

**Joint Development of Mixed-Use Transit Stations**

By

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Bachelor of Arts, Philosophy and Economics  
Columbia University, 1994

Submitted to the Department of Urban Studies and Planning  
in Partial Fulfillment of the Requirements for the Degree of

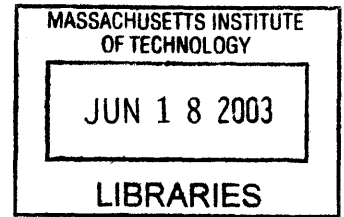
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## Abstract

If rail transit systems are to become a viable means of transportation throughout American cities, urban land use patterns must support the development and use of transit. Transit-oriented development, in which mixed land uses are clustered around transit stations in dense concentrations, offers a means of encouraging transit use and decreasing reliance on automobiles in urban settings.

Transit agencies have the opportunity to contribute to this development pattern by incorporating mixed-use transit facilities into their rail systems. These facilities, typically developed through public-private partnerships, incorporate other uses into sites with transit stations. They increase activity around the station and attract additional development to the area.

Unfortunately, many transit agencies have little experience with developing mixed-use facilities and are reluctant to undertake such projects. The agencies are intimidated by the additional design, financial, and administrative requirements of the development process.

The goal of this thesis is to generate a set of principles that provides transit agencies with a foundation of knowledge for approaching mixed-use and joint development projects. The proposed principles strive to maximize the benefits generated by the facilities and increase the likelihood of such development activity occurring successfully. Three aspects of the development process are chosen for attention: site selection, basic elements of facility design, and implementation.

The thesis begins with a review of design and development theory and past development strategies to identify the key issues relevant to these types of projects. A set of principles targeting the three aspects of the development process is proposed, based on the issues identified in the research. The principles are then applied to transit agencies and station sites in two cities: San Juan, Puerto Rico and Chicago, Illinois; evaluations and recommendations are made for each city. The application to real world situations allows the principles to be tested and assessed. The thesis concludes with a review of the results for these cities, a critique of the proposed principles, and suggestions for further research on the topic.

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## TABLE OF CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>9</b>
1.1	Thesis Overview .....	9
1.2	Motivation.....	10
1.3	Goal 11 .....	
1.4	Research Framework .....	11
1.5	Thesis Outline.....	12
<b>2</b>	<b>Background Information .....</b>	<b>14</b>
2.1	Overview.....	14
2.2	Transit-Oriented Development.....	14
2.3	Mixed-Use Transit Facilities .....	18
2.4	Joint Development .....	20
2.5	Station Area Typologies .....	25
2.6	Station Typologies .....	25
2.7	Land Use Typologies.....	28
2.8	Transit Agency Roles in Joint Development.....	29
2.9	Conclusion .....	32
<b>3</b>	<b>Existing Strategies for Site Selection and Facility Design.....</b>	<b>33</b>
3.1	Introduction.....	33
3.2	Transit Station-Specific Design Issues .....	34
3.3	U.S. Dept. of Transportation Analysis of Facility Design.....	36
3.4	Three Case-Specific Approaches to Facility Design.....	38
3.5	Conclusion .....	44
<b>4</b>	<b>Existing Strategies for Joint Development .....</b>	<b>45</b>
4.1	Introduction.....	45
4.2	U.S. Department of Transportation Analysis of Joint Development.....	46
4.3	Nat'l Council for Urban Econ. Devt.'s Recommendations .....	49
4.4	Three Case-Specific Analyses of Joint Development .....	50
4.5	Conclusion .....	54
<b>5</b>	<b>Principles Proposed for Mixed-Use and Joint Development .....</b>	<b>56</b>
5.1	Overview.....	56
5.2	Site Selection .....	56
5.3	Basic Elements of Facility Design.....	64
5.4	Implementation .....	70
<b>6</b>	<b>Application of Principles to Tren Urbano .....</b>	<b>80</b>
6.1	Overview.....	80
6.2	City of San Juan.....	80
6.3	Tren Urbano System .....	82
6.4	Analysis of Tren Urbano's Approach to Joint Development .....	85
6.5	Recommendations for the Tren Urbano Agency .....	91
6.6	Station Analysis Overview .....	93

6.7	Roosevelt Station Site Analysis.....	94
6.8	Roosevelt Facility Design Recommendations .....	100
6.9	Degatau Station Site Analysis .....	103
<b>7</b>	<b>Application of Principles to Chicago Transit Authority .....</b>	<b>110</b>
7.1	Overview.....	110
7.2	City of Chicago.....	110
7.3	CTA Rail System.....	111
7.4	Analysis of CTA’s Approach to Joint Development.....	112
7.5	Recommendations for the Chicago Transit Authority.....	117
7.6	Station Analysis Overview .....	119
7.7	Howard Station Design Analysis.....	119
7.8	Ford City Mall Site Analysis .....	126
<b>8</b>	<b>Conclusion .....</b>	<b>133</b>
8.1	Overview.....	133
8.2	Response to Test Cases.....	133
8.3	Evaluation of Results.....	137
8.4	Suggestions for Further Research.....	140
8.5	A Vision for Mixed-Use Transit Facilities .....	140

# 1 Introduction

## 1.1 Thesis Overview

This thesis is an exploration of issues related to mixed-use transit facilities and joint development. It is designed to provide some insight to transit agencies unfamiliar with these topics, with the intention of establishing a foundation of knowledge for the successful development of these facilities.

A set of fundamental principles is proposed to guide the development process. These principles are selected on the basis of research into the factors influencing mixed-use facilities and joint development, as well as existing strategies in the field. The objective is to identify and address the key issues of which transit agencies should be aware. The proposed principles are divided into three groups; these groups address the three elements of the development process chosen for study: site selection, basic elements of facility design, and implementation.

