3543(0) + 3.1718(1) - 1.3755(4) = 14.14.

**Table 6-8:**
**MODEL II: PREDICTORS OF AVERAGE OFFICE RENT FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL OFFICE RENT PER SQUARE FOOT
(in current dollars)

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| LOG SYSTEM RIDERSHIP | 9.7073 | 3.40 | .002 |
| JOINT DEVELOPMENT | 3.9373 | 2.89 | .007 |
| FREEWAY MILES | 0.4707 | 2.96 | .006 |
| AVERAGE OFFICE SIZE | 0.0039 | 1.88 | .068 |
| Constant | -110.8889 | -3.33 | .002 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .78 |
| F | = 21.29 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 2.028 |

*Variable Definitions:*

| | |
|---|---|
| LOG SYSTEM RIDERSHIP | Natural logarithm of daily systemwide rail ridership, paid passengers. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| FREEWAY MILES | Lane miles of limited-access freeway within a 3-mile radius of transit station. |
| AVERAGE BUILDING SIZE | Average square feet of office space per site, in 1,000s. |

per square foot, on average, during 1980-89.[17] As above, this variable seems to serve as a proxy for a variety of features of the built environment that make the local office market attractive, such as: convenient access between rail stations and nearby buildings, attractive pedestrian amenities, higher building densities in the air rights above stations, and well-planned development.

The other variables in Model II -- *Freeway Miles* and *Average Building Size* -- provide additional insights into the factors affecting office rents around the five stations. The freeway miles variable suggests that office rents are higher at locations that have good freeway access in addition to good rail transit service. The estimated coefficient indicates office space near a station with 20 lane-miles of freeway within a three-mile radius would rent for $4.70 more per square foot than an otherwise comparable station with just ten lane-miles of freeway within a three-mile reach.[18]

Good road access has long been recognized as an important determinant of rent, so the significance of this variable into the model should come as no surprise. However, the fact that separate variables indicating the importance of transit service and freeway access are in the model together is significant. The common view is that rail transit and freeway travel are competitors and work against one another. Based on this analysis, however, it appears that they complement each other. This could be partly an artifact of the five station sites representing more mature, comparatively high-density suburban markets. Very likely, if the stations studied were in the downtown core, the influence of rail transit on office rents would be dominant; if, on the other hand, stations on the suburban fringes were studied, the level of freeway services would be a stronger predictor. Regardless, it is noteworthy that the co-existence of rail and freeway facilities has had a positive influence on land rents in these five station areas.

*Average Building Size* is the final variable in Model II, serving as a proxy for density. The positive sign indicates that as surrounding office buildings are taller, average rents tend to go up accordingly. From the coefficient, one could predict that every 100,000 square feet of building space above the "average"-size building near these five stations produced a $3.90 per square foot rent premium. This premium quite likely reflects the clustering benefits allowed by rail transit stations -- given permissive zoning, the regional access provided by rail stations, especially where

[17]Again, for each cross-section of stations the first data point, 1978, was removed from the analysis since in five instances first differencing would have otherwise been between cross-sections. Thus, 1979 data points were first differenced against 1978 data points; however, 1978 data points were ignored as cases themselves.

[18]Twenty lane-miles of freeway within a three-mile radius would amount to a total of five miles of four-lane freeway. Based on the coefficient, twenty lane-miles would add [20 x 0.4707] = $9.40 to each square foot of office space leased whereas ten lane-miles would add [10 x 0.4707] = $4.70. The difference is $4.70.

joint-development activities like air-rights leasing has taken place, encourages large, dense commercial buildings near stations. The benefit of good regional access for tenants in the building gets translated into higher leasing rates.

*Model III:* Station-area office markets are really submarkets of larger regional office markets.[19] That is, where market demand for office space is rising -- as was the case in both Washington, D.C., and Atlanta during the 1980s -- rents can be expected to go up in station and non-station areas alike. In such cases, it is essential to control for regional economic and market influences -- something Models I and II do not do, at least directly.[20]

Models III and IV do control for changing conditions in metropolitan office markets. Model III expresses the dependent variable as the simple difference between station-area office rents and the average regional office rent for each year. By contrast, Model IV expresses the difference between station-area and regional office rents as a ratio.

Table 6-9 presents the results of Model III.[21] Many of the same variables that entered the two prior models also entered Model III, although the interpretations are somewhat different. Table 6-9 indicates that, between 1977 and 1989, the presence of a *Joint-Development Project* at a station added a $2.77 premium per square foot above the regional average. Rents at *Terminal Stations*, which in this sample include Ballston, Lenox Square, and Silver Spring (for certain years), were, on average, $6.24 per square foot below the regional average during the 1980s. Moreover, the model suggests that every additional ten *Freeway Lane-Miles* within three miles of a rail station add $3.25 to area office rents, when compared with the regional average.

The only new variable that entered Model III was average *Daily Station Passengers*, in contrast to the systemwide ridership variable found in the previous models. The coefficient estimate for this variable suggests that every 1,000 passengers entering the station each day is associated with a rent premium of $0.76 per square foot over the regional average. This is another way of saying that transit stations, as nodes of accessibility, add value. In sum, Table 6-9 tells us

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[19]Despite the fact that they were candidates for step-wise entry, no regional control variables, other than the regional unemployment rate, entered the two previous models.

[20]Note that when regional controls are introduced, they account for portions of the total variation in the dependent variable primarily along the time-series dimension of the pooled data set. For the five station cross-sections, the introduction of regional controls only accounted for some of the variation between the Washington, D.C., and Atlanta cases and not for variation among cases within either region. Thus, the regional controls helped to explain variation between, say, the Arts Center cases and the three Washington Metrorail cases; however, not between the Arts Center cases and the Lenox Square cases.

[21]Because the Durban Watson statistic did not fall below the critical value, OLS estimation was used for this model.

**Table 6-9:**
**MODEL III: PREDICTORS OF RELATIVE AVERAGE OFFICE RENT FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL OFFICE RENT IN STATION AREA MINUS AVERAGE ANNUAL REGIONAL OFFICE MARKET RENT (in current dollars per square foot)

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| DAILY STATION PASSENGERS | 0.7625 | -4.90 | .000 |
| JOINT DEVELOPMENT | 2.7671 | 2.24 | .035 |
| FREEWAY MILES | 0.3257 | 2.51 | .019 |
| TERMINAL STATION | -6.2420 | -4.90 | .000 |
| Constant | -13.2052 | 3.17 | .000 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .798 |
| F | = 22.77 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.510 |

*Variable Definitions:*

| | |
|---|---|
| DAILY STATION PASSENGERS | Average number of weekday paid passengers entering the transit station, in thousands. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| FREEWAY MILES | Lane-miles of limited-access freeway within a 3-mile radius of transit station. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line: equals 1 if a terminal station and 0 otherwise. |

that station-area office rents were consistently greater than regional office rents as a function of transit ridership (from the station), and where joint-development projects were undertaken.

*Model IV:* Model IV also accounts for changes in regional rents over time. However, whereas the previous formulation expressed the difference in absolute terms, this formulation expresses them as a ratio.

The best-fitting equation, derived using a two-stage autoregressive estimation, is shown in Table 6-10.[22] Three of the four variables that entered Model III are also in Model IV. But because the form of the dependent variable differs between Models III and IV, so too does the interpretation of the coefficient estimates. For example, Model IV suggests that the existence of a *Joint-Development* project at a station raises average office rents nearly 14 percent above the regional average. Moreover, every additional 1,000 extra daily riders is associated with area office rents that are around 4 percent above the regional average. Office buildings near *Terminal Stations*, on the other hand, average rents about a third below market-wide averages.

These findings further illuminate the link between joint development, transit ridership, and station-area office rents. From the equation, we would estimate that a station where the air rights are leased to a large office-commercial complex that generates 3,000 additional daily riders would enjoy a rent premium that is 25 percent above the regional average. Based on this finding, it would appear that the rationale for recouping some of this financial benefit for public-sector gain through some kind of value-recapture mechanism is a sound one. Empirically, we have shown that joint development and higher ridership appear to work together to increase the value of land near station sites; on equity grounds, some of this benefit should be returned to the public sector to help retire the debt on capital investment. Exactly how much should be recaptured by the public sector is less clear; however, given the fairly substantial rent premiums found in this study, the amount is not inconsequential.

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[22]Two-stage estimation was used because there was a significant simultaneous influence between "rent ratio" and "station patronage." Thus, the "rent ratio" equation was estimated as a system of equations with the "station patronage" model, presented in Chapter Seven. If the equations were estimated singularly, simultaneous equation bias would have been introduced. To correct for the bias, endogenous variables on the right-hand side of equations were replaced by instruments. In the case of the "Daily Station Passengers" variable shown in Table 6-10, an instrument was created by regressing this variable on exogenous factors (e.g., the "fare" and "freeway-mile" variables found in the ridership model) in order to remove inter-equation bias. This is a reduced-form estimate. In the second stage, the instrument was used in lieu of the "daily station passenger" variable and first-order autoregressive OLS (to correct for remaining serial correlation) was applied. Thus, the parameter estimates shown in Table 6-10 were derived using two-stage first-order autoregressive estimation.

**Table 6-10:**
**MODEL IV: PREDICTORS OF RELATIVE AVERAGE OFFICE RENT FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL STATION AREA OFFICE RENT
Divided by AVERAGE REGIONAL ANNUAL OFFICE RENT
(expressed as a proportion)

| Independent Variables | Coefficient | t statistic | Significance |
|---|---|---|---|
| DAILY STATION PASSENGERS | 0.0373 | 2.65 | .015 |
| JOINT DEVELOPMENT | 0.1371 | 2.16 | .042 |
| TERMINAL STATION | -0.3619 | -4.57 | .000 |
| Constant | 0.7066 | 5.96 | .000 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .790 |
| F | = 20.68 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.844 |

*Variable Definitions:*

| | |
|---|---|
| DAILY STATION PASSENGERS | Average number of weekday paid passengers entering the transit station, in thousands. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line: equals 1 if a terminal station and 0 otherwise. |

*Models on Office Vacancy Rates*

Higher office rents are one type of private benefit of joint development. Another private benefit, at least potentially, is lower vacancy rates. Office buildings with high rents and low vacancy rates not only generate more revenue for their owners per square foot, they also generate more total revenue. In fact, given a choice of outcomes between higher rents with higher vacancy rates, and lower rents with lower vacancy rates, most profit-conscious office developers would choose the latter.

This section uses multiple regression analysis to examine whether investments in rail transit or specific joint-development projects are associated with lower-than-average office vacancy rates at transit station-areas. Models V through VII were constructed using the same dataset as discussed above: 60 observations on five station-area office submarkets in Atlanta and Washington, D.C., between 1978 and 1989.

*Model V:* Model V (Table 6-11) confirms what every office leasing agent knows. Vacancy rates tend to be higher for larger buildings with high rents. But what is new and interesting about Model V is what it indicates about joint development. Controlling for rents and building size, vacancy rates tend to lower in station areas with joint-development projects. Specifically, Model V suggests that, all else being equal, vacancy rates for office buildings near station areas with joint-development projects averaged 11 percentage points less than vacancy rates at comparable stations without joint-development projects. Thus, while large, high-priced developments tend to induce higher vacancy rates, the existence of a formal joint-development program appears to have a countervailing influence.

*Model VI:* Just as regional rental rates affect office rental rates at station areas, so too do regional vacancy rates affect office submarket or station-area office vacancy rates. In Model VI, the dependent variable is the arithmetic difference between station-area vacancy rates and the regional average vacancy rate, considered on a yearly basis. A positive difference indicates a relatively sluggish rental market near the station, while a negative one indicates the share of available space filled exceeded the regional average. The best-fitting version of Model VI is shown in Table 6-12. Model VI, which was estimated using OLS, is similar in structure to Model V, but its statistical fit is far better. Table 6-12 indicates that station-area office vacancy rates tended to be lower than the regional average in settings where the average office building was relatively small, where there was relatively little new office construction, and where a joint-development project had been completed. In particular, Model VI suggests that office vacancy

**Table 6-11:**
**MODEL V: PREDICTORS OF AVERAGE VACANCY RATE FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL STATION AREA VACANCY RATE FOR NEW AND EXISTING OFFICE SPACE (expressed as a percentage)

| Independent Variables | Coefficient | t statistic | Significance |
|---|---|---|---|
| AVERAGE BUILDING SIZE | 0.0175 | 5.82 | .000 |
| JOINT DEVELOPMENT | -11.1537 | -3.50 | .001 |
| RENT RATIO | 15.6648 | 2.68 | .011 |
| Constant | -3.4253 | 5.15 | .511 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .525 |
| F | = 12.94 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 2.031 |

*Variable Definitions:*

| | |
|---|---|
| AVERAGE BUILDING SIZE | Average square feet of office space per site, in thousands. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| RENT RATIO | Average annual station area office rent divided by average annual regional office rent; expressed as a proportion. |

**Table 6-12:**
**MODEL VI: PREDICTORS OF RELATIVE VACANCY RATE FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL STATION AREA OFFICE VACANCY RATE minus AVERAGE ANNUAL REGION-WIDE VACANCY RATE (expressed as a percentage)

| Independent Variables | Coefficient | t statistic | Significance |
|---|---|---|---|
| AVERAGE BUILDING SIZE | 0.0187 | 8.18 | .000 |
| JOINT DEVELOPMENT | -5.5726 | -2.36 | .024 |
| OFFICE GROWTH SHARE | -300.0708 | -5.69 | .000 |
| Constant | 5.5374 | 2.68 | .011 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .720 |
| F | = 30.81 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.734 |

*Variable Definitions:*

| | |
|---|---|
| AVERAGE BUILDING SIZE | Average square feet of office space per site, in thousands. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| OFFICE GROWTH SHARE | New square feet of office space in the station area divided by new square feet of office space in the region, expressed as a proportion. This measures the relative share of new office space in the station area. |

rates in station areas with joint-development projects are around 5.5 percentage points below the regional average. In most office markets, the difference between a 10 percent vacancy rate and a 15.5 percent vacancy rate is quite significant.

*Model VII:* Model VII (Table 6-13) expresses the difference between region-wide office vacancy rates and station-area vacancy rates in relative, not absolute, terms; otherwise it is similar to Model VI. Model VII indicates that vacancy rates during the 1978-89 period for station areas with joint-development projects were, on average, around 47 percent below regional vacancy rates. Furthermore, we would expect the vacancy rate in a station area with office buildings averaging one-half-million square feet of floor would be 56 percent higher than the regional average compared to a station area with office buildings that are, on average, 100,000 square feet in size, *ceteris paribus*.[23]

In sum, the results of Models V-VII reflect two market dynamics. The first is that joint-development projects have tended to be built at precisely those station areas with low vacancy rates; that is, in office submarkets that are expanding and profitable. The second and more important dynamic is that joint-development projects, by virtue of their immediate proximity to transit stations, are easier to lease. Put another way, large office buildings near transit stations have higher-than-average vacancy rates while large office buildings developed as joint-development projects have lower-than-average vacancy rates.

*Models of Station-Area Absorption Rates*

Net absorption rates are yet another barometer of the performance of local office markets. Absorption rates refer to how rapidly new office inventories are leased up. Absorption rates differ from vacancy rates in a fundamental way. Whereas vacancy rates present a static picture of occupancy and leasing activity (without explicit reference to changes in office supply), absorption rates measure occupancy and leasing activity in relation to changes in the total amount of available space. Put another way, absorption rates provide a measure of future development opportunities, whereas vacancy rates provide a snapshot of current market conditions. When the demand for office space is consistently high, absorption rates will likewise be high. A stagnant market characterized by high vacancy rates, on the other hand, could be expected to absorb a fairly small share of new office space.

---

[23]Calculation: [(0.0014)(500) - (0.0014)(100)] = 0.56.

**Table 6-13:**
**MODEL VII: PREDICTORS OF RELATIVE VACANCY RATE FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL STATION AREA OFFICE VACANCY RATE divided by AVERAGE ANNUAL REGION-WIDE OFFICE VACANCY RATE (expressed as a percentage)

| Independent Variables | Coefficient | t statistic | Significance |
|---|---|---|---|
| AVERAGE BUILDING SIZE | 0.0014 | 7.26 | .000 |
| JOINT DEVELOPMENT | -0.4712 | -2.32 | .026 |
| OFFICE GROWTH SHARE | -20.3304 | -4.49 | .000 |
| Constant | 1.3799 | 7.81 | .000 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .653 |
| F | = 22.61 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.655 |

*Variable Definitions:*

| | |
|---|---|
| AVERAGE BUILDING SIZE | Average square feet of office space per site, in thousands. |
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing: equals 1 if a joint-development program exists and 0 otherwise. |
| OFFICE GROWTH SHARE | New square feet of office space in the station area divided by new square feet of office space in the region, expressed as a proportion. This measures the relative share of new office space in the station area. |

This section summarizes the results of three regression models for predicting station-area absorption rates. The first model explains station-area absorption rates directly; the latter two control for market-wide shifts in absorption rates.

*Model VIII:* Model VIII provides the best-fitting expression for predicting office absorption rates at the five transit station areas between 1978 and 1989 (Table 6-14). Estimated using a first-order autoregressive procedure, Model VIII fails to indicate much of a link between absorption rates and either transit services or joint development. The model indicates that absorption tended to be high in fast-growing markets. Moreover, nearby freeway traffic volumes were more strongly correlated with the absorption rate than measures of transit demand, such as average daily station counts. Every 100,000 additional motor vehicles on the closest freeway segment to the station site, for example, was associated with a 13.3 percent increase in station area net absorption rate. The one transit-related variable that did enter the equation had a negative influence on absorption rate. Specifically, *Terminal Station* settings (notably Silver Spring and Ballston during the early 1980s) tended to have low rates of office absorption.

*Model IX:* As shown in Table 6-15, the addition of a regional control variable did not yield much improvement over the previous model. Model IX, also derived through auto-regressive first-differencing, tells us that every 10 percent of the growth in regional office space that was in a station area was associated with an absorption rate that was 6.5 percentage points above the regional average. In addition, absorption rates at terminal transit stations tended to be around 6.2 percentage points below the regional average.

*Model X:* Expressing station-area absorption rates as a ratio to regional absorption rates also failed to add anything new to the analysis. From Table 6-16, relative *Office Growth* and nearby *Freeway Traffic* exerted a positive influence on office absorption rates, whereas being a *Terminal Station* location had a negative influence. Every 10,000 additional daily cars on the closest freeway to the station area, for example, were associated with absorption rates that were around 15 percentage points above the regional average.

Models IX-XI are as noteworthy for the variables that did not enter the absorption rate equations as for the variables that did. In particular, no variables related to transit service levels, patronage, or joint-development activities entered any of the equations as important predictors of absorption rates. For the five Metrorail and MARTA stations studied, although transit services and joint development appeared to be positively related to rents and low vacancy rates, they

**Table 6-14:**
**MODEL VIII: PREDICTORS OF ABSORPTION RATES FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL SHARE OF NET OFFICE SPACE ADDITIONS IN STATION AREA THAT IS LEASED DURING THE ENTIRE YEAR (expressed as a percentage)

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| OFFICE GROWTH SHARE | 90.8400 | 4.15 | .000 |
| TERMINAL STATION | -4.8547 | -2.26 | .032 |
| FREEWAY TRAFFIC | 0.1330 | 3.00 | .032 |
| Constant | -10.8660 | -1.99 | .056 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .587 |
| F | = 13.26 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 2.127 |

*Variable Definitions:*

| | |
|---|---|
| OFFICE GROWTH SHARE | New square feet of office space in the station area divided by new square feet of office space in the region, expressed as a proportion. This measures the relative share of new office space in the station area. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line; equals 1 if a terminal station and 0 otherwise. |
| FREEWAY TRAFFIC | Average daily traffic volume (in both directions) on the closest freeway segment to the station, in thousands. |

## Table 6-15:
## MODEL IX: PREDICTORS OF RELATIVE ABSORPTION RATES FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89

Dependent Variable: AVERAGE ANNUAL STATION AREA ABSORPTION RATE
minus AVERAGE ANNUAL REGIONAL ABSORPTION RATE
(expressed as a percentage)

| Independent Variables | Coefficient | t statistic | Significance |
|---|---|---|---|
| OFFICE GROWTH SHARE | 65.1811 | 3.17 | .004 |
| TERMINAL STATION | -6.1640 | -3.03 | .006 |
| FREEWAY TRAFFIC | 0.0951 | 2.32 | .030 |
| Constant | -9.7078 | -1.84 | .079 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .584 |
| F | = 10.30 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.879 |

*Variable Definitions:*

| | |
|---|---|
| OFFICE GROWTH SHARE | New square feet of office space in the station area divided by new square feet of office space in the region, expressed as a proportion. This measures the relative share of new office space in the station area. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line; equals 1 if a terminal station and 0 otherwise. |
| FREEWAY TRAFFIC | Average daily traffic volume (in both directions) on the closest freeway segment to the station, in thousands. |

**Table 6-16:**
**MODEL X: PREDICTORS OF RELATIVE ABSORPTION RATES FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE ANNUAL STATION AREA ABSORPTION RATE
divided by AVERAGE ANNUAL REGIONAL ABSORPTION RATE
(expressed as a proportion)

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| OFFICE GROWTH SHARE | 10.6531 | 3.18 | .004 |
| TERMINAL STATION | -0.9390 | -2.83 | .010 |
| FREEWAY TRAFFIC | 0.0147 | 2.21 | .038 |
| Constant | -0.4705 | -0548 | .590 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .569 |
| F | = 9.67 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.800 |

*Variable Definitions:*

| | |
|---|---|
| OFFICE GROWTH SHARE | New square feet of office space in the station area divided by new square feet of office space in the region, expressed as a proportion. This measures the relative share of new office space in the station area. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line; equals 1 if a terminal station and 0 otherwise. |
| FREEWAY TRAFFIC | Average daily traffic volume (in both directions) on the closest freeway segment to the station, in thousands. |

nevertheless appeared to have had far less influence on the rate of office space absorption, at least during the 1980s.

*A Model of Office Density*

As land around rail transit stations increases in value, building densities can likewise be expected to increase. Transportation planners have long recognized the ability of fixed guideway investments to encourage clustering and high-density growth around stations (Mitchell and Rapkin, 1954; Holgren, 1966; Pushkarev and Zupan, 1977; Pill, 1983; Smith, 1984). Indeed, one of the strongest arguments in favor of building rail transit systems is that they may encourage a more compact urban form.

This section explores the extent to which transit investments were linked with higher office densities. Unfortunately, accurate measures of commercial density -- such as the number of employees per 1,000 square feet of building space, or the average floor area ratios (FARs) -- were not available for all five stations during the 12-year period studied.[24] What was available was the total square footage of office buildings and the number of building structures.[25] Dividing the former (space) by the latter (buildings) produced an estimate of the average office building size at each station area. While this figure does not directly indicate land use intensity (since it is not indexed to land area), it does provide some indication of relative densities.

Table 6-17, as previously stated, shows the best-fitting model of average office building densities at the five station areas. The equation was estimated using the first-order autoregressive procedure, and explains 60 percent of the variation in *Office Building Size* using two variables. The first was daily *Systemwide Ridership* in the prior year. The coefficient suggests that average building sizes increased by about 5 square feet for every 1,000 daily passengers. The fact that a lagged expression provided a superior fit suggests that the effect of ridership on building density is not instantaneous. Rather, it may take a while before the accessibility advantages of transit service are capitalized into increased land values, which, in turn, encourage higher densities. Even when developers anticipate that this dynamic will occur, it can still take several years to design a structure, secure financing, get necessary government approvals, and construct the building. Thus, the delay between systemwide ridership gains and office construction is entirely consistent with theory.

[24]An FAR, or floor area ratio, is the total square feet of building space divided by the land area on which the building sits. An FAR of 5.0, for example, indicates that there is five times as much building area as land for a particular site.

[25]Data were compiled only for office structures with at least 100,000 square feet of net leasable space.

**Table 6-17:**
**MODEL XI: PREDICTORS OF AVERAGE SIZE OF OFFICE PROJECT FOR FIVE URBAN RAIL TRANSIT STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE SQUARE FEET OF OFFICE SPACE (PER SITE) AT STATION AREAS

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| SYSTEMWIDE RIDERSHIP (-1) | 5.0352 | 5.52 | .000 |
| JOINT DEVELOPMENT | 345,381.49 | 3.31 | .002 |
| Constant | -586,012.29 | 3.31 | .004 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .603 |
| F | = 25.82 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 2.083 |

*Variable Definitions:*

SYSTEMWIDE RIDERSHIP (-1) — Daily systemwide rail ridership, paid passengers, in 1,000s, lagged by one year.

JOINT DEVELOPMENT — Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing; equals 1 if a joint-development program exists and 0 otherwise.

The second variable that entered the equation indicates that the presence of a joint-development project was associated with buildings that were 345,000 square feet above the typical size. This is a significant difference and no doubt reflects that there are several high-rise towers at or near the case study station-areas, including the IBM tower at the Arts Center Station, Resurgens Plaza at Lenox Station, and Metro Centre above Ballston Station. In sum, these results support previous research findings that transit investments -- and the ridership and coordinated joint development that they induce -- encourage high-density development.

*Models of Office Space Share and Growth Share*

Model XII: Does the existence of a joint-development project increase a station area's relative attractiveness as an office center? Only slightly, according to the results of Model XII (Table 6-18). This model, estimated using a first-order auto-regressive approach, indicates that *Joint-Development* projects add about two percentage points to the share of the regional office space at a particular station area. Being at the end of a transit line, on the other hand, could be expected to lower the share of regional growth by 1.3 percentage points.