<b>Principles for Mixed-Use Facility Development</b>
<u>Site Selection</u> <ol style="list-style-type: none"><li>1. The zoning and land uses of the area must be supportive of the proposed facility.</li><li>2. The demographics of the location's permanent and daytime populations must be able to support the proposed facility.</li><li>3. The site must be accessible via the appropriate modes to support the proposed facility.</li><li>4. The location should be in a district whose character complements the type of proposed facility.</li></ol>
<u>Basic Elements of Facility Design</u> <ol style="list-style-type: none"><li>1. The facility's design should be sensitive to the surrounding urban context.</li><li>2. The transit and non-transit spaces in the facility should be distinct, yet linked.</li><li>3. The facility must have strong, logical access routes both outside and inside the building.</li><li>4. Flexibility should be incorporated into the facility's design.</li><li>5. Consistent design elements should be used throughout the facility.</li></ol>
<u>Implementation</u> <ol style="list-style-type: none"><li>1. The transit agency must approach joint development proactively.</li><li>2. Form a functional partnership among all parties as early as possible.</li><li>3. Leverage the particular strengths of each party.</li><li>4. Ensure sufficient legal authority and capacity to achieve the proposed development.</li><li>5. Create a dedicated entity to oversee the development process.</li></ol>

The proposed principles are applied to two transit systems: Tren Urbano in San Juan, Puerto Rico and the Chicago Transit Authority in Chicago, Illinois. In each case, the transit agency and two station sites are considered. This application has two purposes. The first is to review each transit system's approach to mixed-use facilities and joint development, in order to propose recommendations for improvement. The second purpose is to evaluate the proposed principles and determine their usefulness for promoting mixed-use facilities through joint development.

## **1.2 Motivation**

Transit systems offer many benefits to the cities in which they are located. They provide convenient access to many areas, while reducing reliance on automobiles and the impacts of automobile traffic. They contribute to the urban environment by encouraging people to walk, thereby adding activity to the streetscape.

Mixed-use transit facilities offer an opportunity to increase transit ridership and create desirable places in the urban landscape. The presence of transit services and other land uses in the same location creates a symbiotic relationship; each generates pedestrian traffic that supports the other. When designed properly, these facilities also contribute to a community by enhancing the streetscape and offering desired services and amenities.

Transit agencies face certain challenges in the development of mixed-use transit facilities. The integration of transit spaces with commercial space or housing demands careful design and management. In addition, the public-private partnerships through which these facilities are developed involve cooperation between two (or more) entities with very different perspectives, expertise, and goals. The complexity of the development process can be intimidating and discourage transit agencies from attempting such projects. In areas where these facilities have not been attempted before, the greatest hurdle to overcome is the inexperience and lack of knowledge of the transit agency.

This thesis has been prepared to educate transit agency staff about some of the key issues involved in the development process. It is hoped that, through a better understanding of these issues, the transit agency will be more willing to undertake joint

development and will have a greater chance of establishing a successful mixed-use transit facility.

### **1.3 Goal**

The goal of this research is to assist transit agencies with the development of successful mixed-use facilities through public-private partnerships. This thesis proposes a set of principles to guide both the physical and institutional aspects of development. The principles are grouped into three categories: site selection, basic elements of facility design, and implementation. These cover the three fundamental aspects of the development process.

The principles are useful in two ways. First, they will educate transit agencies about some of the key issues of the development process. The principles identify the issues that deserve special attention, either because of their importance in the process or because they have the potential to create significant problems. Awareness of these aspects will enable transit agencies to assume a more active and fruitful role in the process.

Second, the principles are designed to be universal; they should be applicable to the development of all mixed-use facilities. They can be used to evaluate particular projects and situations, and to generate specific recommendations in response. This enables the transit agency and private developer to achieve a more effective and efficient development process.

### **1.4 Research Framework**

#### ***1.4.1 Two Primary Objectives***

The proposed principles are based on two primary objectives of mixed-use transit facility development: to maximize benefits derived from the facility and to maximize the facility's long-term feasibility. All of the proposed principles support one or both of these objectives.

The first objective is to maximize the benefits generated by the project. Several parties can benefit from a successful facility. The transit agency gains increased ridership of the transit system. The transit riders enjoy a facility that offers more

amenities than a stand-alone station as well as an enhanced station environment. The private developer receives profits from the sale or lease of the non-transit space in the facility. The neighborhood around the facility benefits from the amenities provided on-site and from the positive identity of the facility. All of these accomplishments are contingent on a successful facility designed and operated according to a strategy that establishes these opportunities as a priority.

The second objective is to maximize the long-term feasibility of the facility. The joint development process and the ongoing operation of a mixed-use facility involve many aspects that are more complex than those of a stand-alone transit station or private development. These difficulties must be addressed by a development strategy that identifies and compensates for them. Similarly, the operation strategy for the facility must support all the uses in the facility in a manner that ensures their long-term viability.

#### ***1.4.2 Three Aspects of Development***

In order to support the two objectives, three aspects of development have been chosen for study: site selection, basic elements of facility design, and implementation. Although there are other elements of the development process, these three are treated as the core of the project. Site selection determines *where* the facility will be; design determines *what* the facility will be; and implementation determines *how* the facility will be developed. A set of principles is proposed for each of the three elements. All three sets can be applied to a project together or each can be applied independently of the other two.

### **1.5 Thesis Outline**

This first chapter provides an overview of the objectives for the research conducted to generate this thesis. It explains the motivations for supporting mixed-use facilities and joint development. The framework for the development of recommendations for transit agencies is also explained.

The second chapter provides background information necessary to understand the variables involved in facility development. Explanations of transit-oriented development, mixed-use, and joint development are provided to establish a rationale for the analysis of development principles. Typologies for station areas, stations,



developments, and joint development roles are presented to create a context for the principles.

The third and fourth chapters review existing strategies for development of mixed-use transit facilities. Chapter Three considers physical elements relevant to site selection and facility design; abstract and case-specific strategies are both presented. Chapter Four reviews strategies pertaining to implementation through public-private partnerships. Both abstract and case-specific strategies are included again. Recurring issues in both physical and institutional elements of development are identified; these are the aspects of development to be addressed by the proposed principles.

The fifth chapter sets forth the principles being proposed. These are divided into three groups correlating to the three aspects of development chosen for study: site selection, basic elements of facility design, and implementation. Four or five principles are proposed for each and explained.

The sixth and seventh chapters apply the proposed principles to actual or proposed transit facility sites in two cities. Chapter Six addresses the Tren Urbano system in San Juan, Puerto Rico and Chapter Seven addresses the Chicago Transit Authority (CTA) in Chicago, Illinois. Brief overviews of the cities and transit systems are provided. Each transit agency's approach to joint development is analyzed according to the 'Implementation' principles, and recommendations are made. Two sites in each city are also analyzed; the principles for site selection and facility design are applied selectively, depending on each site's stage of development.

The final chapter evaluates the principles based on two criteria: their usefulness and their comprehensiveness. Recommendations for further research are made based on the outcome of this evaluation.

## **2 Background Information**

### **2.1 Overview**

This section presents information on several aspects of mixed-use facility development. The information enables the reader to understand many of the issues that influence both the design and implementation of these facilities.

The section begins with brief explanations of transit-oriented development, mixed-use, and joint development. The definition, benefits, and challenges of each are summarized.

Next, typologies are presented for four elements of mixed-use facility design: station areas, stations, land uses, and transit agency roles in joint development. These are intended to demonstrate the spectrum of possibilities within the development process, and will be used in the discussion of proposed principles in Chapter Five.

### **2.2 Transit-Oriented Development**

#### ***2.2.1 Definition***

Transit-oriented development (TOD) is a pattern of land use that creates a mutually beneficial relationship between the transit system and the surrounding land uses. In brief, nearby land uses generate additional ridership for the transit system, while the transit system provides easy access to those developments. John Niles and Dick Nelson offered the following description of TOD in a presentation to the American Planning Association:

“TOD means the creation of denser, mixed use activity nodes connected by high quality transportation. Proponents believe that a combination of design features will induce travel mode shifts that result in reduced area-wide traffic congestion and improved air quality. These features include improved street connectivity, public amenities, and a concentration of residences and jobs in proximity to transit stations and commercial businesses. As an additional benefit, the enhanced pedestrian environment will increase “casual encounters” among neighbors that can contribute to a sense of community.”<sup>1</sup>

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<sup>1</sup> “Measuring the Success of Transit-Oriented Development”, p.2

The goals of TOD are to decrease reliance on the automobile, increase pedestrian activity, and create more vibrant urban areas. These goals are typically achieved by focusing on four elements: higher densities of land use, mixing appropriate land uses, pedestrian accessibility, and pleasant pedestrian environments.

### **2.2.2 Fundamental principles**

Beyond a simple definition, there are many interpretations of what constitutes “true” TOD. Many people have written on the subject, each with his or her own interpretation of the standards and implications involved.<sup>2</sup> It is beyond the scope of this work to contrast and resolve the discrepancies among these characterizations. It is helpful, however, to present one set of TOD guidelines as an example to illustrate the types of issues that are emphasized. The Urban Land Institute uses the following “Best Notions of a Transit Oriented Development”:<sup>3</sup>

1. Focus on reinforcing transit, even though transit should not be the sole concern.
2. Mixed-use developments and communities with moderate to high density housing, jobs, retail, and services concentrated along the regional transit system and in strategic nodes.
3. Created in order to provide many destinations within walking distances, allowing trips to be combined.
4. Help create a healthy and pedestrian community while increasing ridership levels.
5. Promotes alternatives to automobile use and affordable communities.
6. Structure is nodal, in contrast to the linear form that now dominates the grid towns and strip commercial centers.
7. Size is defined by an area delimited by a walking distance of approximately 2,000-foot radius (comfortable walking distance +/- ten minutes) from its center to its edge.

These principles demonstrate the typical emphasis on pedestrian activity. The scale, layout, and mix of uses in a TOD district are all intended to discourage use of cars and promote walking.

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<sup>2</sup> For a comparison of leading TOD proponents, see Proakis, p. 30

<sup>3</sup> Miranda-Palacios, Appendix

### 2.2.3 Benefits

Transit-oriented development generates several benefits: increased transit ridership, easier pedestrian access to amenities, less reliance on the automobile, and more vibrant neighborhoods.

Transit-oriented development, as its name implies, increases ridership of a transit system. The urban design eliminates the need for a car, making transit use a feasible option. The dense concentration of land uses around a station and easy pedestrian access encourage people to use the transit system more often. Table 2-1 illustrates the impact of TOD principles on ridership levels.

**Table 2-1: Effects of Land Use and Urban Design on Transit Mode Share<sup>4</sup>**

Urban Design/Land Use Trait	Impact on Transit
Availability of Convenience Services	3.7% increase in transit
Mix of Land Use	3.5% increase in transit
Accessibility of Services	3.3% increase in transit
Areas Perceived as Safe	1.8% increase in transit
Aesthetically Pleasing Environment	4.1% increase in transit

TOD enables easy pedestrian access. The transit system offers convenient access to the area and the urban design facilitates pedestrian movement among the individual amenities. Short distances among uses and well-established pedestrian routes are the hallmark of TOD sites.

There is less reliance on automobiles in a TOD district. The prevalence of the transit system and an urban design that makes walking feasible decreases the need for automobile use. People no longer need a car to cover long distances or navigate through pedestrian-hostile environments. Table 2-2 demonstrates the effects TOD has on automobile use.

**Table 2-2: Impacts of Transit-Oriented Developments<sup>5</sup>**

Measures	Results
Vehicle Trips	18% reduction in auto trips
Vehicle Miles Traveled	12% less VMT in AM Peak
Travel Time	18-28% Reduction on Network

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<sup>4</sup> “Building Livable Communities with Transit”, p. 4

<sup>5</sup> “Building Livable Communities with Transit”, p. 3

The combination of these elements creates a more vibrant neighborhood district. Pedestrian activity and human-scale design elements contribute to an interesting environment on the street. This attracts even more pedestrians, establishing a self-reinforcing process. The reduced presence of cars makes the area safer and more enjoyable for people as well.

#### **2.2.4 Challenges**

Transit-oriented development faces certain challenges that limit its implementation. The three most common problems are zoning, the popularity of the automobile, and unfamiliarity with TOD and its goals.

Traditional zoning ordinances can prevent TOD land use patterns. The standard technique of Euclidean zoning, in which each geographic area is designated for a specific use, prohibits the tight blend of land uses inherent in TOD principles. Cities that want to promote TOD must replace this with modified zoning codes. “Performance-based” zoning, in which the cumulative effects of multiple land uses are evaluated (rather than the anticipated impacts of a single use), is one solution for enabling TOD environments.<sup>6</sup> San Juan, Puerto Rico is an example of a city that is modifying its zoning ordinance to create special transit-supportive zones around stations in an effort to promote TOD.<sup>7</sup>

In the United States, the popularity of the automobile and the patterns of land use it has encouraged are strong obstacles to transit-oriented development. Despite long-standing patterns of dense urban development in the Nineteenth and first half of the Twentieth Centuries, Americans have a strong affinity for the automobile. The affordability of automobiles and single-family houses after World War II led to the suburbanization of American cities. Both residential and commercial areas adopted configurations that are less dense, with elements of the environment such as wide roads and large parking lots placing the emphasis on automobiles. This trend continues today, with cars being the dominant mode of transportation in many American cities. To be successful, TOD districts must convince people to forgo the automobile in favor of using transit, thereby supporting the transit system and the development surrounding it, most of which are less accessible by car in a TOD environment.