Given the large share of unexplained variation in the model, one should not place too much trust in the magnitude of these coefficients. Still, the directionality of these relationships appears valid: joint development tends to be associated with a vibrant local real estate market, particularly when it occurs at a non-terminal station location.

Model XIII: The previous model predicted the share of regional office space at or near the case-study stations. Model XIII explores the share of *new* regional office space developed at each station-area submarket (Table 6-19). Derived using first-order autoregressive estimation, Model XIII exhibits only marginal predictive abilities, explaining less than one-third of the variation in the dependent variable.

Consistent with the results of Model XII, the equation shows that the existence of a *Joint-Development* project was associated with, on average, a 5-percentage-point increase in the share of new regional office and commercial growth that took place near a station. The model also indicates that the share of new additions was positively related to the *Absorption Rate of* the previous year.

Thus, when new office space near stations was quickly leased out during a particular year, rapid growth could be expected the following year, a sign that the five station-area real estate markets were functioning well during the 1980s. Again, because of the poorness of fit, one

**Table 6-18:**
**MODEL XII: PREDICTORS OF SHARE OF REGIONAL OFFICE AND COMMERCIAL SPACE IN THE STATION AREA FOR RAIL STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE SQUARE FEET OF OFFICE SPACE AT STATION AREAS divided by TOTAL REGIONAL OFFICE SPACE

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| JOINT DEVELOPMENT | 0.0195 | 3.11 | .003 |
| TERMINAL STATION | -0.0133 | -2.21 | .034 |
| Constant | 0.0338 | 6.86 | .000 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .539 |
| F | = 19.91 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.935 |

*Variable Definitions:*

| | |
|---|---|
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing; equals 1 if a joint-development program exists and 0 otherwise. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line; equal 1 if a terminal station and 0 otherwise. |

**Table 6-19:**
**MODEL XIII: PREDICTORS OF SHARE OF NEW REGIONAL OFFICE AND COMMERCIAL SPACE IN THE STATION AREA FOR RAIL STATIONS IN WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE SQUARE FEET OF NEW OFFICE SPACE AT STATION AREAS divided by TOTAL REGIONAL NEW OFFICE SPACE (expressed as a proportion)

| Independent Variable | Coefficient | t statistic | Significance |
|---|---|---|---|
| JOINT DEVELOPMENT | 0.0523 | 3.44 | .002 |
| ABSORPTION RATE (-1) | 0.0119 | 1.67 | .104 |
| Constant | 0.0395 | 3.72 | .001 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .310 |
| F | = 6.1491 |
| Prob(F) | = .006 |
| Durban Watson Statistic | = 1.948 |

*Variable Definitions:*

| | |
|---|---|
| JOINT DEVELOPMENT | Dummy variable designating the existence of a joint-development program, involving some form of either revenue-sharing or cost-sharing; equals 1 if a joint-development program exists and 0 otherwise. |
| ABSORPTION RATE (-1) | Share of new office space additions that are leased during the year, expressed as a percentage. |

should probably not place too much credence in the precise estimates; however, the directionality of relationships is insightful. In particular, joint-development activities are not only correlated with high rents, low vacancy rates, and tall nearby buildings, they also characterize station areas that are undergoing a building boom. Certainly, the causality between these variables works both ways. While joint development induces new construction activity, rapid growth itself can be expected to encourage greater interest in coordinated development from both the public and private sectors.

## E. Summary and Conclusions

Joint development is premised on the assumption that transit investments create benefits to the owners of commercial property at station areas through higher rents, lower vacancy rates, faster space absorption, and higher densities. In this chapter, two forms of statistical analysis -- quasi-experimental analysis and regression analysis -- were used to test and evaluate this assumption for station-area real estate markets in Washington, D.C., and Atlanta.

Overall, the analysis indicates that commercial buildings at or near transit stations, particularly those where there has been joint development, did in fact outperform the broader real estate market during the 1980s. Specifically, transit system ridership was found to be positively correlated with office rent premiums (at station areas), and low vacancy and high absorption rates (at station areas). And at selected transit station areas, higher office rents and lower vacancy rates were associated with the presence of specific joint-development projects.

While the many models presented in this chapter are revealing in their own right, making comparisons between them is difficult because most variables are measured in different units. One way around this problem is to standardize the data into elasticities. Elasticities measure the percent change in each dependent variable given a 1 percent change in the explanatory variable. Thus, they provide an index of sensitivity, allowing one to compare the relative explanatory power of different predictors.

Table 6-20 summarizes the findings of this chapter by presenting the elasticities between the various office-market performance measures, and the key explanatory variables that emerged from the step-wise analyses. All figures shown are mid-point elasticities.[26]

Among the dependent variables studied, the "average office rent" variable was more closely correlated with more transit and market variables than any of the other dependent

[26]Mid-point elasticities between two variables were computed by multiplying the regression coefficient derived from the step-wise analyses by the ratio of the mean of the independent variable to the mean of the dependent variable. In cases where there were multiple models for the same dependent variable, elasticities that are based on the arithmetic average of regression coefficients are presented.

**Table 6-20:**
**ELASTICITY ESTIMATES BETWEEN LAND MARKET VARIABLES AND KEY EXPLANATORY VARIABLES**

| | Dependent Variables | | | | |
|---|---|---|---|---|---|
| | Average Rents | Vacancy Rate | Absorption Rate | Average Building Size | Share of Regional Growth |
| Independent Variables: | | | | | |
| *Transit Factors* | | | | | |
| Ridership | 0.496 | - | - | 0.210 | - |
| Joint Development | 0.063 | -0.164 | - | 0.146 | 0.125 |
| Terminal Station | -0.095 | - | -0.382 | - | -0.189 |
| *Other Factors* | | | | | |
| Unemployment Rate | -0.389 | - | - | - | - |
| Freeway Traffic or Miles | 0.370 | - | 0.142 | - | - |

Dash lines indicate that the explanatory variables were not significant predictors of the dependent variables.

variables. From the elasticities, the strongest relationship was between office rents and ridership. The elasticity figure indicates that every 10-percent increase in ridership is associated with nearly a 5-percent increase in office rents, *ceteris paribus*. Of particular importance, office rents were found to be more strongly influenced by transit ridership than by nearby freeway traffic volumes. This suggests that transit investments do indeed create the potential for value recapture, whether through specific joint-development ventures or via some other mechanism.

The existence of a completed joint-development project is associated with yet an additional rent premium. At terminal stations, however, the presence of transit has a fairly weak influence on leasing rates. While the relationship between rents and each of these variables is individually inelastic, the collective impacts of transit-related variables on leasing rates has no doubt been substantial around several of the station sites.

For the various office *vacancy rate* models, the key transit-related variable that emerged from the analysis was the existence of a joint-development project or program. That is, office vacancy rates at station areas with completed joint-development projects tend to be lower than for the office market as a whole. In terms of *absorption rates*, no significant explanatory variables were found; rather, nearby freeway traffic was most strongly correlated with office space absorpion.

Transit usage is also correlated with higher office space densities and larger buildings. In fact, the elasticity estimate shown in Table 6-20 suggests that a 10-percent increase in ridership is associated with a 2.1-percent increase in average building size. The existence of joint development also has a positive impact on project size, although the causality here almost certainly works in both directions.

Finally, Table 6-20 confirms that joint development is most common in areas where the local real estate market is booming. This suggests that joint development can be an important agent toward inducing a higher-density built environment.

Among all of the variables shown in Table 6-20, "joint development" consistently entered most of the models. Quite possibly, joint development plays an important catalytic role in bringing about land market changes that in turn induce higher ridership levels. Higher ridership, moreover, appears to result in higher office rents and denser development. Based on this analysis, the notion that joint development creates a "win-win" situation appears to have some empirical backing. When transit investments and real estate projects are closely linked, everyone appears to benefit -- the private development community gains from a healthy local real estate market, transit agencies benefit from lowering cost and attracting more riders, and society at-large benefits from the more efficient built form brought about through densification.

## CHAPTER SEVEN:
## The Revenue and Ridership Impacts of Joint Development

### A. Introduction

Joint development generates local transit revenues in two ways. The first is more direct and obvious: developers or concession lease-holders pay transit operators for specific development rights, for station connections, or to lease space in transit stations. The second, more indirect, way is through increased patronage. To the extent that joint development attracts new riders, it increases farebox revenues.[1] Other revenue benefits (albeit not to the transit operator) may include increases in property-tax receipts and/or state corporate tax receipts.[2]

The purpose of this chapter is to assess the public sector benefits of joint-development projects via direct cash payments and through ridership and farebox increases. Thus, this chapter serves as a public sector counterpart to the previous one. In Chapter Six, the private monetary benefits of transit investments and joint-development projects to the owners of commercial properties were considered; in this chapter, we examine the financial benefits that accrue to the public sector, specifically, the transit operator.

### B. Direct Revenues to Transit Agencies

Joint-development agreements generate three different types of cash revenues directly for local transit agencies: (i) capital contributions; (ii) yearly income; and (iii) assessment revenues and fees. Capital contributions are payments by private development interests to a transit agency for land or development rights, or to connect to a transit station or other transit facility. Capital contributions are usually, although not always, one-time payments. They may include *original contributions* or *in-lieu-of payments*. Original contributions are revenues that the transit agency would

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[1]From a societal standpoint, some of these revenue impacts may actually be redistributive, such as transfers between real estate developers or their commercial tenants and transit agencies. In general, the revenue from joint development involves a transfer of money from the bank accounts of real estate developers to the bank accounts of transit agencies. Perhaps more indirectly, when joint development results in former motorists switching over to transit commuting it involves the transfer of wealth from those who profit from automobile sales and servicing to the treasury of transit agencies. In both cases, revenues generated from joint development activities represent real and potentially important monetary gains.

[2]In general, tax benefits represent transfers rather than any real economic gain. In this section, such transfers are ignored.

not have received if it had not undertaken a joint-development project. In-lieu-of payments cover the costs of developing facilities (such as station plazas) that the transit operator would have had to build even in the absence of a joint-development project. The presumption is that in-lieu-of payments pay for previously committed capital projects, whereas original contributions represent unplanned revenue gains to the agency. Many joint-development projects generate both original and in-lieu-of payments. As discussed in Chapter Five, the amount of capital outlays is usually the subject of lengthy negotiations between the transit agency and the project developer.

Yearly income payments are annuities paid by private development interests to transit operators for development leases, such as installments on land purchases or development rights, or for the rental of space or facilities at transit stations. Because they are periodic (subject to the terms of the lease or other agreements), yearly lease payments provide a regular stream of revenue to the transit operator. Such revenues can be used to augment general operating revenues or to offset operating losses. Like capital contributions, yearly lease payments are usually negotiated on a case-by-case basis.

Accurate information on annual lease payments and terms is difficult to obtain. In his 1983 evaluation of joint development, Keefer identified the following annual leasing proceeds of four joint-development projects (in 1983 currency):[3]

- Baltimore (Lexington Market Station) -- $30,000
- Cedar Rapids (inter-modal transit terminal) -- $70,000
- Davenport (inter-modal transfer terminal) -- $125,000
- Philadelphia (Gallery I and 11) -- $237,500

Assessment revenues and fees are payments by landowners and private developers as a precondition for development within an assessment or impact fee district. Unlike capital contributions and yearly payments, assessment revenues are levied according to a set fee or assessment schedule and are not negotiated on a project-by-project basis. Because so few transit operators have successfully implemented impact fee areas or assessment districts, they are not considered in this chapter.[4]

As noted in Chapters Three and Four, different transit operators favor different arrangements. New York City's MTA system, for example, has relied almost exclusively on one-time

[3]Lexington Market Station and the Gallery I and II do not qualify as joint development under the definition used in this report. Lexington Market Station was entirely a private development; the Gallery was a joint development project between the city of Philadelphia and a private developer, and did not involve the regional transit authority (SEPTA).

[4]San Francisco is the only city in the country with a transit impact fee. Miami and Los Angeles have implemented benefit assessment districts to finance transit improvements.

capital contributions to refurbish Manhattan's underground stations. By contrast, income from joint-development projects in Denver consists entirely of annual lease payments. In Washington, D.C., developers make both initial capital contributions and annual lease payments to WMATA. And in Philadelphia and Atlanta, each deal is different; some involve initial capital contributions, others, annual payments.

*Analysis of Capital Contributions*

Because joint-development cost and payment data are not routinely collected, it is difficult to accurately assess the total capital contribution stemming from joint-development projects. Table 7-1 summarizes the joint-development projects by city and year for which information on capital contributions was available. Table 7-2 summarizes the project-by-project information on capital contributions by year for Atlanta, New Jersey, New York City, Philadelphia, and Washington, D.C., five jurisdictions in which there has been significant joint development, and for which data were reasonably complete.

Capital contributions have been the most significant in New York City, both in terms of number of projects (24 between 1979 and 1989), and in total expenditures ($62.5 million between 1979 and 1989, in constant 1989 dollars). The average per-project capital contribution in New York City during this period was about $2.5 million.

Joint-development capital contributions to WMATA have totalled $8 million since 1979 (1989 constant dollars), spread over eight projects. The average capital contribution has been just over $1 million. In 1985 and 1986, Philadelphia's SEPTA jointly developed 20 rail station projects which generated a total of $3 million (in 1989 constant dollars) in capital contributions. At $150,000 per-project, the average contribution to SEPTA was much less than in New York City or Washington, D.C.

Joint-development capital contributions to transit agencies also vary widely as a share of total agency capital expenditures (Table 7-3).[5] At the upper end, capital contributions to the New York City MTA in 1984 and 1985 amounted to 36.8 percent and 33.9 percent of investment outlays, respectively. In 1986, however, capital contributions from joint development amounted to only 5.4 percent of MTA capital expenditures. In Washington, D.C., which arguably has the nation's most advanced joint-development program, capital contributions from joint-development

[5] Capital expenditures were assembled from yearly budgetary data compiled by the American Public Transit Association (APTA) by adding expenditures on interest payments, capital equipment, and facilities leases, and other capital expenses. The data are summarized in Appendix III.

**Table 7-1:**
**CAPITAL CONTRIBUTIONS TO TRANSIT AGENCIES FROM JOINT-DEVELOPMENT ACTIVITIES**

| Year | Project Name | City | Capital Contribution (Current $$) | Capital Contribution (1989 $$) |
|---|---|---|---|---|
| 1977 | Woodward & Lothrup/Metro Center | Washington, DC | $1,250,000 | $2,557,755 |
| 1979 | Rich's Department Store | Atlanta, GA | $250,000 | $426,997 |
| | Phillip Morris/Grand Central | New York Metro Area | $750,000 | $1,280,991 |
| | Rosslyn Metro Center | Washington, DC | $1,200,000 | $2,049,586 |
| 1980 | Rudin/50th & Lexington | New York Metro Area | $300,000 | $451,456 |
| 1982 | Albee Square Mall/Dekalb Ave. | New York Metro Area | $500,000 | $642,487 |
| 1983 | 33 Maiden Lane/Fulton St. Station | New York Metro Area | $1,170,000 | $1,456,626 |
| | 875 Third Ave. | New York Metro Area | $2,500,000 | $3,112,449 |
| | International Sq/Farragut West | Washington, DC | $900,000 | $1,120,481 |
| 1984 | 885 Third Ave. | New York Metro Area | $5,000,000 | $5,967,276 |
| | 599 Lexington Ave. | New York Metro Area | $7,000,000 | $8,354,186 |
| 1985 | Zeckendorf 57 St./59 St. | New York Metro Area | $500,000 | $576,208 |
| | 45 Broadway/Wall St. | New York Metro Area | $660,000 | $760,594 |
| | 140 Liberty St./Fulton St. | New York Metro Area | $1,000,000 | $1,152,416 |
| | Chestnut Station | Philadelphia, PA | $450,000 | $518,587 |
| | Swarthmore | Philadelphia, PA | $140,000 | $161,338 |
| 1986 | LIC-Citicorp | New York Metro Area | $6,330,000 | $7,161,678 |
| | Worldwide Plaza/50 St. | New York Metro Area | $10,000,000 | $11,313,868 |
| | Rose 52 St./8 Av | New York Metro Area | $500,000 | $565,693 |
| | Eichner 87 St.-Bway/86 St. | New York Metro Area | $1,270,000 | $1,436,861 |
| | UJA 59 St.-Lex/59 St. | New York Metro Area | $200,000 | $226,277 |
| | Wynnewood Station | Philadelphia, PA | $92,000 | $104,087 |
| | Westtown Station | Philadelphia, PA | $60,000 | $67,883 |
| | Elkins Park | Philadelphia, PA | $150,000 | $169,708 |
| | North Wales Station | Philadelphia, PA | $50,000 | $56,569 |
| | Gwynedd Valley | Philadelphia, PA | $30,000 | $33,941 |
| | Ardsley | Philadelphia, PA | $12,644 | $14,305 |
| | Willow Grove Station | Philadelphia, PA | $20,000 | $22,627 |
| | Haverford Station | Philadelphia, PA | $300,000 | $339,416 |
| | Glenside | Philadelphia, PA | $3,000 | $3,394 |
| | Upsal Station | Philadelphia, PA | $30,000 | $33,941 |
| | Jenkintown Railroad Center | Philadelphia, PA | $700,000 | $791,970 |
| | Rosemont Station | Philadelphia, PA | $325,000 | $367,700 |
| | Penllyn Station | Philadelphia, PA | $29,000 | $32,810 |
| | Berwyn Station | Philadelphia, PA | $60,000 | $67,883 |
| | Rydal Station | Philadelphia, PA | $60,000 | $67,883 |
| | Philmont Station | Philadelphia, PA | $70,000 | $79,197 |
| | Ambler | Philadelphia, PA | $39,000 | $44,124 |
| | Perkasie Station | Philadelphia, PA | $20,000 | $22,627 |
| | Hecht's Metro Center | Washington, DC | $1,750,000 | $1,979,927 |

*(Continued on next page)*

**Table 7-1:**
**CAPITAL CONTRIBUTIONS TO TRANSIT AGENCIES FROM JOINT-DEVELOPMENT ACTIVITIES**
***(continued)***

| Year | Project Name | City | Capital Contribution (Current $$) | Capital Contribution (1989 $$) |
|---|---|---|---|---|
| 1987 | 750 Lex/59 St. | New York Metro Area | $1,200,000 | $1,309,859 |
| | Zeckendorf Union Sq/Union Sq | New York Metro Area | $3,400,000 | $3,711,267 |
| | Battery Park City/Chambers St. | New York Metro Area | $2,450,000 | $2,674,295 |
| | Olmstead Bldg/Clarendon | Washington, DC | $10,000 | $10,915 |
| 1988 | Pavonia/Newport Headhouse/PATH | New Jersey | $5,000,000 | $5,240,912 |
| | Americas Tower/47-50 St. | New York Metro Area | $250,000 | $262,045 |
| | 30 Old Slip/Broad St. | New York Metro Area | $1,900,000 | $1,991,546 |
| | Shearson AMEX/Franklin St. | New York Metro Area | $2,000,000 | $2,096,365 |
| | Solomon Equities/50 St. | New York Metro Area | $1,000,000 | $1,048,182 |
| | 1568 Broadway/49 St. | New York Metro Area | $400,000 | $419,273 |
| | Union Station | Washington, DC | $10,000 | $10,481 |
| 1989 | Grove Street Station/PATH | New Jersey | $400,000 | $400,000 |
| | Exchange Place/PATH | New Jersey | $1,000,000 | $1,000,000 |
| | 60 Wall St.-Morgan Bank/Wall St. | New York Metro Area | $4,500,000 | $4,500,000 |
| | Pentagon City | Washington, DC | $220,000 | $220,000 |
| 1990 | Marriott Hotel/Rector St. | New York Metro Area | 4,600,000 | * $4,600,000 |

Source: IURD Joint-Development Survey, 1990.

* 1990 Dollars

**Table 7-2:**
**SUMMARY OF JOINT-DEVELOPMENT CAPITAL CONTRIBUTIONS BY CITY: 1977-89**

NUMBER OF PROJECTS

| City | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | | 1 | | | 1 | | | | | | |
| New Jersey | | | | | | | | | | 1 | 2 |
| New York City | | 1 | 1 | 1 | 2 | 2 | 3 | 5 | 3 | 5 | 1 |
| Philadelphia | | 1 | | | | | 2 | 18 | | | |
| Washington, D.C. | 1 | | | | | | | 1 | 1 | 1 | 1 |

CAPITAL CONTRIBUTION in THOUSANDS (Current Dollars)

| City | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | | $250 | | | | | | | | | |
| New Jersey | | | | | | | | | $400 | $1,400 | |
| New York City | | $750 | $300 | $1,200 | $800 | $14,160 | $18,300 | $7,050 | $3,170 | $4,500 | $4,600 |
| Philadelphia | | | | | | $590 | $2,050 | | | | |
| Washington, D.C. | $1,250 | $1,200 | | | $750 | | $1,750 | $10 | $2,000 | $220 | |

CAPITAL CONTRIBUTION in THOUSANDS (Constant 1989 Dollars)

| City | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | | $427 | | | | | | | | | |
| New Jersey | | | | | | | | | $419 | $1,400 | |
| New York City | | $1,281 | $452 | $1,637 | $955 | $16,318 | $20,704 | $7,695 | $3,323 | $4,500 | *$4,600 |
| Philadelphia | | | | | | $680 | $2,320 | | | | |
| Washington, D.C. | $2,558 | $2,050 | | | $895 | | $1,980 | $11 | $2,096 | $220 | |

Sources: IURD Joint-Development Survey, 1990; APTA Yearbooks, 1977-89.

* 1989 Dollars

**Table 7-3:**
**SUMMARY OF JOINT-DEVELOPMENT CAPITAL CONTRIBUTIONS AS A SHARE OF CAPITAL BUDGETS: 1977-89**

CAPITAL CONTRIBUTION AS SHARE OF YEARLY CAPITAL EXPENDITURES

| City | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | | 3.90% | | | | | | | | | |
| New Jersey | | | | | | | | | n/a | n/a | |
| New York City | | 8.56% | 2.77% | n/a | 3.51% | 36.82% | 33.92% | 5.35% | 3.00% | 3.26% | 3.34% |
| Philadelphia | | | | | | n/a | 7.39% | | | | |
| Washington, D.C. | n/a | 4.63% | | | 1.06% | | 2.32% | 0.01% | 2.55% | 0.27% | |

YEARLY CAPITAL CONTRIBUTION AS SHARE OF YEARLY CAPITAL EXPENDITURES

| City | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Atlanta | | 0.22% | 0.21% | n/a | 0.25% | 0.16% | 0.12% | 0.08% | 0.08% | 0.07% | |
| New Jersey | | | | | | | | | n/a | n/a | |
| New York City | | 0.48% | 0.62% | n/a | 1.09% | 3.78% | 5.66% | 2.88% | 4.02% | 3.55% | |
| Philadelphia | | | | | | n/a | 0.81% | 0.60% | 0.56% | 0.43% | |
| Washington, D.C. | n/a | 0.53% | 0.40% | n/a | 0.36% | 0.36% | 0.56% | 0.57% | 0.82% | 0.86% | |

Sources: IURD Joint-Development Survey, 1990; APTA Yearbooks, 1977-89.

projects have generally accounted for between .01 percent and 4.6 percent of total capital expenditures, depending on the specific year.

The types of comparisons shown in Table 7-3 are somewhat misleading precisely because capital contributions from joint development *and* yearly capital expenditures both vary widely year to year. A more reliable way of assessing the importance of capital contributions to agency budgets is to assume that, without the contribution, the agency would have had to finance the capital project through the issuance of bonds. Thus the annualized value of a particular capital contribution to an agency can be viewed as the annual debt service that would have been associated with an equivalent bond. In order to facilitate comparisons across cities and time periods, it is assumed here that all capital improvements would have been financed with 30-year bonds at an interest rate of 12.5 percent.[6] This transformation allows us to assess the real value of joint-development capital contributions based on the expected lifespan of the capital improvements they help pay for.

Examined in this way, capital contributions from joint-development projects have accounted for about 0.5 percent to 1 percent of capital expenditures by Washington, D.C.'s Metrorail system since 1979; for less than 0.2 percent of capital expenditures by Atlanta's MARTA system since 1979; for about 3 percent to 5 percent of capital expenditures by New York's MTA system since 1984; and for 0.5 percent to 1 percent, of capital expenditures by New Jersey's PATH system since 1985. Although not insignificant, these percentages are in fact uniformly small. Clearly, capital contributions from joint development have played a minuscule role in the capital finance budgets of these four transit agencies, all among the nation's largest.

*Analysis of Annual Income*

Accurate information on yearly lease income generated from joint development is even scarcer than information on capital contributions. In spite of repeated attempts to survey transit operators, we were able to assemble reliable information on yearly lease payments for only 28 joint-development projects (Table 7-4). This is less than half of the total number of joint-development projects which involve concession rents, revenue sharing, or lease payments. The sizes and terms of the lease payments varied widely by project and city, ranging from a low of $1,000 per year for Rich's Department Store in Atlanta to a high of $1,600,000 per year for the Bethesda Metro Center, Washington, D.C. Not surprisingly, lease payments tend to be consistently higher in cities with "hot" real estate markets (Washington, D.C., Boston in the early and

[6]This is fairly typical of the term and interest rate of capital improvement bonds issued by transit agencies during this time period.