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<sup>6</sup> Peirce, Neal. “Zoning: Ready To Be Reformed?”; *Washington Post*; February 10, 2003

Finally, TOD is a relatively new land use strategy. Ironically, although it is a return to earlier land use patterns, many current city planners lack the knowledge of how to implement TOD districts effectively and efficiently. This creates an institutional reluctance to adopt TOD strategies, which must be overcome for TOD to be carried out.

## **2.3 Mixed-Use Transit Facilities**

### **2.3.1 Definition**

The term “mixed-use” facility, as used in this thesis, refers to a development that incorporates housing or commercial space into the same structure or land parcel as a transit station.<sup>8</sup> For the sake of simplicity, the term “private space” will be used to refer to those areas of the facility that are not directly involved in the operation of the transit system.<sup>9</sup> These spaces can have any of a number of uses: residential, retail, office, institutional, and so on. Often, multiple non-transit uses are included in a mixed-use facility.

Mixed-use facilities can be considered one extreme on the spectrum of TOD. By incorporating transit-supportive uses into the station site, the connection between the two becomes the defining element of the site. The integration of the program elements into a synergistic whole is intended to promote the overlap and intermixture of the two to the greatest degree possible.

Although common in Europe and Asia, mixed-use facilities have gained popularity in the United States only recently. John Washington explains the growing number of mixed-use facilities from two perspectives: land and people. He argues that mixed-use makes sense from a real estate perspective because it offers a way to maximize the return from land by getting as much development as possible onto a parcel. At the same time, mixed-use sites benefit people, by emphasizing social benefits such as convenience, social interaction, etc.<sup>10</sup> Washington proposes four additional arguments for mixed-use:<sup>11</sup>

1. Prevalence of a service-oriented economy: People spend more time working at home, and therefore welcome a means of replacing the social opportunities

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<sup>7</sup> For information about San Juan’s new zoning, see Chapter Six.

<sup>8</sup> This differs from the traditional definition of “mixed-use,” which does not necessarily include transit functions.

<sup>9</sup> The use of the word “private” is **not** meant to imply that the spaces are privately owned or have limited access, although either or both of these are sometimes the case.

<sup>10</sup> Washington, p. 10

<sup>11</sup> Washington, p. 8

that have been lost; technology also enables a closer spatial relationship between traditionally incompatible land uses.

2. Increasing cost of energy supplies: Mixed-use areas reduce reliance on the automobile, thereby reducing the associated costs.
3. Changing urban demographics: The average size of families is smaller; there is less need for a larger house and suburban parcel of land.
4. Increased popularity of urban lifestyle: People appear interested in the integration of home, work, leisure, and shopping because of the proximity to amenities it provides.

Whatever the reasons, North American cities such as Washington, D.C., Toronto, and Portland have implemented successful mixed-use transit facilities and have demonstrated their potential for other cities as well.

### **2.3.2 Benefits**

Mixed-use developments provide two types of benefits: social and economic. The social benefits of mixed-use are the same as those of traditional TOD sites. Ease of access among different land uses provides convenience for transit riders, residents and shoppers. Traffic congestion in the area is reduced through reliance on transit instead of cars. At the same time, a vibrant public area is created through pedestrian activity and amenities.

A mixed-use facility can further enhance this environment by creating a stronger “anchor” for the neighborhood. The traditional role of the transit station as a focal point within the urban fabric is supplemented by the inclusion of other land uses, creating additional activity and a stronger identity for the facility.

Mixed-use facilities also address another dilemma that transit stations face. By virtue of their design and the land needed for construction staging, stations are often surrounded by empty land. This land is owned by the transit agency and is typically used as a plaza or some other landscaped feature, creating a buffer that separates the station from adjacent land uses. MIT transportation professor Fred Salvucci refers to this as the “doughnut effect:” a transit agency create a virtual moat around a station that isolates it from nearby activity. Mixed-use facilities solve this by integrating other activities into the facility and establishing a continuous set of active uses that link the facility with adjacent developments.

Successful mixed-use facilities create economic benefits for four parties.<sup>12</sup> First, the transit agency generates additional revenue from the site through increased ridership and the development of the private space. The revenue from development can be a one-time financial gain through a sale of the development rights, or ongoing lease payments from a developer or tenants.<sup>13</sup> Second, the developer responsible for the private space in the facility generates a return on its investment in the development. Third, the local government receives tax revenues from the increased land value of the site and from the revenue it generates. Finally, nearby landowners benefit from an increase in their property values as well.

### **2.3.3 Challenges**

The primary challenge in creating a mixed-use facility is dealing with the complexity of the physical structure. These sites combine multiple land uses, each with its own structural and design needs. Transit systems, in particular, have very specialized requirements for construction and operation. Careful planning is required to reconcile these potentially conflicting needs, and to integrate them into a single facility that serves its multiple activities well.

The complexity of mixed-use developments can generate higher construction costs than are normally associated with transit stations or private developments. Since transit agencies and developers in the United States are relatively unfamiliar with developing mixed-use facilities, the cost differential can become even more exaggerated. The parties involved in the development must factor this into their budget and long-term financial plans for the facility.

## **2.4 Joint Development**

### **2.4.1 Definition**

“Joint development,” as used in this thesis, refers to the institutional relationship between a transit agency and a private developer who are jointly undertaking the development of a mixed-use facility. This is different than the standard definition, which can refer to the mixed-

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<sup>12</sup> *Urban Land* (July 1984), p. 16

<sup>13</sup> According to Robert Cervero, approximately 25% of mixed-use facilities involve revenue sharing. (Cervero 1992)



use facility, itself, as well. Since this thesis deals with both the design of the facilities and the joint efforts through which they are developed, “mixed-use” is used to refer to the physical component of the project and “joint development” is used to refer to the institutional component of the project.

This relationship typically involves the two parties (and sometimes others) pooling resources for the purpose of planning, financing, building, and marketing a facility. Robert Cervero offers the following definition of joint development.

“Joint development can be defined as any formal, legally binding arrangement between a public entity and a private individual or organization that involves either private-sector payments to the public entity or private-sector sharing of capital or operating costs in mutual recognition of the enhanced real estate development potential or higher land values created by the siting of a public transit facility.”<sup>14</sup>

This definition highlights the two fundamental elements of joint development: a partnership and the contribution of resources by the private developer. According to Cervero, approximately two-fifths of the 115 joint development transit projects completed in the U.S. by 1990 involved some form of cost sharing.<sup>15</sup> The structure of the partnership and the specific contributions made will vary depending on the project’s circumstances. The transit agency also makes a contribution, often in the form of land around the transit station.

Transit agencies and private developers undertake joint development because they believe it enables them to achieve their respective goals more effectively. James Thomas suggests four reasons why joint development occurs:<sup>16</sup>

1. A single party has insufficient resources to complete a project by itself.
2. Each party holds a crucial resource unavailable to the other.
3. There is a mutual desire to share risk.
4. The parties are able to acquire goals more efficiently through a joint effort.

The benefits conferred on the parties involved in joint development are discussed below.

Howard Davis takes a broader approach to determining the motivations involved. He argues that five trends are responsible for the gradual increase in joint development activity.<sup>17</sup>

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<sup>14</sup> Cervero, p. 2

<sup>15</sup> Cervero, p. 2

<sup>16</sup> Thomas, p. 93

<sup>17</sup> H. Davis, p. 10

1. The “discovery” of new development opportunities through urban infill (such as the use of air rights)
2. The emergence of federal incentives for joint development<sup>18</sup>
3. The worsening fiscal condition of governments, who need to seek alternative funding sources for projects
4. The improved investment climate in urban areas
5. The increase in local government involvement in economic development activities

These factors motivate transit agencies and private developers to explore new opportunities through the less conventional technique of joint development.

### **2.4.2 Benefits**

Both the transit agency and the private developer benefit from successful joint development. The two primary mutual benefits of joint development are the leveraging of parties’ relative strengths and the distribution of risk. These create financial incentives for both parties to participate in public-private partnerships. In addition, the transit agency gains the ability to influence development around the stations and thereby indirectly affect transit ridership levels.

Each party can leverage the resources and expertise of the other to supplement its own development capacity. Transit agencies offer expertise in transit system development and operation, access to low-cost financing (such as government-guaranteed bonds with lower interest rates), and access to and knowledge of the government programs and policies that affect site development. Private developers provide access to additional funds for capital costs and have expertise in commercial and residential development projects. The combination of these resources enables development to occur more efficiently and with a greater chance for success than if either party had taken on the project by itself.

The second mutual benefit is the sharing of risk between the two parties. Substantial investment is required for the development of a mixed-use transit facility, and there is no guarantee of financial success for the project. By pooling their resources, neither the transit agency nor the private developer needs to assume full financial risk for the project. This is a

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<sup>18</sup> The federal government actively supports the use of private partnerships in transit development through such programs as the Urban Development Action Grant (UDAG) and the Transportation Infrastructure Finance and Innovation Act (TIFIA). (“Privatizing MTA Services”, p. 25)

particularly important benefit for the developers; both they and their lenders are traditionally very risk-adverse. This mechanism enables their participation in the development of transit facilities by eliminating a traditional obstacle to their involvement.

A transit agency has an additional reason to be involved in joint development: it enables the agency to influence the land use patterns in the station area. In its analysis of joint development, Sedway Cooke Associates identified five benefits of this role:<sup>19</sup>

1. To gain some control over the pace and scale of urban development
2. To protect existing residential neighborhoods
3. To ensure orderly and compatible station area development
4. To optimize economic returns deriving from the system
5. To maximize the transportation benefits of the system

Transit agencies need to realize that in many areas it is not enough simply to provide service. To ensure the long-term viability of the system, they must take proactive steps to foster an environment that is compatible with transit and will encourage ridership. Joint development offers one technique for accomplishing this.

### **2.4.3 Challenges**

The pairing of a public transit agency and a private developer creates a complex partnership with inherent challenges. Three issues are responsible for most of the problems that arise: conflicting perspectives of the parties, conflicting goals and needs, and inexperience with joint development.

Transit agencies and private developers approach development projects with very different perspectives. Paul Marx of the Federal Transit Administration (FTA) argues this is the primary reason why joint development is not used more widely:

“The most influential reason is a difference in perspective between transit systems and developers. A transit system wants to increase its ridership and to serve the greatest number of people possible with its available assets. The developer wants to build something with a reasonable prospect of financial return. The transit system plans 3 to 5 years out and may take that long to make a financial commitment. The developer may

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<sup>19</sup> *Urban Land* (July 1984), p. 20

plan 3 years out, but it must make a financial decision within a few months.”<sup>20</sup>

The incompatible agendas and frameworks of the two partners generate conflicts that are often difficult to resolve. Transit agencies and developers each need to be aware of and be sensitive to the other’s development methodology. According to Marx, an additional hurdle arises when a transit agency adopts a conservative attitude regarding its role:

“Transit agency governing boards have shown significant reluctance to engage in joint development activities. Part of this reluctance reflects past federal policy, but some also comes from a desire to ‘do what we’re paid to do’ – provide transit service.”<sup>21</sup>

If transit agencies have the desire to strengthen transit’s role in the urban fabric, they need to overcome this attitude and adopt a more proactive stance.

The discrepancies in the perspectives of the transit agency and the developer generate conflicting goals and needs. As stated above, the transit agency’s intent is to increase ridership, while the developer wants to maximize its financial return from the project. These goals are not entirely incompatible (otherwise joint development of transit facilities would never occur), but the two sides are competing for limited resources. Physical elements of the site, such as space and prominent street frontage, as well as financial resources and administrative authority all present potential conflicts between the transit agency and the developer. The allocation of resources needs to be determined in a way that is both equitable and satisfies the needs of both parties.

According to the Urban Land Institute (ULI), one of the main obstacles to joint development is both sectors’ lack of sufficient knowledge of the complexities of joint development.<sup>22</sup> Success requires a mutual awareness of the potential conflicts and techniques for resolving them. In cities where joint development has not been used extensively, the transit agency and private developers face a steep learning curve to overcome this lack of experience.

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<sup>20</sup> “Financing Innovations in Transit: Methods and Issues”

<sup>21</sup> “Financing Innovations in Transit: Methods and Issues”

<sup>22</sup> E. Davis et al, p. 9

## **2.5 Station Area Typologies**

Stations can be located in many types of districts. The characteristics of the neighborhood in which a facility is to be developed have a significant impact on what type of facility is viable. Proakis divides urban settings into five categories:<sup>23</sup>

1. Areas with extensive pre-existing urban development that occurred without the influence of transit rail service. This pattern of high density is typical in most central business districts and larger cities.
2. Areas in an urban core with a strong market potential but where development has not occurred. Development may follow transit implementation, but transit is not the primary impetus.
3. Areas in urban districts with lower density. These occur in secondary zones around an urban core and in cities with development patterns influenced by automobile use.
4. Areas with suburban characteristics. Land uses are primarily low-density, such as residential, and street patterns may not conform to a grid.
5. Areas with minimal development. These occur on the outer fringes of cities or in former industrial areas, and include significant amounts of underutilized or vacant land.