**Table 7-4:**
**ANNUAL CONTRIBUTIONS TO TRANSIT AGENCIES FROM JOINT-DEVELOPMENT ACTIVITIES**

| Project | City | Annual Payment | Total Through 1989 in 1989 Dollars |
|---|---|---|---|
| Rich's Department Store | Atlanta, GA | $1,000 | $7,501 |
| IBM Tower | Atlanta, GA | $575,000 | $1,503,559 |
| Resurgens Plaza | Atlanta, GA | $105,000 | $186,334 |
| Signet Tower | Baltimore, MD | $50,000 | $171,400 |
| Bank of Baltimore Bldg. | Baltimore, MD | $50,000 | $130,744 |
| South Station | Boston, MA | $1,000,000 | $902,100 |
| Cumberland Parking Garage | Chicago, IL | $175,000 | $310,577 |
| Central Street Station | Chicago, IL | $80,000 | $138,164 |
| Puritas Station | Cleveland, OH | $35,000 | $62,111 |
| One Civic Center Plaza | Denver, CO | $650,000 | $2,833,088 |
| Union Station | Hartford, CT | $800,000 | $3,300,021 |
| All Transit Stations | Los Angeles, CA | $19,000 | $17,140 |
| Datran Center/Dadeland South | Miami, FL | $500,000 | $1,053,971 |
| Swarthmore | Philadelphia, PA | $10,244 | $40,181 |
| Chestnut Station | Philadelphia, PA | $24,024 | $94,232 |
| Jenkintown Railroad Center | Philadelphia, PA | $54,000 | $185,112 |
| Downtown Transit Improvements | Rochester, NY | $500,000 | $451,050 |
| Transit Center (SATT) | Santa Ana, CA | $26,250 | $40,774 |
| Intermodal Transfer Facility | Santa Cruz, CA | $99,000 | $298,324 |
| Connecticut Connection | Washington, DC | $260,000 | $1,950,288 |
| McPherson Square Station | Washington, DC | $510,000 | $2,589,432 |
| 4250 Van Ness Ave/Van Ness UDC | Washington, DC | $283,400 | $1,438,912 |
| Chevy Chase Metro Bldg/Fr. Hgts. | Washington, DC | $26,600 | $115,939 |
| Bethesda Metro Center | Washington, DC | $1,600,000 | $6,275,867 |
| Dupont Circle Building | Washington, DC | $22,700 | $59,358 |
| Columbia Square/Metro Center | Washington, DC | $390,000 | $1,019,805 |
| Ballston Metro Center | Washington, DC | $200,000 | $180,420 |

Source: IURD Joint-Development Survey, 1990.

mid-1980s, and Atlanta), and lower in cities where the development market has been "soft" in recent years (Denver, Baltimore, and Cleveland). This is only a generalization, however; some specific projects in less-active markets (Miami's Datran Center and Denver's Civic Center) have also generated large annual lease payments.

Table 7-5 summarizes lease income for various projects by city between 1979 and 1989; all estimates are in 1989 dollars. Prior to 1983, only Atlanta's MARTA and Washington, D.C.'s, Metrorail systems received lease payments for joint-development projects. In 1984, Denver and Miami also began earning yearly lease income. By 1989, at least sixteen transit operators were receiving annual payments for joint-development projects.

As with capital contributions, there is a wide variation in total lease payments between cities. The national leader has been the Washington Metropolitan Area Transit Authority (WMATA), which, over the 1979-1989 period, received joint-development payments of more than $20 million. Annual lease payments to WMATA grew from about $444,000 in 1979 to more than $8.5 million in 1989. Lease payments from Denver's single joint-development project, One Civic Center, have totaled over $4 million since 1984. Other operators who have received more than $1 million in lease payments from joint-development projects up to 1989 include Atlanta ($2.03 million) and Miami ($1.8 million).

These numbers are quite small when compared to the yearly operating budgets of most transit agencies. Table 7-6 shows annual income from joint development as a share of system operating expenses.[7] Even in Washington, D.C., such payments have never amounted to more than 0.7 percent of annual operating expenses. In Denver, annual payments from joint-development projects have averaged between 0.6 percent and 0.7 percent of RTD's operating budget since 1984. In Atlanta, annual payments for joint development were minuscule until 1986, at which point they rose to about 0.4 percent of annual operating expenses. And in Miami, lease income from the Datran Center project, although increasing, has accounted for only about 0.1 percent to 0.3 percent since 1985. In all other cities for which data were available, annual lease payments from joint-development activities have been so small as to be negligible.

*Summary*

As Tables 7-3 and 7-6 suggest, joint-development projects have yet to generate very much income to local transit operators, either through capital contributions or through yearly lease payments. Except in New York City, capital contributions from joint development have generally

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[7]Information on operating expense was assembled from the American Public Transit Association.

Table 7-5:
SUMMARY OF YEARLY NON-CAPITAL JOINT-DEVELOPMENT REVENUES BY CITY: 1979-88

| City | Yearly (Non-Capital) Joint-Development Revenues (in thousands of current dollars) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1979 | 1980 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
| Atlanta | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 576 | 681 |
| Baltimore | | | | | | | | 50 | 100 | 100 |
| Cleveland | | | | | | | | | | 35 |
| Denver | | | | | | 650 | 650 | 650 | 650 | 650 |
| Miami | | | | | | n/a | 150 | 200 | 259 | 466 |
| Milwaukee | | | | | | | 0 | 6 | 5 | 5 |
| Philadelphia | | | | | | | 34 | 88 | 88 | 88 |
| Santa Ana | | | | | | | | | 10 | 13 |
| Santa Cruz | | | | | | n/a | 68 | 75 | 82 | 90 |
| Washington, D.C. | 260 | 260 | 260 | 260 | 1,053 | 1,080 | 2,680 | 2,680 | 3,093 | 3,093 |

Source: IURD Joint-Development Survey, 1990.

## Table 7-6:
## YEARLY (NON-CAPITAL) REVENUES AS A SHARE OF OPERATING EXPENSES BY CITY: 1979-88

| | Yearly (Non-Capital) Operating Assistance as a Share of System Operating Expenses | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **City** | **1979** | **1980** | **1981** | **1982** | **1983** | **1984** | **1985** | **1986** | **1987** | **1988** |
| Atlanta | 0.001% | 0.001% | 0.001% | 0.001% | 0.001% | 0.000% | 0.000% | 0.000% | 0.42% | 0.46% |
| Baltimore | | | | | | | | 0.04% | 0.08% | 0.07% |
| Boston | | | | | | | | | | |
| Chicago | | | | | | | | | | n/a |
| Cleveland | | | | | | | | | | 0.02% |
| Denver | | | | | | 0.75% | 0.64% | 0.63% | 0.66% | 0.65% |
| Hartford | | | | | | | | | n/a | n/a |
| Los Angeles | | | | | | | | | | |
| Miami | | | | | | n/a | 0.12% | 0.14% | 0.18% | 0.32% |
| Milwaukee | | | | | | | | 0.00% | 0.00% | 0.00% |
| Philadelphia | | | | | | | 0.00% | 0.01% | 0.01% | 0.01% |
| Rochester | | | | | | | | | | |
| Santa Ana | | | | | | | | | 0.01% | 0.01% |
| St Cruz | | | | | | n/a | 0.53% | 0.52% | 0.56% | 0.57% |
| Washington, D.C. | 0.13% | 0.10% | 0.09% | 0.08% | 0.31% | 0.31% | 0.70% | 0.63% | 0.67% | 0.61% |

Source: IURD, 1990.

amounted to less than one percent of yearly capital expenditures. Furthermore, annual lease payments generally account for an even smaller share of annual operating costs.

Why has this been so? One reason is that transit capital and operating expenses are so large that they are bound to dwarf income from joint-development projects, no matter how large such income is for individual projects. A second reason might be that, perhaps with the exception of WMATA, most local transit operators have limited experience in appraising the value of potential joint-development sites. Nor do they usually know how to structure real estate deals in ways that maximize joint-development income, whether such income takes the form of one-time capital contributions, annual payments, or both. In some instances, public transit officials might also be getting the shorter end of the stick at the bargaining table, particularly when up against seasoned entrepreneurs and savvy real estate brokers. Whatever the reason, joint development has generally been a fairly small entry in the ledger sheets of most U.S. transit systems to date.

### C. Ridership and Farebox Impacts

Regardless how a particular joint-development deal is structured, the primary benefit to transit operators from intense commercial development around transit stations is likely to be increased system patronage. In theory, any type of commercial development near transit stations (including joint-development projects) should have a positive effect on system ridership and, accordingly, farebox revenues. A legitimate question, however, is whether increased ridership represents *new* transit trips or simply a *redistribution* of transit trips from one part of the region to another. If the former is true, then the benefits to the transit agency due to increased patronage could be substantial. If the latter is true, such benefits would be negligible.

In most urban areas, a convincing case can be made that concentrated development in general, and joint-development projects in particular, generate new transit trips rather than simply redistribute existing transit trips. As noted in Chapter Six, office and retail projects located near transit stations tend to be developed at higher densities, and thus are well-suited to transit trip-making. Office and commercial development away from transit stations is likely to be much less dense, and thus generate a greater proportion of automobile trips.

This tendency was illustrated in a recent study of office relocations from the central city to the suburbs in the San Francisco Bay Area. An analysis of the trip-making patterns of 320 workers whose jobs had been relocated from downtown San Francisco to the suburbs found that work trip transit mode shares plummeted from 58 percent to 3 percent (Cervero and Landis, 1990). That is, when their jobs were moved from a high-density environment well served by the BART rail system, to a suburban business park served primarily by freeways, most workers abandoned mass transit for auto commuting. By inference, then, new commercial developments near rail stations would appear to generate new, rather than redistributed, rail transit trips.

*Prior Research*

The transit ridership effects of dense development patterns in general, and of joint development in particular, have not been widely studied. Perhaps the most revealing findings to date are from Keefer (1983). In a study of nine joint-development projects, he estimated that every 1,000 square feet of new commercial development at or near a transit station generated an additional six transit trips per day. In the case of the Gallery I and II development projects in downtown Philadelphia, Keefer estimated that nearly 19,000 daily transit trips were generated. Of the projects studied, the author estimated that between 37 percent and 82 percent of the trips generated were new trips.

As part of his study, Keefer also examined the farebox revenue gains attributable to joint development. Totaled across nine projects, he estimated that annual farebox receipts increased by $11.4 million (in 1982 dollars) as a result of joint development. Annual farebox increases varied from a low of $56,250 in the case of Santa Ana's bus transit joint-development venture to a high of $5 million for Philadelphia's Gallery I and II Market Street East redevelopment project. Not counting redistributed trips, Keefer estimated that the real farebox revenue gain to the nine transit properties was between $4.2 million and $9.4 million per year (in unadjusted 1983 dollars). This amounted to between 2 percent and 6 percent of the nine agencies' annual operating budgets.

*Estimating the Ridership Impacts of Joint Development*

How have new commercial developments in general, and joint-development projects in particular, affected transit system ridership? To find out, we used a step-wise regression procedure to explore the effect station-area building activity and joint development had on system ridership for Washington's Metrorail and Atlanta's MARTA transit systems. See Chapter Six for further details on this data set.

Two reasonably "good-fitting" predictive models on transit ridership were obtained. The first model (Model XIV), shown in Table 7-7, predicts average weekday entering ridership[8] for the five stations studied over the 1978-89 period. The model, estimated using two-stage least squares corrected for first-order autocorrelation,[9] explains 86 percent of the variation in daily ridership. Table 7-7 indicates that ridership entering a transit station tends to be higher when office rents near the station are high relative to the regional average (as measured through the *Rent Ratio* variable). Put another way, the types of higher-density office developments which earn higher rents also generate higher levels of transit ridership. Being a *Terminal Station* further adds to ridership. Higher transit *Fares*, on the other hand, deflate ridership. In general, these results are consistent with theory and underscore the importance of both price and the nearby built environment in determining transit ridership.

The rent-ratio variable in Model XIV appears to be serving as a surrogate for several different factors. One such factor is project size. As demonstrated in Chapter Six, station areas in high-rent office markets tend to be surrounded by large commercial projects. To the extent that the rent-ratio variable serves as a proxy for a buoyant station-area real estate market, it suggests that ridership is indeed stimulated by office growth. But by how much? Based on the coefficient, we would expect station areas with rent levels twice as high as the market average to generate, on average, 2,900 additional rail transit trips per day.

Table 7-7 also indicates that over the period studied, the terminal stations on the Metrorail and MARTA systems attracted about 5,000 more riders per day than non-terminal stations. Much of this additional ridership can be attributed to the fact that terminal stations serve a much larger catchment area than most other stations and typically feature expansive park-and-ride lots.

Finally, Model XIV informs us that for every one-dollar increase in one-way fare, 4,400 fewer daily riders enter each station. In general, fares exerted less of an impact on MARTA ridership than Metrorail ridership because of MARTA's uniform flat fare. Metrorail, on the other hand, has a differentiated fare structure which varies by both distance and time-of-day.

[8]Entering ridership is defined as the number of paid passengers entering a transit station. Note that for most commercial projects, such passengers would be counted on the return segment of a complete home-based trip.

[9]See Chapter Six for a fuller discussion of this estimation approach. Two-stage estimation was used because there was a significant simultaneous influence between *Station Ridership* and the *Rent Ratio* variables. To correct for simultaneous equation bias, the Rent Ratio variable shown in Table 7-7 was expressed as an instrument in deriving the coefficient estimate. The instrument was measured using the reduced form estimate of Rent Ratio regressed on the variables *Joint Development*, *Terminal Station*, and *Fare*. These reduced form instrument estimates were then entered into the structural equation to produce the coefficients shown in Table 7-7.

**Table 7-7:**
**MODEL XIV: PREDICTORS OF DAILY TRANSIT PASSENGERS ENTERING THE STATION, WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE WEEKDAY NUMBER OF PAID PASSENGERS ENTERING THE FIVE CASE STUDY RAIL TRANSIT STATIONS, WASHINGTON, D.C., AND ATLANTA: 1978-89

| Independent Variable | Coefficient | t-statistic | Significance |
|---|---|---|---|
| FARE | -4,433.59 | -4.59 | .000 |
| RENT RATIO | 2,904.25 | 1.84 | .079 |
| TERMINAL STATION | 5,052.19 | 7.17 | .000 |
| Constant | 8,854.81 | 4.02 | .001 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .862 |
| F | = 41.46 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.63 |

*Variable Definitions:*

| | |
|---|---|
| FARE | Average adult passenger fare from station to main downtown station during peak hour, in current dollars. |
| RENT RATIO | Average annual rent per square foot of office space in station area divided by average annual rent per square foot of office space for the region as a whole. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line: equals 1 if a terminal station and 0 otherwise. |

Thus, in the case of Metrorail, the positive relationship between ridership and terminal stations is offset somewhat by the fact that those traveling from terminal stations must pay higher fares.

The second ridership model, summarized in Table 7-8, identifies those factors that best predict entering-station ridership as a proportion of systemwide ridership. This model, estimated using OLS, explains 65 percent of the variation in the ratio of station-entering ridership to system ridership. Here again, note that *Fares* exert a negative influence on relative ridership levels. In contrast, *Terminal Stations* draw a higher proportion of system ridership than non-terminal stations, a finding consistent with Model XIV.

Model XV, however, provides several additional insights. One is that ridership tends to decline when substitutes to transit are readily available. Specifically, the existence of a nearby freeway (captured in the *Freeway Miles* variable) appears to drain ridership away from transit. From this model, we estimate that every additional ten lane-miles of freeway within a three-mile radius of a transit station reduces the share of systemwide ridership at that station by 20 percentage points.

The other new variable included in Model XV *is New Office Share.* In general, station areas with large shares of regional office growth also tend to have relatively high ridership levels. Specifically, a ten-percent increase in a station's share of regional office growth is associated with approximately a one-percent increase in that station area's share of system ridership.[10]

Collectively, these findings suggest that office growth near the five stations studied has had a positive, though fairly small, impact on transit ridership. Tables 7-7 and 7-8 are also noteworthy for the variables that did not enter into the model equation as significant predictors. Specifically, the *Joint-Development* dummy variable, while positively related to land market indicators such as rent, was not significantly related to ridership. That is, once factors such as the relative growth rate of offices and rents were controlled for, the existence of joint development itself offered little additional explanatory power. Perhaps more than anything else, this finding reflects the fact that joint development has only an indirect effect on ridership. In other words, it is the higher densities associated with many joint-development projects which explain higher levels of transit use, not the process of joint development itself. Nevertheless, to the extent that joint development contributes to more intensive real estate development at or near transit stations, it also contributes importantly to higher levels of transit ridership.

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[10]Calculation: 0.10 x 0.091 = 0.0091.

**Table 7-8:**
**MODEL XV: PREDICTORS OF RELATIVE LEVELS OF TRANSIT RIDERSHIP AT THE FIVE STATIONS, WASHINGTON, D.C., AND ATLANTA, 1978-89**

Dependent Variable: AVERAGE WEEKDAY NUMBER OF PAID PASSENGERS ENTERING A TRANSIT STATION divided by AVERAGE SYSTEMWIDE WEEKDAY RIDERSHIP, WASHINGTON, D.C., and ATLANTA: 1978-89

| Independent Variable | Coefficient | t-statistic | Significance |
|---|---|---|---|
| FARE | -0.0419 | -5.48 | .000 |
| FREEWAY MILES | -0.0200 | -3.84 | .005 |
| TERMINAL STATION | 0.0215 | 3.73 | .001 |
| NEW OFFICE SHARES | 0.0909 | 1.57 | .127 |
| Constant | 0.0997 | 6.25 | .000 |

*Summary Statistics:*

| | |
|---|---|
| $R^2$ | = .653 |
| F | = 11.32 |
| Prob(F) | = .000 |
| Durban Watson Statistic | = 1.765 |

*Variable Definitions:*

| | |
|---|---|
| FARE | Average adult passenger fare from station to main downtown station during peak hour, in current dollars. |
| TERMINAL STATION | Dummy variable designating a terminal station at the end of a line: equals 1 if a terminal station and 0 otherwise. |
| FREEWAY MILES | Lane-miles of freeway (in one direction) within a three-mile radius of the transit station. |
| NEW OFFICE SHARES | New square feet of office additions in the station area divided by new square feet of offices for the entire region, expressed as a proportion. |

## D. Summary

This chapter has shown that, to date, joint development has had a fairly inconsequential impact on the financial positions of American transit systems, either directly in terms of leasing and concession revenues, or indirectly in terms of generating additional patronage and farebox receipts. This is not to suggest that it has been trivial. In New York City, for example, private capital contributions that went toward renovating aging subway stations during the 1980s have amounted to over $60 million (in 1989 dollars). In all other cities studied, however, capital contributions generated through joint-development deals yielded revenues that were well under 1 percent of transit agencies' investment budgets. In general, recurrent leasing and concession income has been even less important, comprising no more than 0.7 percent of annual operating expenses among the transit systems studied. By far, Washington's WMATA has benefitted the most from air rights and system-connect leases, having received over $20 million since 1979.

To date, the ridership and farebox revenue benefits of joint development have been even smaller. Based on a statistical analysis of factors which explained ridership at five Washington, D.C., and Atlanta stations during the 1978-89 period, the presence of joint development, in and of itself, was found to have had no measurable statistical effect on transit demand. Office growth near these stations did impact ridership, however. Since joint development induces high-density growth, and to some extent vice-versa, it would appear that, at best, joint development has an indirect impact on ridership and farebox revenues. Clearly, however, other factors like transit fares, service quality, and the availability of alternative travel options are far more important determinants of ridership than the existence of a joint-development project near a station.

# CHAPTER EIGHT:
## Summary, Prospects, and Policy Implications

This final chapter has three purposes. First, it provides a chapter-by-chapter summary of this report's key findings. Second, it assesses and discusses future prospects for joint development. Third and finally, it presents several policy recommendations for UMTA.

### A. Summary

*Joint Development and Urban Mass Transit*

In studies and the literature to date, joint development has been widely and variously defined; the definition used in this report is somewhat more restrictive:

> Any formal agreement or arrangement between a public transit agency and a private developer or organization that involves either private-sector payments to the public entity, or private-sector sharing of capital costs in mutual recognition of the enhanced real estate development or market value created by the siting of a public transit facility.

Practically speaking, joint-development agreements may take two forms: *revenue sharing*, benefitting the transit agency by generating revenue; *or cost-sharing*, relieving the agency of some of the cost burden of construction, rehabilitation or maintenance. About two in five joint-development projects undertaken so far have involved cost-sharing, and one in four have involved revenue-sharing. The remainder have involved both cost and revenue sharing. This report distinguishes joint development from co-development; the latter development form does involve the coordination of public and private investments around transit stations, but does not involve the formal sharing of costs or revenues.

As of October 1990, there were 114 completed cases of joint development of urban transit facilities with private real estate projects. Joint-development projects had been completed or were underway in more than two dozen American cities. The size and scope of joint-development projects varies widely, ranging from low-cost renovations to commuter rail station in Philadelphia, to the development of multi-million dollar mixed-use facilities in Washington, D.C.

*Chapter Two: The Evolution of Joint Development -- A Brief History*

Four factors help explain the rising popularity of transit joint development:

1. A revived interest in urban mass transit development during the 1970s and particularly the 1980s, stemming from the Urban Mass Transportation Assistance Act of 1970. This

has resulted in the construction of over a dozen new systems (principally light rail), as well as the rehabilitation of older systems.

2. Two simultaneous development trends: 1) the increasing suburbanization of office jobs, principally at nodes of highway and rail transit accessibility, and 2) a resurgence of public and private development interest in city centers, associated with the growth of service employment and the resulting office space, and a revival of downtown shopping.

3. Increased local interest and experience in public-private joint ventures, developing slowly through some pioneer examples in the late 1960s and early 1970s, and then accelerating through a fourth factor:

4. The federal impetus to joint development after the Young amendment to the National Mass Transportation Act of 1974, which authorized UMTA discretionary funds to be used for a variety of joint-development activities; and the 1978 Surface Transportation Act of 1978, which allowed federal funds to be spent on joint-development projects. This support has continued under the Reagan administrations, though with a new emphasis on providing an alternative to farebox subsidies.

*Chapter Three: A Summary of U.S. Joint-Development Activity*

1. In addition to the 114 joint-development projects that had been completed as of October 1, 1990, 11 more projects were under construction, and 23 were in various stages of planning.

2. The vast majority of completed joint-development projects, 58 percent, have been organized around conventional heavy-rail transit facilities. Another 18 percent of completed projects have been developed around commuter rail facilities. Only 5 percent of projects completed to date have been developed around light-rail facilities.

3. Of the 54 projects for which development dates are known, the largest share (41 percent) were developed between 1980 and 1985. An additional 39 percent were developed between 1986 and 1989.

4. The great majority of all completed developments, 108 out of 114, have been in only five cities: New York City (42), Washington (27), Philadelphia (24), Atlanta (8), and Boston (7).

5. The largest share of completed and planned projects, 75 out of the 162 (46 percent), involve an ongoing cost-sharing arrangement; another 31 projects (19 percent) involve joint station development whereby a developer purchases, leases, or exchanges commercial or residential space at, above, or around a station for private development; 29 projects (18 percent) involve concessions, whereby transit agencies lease space in their facilities to development companies or independent traders; 22 projects (14 percent) involve system interfaces, where a developer pays or leases the right to connect a project to a planned or existing transit station; 17 projects (11 percent) involve incentive agreements, where transit agencies and local planning authorities exchange capital agreements for some kind of development bonus.

6. Although we have drawn a distinction between cost-sharing and revenue-sharing forms of joint development, many completed projects (48 of 114) actually involve both forms.

7. Agencies that have undertaken several successful joint-development projects have generally approached the process in one of two ways. One approach has been to use the Request for Proposals process to solicit proposals from competing developers. Once a developer is selected, the specific details of the project are then determined through negotiation. Alternately, several transit agencies have developed in-house project-specific guidelines (Philadelphia) or area-specific guidelines (New York City) to guide or entice private investments.

8. The establishment of benefit-assessment districts, currently being attempted in Los Angeles, is a wholly new approach to joint development. Benefit assessment ties the collection of joint-development revenues to area (re)development, not project development. While there is no doubt that the benefit-assessment approach does generate locally-based revenues for transit development, its legality varies from state to state. Moreover, because the benefit-assessment approach essentially involves a transfer of funds from one set of public agencies (city and county) to another (the transit district or operator), it can engender jurisdictional disagreements between local agencies. Regardless of these difficulties, the benefit-assessment approach bears further study as a local method of financing transit facilities and service.

*Chapter Four: Joint Development as Policy*

The process by which joint development occurs varies widely across cities, as does the priority given to joint development by local transit agencies. Nowhere is this clearer than in a comparison of Washington, D.C., Atlanta, and San Francisco, three areas which planned and developed major regional heavy-rail systems during the 1960s and 1970s. Almost by chance, Washington's WMATA has become the acknowledged national leader in joint development. By contrast, Atlanta's MARTA has lagged much further behind -- in spite of a buoyant real estate market and municipal policies which favor greater densities around downtown transit stations. Factors which have held Atlanta back include: a scarcity of suitable land parcels, a lack of a formal or comprehensive policy, a failure to develop close public-private relationships, and a lack of close coordination among public agencies. The situation is even more extreme in the San Francisco Bay Area, where not a single joint-development project has yet been undertaken around the BART system. Rather, co-development has been the model adopted for coordinating public and private investments in downtown San Francisco and Oakland.

New York City's MTA and Philadelphia's SEPTA are examnples of two older systems which have used joint development to modernize and rehabilitate station areas and transit facilities. Thanks to a strong downtown real estate market, and close cooperation between the MTA transit agency and the New York City Planning Commission, more joint-development projects have been completed in New York City than anywhere else. New York City's approach to joint development has focused on cost-sharing, as has Philadelphia's; altogether, 19 SEPTA stations have been modernized under the agency's Lease and Maintain program.

The long-term public and private benefits of joint development are still unclear in San Diego and Miami, two cities with new light-rail systems. Joint development has been limited in San Diego because the original San Diego trolley line (developed without UMTA assistance in 1981) did not serve downtown office centers; more recent line extensions do serve such centers. Moreover, although it is promoting new and more intense development around MTDB trolley stations, thus far the city has not favored joint development over co-development. Joint development has been favored in the Miami area, however, to date, disappointing system ridership has dampened developer enthusiasm.

*Chapter 5: Agency Perceptions of the Joint-Development Process*

The study conducted a mail survey of officials responsible for administering joint development at 117 US transit agencies. Completed surveys were received from 93 agencies, yielding a 79 percent response rate. Twenty-three responding agencies indicated that they had negotiated joint-development projects.

Two-thirds of the transit authorities reported that the primary responsibility for initiating joint-development projects was directly theirs. The remaining one-third reported that the idea came either from private developers, from local government, or from a quasi-governmental agency. Lead responsibility rests with the transit agency in four of the five cities that have experienced significant joint-development activity: Atlanta, Boston, Philadelphia, and Washington D.C.; in the fifth, New York City, it rests with the private developer.

Survey respondents reported that the determination of private-sector revenue contributions and/or cost sharing was generally made via a negotiation process, and only rarely according to formulas or statutory requirements. According to survey respondents, the average time to negotiate joint-development agreement takes 25 months; from successful conclusion of negotiations to project completion takes an average of 22 months. Projects involving new construction or large-scale development, in general, took longer to complete.

Most respondents did not cite increased revenue as the most important goal for pursuing joint development. More likely, agreements were seen as a catalyst for development or redevelopment or as a means to shape broader urban development patterns. Agencies with revenue-sharing projects such as air-rights leases, however, tend to place greater importance on revenue aspects of joint development. Agencies that have negotiated cost-sharing projects place more importance on goals other than revenues. Two of the chief difficulties encountered by respondents is coordinating activities with other public agencies and setting private-sector contributions. Agencies with the most joint-development experience report the fewest problems.

*Chapter Six: Commercial Real Estate and Land Development Impacts*

A key assumption of joint development is the notion that transit accessibility conveys added value to proximate land parcels. To test this hypothesis, the study used quasi-experimental analysis and multiple regression analysis to compare commercial land value indicators with measures of transit service and the presence of joint development.

Real estate market indicators such as commercial office rents, office space absorption rates, and vacancy rates were chosen as dependent variables. These were compared systematically with transit-linked independent variables like ridership, service frequency, fares, station area infrastructure, and existence of joint development. To control for regional influences, employment levels, average commercial rents, and vacancy rates were also included as independent variables.

*Quasi-Experimental Analysis: Major Findings:* In this analysis, station-areas with joint development were compared with similar commercial areas without transit (control areas) for the period 1978-1989. For Atlanta, Lenox Square Station was compared with Perimeter Center and the Northeast Freeway Corridor, its chief competitors. The Arts Center Station was compared with the Northwest Freeway Corridor. In Washington, D.C., the Ballston station area was compared with Tysons Corner, and the Bethesda and Silver Spring Stations were compared with Rock Springs business park.

Lenox Square Station averaged rents $3.50 more per square foot than for similar space at its two major freeway-oriented competitors over the 12-year study period. The Arts Center Station experienced three times as much office space additions as its suburban competitors and an average rent premium of $2.00 per square foot. The largest rise in rents in the Arts Center area occurred immediately after the opening of the MARTA station. Many brokers in the Atlanta area attribute the Arts Center area's rent premium and massive office towers to the presence of MARTA and the area's permissive zoning.

For most of the 12-year study period, commercial rents at Rock Springs Business Park exceeded those in downtown Bethesda and Silver Spring. In 1988, however, rents in the Bethesda station area eclipsed those around Rock Springs. As at Arts Center in Atlanta, rents in Bethesda rose sharply immediately following the opening of the METRO station.

*Multiple Regression Analysis: Major Findings:* Regression analysis provides a more robust framework for investigating the benefits of transit access and joint development to local real estate markets. A series of 13 regression models were estimated that compared rail transit variables with measures of office market performance using a pooled time series cross-sectional database.

The independent variable that best explains office rents in a station area is systemwide ridership, not the ridership entering a particular station. For every 100,000 additional daily passengers, station-area rents increased by nearly $4 per square foot, all else equal. Freeway access and transit access were both shown to be good predictors of office rents, although ridership was more closely correlated with rents than were nearby freeway traffic volumes. The exception was for terminal stations, which, when located in distant suburbs and enveloped by bus transfer facilities, tended to have lower rents.

The presence of a joint-development project at a station was correlated with a rent premium of between $2.77 and $3.93 per square foot. This variable serves as a proxy for such factors as pedestrian amenities, convenient transit access, and, in general, well-planned development. Station areas with joint development had average office vacancy rates 11 percentage points below stations without such projects, or almost 50 percent lower than the regional average.

*Chapter Seven: The Revenue and Ridership Impacts of Joint Development*

Joint development can enhance transit agency revenues through two different mechanisms: first, developers or concessionaires may pay for development rights, station connections, or leased space on stations; second, joint development may attract new riders and thus boost farebox revenues.

To date, joint development has contributed relatively little in the form of capital contributions or annual lease payments. Except in New York City, capital contributions have generally represented less than one per cent of annual capital expenditures; lease payments generally account for an even smaller share. One reason is that transit capital and operating expenses dwarf any possible joint-development income. A second reason is that most transit agencies -- Washington, D.C.'s WMATA excepted -- do not yet have the institutional capacity to ferret out potential joint-development opportunities or structure development deals so as to maximize income.

Joint development has not proved to be a significant source of increased system ridership, although the office development in station areas has generated small increases in overall ridership. Joint development has an indirect affect on ridership by allowing higher-density development near stations by permitting development of proximate parcels and air rights.

## B. Necessary Conditions for Successful Joint Development

Four conditions are necessary for joint-development projects to be successful. First, the local real estate market must be active and healthy. No matter how high the quality of an individual joint-development project, no project can overcome weak local market conditions.

Second, the agency with the lead responsibility for pursuing joint development must be entrepreneurial. As noted throughout this report, there is no single formula for joint development. Every joint-development agreement and project is unique in some way. The sponsoring agency must have the flexibility to recognize project differences and the entrepreneurial capabilities to take advantage of them. Moreover, joint-development projects take time and invariably involve market risks. The bigger the project, the larger the risks. Only an entrepreneurial, development-oriented agency can properly appraise such risks and minimize them. This is not to suggest that such entrepreneurial capabilities cannot evolve at transit agencies; the example of WMATA indicates that they can, when given proper support from management. In this context, the agency must have the capability to learn from and expand on its experiences. Here again, WMATA's success is instructive.

Third, joint-development projects often involve more than one public agency. Coordination is essential. What has made joint development work in New York City has been the close cooperation of the MTA and the New York City Planning Department. In contrast, MARTA's limited involvement with local governments retarded joint development in the Atlanta area.

Fourth and finally, sponsoring agencies need to understand that the there are benefits to joint development that go beyond generating revenues. The best joint-development projects are those that encourage greater transit usage, create more interesting station environments, and reinforce other planning and development goals. Agencies such as San Francisco's BART that have looked to joint development solely as a tool for generating revenues have not succeeded in promoting joint-development projects.

## C. Joint-Development Prospects

The outlook for an expansion of joint-development activities during the 1990s is mixed. On the negative side, two factors could dampen future joint development activities. The first is that, while many new fixed-guideway transit systems are being discussed, few have obtained actual funding commitments. Thus, future joint-development activities will most likely be undertaken by current rail transit operators around existing transit stations, or planned expansions. This means that joint development, as an explicit policy, will probably not spread much beyond the existing half-dozen cities that already have joint-development programs.

The second limiting factor is that many urban and suburban commercial real estate markets are vastly over-built. Office, retail, and hotel vacancy rates are high, and likely to remain high during much of the 1990s. Accordingly, financing is difficult to obtain. Few large office and retail projects are planned for the next five years in any American city. This means that there will be fewer project opportunities during the next five years. Moreover, because credit is so tight, joint-development deals of the types made during the 1980s (which were made possible by liberal financing credit and tax laws) will become much rarer.

Residential development remains the one real estate market bright spot, and, depending on the city, there will be opportunities and pressures for high-density residential development within walking distance of transit stations. Significantly, the types of residential developments which are feasible around transit stations will not provide the same level of rental payments made by commercial developments. This means that transit systems will have to scale back their revenue expectations from new joint-development projects. In the near term, agencies that participate in joint-development projects may have to share market risks by accepting smaller rental payments and fees.

Balanced against these negative market trends are some positive institutional trends. Many cities and transit operators now have significant experience with joint development and have moved "up the learning curve." Equally important, many private developers also have experience in working with the public sector. This means that the joint-development projects that are economically feasible should be easier to develop. And those developers who have found that joint development not only makes money but also contributes to better projects, will be eager to try additional projects in the future -- even in a sluggish market.

Second, as the survey results indicated, many transit operators now have a more realistic understanding of the likely benefits of joint development. Instead of seeing joint development as a significant revenue generator (which it has not been), more agencies will likely appreciate that important benefits of joint development involve increased ridership (to some extent) and a more efficient and desirable urban form. Thus, in those cities where new transit investments are viewed as a way of reducing congestion and/or promoting a better jobs-housing balance, joint development could play an important role in guiding future growth.

Finally, while few entirely new transit systems have been funded, many existing systems have significant expansion and renovation plans. In fact, as discussed above, most successful joint-development projects (with the exception of Washington, D.C) have been undertaken during the process of renovating or expanding an existing system, not during the process of building a new system. Thus, operators like WMATA, MTA, SEPTA, and MARTA (to a lesser extent), should be able to continue to undertake joint-development projects.

### D. Implications for UMTA Policy

The findings presented in this report help frame future UMTA policies toward joint development. First, UMTA should continue to promote joint development, not just as a revenue enhancement tool, but as a way of better integrating transit into the form and fabric of cities and metropolitan areas. UMTA should also emphasize joint development as a way that cities and metropolitan areas can deal constructively with issues of congestion and air quality. In this context, UMTA should encourage cities and transit operators to work together to pursue transit-related development that promotes regional transportation goals, even if such development does not generate large rental or fee payments. Put another way, the calculus by which transit-related development is evaluated should be broader than simply the exchange of large cash payments; economic impacts are every bit as important as financial ones. Accordingly, UMTA should expand the scope of their rail project appraisal efforts to undertake a more complete evaluation of the comprehensive benefits (including financial, ridership, and social benefits) of all forms of development at or near transit stations, whether or not such development involved a joint-development agreement.

Second, UMTA and other federal agencies should recognize that there is no single successful approach to joint development. Rather, working together, cities and transit agencies should be encouraged to develop approaches which are appropriate to their transit systems, their real estate markets, and their institutional relationships. In this sense, UMTA should foster a variety of models of joint development that have proved successful, rather than focusing on one or two prototypes. Thus, UMTA should strongly promote joint development as being a station renovation tool in addition to being a station development tool. And although joint development has been and will continue to be most closely tied to rail transit, efforts should be made to highlight successful joint-development projects tied to buses and inter-modal facilities.

Third, to address the local capability issue, UMTA should sponsor and develop seminars and programs for local transit agencies that focus on how to undertake private development, and how to negotiate with private developers. Transit agencies are already pre-disposed to coordinated land and transit system development, and in this respect they do not need further encouragement. Rather, what they need is development and negotiation skills. It is especially significant that local transit agencies report continuing difficulties in framing and negotiating joint-development deals. While some of these difficulties may undoubtedly be attributed to the private developer and to the complexities of real estate development, much more attention needs to be paid to how transit operators can put forth, structure, and negotiate joint-development agreements.

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# Appendix I

# SURVEY ON IMPACTS OF JOINT DEVELOPMENT PROGRAMS ON U.S. TRANSIT SYSTEMS

*University of California at Berkeley, UMTA funded Joint Development Research Project*
*Institute of Urban and Regional Development, 316 Wurster Hall, Berkeley, CA 94720*
*(415) 643-6914*

**Transit Agency** ____________________

**Your Name** ____________________

**Title** ____________________ **Telephone** ____________________

## INTRODUCTION

*We define Joint Development at transit stations as:*

- *Any formal agreement or arrangement between a public transit agency and a private individual or organization; that*
- *involves either private sector payments to the public entity or private sector sharing of capital costs for transit improvements; in*
- *mutual recognition of the enhanced real estate development opportunities near public transit facilities.*

*Joint Development takes on two major forms:*

### REVENUE SHARING:

1. Leasing of adjacent properties or air rights
2. Facility connection fees (e.g., for connecting retail store to a station via a pedestrianway)
3. Sale of excess or supplemental land (e.g., sale of remnant parcels for development purposes).
4. Benefit assessment districts around stations
5. Negotiated private sector contributions, either one-time or on-going

### COST SHARING:

6. Voluntary agreements to share costs (e.g., shared parking or ventilation systems by transit station and nearby building)
7. Incentive-based agreements (e.g., providing bonuses in exchange for rehabilitating station)

*If your transit agency has entered into any of the above joint development agreements, please complete the survey on the following pages.*

*If your transit agency* ***has not*** *entered into any of the above joint development agreements, check the box below marked "No Joint Development" and* ***STOP HERE.*** *Return the survey in the enclosed envelope. Thank you.*

☐ NO JOINT DEVELOPMENT
at this agency

## VIEWS TOWARD JOINT DEVELOPMENT

1. Please rate the following joint development impacts on a scale of 1 to 5, where 1 means least impact and 5 means greatest impact:
*(Check N/A if the impact does not apply to your agency)*

| | No Impact | 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|---|---|
| a. Increases in revenues to transit agency | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Increases in revenues to public sector | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Increases in transit ridership | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Improved urban form | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Catalyst to new development | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Catalyst to redevelopment | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Other ____________________ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

2. How serious of a problem has each of the following been in implementing joint development, where 1 means least serious and 5 means most serious:
*(check N/A if the item does not apply to your agency)*

| | No Problem | 1 | 2 | 3 | 4 | 5 | N/A |
|---|---|---|---|---|---|---|---|
| a. Setting the terms of private sector contributions | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| b. Finalizing contract or other legal instruments | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| c. Securing zoning / other land use incentives for project | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| d. Gathering the support of other public agencies | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| e. Gathering support of local citizens or private organizations | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| f. Reneging on contract arrangements by one of the parties | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| g. Collecting revenues | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| h. Other ____________________ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

*Please answer the following questions for your agency's last joint development project:*

3. Who initiated the idea? ________________________________
*(e.g., transit agency, developer, etc.)*

4. What are the positions/titles of the individuals most responsible for negotiating the joint development agreement?

| *Transit Agency* | *Other Public Agency* | *Private Industry* |
|---|---|---|
| ______________ | ______________ | ______________ |
| ______________ | ______________ | ______________ |
| ______________ | ______________ | ______________ |
| ______________ | ______________ | ______________ |

5. How many months passed between the initial idea and the finalization of the agreement? ______ months

6. How many months passed between the finalization of the agreement and the completion of the project? ______ months

7. What sources of information and methods were used in determining private sector contributions or for distributing costs? ______________________________

______________________________

______________________________

______________________________

______________________________

______________________________

8. What were the agreed upon terms of payment? ______________________________

______________________________

______________________________

______________________________

______________________________

______________________________

9. Do provisions exist for:

a. Monitoring contract performance? ☐ yes ☐ no
If yes, please describe briefly: ______________________________

______________________________

______________________________

b. Cost escalation clauses? ☐ yes ☐ no
If yes, please describe briefly: ______________________________

______________________________

______________________________

c. Release clauses and renegotiation? ☐ yes ☐ no
If yes, please describe briefly: ______________________________

______________________________

______________________________

10. Discuss below any other aspects of the negotiations process your agency experienced in establishing joint development programs :

## DESCRIPTION OF JOINT DEVELOPMENT PROJECT

*Use a separate sheet for each project; spare copies provided.*

Name of Joint Development Project ______________________________

Name of Transit Station serving project ______________________________

Name of private organization or company
that entered into the joint development agreement ______________________________

Type of Joint Development agreement *(check one)*:

- ☐ Lease of adjacent property or air rights
- ☐ Facility connection fees
- ☐ Sale of excess/supplemental land
- ☐ Incentive based agreement
- ☐ Benefit assessment district
- ☐ Negotiated private sector contributions
- ☐ Voluntary agreement to share costs

Type of project *(check one)*:

- ☐ Office
- ☐ Retail
- ☐ Industrial
- ☐ Residential
- ☐ Mixed Use
- ☐ Other ______________

Current project gross floor space ________ *square feet*

Were land use incentives used to leverage the project? ☐ yes ☐ no

If **yes**, please describe: ______________________________

______________________________

______________________________

______________________________

## HISTORY OF IMPACTS: *Please furnish annual data for whatever years data are available*

| | FINANCIAL IMPACTS (please fill out appropriate column) | | RIDERSHIP IMPACTS |
|---|---|---|---|
| **Year** | **Annual revenue generated by project** | **Annual estimated capital cost savings due to project*** | **Average daily ridership at station served by project** |
| 1978 | | | |
| 1979 | | | |
| 1980 | | | |
| 1981 | | | |
| 1982 | | | |
| 1983 | | | |
| 1984 | | | |
| 1985 | | | |
| 1986 | | | |
| 1987 | | | |
| 1988 | | | |
| 1989 | | | |

* If capital outlays are depreciated over a set number of years, please indicate annual depreciated costs.

** THANK YOU FOR YOUR TIME AND ASSISTANCE **

# Appendix II

## APPENDIX II: SURVEY ON IMPACTS OF JOINT DEVELOPMENT

QUESTION 1: *RATE THE FOLLOWING JOINT DEVELOPMENT IMPACTS WHERE 1 MEANS LEAST IMPACT AND 5 MEANS GREATEST IMPACT*

*Note: Responses may not total 100 percent due to rounding error.*

| | NO IMPACT | 1 | 2 | 3 | 4 | 5 | NOT APPLIC. | TOTAL RESPONSES |
|---|---|---|---|---|---|---|---|---|
| Increased revenue to transit agency | 9% | 0% | 32% | 18% | 14% | 18% | 9% | 22 |
| Increased revenue to public sector | 23% | 14% | 23% | 5% | 23% | 9% | 5% | 22 |
| Increased transit ridership | 9% | 5% | 23% | 32% | 9% | 18% | 5% | 22 |
| Improved urban form | 9% | 13% | 4% | 30% | 17% | 22% | 4% | 23 |
| Catalyst to new development | 9% | 4% | 17% | 22% | 22% | 17% | 9% | 23 |
| Catalyst to redevelopment | 13% | 9% | 9% | 9% | 26% | 26% | 9% | 23 |

QUESTION 2: *HOW SERIOUS A PROBLEM HAVE THE FOLLOWING BEEN WHEN IMPLEMENTING JOINT DEVELOPMENT? 1 MEANS LEAST SERIOUS AND 5 MEANS MOST SERIOUS*

*Note: Responses may not total 100 percent due to rounding error.*

| | NO PROBLEM | 1 | 2 | 3 | 4 | 5 | NOT APPLIC. | TOTAL RESPONSES |
|---|---|---|---|---|---|---|---|---|
| Setting private sector contributions | 4% | 9% | 9% | 17% | 26% | 22% | 9% | 23 |
| Finalizing contract / legal instruments | 9% | 9% | 22% | 13% | 30% | 17% | 0% | 23 |
| Securing zoning / land-use incentives | 36% | 18% | 9% | 23% | 5% | 5% | 5% | 22 |
| Support of other agencies | 23% | 32% | 9% | 9% | 14% | 5% | 9% | 22 |
| Gathering citizen support | 18% | 23% | 18% | 9% | 9% | 18% | 5% | 22 |
| Reneging on contract | 27% | 14% | 23% | 9% | 0% | 9% | 18% | 22 |
| Collecting revenue | 23% | 14% | 18% | 14% | 0% | 9% | 23% | 22 |

QUESTION 3: *WHO INITIATED THE IDEA FOR YOUR AGENCY'S LAST JOINT DEVELOPMENT PROJECT?*

| | | | |
|---|---|---|---|
| Transit Agency | 66% | | |
| City Planning Department | 0% | Total | |
| Local Municipality / Elected Officials | 13% | Responses: | 23 |
| Developer | 13% | | |
| Redevelopment Agency | 4% | | |
| Other | 4% | | |
| TOTAL | 100% | | |

QUESTION 4: *WHAT ARE THE (DEPARTMENTS) MOST RESPONSIBLE FOR NEGOTIATING JOINT DEVELOPMENT?*

*Note: Most respondents listed all departments responsible for joint development, not an individual's specific title. Column totals, therefore, will be more than 100 percent due to multiple responses.*

| | Transit Agency | Other Public Agency | Private Industry |
|---|---|---|---|
| Planning | 24% | 33% | 0% |
| Engineering | 14% | 8% | 6% |
| Real Estate / Development | 29% | 0% | 11% |
| Joint Development | 0% | 0% | 0% |
| Finance | 5% | 0% | 0% |
| Operations | 5% | 8% | 0% |
| Legal | 43% | 8% | 44% |
| Executive/Managerial | 43% | 50% | 78% |
| Other | 10% | 50% | 28% |
| Not Applicable | 10% | 25% | 11% |
| Total Responses: | 21 | 12 | 18 |

QUESTION 5: *HOW MANY MONTHS PASSED BETWEEN THE INITIAL IDEA AND FINALIZATION OF THE AGREEMENT?*

| | | | |
|---|---|---|---|
| Average Length of Time | 25 *Months* | | |
| Percentage in 12 months or less | 18% | Total | |
| Percentage between 13 and 24 months | 55% | Responses: | 22 |
| Percentage between 25 and 36 months | 9% | | |
| Percentage over 36 months | 18% | | |
| TOTAL | 100% | | |

QUESTION 6: *HOW MANY MONTHS PASSED BETWEEN FINALIZATION OF THE AGREEMENT AND PROJECT COMPLETION?*

| | | | |
|---|---|---|---|
| Average Length of Time | 22 *Months* | | |
| Percentage in 12 months or less | 32% | | |
| Percentage between 13 and 24 months | 32% | Total | |
| Percentage between 25 and 36 months | 21% | Responses: | 19 |
| Percentage over 36 months | 5% | | |
| Not Applicable | 10% | | |
| TOTAL | 100% | | |

QUESTION 7: *WHAT SOURCES OF INFORMATION WERE USED IN DETERMINING PRIVATE SECTOR CONTRIBUTIONS?*

| | | | |
|---|---|---|---|
| Federal / State Guidelines | 9% | | |
| Negotiations / RFPs | 41% | Total | |
| Independent Appraisal | 14% | Responses: | 22 |
| Tax Records | 5% | | |
| Minimum Project-Specific Requirements | 27% | | |
| Value-Capture Formulas | 5% | | |
| Other | 0% | | |
| TOTAL | 100% | | |

QUESTION 8: *WHAT WERE THE TERMS OF PAYMENT?*
*Note: Column total adds up to more than 100 percent due to multiple responses.*

| | |
|---|---|
| One-Time Payment or Fee | 17% |
| Annual or Monthly Rent | 26% |
| Base Rent Plus a Percentage of Profits | 26% |
| Base Rent Plus Inflation / Other Adjustor | 9% |
| Construction of Improvements | 30% |
| On-Going Cost Sharing | 17% |
| Other | 9% |
| Total Responses: | 23 |

| | YES | NO | NOT APPLIC. | TOTAL | TOTAL RESPONSES |
|---|---|---|---|---|---|
| QUESTION 9: *IS THERE CONTRACT PERFORMANCE MONITORING?* | 83% | 13% | 4% | 100% | 23 |
| *DOES CONTRACT HAVE COST ESCALATION CLAUSE?* | 35% | 61% | 4% | 100% | 23 |
| *ARE THERE RELEASE OR RENEGOTIATION CLAUSES?* | 43% | 53% | 4% | 100% | 23 |