Both transit and private development require adequate densities of land uses and people for success. The principles proposed in Chapter Five will address the issue of matching facility location, design, and space uses to the surrounding district's characteristics.

## **2.6 Station Typologies**

Transit rail stations have a tremendous diversity in scale and design. Physical factors such as grade, the number of levels in the station, and the number and type of vehicles being used, create a virtually infinite number of variations.

The selection of design elements is primarily dependent on two factors: site conditions and the intended role of the station. Site conditions include topography, size of the

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<sup>23</sup> Proakis, p.21

land parcel, soil conditions, etc. An analysis of these issues, based in engineering principles, is beyond the scope of this thesis and will not be covered here.

The intended role of the station is of great significance to mixed-use development because it determines the types and quantities of movement that will occur on the site. “Role” refers to the intended function of the station within the overall transit system. This is determined during the initial planning of the system, and relates to the station’s geographic location, location within the transit system, and character of nearby land uses. Harvey Rabinowitz identifies six types of stations:<sup>24</sup>

1. CBD rail station
2. Neighborhood rail station
3. Park and ride facility
4. Transit mall
5. Transfer center
6. Local stop

The fundamental characteristics of each of these are summarized in Table 2-3. Each of these station types has particular features that make it appropriate for specific locations. The characteristics of the location determine what type of station should be constructed. This, in turn, affects what non-transit development will be feasible on the site.

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<sup>24</sup> Rabinowitz, et al., p. 6

**Table 2-3: Characteristics of Transit Stations**

<b>Station Type</b>	<b>Purpose</b>	<b>Location</b>	<b>Daily Passenger Volume</b>	<b>Facility Details</b>	<b>Retail Opportunities</b>
<b>CBD Rail Station</b>	Can be focal point for major regional multiple-use project	Traditionally in city centers; at high-activity center	10-20,000 (Max 50,000)	Transit is dominant mode of access to the site	High volume creates strong market for retail, office, and hotels
<b>Neighborhood Rail Station</b>	Provides access to transit at neighborhood scale	At intersection of two important connector roads	4-7,000: Serving intermediate points along heavy rail corridor		Opportunity for neighborhood-oriented retail and office space; activity near station relates to neighborhood and transit use
<b>Park &amp; Ride Facility</b>	Provides interface between automobile and transit; may be combined with Transfer Center	Where heavy traffic arteries and/or rail stations converge	5-10,000: Serving suburban residents within a 3-6 mile area	Typically includes up to 1,000 parking spaces; minimum size of a few acres	Can include auto-oriented convenience retail
<b>Transit Mall</b>	One of the most accessible places in a metropolitan area	City center or other high activity area	Up to 10,000: Serving regional market	Requires special street set aside for exclusive use of transit vehicles; transit related and urban design components	Development activities relate to adjacent property; pedestrian oriented and may be gathering places for public activities
<b>Transfer Center</b>	Facilitates transfers between modes and routes; may include park and ride function.	Suburban or edge-of-city locations	3-5,000	Requires acreage sufficient for multiple travel modes as well as substantial parking. May be freestanding or integrated with other uses.	Opportunity for convenience shopping
<b>Local Stop</b>	Provides access to bus or light rail	Residential areas	Less than 5,000: Serving residential areas	Sized 20-30 square feet; spaced 1/8 to 1/4 mile apart.	Vending machines and advertising (no staffed services)

## **2.7 Land Use Typologies**

Projects involve many different elements. This section addresses one of the fundamental variables: land use. The range of general categories is presented, with a brief description for each. Although there are additional land uses, the ones listed are the possible candidates for mixed-use facilities considered by this thesis.

Five non-transit land uses are prevalent at mixed-use facilities: residential, retail, office, institutional, and public facilities.

### **1. Residential**

Housing is a popular land use around transit stations. It is transit-supportive, and has tremendous flexibility in its layout and design. Both ownership and rental housing are viable in most situations, and there are few limits as to the amount of housing that must be included. Real estate developers consider housing one of the most commercially viable land uses in a mixed-use facility.<sup>25</sup>

### **2. Retail**

Retail is probably the most common land use combined with transit facilities. It encompasses a broad range of sizes, from small concession stands to large supermarkets and “big box” stores. Many retail uses complement transit use by providing necessary services for travelers. Retail, however, is more vulnerable to fluctuations in demand. It often operates with a narrow profit margin and requires a minimum amount of patronage to succeed. Table 2-4 lists the ULI’s estimated population requirements for different retail facilities.

**Table 2-4: ULI’s Minimum Population Requirements for Retail<sup>26</sup>**

<b>Retail Use</b>	<b>Population Requirement</b>	<b>Retail Use</b>	<b>Population Requirement</b>
Supermarket	6,500 people	Book Store	22,400 people
Dry Cleaner	5,700 people	Laundromat	5,800 people
Video Rental	11,400 people	Movie Theater	29,000 people
Beauty Salon	3,700 people		

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<sup>25</sup> Byron Gilcrest interview, January 23, 2003

<sup>26</sup> Miranda-Palacios, Appendix



Since retail is so dependent on its customer base, developers are often reluctant to build retail facilities based solely on projections of anticipated transit ridership; they require that the district already have an established customer base.<sup>27</sup>

3. Office

Professional office space has a tremendous amount of flexibility in its scale and uses. Tenants range from small storefront businesses to companies with hundreds of employees. Office space can be a one-story building or a 30-floor high-rise. Office space is compatible with transit if it generates substantial pedestrian flow to and from the site; this includes both customers and employees.

4. Institutional

Institutional uses include schools, hospitals, and other specialized organizations. It is less common for these to be part of a joint development project, because private developers typically do not construct them. In addition, some institutions have specific operating requirements that make them incompatible for inclusion in a mixed-use facility. Nonetheless, many institutions can establish a mutually beneficial relationship with transit.<sup>28</sup>

5. Public Facilities

Public facilities include concert halls, stadiums, and recreational centers. These can be beneficial components of a mixed-use facility because they often generate heavy pedestrian traffic that can bolster transit ridership and create a focal point for community activity. They can be inappropriate for mixed-use facilities for the same reasons as institutions: they have unique operating requirements and are not typically developed by private developers. In addition, many public facilities operate at limited times and do not generate a consistent flow of transit riders.

The selection of appropriate land uses for a mixed-use facility must consider many factors of the environment. Each land use has particular demands that must be met by the site. An in-depth analysis of these variables is beyond the scope of this thesis.

## **2.8 Transit Agency Roles in Joint Development**

Joint development involves a partnership between the transit agency and a private developer. The structure of the partnership determines the responsibilities, risk assumption, and

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<sup>27</sup> Byron Gilcrest interview, January 23, 2003

<sup>28</sup> For information on one such relationship, see Lillian Shuey's thesis "Improving Relationships Between Transit Authorities and Medical Centers" (MIT, June 2003)

costs and benefits for each party. From the transit agency's perspective, there is a continuum of alternative roles that can be assumed.

Harvey Rabinowitz explains some of the roles a transit agency can assume in a joint development project.<sup>29</sup> The roles shown in Figure 2-1 and described below, are arranged in order from lowest to highest involvement on the part of the transit agency. This list is not exhaustive; rather, it is meant to demonstrate the range of options available to a transit agency. Many of the individual components of the strategies can be mixed and matched to fit the needs of a particular situation.

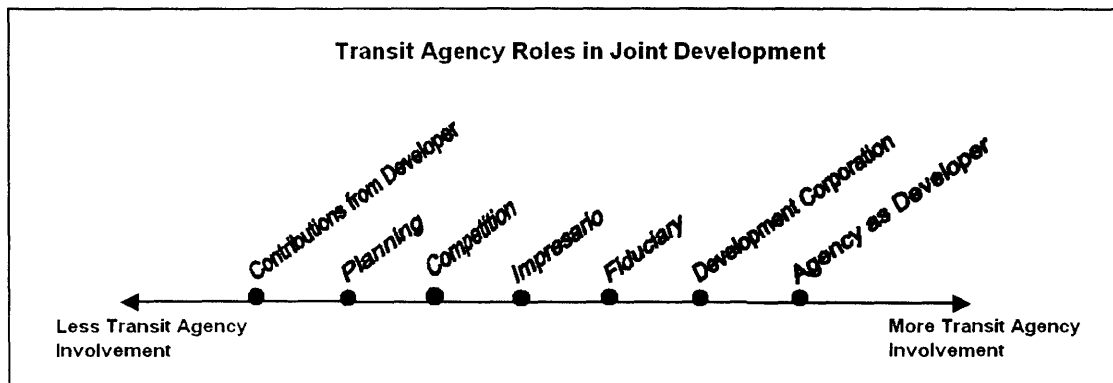


Figure 2-1: Diagram illustrates varying levels of transit agency involvement

1. Contributions from Developers

The transit agency accepts contributions from the private sector (in the form of land, services, or money) to create a link between a transit station and a private development project. This typically occurs when a developer approaches the transit agency with needs to be met. The transit agency has the ability to impose requirements on the specifics of the trade-off to increase the likelihood of mutual success.

2. Planning

The transit agency expands the scope of its planning work to include efforts to influence local land use and zoning decisions. Its goal is to foster a setting that is more supportive of transit by associating trip generators with transit facilities (through higher density, complementary land uses, pedestrian access, etc.). This prevents development patterns from undermining the value of the transit system through poor land use. This strategy does not guarantee direct economic benefits, but it does promote a higher quality transit experience.

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<sup>29</sup> Rabinowitz, et al., p. 15

3. Competition  
The transit agency carries out a competitive process for private bids on mixed-use transit facilities. This encourages private developers to develop attractive development packages that maximize the benefit from transit funds by leveraging them against private sources of money. A key consideration with this strategy is to ensure that the financial aspect does not compromise the quality of the final product.
4. Impresario  
The transit agency serves as an intermediary between a private developer and government agencies that support transit to promote public/private development opportunities. The agency assists development through the use of tax-increment financing (TIF), low-interest loans, tax abatements, etc. This is the most common development strategy for these types of projects, and requires a minimum level of development expertise on the part of the transit agency staff.
5. Fiduciary  
The transit agency manages its land holdings to maximize the long-term economic and social benefit derived from its investments in the transit system. The capture of land value increases is accomplished through land banking for future development, the sale of access rights, and the provision of loans for qualifying private development. This strategy requires diligence on the part of the transit agency to avoid poor land speculation and unfair competition in the private sector.
6. Development Corporation  
The transit agency creates a government-authorized, autonomous entity to administrate the development process. Its goal is to provide a single contact point to developers while achieving higher efficiency by working solely on development issues. This entity can enter into public-private partnerships with developers.
7. Agency as Developer  
The transit agency takes on entrepreneurial duties and oversees the development of the entire mixed-use facility; no private developer is involved. The transit agency reaps all benefits of the project, while assuming all the cost and risk as well. The viability of this approach is limited due to legislative restrictions and the need for strong development expertise within the transit agency staff.

A transit agency undertaking joint development must analyze the situation to determine which role, or combination of individual aspects of roles, will lead to the best working relationship with the developer and outcome for the transit agency. The 'Implementation' principles in proposed in Chapter Five will address these concerns.



**Figure 2-2: The Shinjuku East Rail Station in Tokyo, owned and operated by the JR East Rail Company, a successful example of the ‘Agency as Developer’ model.**

## **2.9 Conclusion**

The information presented in this section provides basic knowledge about the issues and variables involved in mixed-use development. It establishes a foundation for the analysis of mixed-use and joint development that takes place in the following sections. Simple explanations of TOD, mixed-use, and joint development are included to help the reader understand the underlying motivations for this research. Typologies for station areas, stations, developments, and joint development roles inform the process of analyzing the elements that are conducive to a successful mixed-use facility.

## **3 Existing Strategies for Site Selection and Facility Design**

### **3.1 Introduction**

This section presents summaries of research and proposals dealing with the physical design of mixed-use transit facilities. Since site selection and facility design are so closely related and are often discussed together, this review is intended to cover both topics. It begins with a discussion of three issues raised by a review of transit station-specific design strategies. Next, the results of a U.S. Department of Transportation report on mixed-use facility design are summarized. Three design proposals for mixed-use facilities are then reviewed to determine their strategies and objectives:

1. Banfield Station (Gresham, Oregon)
2. Alewife Station (Cambridge, Massachusetts)
3. Ruggles Station (Boston, Massachusetts)

These works are not summarized in their entirety; only those sections relevant to determining principles for site selection and facility design are included.