# Appendix III

APPENDIX III

SUMMARY OF OPERATING AND CAPITAL EXPENDITURES FOR SELECTED TRANSIT AGENCIES BY CITY: 1979–1988

| YEAR | CITY | OPERATING | INTEREST | AMORTIZATION | DEPRECIATION | LEASE/ RENT/OTHER | AMORTIZATION + DEPRECIATION | INTEREST + LEASE/RENT/OTHER |
|---|---|---|---|---|---|---|---|---|
| 1979 | Atlanta, GA | $53,719,193 | | $5,324,472 | | $10,944,141 | $5,324,472 | $10,944,141 |
| | Boston, MA | | | | | | $0 | $0 |
| | New York Area | $1,045,115,000 | | $478,700 | | $14,950,620 | $478,700 | $14,950,620 |
| | Washington, DC | $194,071,371 | | $56,327,327 | | $44,236,799 | $56,327,327 | $44,236,799 |
| | | | | | | | $0 | $0 |
| 1980 | Atlanta, GA | $79,209,609 | | | $21,391,541 | $11,151,581 | $21,391,541 | $11,151,581 |
| | Boston, MA | | | | | | $0 | $0 |
| | New York Area | $1,496,183,263 | | | $0 | $16,240,024 | $0 | $16,240,024 |
| | Washington, DC | $241,864,851 | | | $63,404,319 | $58,917,835 | $63,404,319 | $58,917,835 |
| | | | | | | | $0 | $0 |
| 1981 | Atlanta, GA | $89,127,570 | $146,440 | | $27,426,403 | $927,021 | $27,426,403 | $1,073,461 |
| | Boston, MA | | | | | | $0 | $0 |
| | New York Area | $1,805,159,657 | | | | $18,219,661 | $0 | $18,219,661 |
| | Washington, DC | $274,607,351 | $67,035,444 | $10,622,491 | $61,311,464 | $1,040,820 | $71,933,955 | $68,076,264 |
| | | | | | | | $0 | $0 |
| 1982 | Atlanta, GA | $94,594,039 | | | | | $0 | $0 |
| | Boston, MA | $243,045,300 | | | | | $0 | $0 |
| | New York Area | $1,941,714,600 | | | | | $0 | $0 |
| | Washington, DC | $297,597,610 | | | | | $0 | $0 |
| | | | | | | | $0 | $0 |
| 1983 | Atlanta, GA | $98,199,777 | $8,579,000 | $0 | $40,167,000 | $876,549 | $40,167,000 | $9,455,549 |
| | Boston, MA | $286,152,595 | $568,457,550 | $1,522,762 | $35,793,331 | $1,414,873 | $37,316,093 | $569,872,423 |
| | New York Area | $2,196,381,125 | $8,906,163 | $0 | $14,991,015 | $18,291,682 | $14,991,015 | $27,197,845 |
| | Washington, DC | $336,065,428 | $82,639,461 | $12,154,180 | $71,606,812 | $1,686,122 | $83,760,992 | $84,325,583 |
| | | | | | | | $0 | $0 |

Source: APTA Yearbooks, 1979–1988

APPENDIX III

SUMMARY OF OPERATING AND CAPITAL EXPENDITURES FOR SELECTED TRANSIT AGENCIES BY CITY: 1979–1988

| YEAR | CITY | OPERATING | INTEREST | AMORTIZATION | DEPRECIATION | LEASE/ RENT/OTHER | AMORTIZATION + DEPRECIATION | INTEREST + LEASE/RENT/OTHER |
|---|---|---|---|---|---|---|---|---|
| 1984 | Atlanta, GA | $101,462,450 | $13,733,888 | $0 | $47,564,405 | $868,562 | $47,564,405 | $14,602,450 |
| | Boston, MA | $339,740,023 | $57,515,428 | $1,329,000 | $40,571,000 | $1,542,889 | $41,900,000 | $59,058,317 |
| | Denver, CO | $86,635,280 | $2,185,587 | $41,772 | $13,161,522 | $695,922 | $13,203,294 | $2,881,509 |
| | New York Area | $2,511,311,706 | $13,357,447 | $0 | $57,067,749 | $30,957,089 | $57,067,749 | $44,314,536 |
| | Santa Cruz, CA | | | | | | $0 | $0 |
| | Washington, DC | $346,932,198 | $83,314,305 | $12,948,739 | $78,710,653 | $2,041,143 | $91,659,392 | $85,355,448 |
| | | | | | | | $0 | $0 |
| 1985 | Atlanta, GA | $112,702,951 | $19,393,714 | $0 | $49,034,224 | $817,178 | $49,034,224 | $20,210,892 |
| | Boston, MA | $361,862,200 | | | | | $0 | $0 |
| | Denver, CO | $100,532,400 | | | | | $0 | $0 |
| | Miami, FL | $120,770,622 | $197,900 | $0 | $23,845,015 | $1,849,193 | $23,845,015 | $2,047,093 |
| | New York Area | $2,624,237,991 | $28,909,688 | $0 | $83,902,063 | $32,111,513 | $83,902,063 | $61,021,201 |
| | Philadelphia, PA | $428,767,555 | $13,641,218 | -$7,074,966 | $12,055,463 | $17,746,041 | $4,980,497 | $31,387,259 |
| | Santa Cruz, CA | $12,609,289 | $240,254 | $0 | $695,978 | $90,044 | $695,978 | $330,298 |
| | Washington, DC | $380,777,699 | $83,025,476 | $14,947,668 | $101,941,383 | $2,052,186 | $116,889,051 | $85,077,662 |
| | | | | | | | $0 | $0 |
| 1986 | Atlanta, GA | $125,495,073 | $28,892,915 | $0 | $60,982,449 | $863,193 | $60,982,449 | $29,756,108 |
| | Baltimore, MD | $116,242,218 | $0 | $118,775 | $29,972,473 | $640,285 | $30,091,248 | $640,285 |
| | Boston, MA | $392,682,006 | $66,655,976 | $439,090 | $50,537,902 | $1,946,121 | $50,976,992 | $68,602,097 |
| | Denver, CO | $101,979,993 | $1,820,481 | $62,787 | $17,224,134 | $1,159,873 | $17,286,921 | $2,980,354 |
| | Miami, FL | $134,903,139 | $205,522 | $0 | $34,679,088 | $582,320 | $34,679,088 | $787,842 |
| | Milwaukee, WI | $64,600,601 | $1,027,019 | $0 | $0 | $40,193 | $0 | $1,067,212 |
| | New York Area | $2,830,233,190 | $122,040,968 | $0 | $113,181,984 | $21,773,825 | $113,181,984 | $143,814,793 |
| | Philadelphia, PA | $464,296,997 | $20,627,815 | $0 | $4,071,340 | $21,886,287 | $4,071,340 | $42,514,102 |
| | Santa Cruz, CA | $14,330,504 | $192,479 | $0 | $889,949 | $99,215 | $889,949 | $291,694 |
| | Washington, DC | $421,042,861 | $81,745,841 | $15,704,325 | $109,197,161 | $1,906,811 | $124,901,486 | $83,652,652 |
| | | | | | | | $0 | $0 |

Source: APTA Yearbooks, 1979-1988

# APPENDIX III

## SUMMARY OF OPERATING AND CAPITAL EXPENDITURES FOR SELECTED TRANSIT AGENCIES BY CITY: 1979–1988

| YEAR | CITY | OPERATING | INTEREST | AMORTIZATION | DEPRECIATION | LEASE/ RENT/OTHER | AMORTIZATION + DEPRECIATION | INTEREST + LEASE/RENT/OTHER |
|---|---|---|---|---|---|---|---|---|
| 1987 | Atlanta, GA | $134,423,361 | $29,197,340 | $0 | $64,145,467 | $938,007 | $64,145,467 | $30,135,347 |
| | Baltimore, MD | $118,163,517 | $0 | $118,775 | $32,942,418 | $722,027 | $33,061,193 | $722,027 |
| | Boston, MA | $403,539,079 | $65,515,511 | $422,506 | $80,394,494 | $1,040,216 | $80,817,000 | $66,555,727 |
| | Denver, CO | $97,532,287 | $2,418,630 | $114,792 | $18,732,475 | $802,437 | $18,847,267 | $3,221,067 |
| | Hartford, CT | $2,811,030 | | | | | $0 | $0 |
| | Miami, FL | $142,373,758 | $141,418 | $0 | $32,067,311 | $721,992 | $32,067,311 | $863,410 |
| | Milwaukee, WI | $63,174,986 | $1,177,005 | $0 | $0 | $38,965 | $0 | $1,215,970 |
| | New York Area | $2,935,931,568 | $86,366,411 | $0 | $149,902,353 | $24,327,621 | $149,902,353 | $110,694,032 |
| | Philadelphia, PA | $508,728,260 | $22,102,453 | $0 | $3,890,872 | $23,767,551 | $3,890,872 | $45,870,004 |
| | Santa Ana, CA | $75,421,066 | $754,874 | $0 | $8,721,334 | $238,996 | $8,721,334 | $993,870 |
| | Santa Cruz, CA | $14,459,835 | $145,844 | $0 | $587,000 | $106,017 | $587,000 | $251,861 |
| | Washington, DC | $455,035,500 | $79,854,620 | $16,578,348 | $121,642,029 | $2,267,403 | $138,220,377 | $82,122,023 |
| | | | | | | | $0 | $0 |
| 1988 | Atlanta, GA | $147,991,972 | $29,956,474 | $0 | $71,120,843 | $929,731 | $71,120,843 | $30,886,205 |
| | Baltimore, MD | $133,818,993 | $0 | $118,775 | $39,049,113 | $814,903 | $39,167,888 | $814,903 |
| | Boston, MA | $454,151,673 | $73,229,692 | $0 | $82,401,898 | $1,423,056 | $82,401,898 | $74,652,748 |
| | Cleveland, OH | $127,743,442 | $13,727 | $0 | $0 | $1,031,653 | $0 | $1,045,380 |
| | Denver, CO | $98,548,195 | $3,513,187 | $124,843 | $19,143,391 | $652,685 | $19,268,234 | $4,165,872 |
| | Hartford, CT | $3,183,279 | $0 | $0 | $0 | $0 | $0 | $0 |
| | Miami, FL | $142,512,327 | $0 | $0 | $36,849,871 | $530,745 | $36,849,871 | $530,745 |
| | Milwaukee, WI | $67,027,538 | $475,286 | $0 | $0 | $8,218 | $0 | $483,504 |
| | New York Area | $3,211,412,588 | $107,560,203 | $0 | $190,910,057 | $30,125,340 | $190,910,057 | $137,685,543 |
| | Philadelphia, PA | $493,974,168 | $22,898,807 | $0 | $2,913,816 | $36,445,216 | $2,913,816 | $59,344,023 |
| | Santa Ana, CA | $79,896,327 | $248,250 | $0 | $8,817,918 | $365,003 | $8,817,918 | $613,253 |
| | Santa Cruz, CA | $15,598,029 | $395,417 | $0 | $672,500 | $122,943 | $672,500 | $518,360 |
| | Washington, DC | $504,863,005 | $78,811,254 | $15,999,005 | $120,291,587 | $1,741,480 | $136,290,592 | $80,552,734 |

Source: APTA Yearbooks, 1979–1988

# Appendix IV

APPENDIX IV: STATION AREA DATABASE FOR REGRESSION AND QUASI-EXPERIMENTAL ANALYSIS: WASHINGTON, DC

| | Metro Area Unemp. Rate (%) | Net Metro Area Office Absorbtion Rate (%) | Average Metro Area Office Rent ($/SQFT) | Average Metro Area Office Vacancy Rate (%) | Total Metro Area Office Space (SQFT) | Total New Metro Area Office Space (SQFT) | Average Study Area Office Rent ($/SQFT) | Average Study Area Office Vacancy Rate (%) | Study Area Net Office Space Absorbtion Rate (%) | Total Study Area Office Space (SQFT) | Total New Study Area Office Space (SQFT) | Transit Fare From Study Area Station to Central CBD Station | Average Weekday Station Entries | Average Weekday System Entries | Dummy Variables (0 = No, 1 = Yes) Joint Development | Terminal Station | Directional Fwy Miles Within 3-mile Radius |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BALLSTON | | | | | | | | | | | | | | | | | |
| 1980 | 5.0 | | | | | | | 0.0% | | 662,688 | | $0.70 | 9,352 | 305,410 | 0 | 1 | 8 |
| 1981 | 7.2 | | | | 83,609,000 | | $13.00 | 2.7% | -2.7% | 662,688 | 0 | $0.81 | 10,250 | 296,028 | 0 | 1 | 8 |
| 1982 | 6.0 | -6.5% | $20.69 | 6.5% | 83,609,000 | 9,145,000 | | 0.0% | -8.0% | 596,688 | -66,000 | $0.90 | 10,173 | 298,274 | 0 | 1 | 8 |
| 1983 | 5.6 | 8.7% | $21.82 | 7.0% | 92,754,000 | 6,780,000 | $14.50 | 7.0% | 0.0% | 641,688 | 45,000 | $0.99 | 10,387 | 303,985 | 0 | 1 | 20 |
| 1984 | 4.0 | 3.8% | $22.69 | 9.5% | 99,534,000 | 9,331,000 | $19.00 | 7.0% | 1.7% | 653,444 | 11,756 | $1.06 | 10,060 | 308,782 | 0 | 1 | 20 |
| 1985 | 3.7 | 8.3% | $23.63 | 9.0% | 108,865,000 | 13,635,000 | $19.00 | 7.0% | 0.0% | 653,444 | 0 | $1.10 | 10,239 | 382,864 | 0 | 1 | 20 |
| 1986 | 3.7 | 6.6% | $25.13 | 12.5% | 122,500,000 | 15,034,000 | $23.12 | 42.4% | 8.2% | 1,229,029 | 575,585 | $1.10 | 11,325 | 413,233 | 0 | 0 | 20 |
| 1987 | 3.4 | 7.6% | $26.07 | 13.5% | 135,812,000 | 14,736,000 | $23.38 | 26.8% | 15.0% | 1,214,529 | -14,500 | $1.10 | 8,116 | 457,635 | 0 | 0 | 20 |
| 1988 | 3.0 | 7.0% | $26.25 | 13.0% | 146,807,000 | 10,995,000 | $25.01 | 34.1% | 13.6% | 1,697,529 | 483,000 | $1.10 | 8,218 | 483,714 | 0 | 0 | 20 |
| 1989 | | 6.5% | $27.25 | 13.0% | 158,641,000 | 11,834,000 | $26.62 | 29.6% | 21.1% | 2,268,179 | 570,650 | $1.12 | 8,902 | 509,394 | 1 | 0 | 20 |
| BETHESDA | | | | | | | | | | | | | | | | | |
| 1980 | 5.0 | | | | | | $10.32 | 6.2% | | 4,454,817 | | | | 305,410 | 0 | | 12 |
| 1981 | 7.2 | | | | 83,609,000 | | $12.19 | 5.5% | 1.0% | 4,472,057 | 17,240 | | | 296,028 | 0 | | 12 |
| 1982 | 6.0 | -6.5% | $20.69 | 6.5% | 83,609,000 | 9,145,000 | $12.44 | 7.1% | 5.5% | 4,839,573 | 367,516 | | | 298,274 | 0 | | 12 |
| 1983 | 5.6 | 8.7% | $21.82 | 7.0% | 92,754,000 | 6,780,000 | $7.10 | 13.1% | 5.5% | 5,519,573 | 680,000 | | | 303,985 | 0 | | 12 |
| 1984 | 4.0 | 3.8% | $22.69 | 9.5% | 99,534,000 | 9,331,000 | $15.16 | 5.8% | 7.7% | 5,541,622 | 22,049 | $1.50 | | 308,782 | 0 | 0 | 12 |
| 1985 | 3.7 | 8.3% | $23.63 | 9.0% | 108,865,000 | 13,635,000 | $18.21 | 7.8% | 8.5% | 6,243,341 | 701,719 | $1.54 | 5,011 | 382,864 | 1 | 0 | 12 |
| 1986 | 3.7 | 6.6% | $25.13 | 12.5% | 122,500,000 | 15,034,000 | $23.28 | 18.4% | -0.1% | 7,042,315 | 798,974 | $1.54 | 6,163 | 413,233 | 1 | 0 | 12 |
| 1987 | 3.4 | 7.6% | $26.07 | 13.5% | 135,812,000 | 14,736,000 | $23.80 | 11.5% | 13.5% | 7,670,203 | 627,888 | $1.54 | 7,105 | 457,635 | 1 | 0 | 12 |
| 1988 | 3.0 | 7.0% | $26.25 | 13.0% | 146,807,000 | 10,995,000 | $24.50 | 14.1% | 6.4% | 8,534,227 | 864,024 | $1.54 | 6,837 | 483,714 | 1 | 0 | |
| 1989 | | 6.5% | $27.25 | 13.0% | 158,641,000 | 11,834,000 | $22.86 | 19.4% | 3.0% | 9,438,187 | 903,960 | $1.58 | 7,305 | 509,394 | 1 | 0 | |
| SILVER SPRING | | | | | | | | | | | | | | | | | |
| 1980 | 5.0 | | | | | | $5.31 | 6.9% | | 1,845,490 | | $1.05 | 16,414 | 305,410 | 0 | 1 | 10 |
| 1981 | 7.2 | | | | 83,609,000 | | $4.83 | 6.0% | 4.0% | 1,908,490 | 63,000 | $1.21 | 15,533 | 296,028 | 0 | 1 | 10 |
| 1982 | 6.0 | -6.5% | $20.69 | 6.5% | 83,609,000 | 9,145,000 | $6.17 | 7.7% | -5.4% | 1,837,960 | -70,530 | $1.33 | 14,478 | 298,274 | 0 | 1 | 10 |
| 1983 | 5.6 | 8.7% | $21.82 | 7.0% | 92,754,000 | 6,780,000 | $13.43 | 9.4% | 2.0% | 1,913,830 | 75,870 | $1.45 | 14,814 | 303,985 | 0 | 1 | 10 |
| 1984 | 4.0 | 3.8% | $22.69 | 9.5% | 99,534,000 | 9,331,000 | $17.34 | 13.6% | 9.5% | 2,255,960 | 342,130 | $1.56 | 14,735 | 308,782 | 0 | 1 | 10 |
| 1985 | 3.7 | 8.3% | $23.63 | 9.0% | 108,865,000 | 13,635,000 | $15.55 | 11.4% | 4.9% | 2,329,668 | 73,708 | $1.61 | 13,445 | 382,864 | 0 | 1 | 10 |
| 1986 | 3.7 | 6.6% | $25.13 | 12.5% | 122,500,000 | 15,034,000 | $20.82 | 29.4% | 1.7% | 2,995,604 | 665,936 | $1.61 | 14,043 | 413,233 | 0 | 1 | 10 |
| 1987 | 3.4 | 7.6% | $26.07 | 13.5% | 135,812,000 | 14,736,000 | $21.64 | 39.7% | 2.8% | 3,673,780 | 678,176 | $1.61 | 14,664 | 457,635 | 0 | 1 | 10 |
| 1988 | 3.0 | 7.0% | $26.25 | 13.0% | 146,807,000 | 10,995,000 | $20.20 | 30.3% | 11.9% | 3,835,724 | 161,944 | $1.61 | 14,476 | 483,714 | 0 | 1 | 10 |
| 1989 | | 6.5% | $27.25 | 13.0% | 158,641,000 | 11,834,000 | $19.91 | 32.4% | -1.9% | 3,846,048 | 10,324 | $1.64 | 15,729 | 509,394 | 0 | 1 | |

APPENDIX IV: CONTROL AREA DATABASE FOR REGRESSION AND QUASI-EXPERIMENTAL ANALYSIS: WASHINGTON, DC

| | Metro Area Unemp. Rate (%) | Net Metro Area Office Absorbtion Rate (%) | Average Metro Area Office Rent ($/SQFT) | Average Metro Area Office Vacancy Rate (%) | Total Metro Area Office Space (SQFT) | Total New Metro Area Office Space (SQFT) | Average Study Area Office Rent ($/SQFT) | Average Study Area Office Vacancy Rate (%) | Study Area Net Office Space Absorbtion Rate (%) | Total Study Area Office Space (SQFT) | Total New Study Area Office Space (SQFT) | Transit Fare From Study Area Station to Central CBD Station | Average Weekday Station Entries | Average Weekday System Entries | Dummy Variables (0 = No, 1 = Yes) Joint Development | Terminal Station | Directional Fwy Miles Within 3-mile Radius |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TYSONS CORNER** | | | | | | | | | | | | | | | | | |
| 1980 | 5.0 | | | | | | $12.59 | 9.7% | | 5,354,465 | | | | | | | |
| 1981 | 7.2 | | | | 83,609,000 | | $12.61 | 12.2% | 8.3% | 6,085,549 | 731,084 | | | | | | |
| 1982 | 6.0 | -6.5% | $20.69 | 6.5% | 83,609,000 | 9,145,000 | $14.31 | 14.0% | 10.3% | 7,053,108 | 967,559 | | | | | | |
| 1983 | 5.6 | 8.7% | $21.82 | 7.0% | 92,754,000 | 6,780,000 | $13.80 | 3.1% | 16.2% | 7,517,108 | 464,000 | | | | | | |
| 1984 | 4.0 | 3.8% | $22.69 | 9.5% | 99,534,000 | 9,331,000 | $15.07 | 16.6% | 4.8% | 9,264,500 | 1,747,392 | | | | | | |
| 1985 | 3.7 | 8.3% | $23.63 | 9.0% | 108,865,000 | 13,635,000 | $19.21 | 19.0% | 17.2% | 12,110,171 | 2,845,671 | | | | | | |
| 1986 | 3.7 | 6.6% | $25.13 | 12.5% | 122,500,000 | 15,034,000 | $21.56 | 23.8% | 5.9% | 13,951,616 | 1,841,445 | | | | | | |
| 1987 | 3.4 | 7.6% | $26.07 | 13.5% | 135,812,000 | 14,736,000 | $20.69 | 18.2% | 10.2% | 14,848,191 | 896,575 | | | | | | |
| 1988 | 3.0 | 7.0% | $26.25 | 13.0% | 146,807,000 | 10,995,000 | $20.44 | 14.2% | 9.5% | 15,920,444 | 1,072,253 | | | | | | |
| 1989 | | 6.5% | $27.25 | 13.0% | 158,641,000 | 11,834,000 | $21.58 | 15.3% | 2.7% | 16,654,423 | 733,979 | | | | | | |
| **ROCK SPRING** | | | | | | | | | | | | | | | | | |
| 1980 | 5.0 | | | | | | $12.00 | 7.1% | | 701,472 | | | | | | | |
| 1981 | 7.2 | | | | 83,609,000 | | $14.15 | 13.2% | 35.8% | 1,277,087 | 575,615 | | | | | | |
| 1982 | 6.0 | -6.5% | $20.69 | 6.5% | 83,609,000 | 9,145,000 | $15.19 | 2.6% | 10.9% | 1,282,087 | 5,000 | | | | | | |
| 1983 | 5.6 | 8.7% | $21.82 | 7.0% | 92,754,000 | 6,780,000 | | 0.0% | 2.6% | 1,282,087 | 0 | | | | | | |
| 1984 | 4.0 | 3.8% | $22.69 | 9.5% | 99,534,000 | 9,331,000 | $17.47 | 10.1% | -10.0% | 1,282,949 | 862 | | | | | | |
| 1985 | 3.7 | 8.3% | $23.63 | 9.0% | 108,865,000 | 13,635,000 | $22.32 | 24.7% | -8.4% | 1,377,949 | 95,000 | | | | | | |
| 1986 | 3.7 | 6.6% | $25.13 | 12.5% | 122,500,000 | 15,034,000 | $25.17 | 8.8% | 37.6% | 1,938,949 | 561,000 | | | | | | |
| 1987 | 3.4 | 7.6% | $26.07 | 13.5% | 135,812,000 | 14,736,000 | $24.73 | 12.1% | 30.6% | 3,083,949 | 1,145,000 | | | | | | |
| 1988 | 3.0 | 7.0% | $26.25 | 13.0% | 146,807,000 | 10,995,000 | $23.13 | 4.9% | 7.2% | 3,083,949 | 0 | | | | | | |
| 1989 | | 6.5% | $27.25 | 13.0% | 158,641,000 | 11,834,000 | $24.70 | 12.2% | -19.0% | 2,748,087 | -335,862 | | | | | | |

APPENDIX IV: STATION AREA DATABASE FOR REGRESSION AND QUASI-EXPERIMENTAL ANALYSIS: ATLANTA, GA

| | Metro Area Unemp. Rate (%) | Net Metro Area Office Absorbtion Rate (%) | Average Metro Area Office Rent ($/SQFT) | Average Metro Area Office Vacancy Rate (%) | Total Metro Area Office Space (SQFT) | Total New Metro Area Office Space (SQFT) | Average Study Area Office Rent ($/SQFT) | Average Study Area Office Vacancy Rate (%) | Study Area Net Office Space Absorbtion Rate (%) | Total Study Area Office Space (SQFT) | Total New Study Area Office Space (SQFT) | Transit Fare From Study Area Station to Central CBD Station | Average Weekday Station Entries | Average Weekday System Entries | Dummy Variables (0 = No, 1 = Yes) Joint Development | Terminal Station | Directional Fwy Miles Within 3-mile Radius |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LENOX | | | | | | | | | | | | | | | | | |
| 1980 | 6.0 | | | | | | | | | | | | | | 0 | | 12 |
| 1981 | 5.2 | | | | | | | | | | | | | | 0 | | 12 |
| 1982 | 6.3 | | $13.60 | 14.1% | 40,928,559 | 3,021,665 | $13.29 | 12.5% | | 2,145,626 | | | | | 0 | | 12 |
| 1983 | 6.3 | 5.1% | $14.20 | 15.4% | 44,242,406 | 3,313,847 | $15.41 | 15.6% | 10.2% | 2,529,209 | 383,583 | | | | 0 | | 12 |
| 1984 | 4.5 | 8.9% | $15.06 | 14.2% | 48,700,106 | 4,457,700 | $15.09 | 7.5% | 8.1% | 2,531,609 | 2,400 | $0.60 | | 147,800 | 0 | 0 | 12 |
| 1985 | 4.7 | 8.6% | $16.57 | 19.6% | 58,163,112 | 9,463,006 | $19.61 | 12.4% | 12.8% | 3,129,121 | 597,512 | $0.60 | 11,004 | 186,019 | 0 | 0 | 12 |
| 1986 | 4.2 | 5.7% | $16.81 | 20.6% | 63,482,938 | 5,319,826 | $21.66 | 18.0% | -5.1% | 3,147,624 | 18,503 | $0.60 | 10,850 | 186,500 | 1 | 0 | 12 |
| 1987 | 5.0 | 6.4% | $17.49 | 22.3% | 70,684,425 | 7,201,487 | $22.17 | 23.6% | 10.0% | 3,889,174 | 741,550 | $0.69 | 11,021 | 181,257 | 1 | 0 | 12 |
| 1988 | 4.9 | 5.6% | $17.88 | 20.1% | 73,928,757 | 3,244,332 | $22.95 | 21.0% | 9.5% | 4,277,290 | 388,116 | $0.80 | 10,599 | 181,514 | 1 | 0 | 12 |
| 1989 | | 4.5% | $18.22 | 20.2% | 78,498,461 | 4,569,704 | $23.35 | 22.4% | 8.9% | 4,918,736 | 641,446 | $0.85 | 10,596 | 183,630 | 1 | 0 | 12 |
| ARTS CENTER | | | | | | | | | | | | | | | | | |
| 1980 | 6.0 | | | | | | | | | | | | | | 0 | | 16.8 |
| 1981 | 5.2 | | | | | | | | | | | | | | 0 | | 16.8 |
| 1982 | 6.3 | | $13.60 | 14.1% | 40,928,559 | 3,021,665 | $11.65 | 9.4% | | 1,678,425 | | | | | 0 | | 16.8 |
| 1983 | 6.3 | 5.1% | $14.20 | 15.4% | 44,242,406 | 3,313,847 | $10.66 | 11.0% | 0.8% | 1,722,409 | 43,984 | $0.60 | | | 0 | 1 | 16.8 |
| 1984 | 4.5 | 8.9% | $15.06 | 14.2% | 48,700,106 | 4,457,700 | $13.79 | 9.4% | 16.9% | 2,080,911 | 358,502 | $0.60 | 15,600 | 147,800 | 0 | 1 | 16.8 |
| 1985 | 4.7 | 8.6% | $16.57 | 19.6% | 58,163,112 | 9,463,006 | $15.70 | 14.8% | -3.9% | 2,114,555 | 33,644 | $0.60 | 7,776 | 186,019 | 0 | 0 | 16.8 |
| 1986 | 4.2 | 5.7% | $16.81 | 20.6% | 63,482,938 | 5,319,826 | $16.82 | 15.4% | 17.2% | 2,675,180 | 560,625 | $0.60 | 6,450 | 186,500 | 0 | 0 | 16.8 |
| 1987 | 5.0 | 6.4% | $17.49 | 22.3% | 70,684,425 | 7,201,487 | $19.02 | 16.8% | 24.1% | 3,957,612 | 1,282,432 | $0.69 | 6,257 | 181,257 | 1 | 0 | 16.8 |
| 1988 | 4.9 | 5.6% | $17.88 | 20.1% | 73,928,757 | 3,244,332 | $19.94 | 15.9% | 2.9% | 3,957,612 | 0 | $0.80 | 6,443 | 181,514 | 1 | 0 | 16.8 |
| 1989 | | 4.5% | $18.22 | 20.2% | 78,498,461 | 4,569,704 | $19.61 | 7.7% | 14.9% | 4,302,612 | 345,000 | $0.85 | 6,766 | 183,630 | 1 | 0 | 16.8 |

APPENDIX IV: CONTROL AREA DATABASE FOR REGRESSION AND QUASI-EXPERIMENTAL ANALYSIS: ATLANTA, GA

| | Metro Area Unemp. Rate (%) | Net Metro Area Office Absorbtion Rate (%) | Average Metro Area Office Rent ($/SQFT) | Average Metro Area Office Vacancy Rate (%) | Total Metro Area Office Space (SQFT) | Total New Metro Area Office Space (SQFT) | Average Study Area Office Rent ($/SQFT) | Average Study Area Office Vacancy Rate (%) | Study Area Net Office Space Absorbtion Rate (%) | Total Study Area Office Space (SQFT) | Total New Study Area Office Space (SQFT) | Transit Fare From Study Area Station to Central CBD Station | Average Weekday Station Entries | Average Weekday System Entries | Dummy Variables (0 = No, 1 = Yes) Joint Development | Dummy Variables (0 = No, 1 = Yes) Terminal Station | Directional Fwy Miles Within 3-mile Radius |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PERIMETER CENTER | | | | | | | | | | | | | | | | | |
| 1980 | 6.0 | | | | | | | | | | | | | | | | |
| 1981 | 5.2 | | | | | | | | | | | | | | | | |
| 1982 | 6.3 | | $13.60 | 14.1% | 40,928,559 | 3,021,665 | $13.67 | 6.5% | | 4,617,270 | | | | | | | |
| 1983 | 6.3 | 5.1% | $14.20 | 15.4% | 44,242,406 | 3,313,847 | $14.42 | 6.6% | 9.1% | 5,120,471 | 503,201 | | | | | | |
| 1984 | 4.5 | 8.9% | $15.06 | 14.2% | 48,700,106 | 4,457,700 | $17.58 | 13.4% | 17.1% | 6,889,193 | 1,768,722 | | | | | | |
| 1985 | 4.7 | 8.6% | $16.57 | 19.6% | 58,163,112 | 9,463,006 | $18.76 | 18.7% | 16.3% | 9,170,459 | 2,281,266 | | | | | | |
| 1986 | 4.2 | 5.7% | $16.81 | 20.6% | 63,482,938 | 5,319,826 | $19.12 | 21.7% | 10.8% | 11,039,183 | 1,868,724 | | | | | | |
| 1987 | 5.0 | 6.4% | $17.49 | 22.3% | 70,684,425 | 7,201,487 | $18.99 | 19.6% | 8.1% | 11,948,800 | 909,617 | | | | | | |
| 1988 | 4.9 | 5.6% | $17.88 | 20.1% | 73,928,757 | 3,244,332 | $20.59 | 18.1% | 8.2% | 13,036,635 | 1,087,835 | | | | | | |
| 1989 | | 4.5% | $18.22 | 20.2% | 78,498,461 | 4,569,704 | $21.27 | 22.2% | 3.0% | 14,262,234 | 1,225,599 | | | | | | |
| NORTHEAST EXPRESSWAY | | | | | | | | | | | | | | | | | |
| 1980 | 6.0 | | | | | | | | | | | | | | | | |
| 1981 | 5.2 | | | | | | | | | | | | | | | | |
| 1982 | 6.3 | | $13.60 | 14.1% | 40,928,559 | 3,021,665 | $11.83 | 11.4% | | 4,582,718 | | | | | | | |
| 1983 | 6.3 | 5.1% | $14.20 | 15.4% | 44,242,406 | 3,313,847 | $12.08 | 12.5% | 4.7% | 4,903,829 | 321,111 | | | | | | |
| 1984 | 4.5 | 8.9% | $15.06 | 14.2% | 48,700,106 | 4,457,700 | $12.23 | 13.0% | 1.2% | 5,001,243 | 97,414 | | | | | | |
| 1985 | 4.7 | 8.6% | $16.57 | 19.6% | 58,163,112 | 9,463,006 | $13.13 | 12.0% | 2.5% | 5,093,499 | 92,256 | | | | | | |
| 1986 | 4.2 | 5.7% | $16.81 | 20.6% | 63,482,938 | 5,319,826 | $14.29 | 17.2% | 5.4% | 5,788,519 | 695,020 | | | | | | |
| 1987 | 5.0 | 6.4% | $17.49 | 22.3% | 70,684,425 | 7,201,487 | $14.47 | 16.5% | 0.8% | 5,789,697 | 1,178 | | | | | | |
| 1988 | 4.9 | 5.6% | $17.88 | 20.1% | 73,928,757 | 3,244,332 | $14.00 | 16.7% | -2.7% | 5,623,509 | -166,186 | | | | | | |
| 1989 | | 4.5% | $18.22 | 20.2% | 78,498,461 | 4,569,704 | $14.24 | 16.5% | 0.5% | 5,639,957 | 16,448 | | | | | | |
| NORTHWEST EXPRESSWAY | | | | | | | | | | | | | | | | | |
| 1980 | 6.0 | | | | | | | | | | | | | | | | |
| 1981 | 5.2 | | | | | | | | | | | | | | | | |
| 1982 | 6.3 | | $13.60 | 14.1% | 40,928,559 | 3,021,665 | $11.32 | 3.9% | | 998,775 | | | | | | | |
| 1983 | 6.3 | 5.1% | $14.20 | 15.4% | 44,242,406 | 3,313,847 | $12.54 | 4.2% | -0.3% | 998,775 | 0 | | | | | | |
| 1984 | 4.5 | 8.9% | $15.06 | 14.2% | 48,700,106 | 4,457,700 | $12.71 | 3.1% | 1.0% | 998,775 | 0 | | | | | | |
| 1985 | 4.7 | 8.6% | $16.57 | 19.6% | 58,163,112 | 9,463,006 | $13.36 | 8.5% | 4.1% | 1,106,007 | 107,232 | | | | | | |
| 1986 | 4.2 | 5.7% | $16.81 | 20.6% | 63,482,938 | 5,319,826 | $13.82 | 10.0% | -1.5% | 1,106,007 | 0 | | | | | | |
| 1987 | 5.0 | 6.4% | $17.49 | 22.3% | 70,684,425 | 7,201,487 | $15.34 | 19.3% | -10.6% | 1,090,881 | -15,126 | | | | | | |
| 1988 | 4.9 | 5.6% | $17.88 | 20.1% | 73,928,757 | 3,244,332 | $15.82 | 33.0% | -13.5% | 1,093,755 | 2,874 | | | | | | |
| 1989 | | 4.5% | $18.22 | 20.2% | 78,498,461 | 4,569,704 | $15.00 | 22.6% | 11.5% | 1,111,755 | 18,000 | | | | | | |

# Appendix V

## APPENDIX V: INDEX TO JOINT DEVELOPMENT PROJECT DESCRIPTIONS


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| | |
|---|---|
| **CITY:** | **ATLANTA** |
| **Project Name:** | GEORGIA STATE OFFICE BUILDING |
| **Address:** | Georgia State Station<br>Downtown Atlanta |
| **Project Type:** | Air rights development |
| **Developer:** | State of Georgia |
| **Transit Agency:** | Metropolitan Atlanta Regional Transportation Authority |
| **Project Initiated:** | |
| **Project Completed:** | 1982 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | None. This is a negotiated agreement to share air and surface rights. |
| **Project Description:** | 992,000 square feet of office space in twin towers above the station. |

| | |
|---|---|
| **CITY:** | **ATLANTA** |
| **Project Name:** | IBM TOWER |
| **Address:** | Arts Center Station<br>Atlanta |
| **Project Type:** | Land lease |
| **Developer:** | Atlantic Center |
| **Transit Agency:** | Metropolitan Atlanta Regional Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | Phase I complete |
| **Current Status:** | Additional Phases under construction |
| **Income to Transit Agency:** | $575,000/year with 4% escalation clause, compounded annually. The 50 year lease has options for another 49. |
| **Project Description:** | A 1,100,000 square foot office building built on excess land. |
| **Development History:** | MARTA, following its normal procedure, attempted to lease land next to the station for construction staging. Land owner preferred to sell, so MARTA purchased the staging site. The former staging site is currently leased to the developer of Atlantic Center. |

| | |
|---|---|
| **CITY:** | **ATLANTA** |
| **Project Name:** | RESURGENS PLAZA |
| **Address:** | Lenox Station<br>Atlanta |
| **Project Type:** | Air rights lease |
| **Developer:** | Resurgens Plaza South Associates |
| **Transit Agency:** | Metropolitan Atlanta Regional Transportation Authority |
| **Project Initiated:** | 1977 |
| **Project Completed:** | 1989 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $120,000/year, with increases tied to consumer price index. The 50 year lease has options for an addition 49. |
| **Project Description:** | A 400,000 square foot office building is built on the air rights above MARTA's North Line tracks at the North Concourse of the Lenox Station. |
| **Development History:** | This phase of the Resurgens Plaza project is formerly part of a larger development plan that was to include Atlanta Center and more buildings in rights above the Lenox station already owned by the developer. Local opposition hindered the original plan. |

| | |
|---|---|
| **CITY:** | **ATLANTA** |
| **Project Name:** | RICH'S DEPARTMENT STORE |
| **Address:** | Alabama Street<br>Downtown Atlanta |
| **Project Type:** | System Interface |
| **Developer:** | Rich's Department Store |
| **Transit Agency:** | Metropolitan Atlanta Regional Transportation Authority |
| **Project Initiated:** | 1979 |
| **Project Completed:** | 1979 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $1,000/year for 25 years |
| **Project Description:** | Pedestrian passage connecting Five Points Station with Rich's Department Store. |
| **Development History:** | Rich's paid for the construction costs of the tunnel and agreed to a minimal annual easement fee of $1,000. This fee was proposed by MARTA to set a precedent for setting charges when granting future system interface easements. |

| | |
|---|---|
| **CITY:** | **ATLANTA** |
| **Project Name:** | SOUTHERN BELL TOWER |
| **Address:** | North Avenue Station<br>Atlanta |
| **Project Type:** | Air rights development |
| **Developer:** | Southern Bell |
| **Transit Agency:** | Metropolitan Atlanta Regional Transportation Authority |
| **Project Initiated:** | Mid-1970s |
| **Project Completed:** | 1981 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | None |
| **Project Description:** | A 1,900,000 square foot, 47 story, office building with some retail space. |
| **Development History:** | Air rights were exchanged for easements under the land already owned by Southern Bell. Bell was convinced to reduce parking at the site; MARTA promised that the station's opening would coincide with the opening of the tower. |

**CITY:** **BALTIMORE**
**Project Name:** BANK OF BALTIMORE BUILDING
**Address:** Charles Center, Baltimore, MD

**Project Type:** Land lease at a transit station.

**Developer:** Calvert Baltimore Associates
**Transit Agency:** Maryland Mass Transit Administration (MTA)
**Project Initiated:** 1985
**Project Completed:** 1987
**Current Status:** Complete.

**Income to Transit Agency:** Annual payments of $50,000 per year for 1987-1988, no payment in 1989. Beginning in 1990 however, rent will increase to $530,000 per anum.

**Project Description:** A 327,000 square foot office building.

**CITY:** **BALTIMORE**
**Project Name:** JOHNS HOPKINS METRO EXTENSION
**Address:** Baltimore, MD

**Project Type:** Station Interface

**Developer:** Johns Hopkins Medical Center
**Transit Agency:** Maryland Mass Transit Administration
**Current Status:** Under construction

**Income to Transit Agency:** None

**Project Description:** Tunnels linking various buildings in the medical center complex will physically connect with the new subway station.

**Development History:** No connection fees will be charged to the hospital, rather, both the hospital and the MTA will work cooperatively. Johns Hopkins will build the tunnel infrastructure between several of its own buildings and between the buildings and the subway station. The MTA will build the station and the short link between the two tunnel networks.

**Transit Impacts:** The MTA establishes direct transit connections with the largest employer in the city thereby increasing the ridership on the system.

| | |
|---|---|
| **CITY:** | **BALTIMORE** |
| **Project Name:** | SIGNET TOWER |
| **Address:** | Charles Center, Baltimore, MD |
| **Project Type:** | Air rights lease at a transit station. |
| **Developer:** | Trammel Crow |
| **Transit Agency:** | Maryland Mass Transit Administration |
| **Project Initiated:** | 1984 |
| **Project Completed:** | 1986 |
| **Current Status:** | Project complete |
| **Income to Transit Agency:** | Lease revenues of $50,000 per anum. |
| **Project Description:** | MTA leases 2000 square feet of air rights for this 25 story, 400,000 square foot office building. |
| **Development History:** | Developer sought acquisition of MTA-owned air-rights to achieve a better building foot print. |

| | |
|---|---|
| **City:** | **BOSTON** |
| **Project Name** | ALEWIFE GARAGE & RETAIL |
| **Address:** | Cambridge, MA |
| **Project Type:** | Land Lease, Concessions |
| **Developer:** | Taylor Properties |
| **Transit Agency:** | Massachusetts Bay Transportation Authority |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A privately operated parking garage with ancillary retail space. The developer contributed to station renovation. |

| | |
|---|---|
| **City:** | **BOSTON** |
| **Project Name** | BRATTLE SQUARE |
| **Address:** | Cambridge, MA |
| **Project Type:** | Air Rights Lease |
| **Developer:** | Unknown |
| **Transit Agency:** | Massachusetts Bay Transportation Authority |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Unknown |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A 95,000 square foot office and retail (department store) development built partially on a 12,000 square foot privately-owned parcel and partially on 18,000 square feet of surface rights over an MBTA bus tunnel. |

**CITY:** **BOSTON**
**Project Name:** LINCOLN WHARF/POWER PLANT CONDOMINIUMS
**Address:** Boston, Massachusetts

**Project Type:** Land Sale/Lease

**Developer:** Unknown
**Transit Agency:** Massachusetts Bay Transportation Authority

**Project Initiated:** Not Available
**Project Completed:** Not Available
**Current Status:** Completed

**Income to Transit Agency:** Unknown

**Project Description:** Residential condominiums built on the site of a former MBTA power sub-station near the Boston waterfront.

**CITY:** **BOSTON**
**Project Name:** SOUTH STATION HEADHOUSE
**Address:** Boston, Massachusetts

**Project Type:** Land Lease, Air Rights Lease, Cost-sharing

**Developer:** Beacon South Station Associates
**Transit Agency:** Massachusetts Bay Transportation Authority (MBTA)

**Project Initiated:** 1986
**Project Completed:** 1989
**Current Status:** In operation

**Income to Transit Agency:** $84 million in station renovations. MBTA receives base rent plus a percentage of profits.

**Project Description:** A Mixed-use development at a multi-modal transportation terminal in historic Union Station. The project has 100,000 square feet of office space and 35,000 square feet of retail. The developer pays for 50 percent of the station's maintenance saving the MBTA $750,000 annually.

| | |
|---|---|
| **CITY:** | **<u>CEDAR RAPIDS</u>** |
| **Project Name:** | APARTMENTS AT GROUND TRANSPORTATION CENTER |
| **Address:** | Cedar Rapids, Iowa |
| **Project Type:** | Air Rights Lease |
| **Developer:** | Southgate Developments |
| **Transit Agency:** | Cedar Rapids Bus Department |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A 40,000 square foot residential development above the Ground Transportation Center |

| | |
|---|---|
| **CITY:** | **CHICAGO** |
| **Project Name:** | CENTRAL STREET STATION |
| **Address:** | Evanston, IL |
| **Project Type:** | Sale of excess land, incentive based agreement and negotiated private sector contributions |
| **Developer:** | Evanston Properties |
| **Transit Agency:** | Chicago Transit Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | 1988 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $1,000 first year; $5,000 second year; an additional $75,000 in cost savings per year. |
| **Project Description:** | An 80,000 square foot-mixed use project. |

| | |
|---|---|
| **CITY:** | **CHICAGO** |
| **Project Name:** | CUMBERLAND PARKING GARAGE |
| **Address:** | Chicago, IL |
| **Project Type:** | Property Lease |
| **Developer:** | G. O. Parking |
| **Transit Agency:** | Chicago Transit Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1988 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $100,000 first year; $175,000 second year |
| **Project Description:** | A 100,000 square foot parking garage built at Cumberland Station. The average daily ridership is approximately 11,000. |

| | |
|---|---|
| **CITY:** | **CLEVELAND** |
| **Project Name:** | PURITAS STATION HOTEL |
| **Address:** | Cleveland, Ohio |
| **Project Type:** | Property Lease, Air Rights Lease |
| **Developer:** | Robert L. Stark Enterprises and Puritas Landing Company |
| **Transit Agency:** | Greater Cleveland Regional Transit Authority |
| **Project Initiated:** | 1988 as a continuation of a previous lease initiated in 1972 with GCRTA's predecessor, the Cleveland Transit System. |
| **Project Completed:** | Not Available |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | A annual base rent of $35,000 is paid by the developer for 55 years. The first two years are rent-free, the next 31 years payable at $35,000 in equal monthly installments, the final 22 years will be renegotiated for an amount of not less than $35,000 yearly. |
| **Project Description:** | Hotel and restaurant. The design has not yet been finalized. The lease is for a 2.29 acre site for a hotel with an option for another .73 acre site for a restaurant. |

| | |
|---|---|
| **CITY:** | **CLEVELAND** |
| **Project Name:** | TOWER CITY CENTER RENOVATION PROJECT |
| **Address:** | Cleveland, Ohio |
| **Project Type:** | Negotiated Private Sector Contributions |
| **Developer:** | Tower City Development, Inc., Tower City Properties |
| **Transit Agency:** | Greater Cleveland Regional Transit Authority |
| **Project Initiated:** | 1981 |
| **Current Status:** | Under Construction |
| **Income to Transit Agency:** | None. The developer contributes to a reduction of operating and maintenance costs of between 24 to 66 percent. |
| **Project Description:** | A 4.5 million square feet mixed-use project. The GCRTA occupies 25 percent of the building. |

| | |
|---|---|
| **City:** | **DENVER** |
| **Project Name:** | CIVIC CENTER TRANSIT MALL |
| **Address:** | Denver, CO |
| **Project Type:** | Benefit Assessment District |
| **Developer:** | Downtown Denver, Inc. |
| **Transit Agency:** | Regional Transportation District |
| **Project Initiated:** | |
| **Project Completed:** | 1982 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | |
| **Project Description:** | The 14-block transit mall is funded by assessment of nearby property owners. Assessments provide for construction and upkeep of landscaping, pedestrian amenities and the transit right-of-way. |

| | |
|---|---|
| **City:** | **DENVER** |
| **Project Name:** | ONE CIVIC CENTER PLAZA |
| **Address:** | Denver, CO |
| **Project Type:** | Air Rights Lease |
| **Developer:** | John W. Galbreath & Co. |
| **Transit Agency:** | Regional Transportation District |
| **Project Initiated:** | 1980 |
| **Project Completed:** | 1984 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Varies annually. A monthly lease of air rights plus a percentage of garage revenues and office space rent. Earnings in 1989 were $657,293. |
| **Project Description:** | A mixed-use office/retail development above the Civic Center Transit Mall. |

**CITY:** **DETROIT**
**Project Name:** NORTHLAND TRANSIT CENTER
**Address:** Detroit

**Project Type:** Cost Sharing

**Developer:** The Centers Company
**Transit Agency:** Suburban Mobility for Regional Transportation (SMART)

**Project Initiated:** 1980
**Project Completed:** 1982
**Current Status:** No longer in operation. Operation was terminated in 1987.

**Income to Transit Agency:** None

**Project Description:** Passenger loading facility constructed in parking lot of Northland Mall. When mall decided to expand, the transfer center was abandoned.

**Transit Impacts:** Ridership at the Transit Center was approximately 3,000 per day during the operating period.

| | |
|---|---|
| **CITY:** | **HARTFORD** |
| **Project Name:** | UNION STATION TRANSPORTATION CENTER |
| **Address:** | Hartford, CT |
| **Project Type:** | Lease of Property, Air Rights |
| **Developer:** | Union Station Associates Limited Partnership |
| **Transit Agency:** | Greater Hartford Transit District |
| **Project Initiated:** | 1982 |
| **Project Completed:** | 1987 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Varied annual rental payments (1987: $700,000; 1988: $800,000; 1989: $900,000) plus estimated annual cost savings of $500,000. |
| **Project Description:** | A 60,000 square foot mixed-use development. |

| | |
|---|---|
| **CITY:** | **LOS ANGELES** |
| **Project Name:** | HOME SAVINGS PORTAL |
| **Address:** | Los Angeles, CA |
| **Project Type:** | Negotiated Private Sector Contribution |
| **Developer:** | Home Savings and Loan |
| **Transit Agency:** | Southern California Rapid Transit District (SCRTD) |
| **Project Initiated:** | 1987 |
| **Project Completed:** | 1989 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | None |
| **Project Description:** | An office building built above a rail portal. The developer/owner provided free easements and built station portal for the 7th & Flower Station. Developer built a traction facility below the office building to receive a density bonus from city. |

| | |
|---|---|
| **CITY:** | **MIAMI** |
| **Project Name:** | DATRAN CENTER/DADELAND SOUTH |
| **Address:** | Miami |
| **Project Type:** | Property/Air Rights Lease |
| **Developer:** | Green Datran Center, Ltd. |
| **Transit Agency:** | Metro-Dade Transit Agency |
| **Project Initiated:** | 1982 |
| **Project Completed:** | Phased Development |
| **Current Status:** | Some phases operating |
| **Income to Transit Agency:** | Varies. Current annual base rent is $400,000. |
| **Project Description:** | This mixed-use project contains office and retail space and a 305 room hotel is built on air rights over Metro-Dade's Dadeland South Station. |

| | |
|---|---|
| **CITY:** | **MILWAUKEE** |
| **Project Name:** | BUS PASSENGER WAITING SHELTERS |
| **Address:** | Milwaukee, WI |
| **Project Type:** | Cost Sharing Agreement |
| **Developer:** | Various Public and Private contributors |
| **Transit Agency:** | Milwaukee County Transit System |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1990 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | None |
| **Project Description:** | Public and Private entities contributed passenger waiting shelters. The transit system realized $5,000 in annual cost savings. |

| | |
|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | ALLIED JUNCTION SECAUCUS TRANSFER STATION |
| **Address:** | Secaucus, New Jersey |
| **Project Type:** | Cost-sharing |
| **Developer:** | Allied Junction Corporation |
| **Transit Agency:** | New Jersey Transit |
| **Project Initiated:** | 1986 |
| **Project Completed:** | Not Available |
| **Current Status:** | Phase I ground breaking scheduled for 1992 |
| **Income to Transit Agency:** | Cost-sharing, Land donated by developer to construct rail improvements. |
| **Project Description:** | Development will include 3 million square feet of office space in 4 buildings, a 600 room hotel, 112,000 square feet of retail space and a 4,400 space parking structure. Improvements to the rail system will include: station construction, new platforms, two new tracks and 15 new bridges along a 10,000 foot section of the NEC line. In addition, two new tracks and two new platforms will be added to a 9,500 foot section of the NJT Main line and a 4000 foot rail connection will link the Main and Bergen lines. |
| **Transit Impacts:** | An estimated 20,000 additional riders will enter the system with Allied Junction as their primary destination. |

| | |
|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | EXCHANGE PLACE |
| **Address:** | Jersey City, New Jersey |
| **Project Type:** | Cost sharing/Developer built subway station improvements. |
| **Developer:** | Exchange Place Urban Renewal Associates (EPURA) |
| **Transit Agency:** | Port Authority Trans-Hudson Railroad (PATH) |
| **Project Initiated:** | 1987 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Not Available |
| **Project Description:** | EPURA built 680,000 square feet of retail and office space. As mitigation for transportation impacts, the developer built an enclosure for the existing subway station entrance valued at $1 million. |

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|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | GROVE STREET STATION |
| **Address:** | Jersey City, New Jersey |
| **Project Type:** | Cost sharing/Developer-built transit station improvements |
| **Developer:** | Cali Corporation |
| **Transit Agency:** | PATH |
| **Project Initiated:** | 1987 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Not Available |
| **Project Description:** | The developer built 595,000 square feet of retail and office space adjacent to the station. As a mitigation for local transportation impacts, the developer was required to build an enlarged entrance at the south end of the station valued at $400,000. |

| | |
|---|---|
| **CITY:** | **<u>NEW JERSEY</u>** |
| **Project Name:** | HOBOKEN TERMINAL |
| **Address:** | Hoboken, New Jersey |
| **Project Type:** | Large scale concession leases in rail terminal. |
| **Transit Agency:** | Port Authority Trans-Hudson Railroad |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Not yet built |
| **Income to Transit Agency:** | Lease revenue from retailers. |

| | |
|---|---|
| **CITY:** | **<u>NEW JERSEY</u>** |
| **Project Name:** | Hudson River Waterfront |
| **Address:** | Northern New Jersey |
| **Project Type:** | Developers trade easements for a light rail right-of-way for air rights, Transfers of Development Rights (TDRs) or conditional use permits. |
| **Developer:** | Not Available |
| **Transit Agency:** | New Jersey Transit |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Under negotiation |
| **Income to Transit Agency:** | Not Available |

| | |
|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | JERSEY CENTER METROPLEX<br>SOUTH BRUNSWICK STATION |
| **Address:** | South Brunswick, New Jersey |
| **Project Type:** | Cost sharing, Developer-built capital improvements. |
| **Developer:** | Sam Reider & Sons |
| **Transit Agency:** | New Jersey Transit (NJT) |
| **Project Initiated:** | 1990 |
| **Project Completed:** | Not Available |
| **Current Status:** | In negotiations |
| **Income to Transit Agency:** | $35,000,000<br>(capital contribution) |
| **Project Description:** | Two million square feet of office space will be built immediately adjacent to a new commuter rail station on the Northeast Corridor line. Ultimately, 12 million square feet of office and retail space will be built over the next 12 years. The developer will build the new station and a plaza connecting the project with the station. Construction costs are estimated at $9.5 million. The developer will spend an additional $25.5 million to build access roads from the station to U.S. Route 1 and 2000 station parking spaces. NJT will receive all parking revenues. |

| | |
|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | PAVONIA/NEWPORT STATION HEADHOUSE |
| **Address:** | Jersey City, New Jersey |
| **Project Type:** | Cost sharing/developer-built transit station improvements |
| **Developer:** | Newport Associates Development Company |
| **Transit Agency:** | Port Authority Trans-Hudson Railroad (PATH) |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1988 |
| **Current Status:** | Station improvements are complete, the development itself still has phases under construction. |
| **Income to Transit Agency:** | $5 million (one-time capital contribution) |
| **Project Description:** | Newport Associates built a large mixed use development on the Jersey City waterfront. This project includes 4.3 million square feet of office space, 1.4 million square feet of retail, 9,000 dwelling units and 1200 hotel rooms. To mitigate the local transportation impacts, the developer built a new station headhouse valued at $5 million. |

| | |
|---|---|
| **CITY:** | **NEW JERSEY** |
| **Project Name:** | PENN STATION |
| **Address:** | Newark, New Jersey |
| **Project Type:** | Station Interface/Co-development |
| **Developer:** | Various |
| **Transit Agency:** | AMTRAK |
| **Project Initiated:** | |
| **Project Completed:** | Not Available |
| **Current Status:** | The project is partially complete. No construction has begun on the southern entrance to the station. |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | Skyways connect Newark Penn Station with surrounding office development at the Gateway. |

| | |
|---|---|
| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 140 LIBERTY |
| **Address:** | Greenwich and Liberty Streets<br>Fulton St. (4,5) and Rector St. (N,R) Station<br>New York, NY |
| **Project Type:** | Cost sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | Not Available |
| **Current Status:** | Project not complete |
| **Income to Transit Agency:** | $1,000,000 in capital improvements |
| **Project Description:** | Reconstruction of stairs at Dey Street West of Broadway as required by the provisions of the Greenwich Street Special District. |

| | |
|---|---|
| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 1568 Broadway |
| **Address:** | 49th Street Station, New York,NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Silverstein |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1988 |
| **Project Completed:** | Not Available |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | $400,000<br>(one-time capital contribution) |
| **Project Description:** | Relocation of subway entrance stair to within building lot line of the Palace Theater at Southeast corner of 47th Street and 7th Avenue as required by the Special Midtown District. |

| | |
|---|---|
| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 30 OLD SLIP |
| **Address:** | Broad Street, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements |
| **Developer:** | HRO |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | |
| **Project Completed:** | 1988 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,900,000 (one-time capital contribution) |
| **Project Description:** | Relocation of subway entrance stair and two rebuilt entrances. |

| | |
|---|---|
| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 33 MAIDEN LANE |
| **Address:** | Fulton Street Station, New York, NY |
| **Project Type:** | Incentive agreement, developer-built capital improvements. |
| **Developer:** | Not Available |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1983 |
| **Project Completed:** | 1983 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,700,000 (one-time capital contribution) |
| **Project Description:** | Developer received a Floor Area bonus for construction of an escalator connecting the building's covered pedestrian space to the South-bound subway platform. In addition, the developer rebuilt the control area and relocated a subway entrance stair to within the building's lot line. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 45 BROADWAY |
| **Address:** | Wall Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer built capital improvements, Station Interface |
| **Developer:** | Not Available |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1984 |
| **Project Completed:** | 1985 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $660,000 (one-time capital contribution) |
| **Project Description:** | The developer renovated subway station entrances and restored easements and passageways as required by the Greenwich Street Special District. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | 599 LEXINGTON AVENUE |
| **Address:** | 51st Street Station, New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | Not Available |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1984 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $7,000,000 |
| **Project Description:** | The station entrance was relocated to within the building lot line as a mandatory requirement of the Midtown Special District. The developer received a Floor Area bonus in exchange for building a transfer passage between the IRT and IND subway lines and renovating the 52nd Street mezzanine. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | 60 WALL STREET-MORGAN BANK |
| **Address:** | 60 Wall Street<br>Wall Street Station, New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $4,500,000<br>(one-time capital contribution) |
| **Project Description:** | The developer built new escalators and stairs enclosed in a covered pedestrian space, reconfigured the Pine Street control area and rebuilt the Wall Street entrance. Access improvements were required as a mitigation for significant transportation impacts as defined in the Environmental Impact Statement (EIS). Provision of the covered pedestrian space made this project eligible for a Floor Area bonus. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | 875 THIRD AVENUE |
| **Address:** | 53rd Street Station, New York, NY |
| **Project Type:** | Developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1983 |
| **Project Completed:** | 1983 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $2,500,000 |
| **Project Description:** | Phase I of this project includes a new escalator-equipped entrance enclosed in a covered pedestrian space and the renovation of Third Avenue mezzanine and platform. Phase II of this project will include provisions for off-street access to the subway station. |

**CITY:** **NEW YORK CITY**
**Project Name:** 885 THIRD AVENUE
**Address:** Lexington Avenue Station, New York, NY

**Project Type:** Incentive-based Agreement, Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:** 1984
**Project Completed:** 1984
**Current Status:** Complete

**Income to Transit Agency:** $5,000,000 (one-time capital contribution)

**Project Description:** The developer built a new escalator connecting the Third Avenue mezzanine with the subway platform for an FAR bonus. Two station entrances were moved within the building lot line as required by the Midtown Special District.

**CITY:** **NEW YORK CITY**
**Project Name:** A&S Plaza
**Address:** 34th Street/Herald Square Station New York, NY

**Project Type:** Cost sharing, developer-built capital improvements.

**Developer:** Silverstein
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:**
**Project Completed:** 1989
**Current Status:** Project is complete.

**Income to Transit Agency:** $600,000 (one-time capital contribution)

**Project Description:** The developer renovated the subway station entrances and mezzanine.

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | ALBEE SQUARE MALL |
| **Address:** | Dekalb Avenue Station<br>Brooklyn, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements, Station Interface |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | |
| **Project Completed:** | 1982 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $500,000 |
| **Project Description:** | The developer built a connection from the project to the subway station and an off-street entrance on Flatbush Avenue. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | ALEXANDERS REGO PARK MALL |
| **Address:** | 63rd Drive Station<br>Rego Park, Queens, NY |
| **Project Type:** | Connection Fee/Station Interface, Cost-sharing, developer-built capital improvements. |
| **Developer:** | Alexanders Rego Park Mall |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | $450,000 |
| **Project Description:** | The developer is building a direct subway connection with a retail mall. Improvements required as mitigation for significant transportation impacts as defined in the Environmental Impact Statement. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | AMERICAS TOWER |
| **Address:** | Rockefeller Center<br>47-50 Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Not Available |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1988 |
| **Project Completed:** | Not Available |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | $250,000<br>(one-time capital contribution) |
| **Project Description:** | Widening of subway entrance stairs and platform as mitigation for significant transportation impacts as defined in the Environmental Impact Statement. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | ATLANTIC TERMINAL |
| **Address:** | Atlantic Avenue Station<br>Brooklyn, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements |
| **Developer:** | PDC Rose |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | Not Available |
| **Current Status:** | Project not yet begun. |
| **Income to Transit Agency:** | $15,000,000 |
| **Project Description:** | New transfer facilities between IRT and BMT lines, subway station entrance improvements. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | BATTERY PARK CITY (NORTH) |
| **Address:** | Chambers Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1987 |
| **Project Completed:** | |
| **Current Status:** | Unknown |
| **Income to Transit Agency:** | $2,450,000 (one-time capital contribution) |
| **Project Description:** | Developer will widen subway station entrance stairs at the Vessey-Church Street Station and at the Chambers Street-West Broadway Station. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | BRODSKY |
| **Address:** | 66th Street Station, New York, NY |
| **Project Type:** | Cost sharing. |
| **Developer:** | Brodsky |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1984 |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,166,000 |
| **Project Description:** | Fee paid. |
| **Development History:** | Payment for station improvements in lieu of actual construction. Trump City development is responsible for construction of station access improvements. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | CITICORP |
| **Address:** | 53rd Street & Lexington Avenue<br>Lexington Avenue Station, New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | Citicorp |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1977 |
| **Project Completed:** | 1979 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $500,000<br>(one-time capital contribution) |
| **Project Description:** | An off-street entrance was built within the building's plaza along with improvements to the subway station mezzanine. |
| **Development History:** | The developer built a sunken plaza and subway entrance for a Floor Area Bonus. Approval for the FAR bonus was originally granted for construction of an urban plaza as part of a separate city zoning bonus program. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | CITICORP |
| **Address:** | Court Square Station<br>Long Island City, Queens, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | Citicorp |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $6,300,000<br>(one-time capital contribution) |
| **Project Description:** | Developer rebuilt subway station. Improvements include new entrances and transfer passageways between the E,F and G lines as part of the mandatory requirements of the Court Square Subdistrict of the Hunters Point Mixed-use District. Further development of adjacent parcels may necessitate further station improvements. |
| **Development History:** | Citicorp's Long Island City development is a 45 story office building housing the company's back office functions. This location is one subway stop from the company's corporate headquarters at 53rd Street and Lexington Avenue. |

**CITY:** **NEW YORK CITY**
**Project Name:** COLISEUM
**Address:** Columbus Circle and 59th Street
New York, NY

**Project Type:** Privately-funded capital improvements.

**Developer:**
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:** Not Available
**Project Completed:** Not Available
**Current Status:** Under negotiations.

**Income to Transit Agency:** Not Available

**Project Description:** The developer will build new stairs and other improvements. The site is not adjacent to the subway station, hence, it does not come under the jurisdiction of the Midtown Special District. Improvements are required as a mitigation for transportation impacts as defined in the development's Environmental Impact Statement.

**CITY:** **NEW YORK CITY**
**Project Name:** COPELY/A&P
**Address:** 66th Street Station, New York, NY

**Project Type:** Cost-sharing.

**Developer:** Zeckendorf
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:** 1984
**Project Completed:** 1985
**Current Status:** Complete

**Income to Transit Agency:** $140,265
(one-time capital contribution)

**Project Description:** Payment was made in lieu of actual construction of station improvements as normally required under the Lincoln Square Special District.

**Development History:** Since Trump City development built most of the improvements at this site, Zeckendorf paid the money to receive a certificate of occupancy in the building.

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | DOLLAR DRY DOCK |
| **Address:** | 750 Lexington Avenue<br>59th Street Station, New York, NY |
| **Project Type:** | Developer-built capital improvements. |
| **Developer:** | Cohen Brothers |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1987 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,200,000<br>(one-time capital contribution) |
| **Project Description:** | The developer built new control areas within the building's lot line and subway entrance stairs at Northwest corner of 59th Street were widened. |
| **Development History:** | These improvements were made following a renegotiation of the existing easement. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | HERALD CENTER |
| **Address:** | 34th Street-Herald Square Station<br>New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | Not Available |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Applicable |
| **Current Status:** | Not yet built due to legal challenges. |
| **Income to Transit Agency:** | Not Available |
| **Project Description:** | Relocation of mezzanine-level entrance, renovation of walls, windows and relocate entrance within the building. |

**CITY:** **<u>NEW YORK CITY</u>**
**Project Name:** KALIKOW HOTEL
**Address:** Courtland Street Station, New York, NY

**Project Type:** Incentive Agreement, Station Interface

**Developer:** Kalikow Hotel
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:**
**Project Completed:**
**Current Status:** Not yet built

**Income to Transit Agency:** Not Available

**Project Description:** The developer will build a tunnel connecting development with the World Trade Center in exchange for a Floor Area Ratio (FAR) bonus.

**CITY:** **<u>NEW YORK CITY</u>**
**Project Name:** MARRIOTT HOTEL (ALBANY-CARLISLE)
**Address:** Rector Street Station, New York, NY

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:** M.K. West Street Associates
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:** 1988
**Project Completed:** 1989
**Current Status:** Complete

**Income to Transit Agency:** $4,600,000 (one-time capital contribution)

**Project Description:** The developer built a new entrance to the North-bound platform, North of Morris Street as required by the Greenwich Street Special District. This project is part of the initial phase of access improvements designed to facilitate transfers between the IRT and BMT subway lines.

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | METRO TECH |
| **Address:** | J Street-Borough Hall Station, Brooklyn, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1987 |
| **Project Completed:** | Not Available |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | $1,000,000 (one-time capital contribution) |
| **Project Description:** | Relocation and widening of subway entrance stair at Northeast corner of Willoughby and Jay Streets, reconfiguration of station control area including token booth and turnstiles as mitigation for significant transportation impacts as defined in the Environmental Impact Statement. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | NEWKIRK PLAZA |
| **Address:** | Newkirk Avenue Station Brooklyn, New York |
| **Project Type:** | Air rights development |
| **Developer:** | Unknown |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | Prior to the Second World War |
| **Project Completed:** | Unknown |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | Retail and residential facilities built on platform above MTA right-of-way. Thirty two retail establishments occupy 660 feet of first-floor retail frontage with two additional stories of walk-up residential apartments above. The two largest tenants are the Independent Savings Bank with 80 feet of frontage and Manufacturers Hanover with 60 feet of frontage. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | ONE UNION SQUARE |
| **Address:** | 14th Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Zeckendorf |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | 1987 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $3,400,000 (one-time capital contribution) |
| **Project Description:** | The developer rebuilt subway entrance with escalators and shafts for future elevators. Two entrances were relocated to within the building's lot line on 14th and 15th Streets and mezzanine improvements were constructed. Improvements to the station were required by the Union Square Special District. |

**CITY:** **<u>NEW YORK CITY</u>**
**Project Name:** PARK TOWER-TIMES SQUARE
**Address:** Times Square, New York, NY

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:** Park Tower Realty
**Transit Agency:** Metropolitan Transportation Authority
**Project Initiated:** 1988
**Project Completed:** Not Available
**Current Status:** Planned

**Income to Transit Agency:** The MTA estimates that $87 million will be spent by the developer and MTA to rehabilitate the Times Square Station. Specific cost breakdowns are at present unavailable.

**Project Description:** Complete station modernization, new entrances and mezzanines will be built by the developer. The floor area of the station will be expanded from 76,000 square feet to 100,000 square feet. The development itself will contain $1.6 billion worth of theaters, retail, hotel, restaurants and office space.

**Development History:** This controversial, large scale redevelopment project is led by the the City of New York and the New York State Urban Development Corporation.

**Transit Impacts:** Improved access to the station and greater ease in transferring between the IRT and BMT subway lines is the major transit impacts of the project. Current ridership at the station stand at 200,000 riders per day. Following project completion, ridership is expected to increase to 250,000 per day.

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | PHILLIP MORRIS |
| **Address:** | Grand Central Station, New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | |
| **Project Completed:** | 1981 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $750,000 (one-time capital contribution) |
| **Project Description:** | The developer installed a new escalator serving the Times Square-Grand Central Shuttle mezzanine as part of mandatory requirements of zoning resolution. An FAR bonus was granted for a covered pedestrian space protecting the escalator entrance to the Grand Central Concourse. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | Ronkonkoma |
| **Address:** | Ronkonkoma Station<br>Brookhaven, Long Island, NY |
| **Project Type:** | Developer-funded capital improvements and Land Lease. |
| **Transit Agency:** | Metropolitan Transportation Authority (Long Island Railroad) |
| **Project Initiated:** | 1989 |
| **Current Status:** | Requests For Proposals (RFPs) were issued Febraury, 1990. Phase I construction scheduled to begin in September 1992. |
| **Income to Transit Agency:** | $310,000 in capital improvements; $ 21,244 in annual land rent with a 4 percent annual escalation clause. |
| **Project Description:** | Office/retail development built on a 9-acre parcel of MTA-owned land. The prospective developer will be required to make the following capital improvements:<br>Redesign and rebuild two adjacent streets; build storm runoff recharge basin; build parking facilities to serve commuters and the development; build waiting areas, MTA police station, ticket office and vending machine areas. The developer will also be required to contribute to a Public Infrastructure Fund. A 250,000 square foot project would be expected to contribute approximately $3.7 million to the fund. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | ROSE |
| **Address:** | 52nd Street & 8th Avenue<br>50th Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Rose |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1986 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $500,000<br>(one-time capital contribution) |
| **Project Description:** | The developer relocated the subway stair entrance from the sidewalk to within the building's lot line as a mandatory requirement of the Midtown Special District. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | RUDIN |
| **Address:** | 50th Street & Lexington Avenue Station<br>New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | |
| **Project Completed:** | 1982 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $300,000<br>(one-time capital contribution) |
| **Project Description:** | A covered pedestrian space encloses entrance to the South-bound platform. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | SHEARSON/AMEX |
| **Address:** | Washington Street<br>Franklin Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | PDC |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1988 |
| **Project Completed:** | 1990 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $2,000,000<br>(one-time capital contribution) |
| **Project Description:** | Station modernization and refurbishment. |
| **Development History:** | Station renovations were undertaken following community review of the project. |

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| **CITY:** | **NEW YORK CITY** |
| **Project Name:** | SOLOMON EQUITIES |
| **Address:** | 50th Street Station, IRT<br>49th Street Station, BMT New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Solomon Equities |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1988 |
| **Project Completed:** | |
| **Current Status:** | Substantially complete |
| **Income to Transit Agency:** | $1,000,000<br>(one-time capital contribution) |
| **Project Description:** | The developer relocated the subway entrance stair to within the building's lot line as required by the Midtown Special District. |

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| **CITY:** | <u>**NEW YORK CITY**</u> |
| **Project Name:** | THE BROMELY |
| **Address:** | 85th Street & Broadway<br>86th Street Station, New York, NY |
| **Project Type:** | Cost sharing. |
| **Developer:** | Haines |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | 1985 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $200,000 (one-time fee payment) |
| **Project Description:** | Developer donated money to fund subway art and mosaics at 86th Street Station. |

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| **CITY:** | <u>**NEW YORK CITY**</u> |
| **Project Name:** | THE BOULEVARD |
| **Address:** | 87th Street & Broadway<br>86th Street Station, New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Eichner |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1986 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,270,000<br>(one-time capital contribution) |
| **Project Description:** | Relocation of subway entrance to the South-bound platform at 87th Street. |
| **Development History:** | The transit improvements now in place superseded public infrastructure improvements required by the New York City Housing Quality Program. |

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| **CITY:** | **<u>NEW YOKK CITY</u>** |
| **Project Name:** | UNITED JEWISH APPEAL |
| **Address:** | 59th Street Station, New York, NY |
| **Project Type:** | Cost-sharing |
| **Developer:** | UJA |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $200,000 (donation of easement) |
| **Project Description:** | Easement was donated by the developer for an MTA-built off-street entrance at Southwest corner of 59th Street. |

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| **CITY:** | **<u>NEW YORK CITY</u>** |
| **Project Name:** | WORLDWIDE PLAZA |
| **Address:** | 50th Street Station, New York, NY |
| **Project Type:** | Incentive Agreement, developer-built capital improvements. |
| **Developer:** | Zeckendorf |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1986 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $10,000,000 (one-time capital contribution) |
| **Project Description:** | The developer received a Floor Area Bonus in exchange for subway station renovations. Improvements include a new mezzanine, construction of a new control area to re-open the closed south-bound platform and a new entrance with escalator access. |

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| **CITY:** | <u>NEW YORK CITY</u> |
| **Project Name:** | ZECKENDORF APARTMENT BUILDING |
| **Address:** | 57th Street & 8th Avenue<br>59th Street/Columbus Circle Station<br>New York, NY |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Zeckendorf |
| **Transit Agency:** | Metropolitan Transportation Authority |
| **Project Initiated:** | 1985 |
| **Project Completed:** | 1989 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $500,000<br>(one-time capital contribution) |
| **Project Description:** | The developer relocated a subway stair entrance to within the building's lot line as required by the Midtown Special District. |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | AMBLER |
| **Address:** | Ambler Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $39,000 station renovations and $2,400 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Coffee shop |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | ARDSLEY |
| **Address:** | Ardsley Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $12,644 station renovations and $1,860 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Florist |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | CHESTNUT STATION |
| **Address:** | Chestnut Hill West Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements |
| **Developer:** | Chestnut Hill National Bank |
| **Transit Agency:** | Southeast Pennsylvania Transit Authority (SEPTA) |
| **Project Initiated:** | |
| **Project Completed:** | 1985 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $450,000 (station renovations)<br>After 10 years, rental payments begin. |
| **Project Description:** | A bank occupies 4100 square feet within the station. The developer paid for station renovation and ongoing maintenance. |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | CYNWYD |
| **Address:** | Cynwyd Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Station renovations and $1,860 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Real Estate Sales Office |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | ELKINS PARK |
| **Address:** | Elkins Park Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $150,000 station renovations and $10,500 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Real Estate Sales Office |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | GLENSIDE |
| **Address:** | Glenside Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $3,000 station renovations and $3,660 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Coffee Shop |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | GWYNEDD VALLEY |
| **Address:** | Gwynedd Valley Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $30,000 station renovations and $2,400 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Delicatessen |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | JENKINTOWN RAILROAD CENTER |
| **Address:** | Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | Jenkintown Enterprises |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | 1986 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $1,200,000 station renovation, after 10 years developer is charged $54,000 annual rent. |
| **Project Description:** | Formally Greenwood Grille restaurant, now Stasi Milani restaurant. Occupies 10,000 square feet. |

**CITY:** <u>**PHILADELPHIA**</u>
**Project Name:** LANSDALE
**Address:** Lansdale Station
Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** SEPTA
**Project Initiated:**
**Project Completed:**
**Current Status:** Complete

**Income to Transit Agency:** Station renovations, parking improvements and $1200 in annual rent. Developer provides ongoing station maintenance.

**Project Description:** Restaurant

**CITY:** <u>**PHILADELPHIA**</u>
**Project Name:** NOBEL
**Address:** Noble Station
Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** SEPTA
**Project Initiated:**
**Project Completed:**
**Current Status:** Complete

**Income to Transit Agency:** $1,200 annual rent plus undetermined station renovations.

**Project Description:** County Information Center

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | NORTH WALES |
| **Address:** | North Wales Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $50,000 station renovations and $4,836 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Restaurant and Delicatessen |

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | PENLLYN |
| **Address:** | Penllyn Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $29,000 station renovations and $2,724 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Equipment Sales Office |

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| **CITY:** | **<u>PHILADELPHIA</u>** |
| **Project Name:** | PERKASIE |
| **Address:** | Perkasie Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | Over $20,000 in station renovation and $3,000 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Stove Store |

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| **CITY:** | **<u>PHILADELPHIA</u>** |
| **Project Name:** | PHILMONT |
| **Address:** | Philmont Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $70,000 station renovations and $8,400 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Restaurant |

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| **CITY:** | **PHILADFLPHIA** |
| **Project Name:** | RYDAL |
| **Address:** | Rydal Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $60,000 station renovations and $6,000 in annual rent. Developer provides ongoing station maintenance. |
| **Project Description:** | Offices |

**CITY:** **PHILADELPHIA**

**Project Name:** SUBURBAN STATION CONCOURSE

**Address:** Suburban Station<br>Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements. Concession leases.

**Developer:** A developer has yet to be chosen.

**Transit Agency:** SEPTA

**Project Initiated:** 1991

**Project Completed:** Not Available

**Current Status:** A call for expressions of interest was issued by SEPTA in January, 1991.

**Income to Transit Agency:** Future lease revenues and capital improvements are not yet determined. Current lease revenues from SEPTA's 35 Concourse retail tenants totalled $1,359,565 in 1990.

**Project Description:** SEPTA currently receives income from retail tenants on the station concourse located underground between the platform level and street level. SEPTA is currently accepting bids from developers to renovate the station. Preferred improvements include: better pedestrian flow in the station, loading and unloading areas for goods, better ventilation, plumbing and lighting systems, more efficient layout of retail space, better signage, escalator and elevator repair, ticket booth relocation and construction of new rest rooms.

Award of bid will be based on the highest aggregate capital investment in the facility and Net Present Value of guaranteed annual lease payments to SEPTA.

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| **CITY:** | **PHILADELPHIA** |
| **Project Name:** | SWARTHMORE |
| **Address:** | Swarthmore Station<br>Philadelphia, PA |
| **Project Type:** | Cost-sharing, developer-built capital improvements. |
| **Developer:** | W. Cumely Sr. & W. Cumely Jr. Partnership |
| **Transit Agency:** | SEPTA |
| **Project Initiated:** | |
| **Project Completed:** | 1985 |
| **Current Status:** | Complete |
| **Income to Transit Agency:** | $140,000 station renovation and ongoing station maintenance. |
| **Project Description:** | 2500 square feet of office and retail (delicatessen) space. |

**CITY:** **PHILADELPHIA**
**Project Name:** UPSAL
**Address:** Upsal Station
Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** SEPTA
**Project Initiated:**
**Project Completed:**
**Current Status:** Complete

**Income to Transit Agency:** Over $30,000 in station renovations and $3,000 in annual rent. Developer provides ongoing station maintenance.

**Project Description:** Grocery store and office space

**CITY:** **PHILADELPHIA**
**Project Name:** WESTTOWN
**Address:** Westtown Station
Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** SEPTA
**Project Initiated:**
**Project Completed:**
**Current Status:** Complete

**Income to Transit Agency:** $60,000 in station renovations and $3,660 in annual rent. Developer provides ongoing station maintenance.

**Project Description:** Ceramic Studio

**CITY:** **PHILADELPHIA**
**Project Name:** WILLOW GROVE
**Address:** Willow Grove Station
Philadelphia, PA

**Project Type:** Cost-sharing, developer-built capital improvements.

**Developer:**
**Transit Agency:** SEPTA
**Project Initiated:**
**Project Completed:**
**Current Status:** Complete

**Income to Transit Agency:** $20,000 in station renovations and $3,921 in annual rent. Developer provides ongoing station maintenance.

**Project Description:** Art Studio

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| **CITY:** | **PITTSBURGH** |
| **Project Name:** | STEEL PLAZA/ONE MELLON BANK CENTER |
| **Address:** | Steel Plaza Station<br>Pittsburgh, PA |
| **Project Type:** | Cost Sharing Agreement |
| **Developer:** | United States Steel Realty |
| **Transit Agency:** | Port Authority of Allegheny County Transit Division (PAT) |
| **Project Initiated:** | 1984 |
| **Project Completed:** | Office tower opened in 1984, transit station opened in 1985. |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Not Applicable |
| **Project Description:** | A 54-story, 1.5 million square foot office building built above a light rail transit station. The developer and transit agency reduced costs by using shared vertical and horizontal building supports. In addition, the developer maintains and provides security at station exits. |

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| **CITY:** | **ROCHESTER** |
| **Project Name:** | ROCHESTER MAIN STREET IMPROVEMENT PROJECT |
| **Address:** | Rochester, NY |
| **Project Type:** | Benefit Assessment District |
| **Developer:** | None |
| **Transit Agency:** | Rochester Genesee Regional Transportation Authority |
| **Project Initiated:** | 1984 |
| **Project Completed:** | 1989 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $500,000 |
| **Project Description:** | An Enhancement district that includes approximately 250 properties pays for the construction and maintenance of a transit mall. The mall has 4,000 linear feet of roadway, transit service and pedestrian amenities. |

**CITY:** <u>**SACRAMENTO**</u>
**Project Name:** PEDESTRIAN OVERCROSSING
**Address:** Swanston Station
Sacramento, CA

**Project Type:** Negotiated Private Sector Contribution
Station Interface

**Developer:** USAA/WATT Properties
**Transit Agency:** Sacramento Regional Transit District

**Project Initiated:** Not Available
**Project Completed:** Not Available
**Current Status:** Built and operating

**Income to Transit Agency:** None

**Project Description:** A 700,000 square foot office development linked directly to a light rail station. No income to transit agency.

**CITY:** <u>**SACRAMENTO**</u>
**Project Name:** NEW STATION
**Address:** St. Rose of Lima Station
Sacramento, CA

**Project Type:** Negotiated Private Sector Contribution

**Developer:** Joseph and Richard Benvenuti Company
**Transit Agency:** Sacramento Regional Transit District

**Project Initiated:**
**Project Completed:**
**Current Status:** Built and operating

**Income to Transit Agency:** None

**Project Description:** A 350,000 square foot office and commercial development. The developer contributed to station construction costs.

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| **CITY:** | **SACRAMENTO** |
| **Project Name:** | NEW STATION |
| **Address:** | 16th Street Station<br>Sacramento, CA |
| **Project Type:** | Negotiated Private Sector Contribution |
| **Developer:** | Joseph and Richard Benvenuti Company |
| **Transit Agency:** | Sacramento Regional Transit District |
| **Project Initiated:** | |
| **Project Completed:** | |
| **Current Status:** | Built and operating |
| **Income to Transit Agency:** | None |
| **Project Description:** | 400,000 square foot office and commercial development. The developer contributed to station construction costs. |

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| **CITY:** | **SAN DIEGO** |
| **Project Name:** | GREAT AMERICA PLAZA |
| **Address:** | Columbia Station<br>San Diego, CA |
| **Project Type:** | Negotiated Private Sector Contribution |
| **Developer:** | Broadway-Kettner Associates |
| **Transit Agency:** | Metropolitan Transit Development Board (MTDB) |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Built and operating |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A 565,000 square foot mixed-use development containing a 34 story office building, 42,000 square feet of retail space and a 272-room hotel. The developer contributed to trolley station construction costs. |

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| **CITY:** | **SAN DIEGO** |
| **Project Name:** | GROSSMONT CENTER |
| **Address:** | Grossmont Station<br>La Mesa, CA |
| **Project Type:** | Station Interface, Cost-sharing, developer-funded access improvements. |
| **Developer:** | Grossmont Center Retail Tenants |
| **Transit Agency:** | Metropolitan Transit Development Board (MTDB) |
| **Project Initiated:** | 1989 |
| **Current Status:** | Stairs serving development are built, the elevator is under construction. |
| **Income to Transit Agency:** | None |
| **Project Description:** | Shopping center merchants paid half the cost of building an elevator from the Grossmont LRT Station to mall level. |

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| **CITY:** | **SAN DIEGO** |
| **Project Name:** | HOUSING AND CHILD CARE CENTER |
| **Address:** | 47th Street Station<br>San Diego, CA |
| **Project Type:** | Land Lease |
| **Developer:** | BRK-Jack Walsh |
| **Transit Agency:** | Metropolitan Transit Development Board (MTDB) |
| **Project Initiated:** | Not Available |
| **Project Completed:** | 1989 |
| **Current Status:** | Built and operating. |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A child care center and 144 housing units were built on excess land owned by the MTDB. |

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| **CITY:** | **SAN DIEGO** |
| **Project Name:** | MTS TOWER |
| **Address:** | Imperial and 12th Street Transfer Station<br>San Diego, CA |
| **Project Type:** | Air Rights Lease |
| **Developer:** | Starboard Development |
| **Transit Agency:** | Metropolitan Transit Development Board (MTDB) |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Built and operating. |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | A 180,000 square foot mixed-use development containing offices and ground-floor retail built on air rights over LRT tracks. The development shares a parking structure with trolley patrons. The transit agency occupies a portion of the building. |

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| **CITY:** | <u>SAN DIEGO</u> |
| **Project Name:** | THEATER JOINT-USE PARKING |
| **Address:** | Grossmont Station<br>La Mesa, CA |
| **Project Type:** | Land Lease, Joint Use of Facilities |
| **Developer:** | Grossmont Trolley Associates |
| **Transit Agency:** | Metropolitan Transit Development Board (MTDB) |
| **Project Initiated:** | Not Available |
| **Project Completed:** | Not Available |
| **Current Status:** | Built and operating |
| **Income to Transit Agency:** | Unknown |
| **Project Description:** | Movie theater and trolley patrons share parking facilities. The theater owner leases the parking area from the MTDB. |

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| **CITY:** | **SANTA ANA** |
| **Project Name:** | SANTA ANA TRANSPORTATION TERMINAL |
| **Address:** | Santa Ana, CA |
| **Project Type:** | Air Rights Lease |
| **Developer:** | Property Ventures |
| **Transit Agency:** | Orange County Transit District |
| **Project Initiated:** | 1983 |
| **Project Completed:** | 1987 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Varies annually.<br>1987: $10,000<br>1988: $12,742<br>1989: $26,250 |
| **Project Description:** | Office building built above the Santa Ana Bus Transportation Transfer Center. |

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| **CITY:** | **SANTA CRUZ** |
| **Project Name:** | SANTA CRUZ INTERMODAL TRANSFER FACILITY CONCESSION MANAGEMENT PROGRAM |
| **Address:** | Santa Cruz, CA |
| **Project Type:** | Property Lease |
| **Developer:** | Various retailers |
| **Transit Agency:** | Santa Cruz Metropolitan Transit District |
| **Project Initiated:** | 1983 |
| **Project Completed:** | 1984 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Monthly lease payments or 6 percent of gross sales, whichever is higher. In 1989, income was $99,000. |
| **Project Description:** | Retail Development at the Santa Cruz Metro Terminal. |

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| **CITY:** | **SPOKANE** |
| **Project Name:** | CENTER PLACE |
| **Address:** | Spokane, Washington |
| **Project Type:** | Land lease |
| **Developer:** | Goodale and Barbieri Company |
| **Transit Agency:** | Spokane Transit Authority |
| **Project Initiated:** | |
| **Project Completed:** | Not completed |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | Lease year 2: 1 percent of project gross income.<br>Lease year 2: 2 percent of project gross income.<br>Lease year 4: 3 percent of project gross income.<br>Lease years 5 through 16: 4 percent of project gross income; plus 4 percent of the net proceeds on all refinancing; plus the net proceeds less mortgage sum, less pro forma equity (not to exceed 4%), of any sale. |
| **Project Description:** | A 465,000 square foot mixed-use development. |

**CITY:** **WASHINGTON, DC**
**Project Name:** ARDMORE TRIANGLE, NEW CARROLLTON
**Address:** Prince George's Co, MD

**Project Type:** Land lease

**Developer:** Washington Station Associates
**Transit Agency:** Washington Metropolitan Area Transportation Authority (WMATA)

**Project Initiated:** 1989
**Project Completed:** Projected completion in 1998
**Current Status:** In negotiation

**Income to Transit Agency:** In negotiation

**Project Description:** This 25.4 acre (including grade-level station) site will include a mixed-use complex of office structures, a conference center and hotel, residences and recreational facilities.

**CITY:** **WASHINGTON, DC**
**Project Name:** BALLSTON METRO CENTER
**Address:** Arlington, VA

**Project Type:** Air Rights Lease, Land lease, Land sale

**Developer:** International Developers, Inc.
**Transit Agency:** Washington Metropolitan Area Transportation Authority (WMATA)

**Project Initiated:** Developer selected in May, 1985
**Project Completed:** 1989/1990
**Current Status:** In operation

**Income to Transit Agency:** $200,000 annually; cumulative income $525,000.

**Project Description:** A mixed use development above WMATA's Ballston station. Project includes a hotel, condominiums, office and retail space and parking. A 7-bay Metrobus transfer facility is part of the project. WMATA sold 15,000 square feet of the site and leased another 72,118 square feet to the developer. The total site area is 118,532 square feet.

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | BETHESDA METRO CENTER |
| **Address:** | Wisconsin Avenue<br>Bethesda, MD |
| **Project Type:** | Land lease |
| **Developer:** | R & K Metro Associates, Ltd. Prtnrshp |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | Developer selected October, 1980. |
| **Project Completed:** | 1985 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $1,600,000 annually; cumulative income $7,800,000. |
| **Project Description:** | This 3.6 acre site is leased by WMATA to a developer for a mixed use project that includes an office building, a hotel, retail arcades, a public outdoor plaza, underground parking and an underground Metrobus and "Kiss & Ride" facilities. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | CHEVY CHASE METRO BUILDING |
| **Address:** | Chevy Chase, MD |
| **Project Type:** | Land Lease |
| **Developer:** | Chevy Chase Land Company |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | Project approved January, 1982 |
| **Project Completed:** | 1984 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $26,600 annually; cumulative income $160,000. |
| **Project Description:** | WMATA was granted easements by the landowner/developer in exchange for direct, below-grade access to the Friendship Heights Station Rotunda. Easements were also provided for an on-site Metrobus terminal. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | CHEVY CHASE PAVILLION |
| **Address:** | Chevy Chase, MD |
| **Project Type:** | Station interface |
| **Developer:** | Chevy Chase Pavilion |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | February 1988 |
| **Project Completed:** | |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | The developer makes 30 annual payments of $77,500 plus $775,000 in principal. |
| **Project Description:** | Passageway connecting Chevy Chase Pavilion to Friendship Heights Station Rotunda. The passageway construction costs were paid by Chevy Chase Pavilion. WMATA granted an underground easements to developer. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | COLUMBIA SQUARE/METRO CENTER |
| **Address:** | 12th and F Streets<br>Washington, DC |
| **Project Type:** | Land lease |
| **Developer:** | Gerald D. Hines Interests, LTD |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | Lease executed November, 1984 |
| **Project Completed:** | 1987 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $390,000 annually; cumulative income $1,470,000. |
| **Project Description:** | A 14 story mixed-use building containing 12 floors of office space and 2 floors of retail space, one at-grade and one below-grade. The total site area is 60,000 square feet, of which, 8,500 square feet is leased by WMATA to the developer. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | CONNECTICUT CONNECTION |
| **Address:** | 1101 Connecticut Ave, NW<br>Washington, DC |
| **Project Type:** | Land lease |
| **Developer:** | Miller/Connecticut Ave Associates |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | December, 1974 |
| **Project Completed:** | Summer, 1978 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Annual rental payments of $247,902 plus 50% of net the cash flow above a specified minimum net income in years 3 through 50 of the lease. In 1989, project income to WMATA was $260,000. Cumulative income has been $3,600,000. |
| **Project Description:** | The project has 10 floors of office space and 4 floors and retail space with direct, below-grade access to the Farragut North Metro Station. Site area is 17,566 square feet. In addition, there is a Metro cooling tower on the building's rooftop. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | CRYSTAL CITY |
| **Address:** | Arlington, VA |
| **Project Type:** | Station interface |
| **Developer:** | N/A |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | |
| **Project Completed:** | Unknown |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | None |
| **Project Description:** | Pedestrian passageway |
| **Development History:** | The property owner granted easements to WMATA at no cost for cut-and-cover station construction. Access to Crystal City Underground was granted to WMATA for construction of pedestrian passageways. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | DUPONT CIRCLE BUILDING |
| **Address:** | 1350 Connecticut Avenue<br>Washington, DC |
| **Project Type:** | Land lease |
| **Developer:** | Square 138 Associates. |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | Unknown |
| **Project Completed:** | Yes |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $22,700; cumulative income $56,000. |
| **Project Description:** | WMATA leases 950 square feet of excess land to developer. The project is a single story retail structure "sandwiched" between street level and the 2nd floor of larger office building. The land is part of a permanent easement granted to WMATA by owners of the Dupont Circle office Building. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | FAR EAST TRADE CENTER/GALLERY PLACE |
| **Address:** | Seventh Street, NW<br>Washington, DC |
| **Project Type:** | Land lease |
| **Developer:** | Far East TC Associates Ltd Partnership |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | The developer was selected in May, 1983 |
| **Project Completed:** | Projected completion: 1994 |
| **Current Status:** | Under construction |
| **Income to Transit Agency:** | $500,000 annually, cumulative income $3,076,000. |
| **Project Description:** | This mixed-use project includes office space, a hotel, and retail space. The project has direct access to the Gallery Place Metro Station. Total site area is 94,218 square feet. WMATA leases 50,895 square feet to the developer. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | HECHT'S @ METRO CENTER |
| **Address:** | 12th & G St., NW<br>Washington, DC |
| **Project Type:** | Station interface, Cost Sharing |
| **Developer:** | May Company |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | September 1984 |
| **Project Completed:** | Yes |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Cost savings of $1.75 million, achieved as a result of developer-built improvements were exchanged for a 25 year term of access. Project will be renegotiated in 2009. |
| **Project Description:** | Two entrances were built by the May Company providing direct connections from Hecht's flagship store to the Metro Center Station. In exchange for direct access to station, the May Company agreed to purchase and install farecard vendors and faregates and relocate offices, ventilating equipment, an elevator, and faregate equipment. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | INTERNATIONAL SQUARE/FARRAGUT WEST |
| **Address:** | 1850 K St., NW<br>Washington, DC |
| **Project Type:** | Station interface, Cost-sharing |
| **Developer:** | O.T. Carr, Hyman & Equitable |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | February, 1970 |
| **Project Completed:** | 1983 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Cost savings estimated at $600,000 in 1970 dollars. |
| **Project Description:** | This 1.1 million square foot mixed-use office and retail development, has direct connections to the Farragut West Station and Metro cooling equipment on rooftop. |
| **Development History:** | In 1970, WMATA and the Washington Medical Center signed an agreement permitting direct pedestrian access between Metro and the development and construction of public escalators within the site. The agreement also granted WMATA no-cost, permanent easements for Metro entry and for rooftop equipment. Demolition and site clearance was provided by the owner at no cost to WMATA. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | L'ENFANT PLAZA |
| **Address:** | SW Washington DC<br>at L'Enfant Plaza |
| **Project Type:** | Station interface |
| **Developer:** | L'Enfant Plaza East, Inc. |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | June 1971 |
| **Project Completed:** | Yes (date unknown) |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | Permanent easements were granted to WMATA at no cost. WMATA saved $750,000 in construction costs. |
| **Project Description:** | L'Enfant Plaza East, Inc., was permitted direct access to the west entrance of the L'Enfant Plaza Station. The station entrance and the building were built concurrently, prior to Metro construction. |
| **Transit Impacts:** | Patrons have direct, concourse level access to L'Enfant Plaza offices, retail shops, and hotel. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | MAZZA GALLERIE SHOPPING CENTER |
| **Address:** | Chevy Chase, MD |
| **Project Type:** | Station interface |
| **Developer:** | Mazza Gallerie |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | April, 1983 |
| **Project Completed:** | Yes |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | A $737,000 lump sum payment was made for 50 years of access rights. |
| **Project Description:** | A passageway connecting Mazza Gallerie Shopping Center to the Friendship Heights Station Rotunda. Passageway construction costs were paid by WMATA. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | McPHERSON SQUARE STATION |
| **Address:** | 1400 Eye St, NW<br>Washington, DC |
| **Project Type:** | Land lease, Station interface |
| **Developer:** | 14th and Eye Streets Associates |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | February, 1980 |
| **Project Completed:** | 1983 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | $510,000 annually; cumulative income $4,900,000. |
| **Project Description:** | A 13 Story office building with direct access to the McPherson Square Metro Station. Total site area is 17,710 square feet. Office space occupies 153,567 square feet and retail space, 10,725 square feet. |

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| **CITY:** | **WASHINGTON, DC** |
| **Project Name:** | OLMSTEAD BUILDING/CLARENDON |
| **Address:** | Arlington, VA |
| **Project Type:** | Station interface |
| **Developer:** | Clarendon Metro Ltd Partnership |
| **Transit Agency:** | WMATA |
| **Project Initiated:** | March, 1984 |
| **Project Completed:** | 1987 |
| **Current Status:** | In operation |
| **Income to Transit Agency:** | A $10,000 payment for the first 10 years' access. The developer has an option for an additional 50. Future benefits are to be calculated based on project profits and WMATA ridership benefits. |
| **Project Description:** | The pedestrian passageway linking Clarendon Station and the Olmstead Building was built at developer's expense. |

**CITY:** **WASHINGTON, DC**
**Project Name:** PENTAGON CITY
**Address:** South Hayes Street
Arlington, VA

**Project Type:** Station interface

**Developer:** River House Corp./Rose Associates
**Transit Agency:** WMATA

**Project Initiated:** August, 1977
**Project Completed:** Yes (date unknown)
**Current Status:** In operation

**Income to Transit Agency:** One-time cost savings of $220,000.

**Project Description:** WMATA was granted "perpetual and assignable multi-dimensional easements," rights-of-way and service road and utility easements at no cost. Direct connections to the "Fashion Center" shopping mall opened in 1990.

**CITY:** **WASHINGTON, DC**
**Project Name:** ROSSLYN METRO CENTER
**Address:** Rosslyn (Arlington), VA

**Project Type:** Land sale

**Developer:** Rosslyn Center Associates
**Transit Agency:** WMATA

**Project Initiated:** December 1973
**Project Completed:** 1979
**Current Status:** In operation

**Income to Transit Agency:** $1,200,000

**Project Description:** A mixed-use building containing 3 levels of retail and 19 floors of office space.

**Development History:** Developer purchased a 31,000 square foot parcel adjacent to Metro site from WMATA. An 11,000 square foot public park was founded on the site. The 22 story building has direct connections with the station. Arlington county granted additional FAR in exchange for a developer-constructed skywalk.

**CITY:** **WASHINGTON, DC**
**Project Name:** UNION STATION
**Address:** Wash DC

**Project Type:** Station interface

**Developer:** Union Station Redevelopment Corp.
**Transit Agency:** WMATA

**Project Initiated:** Agreement signed in July, 1987
**Project Completed:** Yes
**Current Status:** In operation

**Income to Transit Agency:** A one-time fee of $10,000 was received from the developer for the first ten years. Future fees will be based on the value of connection benefits.

**Project Description:** Direct connections between Metro's Union Station facility and the lower arcade of the Union Station retail concourses. Union Station is a redevelopment of the historical rail station. The project currently houses an Amtrack station and a retail mall with restaurants, shops, and cinemas.

**CITY:** **WASHINGTON, DC**
**Project Name:** 4250 VAN NESS AVE, VAN NESS-UDC
**Address:** Connecticut Ave, NW
Washington, DC

**Project Type:** Land lease

**Developer:** Prudential Insurance Co. of America
**Transit Agency:** WMATA

**Project Initiated:** January 1979
**Project Completed:** 1983
**Current Status:** In operation

**Income to Transit Agency:** $284,400 annually; cumulative income $2,600,000.

**Project Description:** A mixed-use 7-story office and retail building incorporating a Metrobus transfer facility, a "Kiss & Ride" area and on-site Metrorail access.

**CITY:** **WASHINGTON, DC**
**Project Name:** WOODWARD & LOTHRUP @ FRIENDSHIP HEIGHTS
**Address:** Wisconsin & Western
Chevy Chase, MD

**Project Type:** Station interface

**Developer:** Woodward & Lothrup Department Store
**Transit Agency:** WMATA

**Project Initiated:** May 1972
**Project Completed:** Yes (date unknown)
**Current Status:** In operation

**Income to Transit Agency:** $300,000 lump sum payment

**Project Description:** A below-grade access passage was built by the developer linking the Friendship Heights Station Rotunda with the department store. The design and construction of the passageway paid for by Woodward & Lothrup.

**CITY:** **WASHINGTON, DC**
**Project Name:** WOODWARD & LOTHRUP @ METRO CENTER
**Address:** 11th & G Streets, NW
Washington, DC

**Project Type:** Cost Sharing, Station interface

**Developer:** Woodward & Lothrup
**Transit Agency:** WMATA

**Project Initiated:** July 1969
**Project Completed:** Yes
**Current Status:** In operation

**Income to Transit Agency:** Co-ordination of station and project construction saved WMATA approximately $250,000. Permanent easements were sold to WMATA at half market value.

**Project Description:** This agreement allowed WMATA and Woodward & Lothrup to share common construction costs when building Metrorail and the store's mezzanine linking its two buildings. The mezzanine is built above a Metro tunnel and has direct, access to the Metro Center Station. Costs incurred when in providing direct access were born exclusively by the developer.