The goal of this section is to identify, and gain insight into, issues that are relevant for mixed-use development siting and design. Recurring topics in the literature indicate those issues that apply to most mixed-use transit facilities, and which should be addressed by the principles proposed in Chapter Five.

The literature review reveals four broad themes shared by the research:

1. Context of the facility  
The facility and its environment both benefit from positive interaction between the two. Careful selection of location and design maximizes the benefits generated.
2. Accessibility and traffic flow  
Transit systems and other land uses rely on convenient access for their success. Mixed-use facility design must address access and flow both between the site and the area, and among the different uses present in the facility.

3. Facility identity and integration

Mixed-use facilities rely on design that creates links among uses and employs consistent design elements to identify the development as a single place. These elements and the character of the facility environment all contribute to the creation of a “sense of place” for the facility.

4. Flexibility of design and uses

Mixed-use facilities evolve over time in response to the changing needs of the community and the real estate market. Designs that enable changes to occur easily contribute to the long-term success of the facility.

These themes are considered important elements of station site selection and design. They provide guidance for the ‘Site Selection’ principles and “Basic Elements of Station Design’ principles proposed in Chapter Five.

### **3.2 Transit Station-Specific Design Issues**

Much research has been done about the selection and evaluation of criteria for designing transit space within stations. Lester Hoel and others explain many elements of design, including the different components of transit stations, the criteria by which to evaluate different designs, and the internal and external factors to be taken into consideration. Most of this work focuses on issues that affect the speed and efficiency of transit riders moving through and using the stations. Since this thesis is more concerned with the interface between transit space and other uses, transit-specific criteria will not be covered in depth here.<sup>30</sup>

The review of transit-specific literature does, however, identify three issues that are significant for the design of mixed-use facilities and that influence the selection of principles for developing such facilities. These issues are the following:

1. Station component categories
2. Perception of disutility
3. Efficient pedestrian flow

Each of these factors is explained in more detail.

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<sup>30</sup> For information on transit station design criteria, see Hoel et al., Hoel and Roszner, and Sasaki Associates, Inc.

### **3.2.1 Two Categories of Station Components**

All components of a transit station can be categorized as either “passenger processing” or “environmental” elements.<sup>31</sup> The passenger processing components include anything that is related to the transit system: access (doors, escalators, stairs), fare booth, turnstiles, platforms, etc. The environmental components are those that affect the comfort of the transit user. These include shelter, lighting, ventilation and air conditioning, benches, and accessory uses. The environmental classification would apply to any non-transit space and therefore encompasses mixed-use elements. This is significant because it highlights the fact that mixed-use is meant to *enhance the experience of the transit rider*.

### **3.2.2 Transit Riders’ Perception of Disutility**

The second issue concerns riders’ perceptions of disutility of time spent using a transit system. Research indicates that people assign a much higher disutility to the time spent moving through a station or waiting for a train than they do to the time spent actually riding the train, by as high as a factor of three.<sup>32</sup> This fact suggests two design recommendations: (1) design transit stations to minimize the distance a user must travel from station entrance to platform and the amount of pedestrian congestion that occurs; and (2) include design elements that make waiting time more enjoyable, such as food and retail kiosks and other accessory services. Such services can take advantage of the captive customers waiting for a train, while at the same time making those riders’ experiences in the station more positive.

### **3.2.3 Enabling and Maintaining Efficient Pedestrian Flow**

The third issue relates to the goal of minimizing users’ time spent moving through a station. One of the primary criteria for station design is enabling and maintaining clear pedestrian paths through the station. Anything that can interfere with this flow must be avoided. For this reason, any accessory uses in the station should be located where they do not obstruct primary paths, yet are visible, accessible and have sufficient space for users to congregate comfortably. A useful analogy is that of eddies along the side of a stream: water can enter and exit these areas easily, yet they do not interfere with the main course of the stream.

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<sup>31</sup> Hoel, et al., p. iii

<sup>32</sup> Hoel, p. 1

These three considerations are relevant to the design of mixed-use facilities, and are taken into account by the principles for facility design that are proposed.

### **3.3 U.S. Dept. of Transportation Analysis of Facility Design**

In 1989, the U.S. Department of Transportation commissioned a study of transit facility design, through a UMTA grant to the Center for Urban Transportation Studies at the University of Wisconsin-Milwaukee. Intended to respond to the growing popularity of joint development transit projects, the resulting report, “*Market Based Transit Design*”, analyzes transit facilities from a real estate market perspective and proposes recommendations of how to satisfy the needs of both transit agencies and private developers.

The report proposes a comprehensive framework prepared for joint development projects. It divides the process into four principal phases: system planning, site planning, station design, and operations/management. Specific guidelines are then presented for various station types and development scenarios. Three elements of the report are summarized here: site planning criteria, station design criteria, and guiding principles for design.

#### ***3.3.1 Site Planning Criteria***

Once the system alignment has been determined, station sites must be selected. The researchers suggest detailed analysis of five aspects of the location.<sup>33</sup>

1. Development of connections to other activities
2. Access to the site
3. Internal circulation
4. Development of station image
5. Strategies to provide passenger information

These criteria, when addressed in the design, enable the facility to meet the needs of the transit system, the private development on the site, and the neighborhood in which it is located.

#### ***3.3.2 Station Design Criteria***

According to the report, the design of the station facilities, open areas, and structures should accomplish four goals.<sup>34</sup>

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<sup>33</sup> Rabinowitz et al, p. 8

<sup>34</sup> Rabinowitz et al., p. 9



1. Fit into the local context
2. Provide facilities and services that relate to the station market
3. Provide for user comfort
4. Assure users of their safety and security

While other considerations will affect the physical design of the facility, these four are emphasized as the most important factors to be addressed by the architect.

### **3.3.3 Guiding Principles for Design**

The researchers identify six fundamental principles they use to guide the recommendations made throughout the rest of the report:<sup>35</sup>

- 1. Transit generates business; business generates transit.**  
These two land uses have a mutually beneficial relationship. When integrated properly, they can generate additional market demand for each other. It is vital to understand the nature of this relationship and take advantage of it to achieve a successful integration of transit and business activity.
- 2. Transit should be an integrated part of the activity centers. Transit and activity centers are complementary and should be designed jointly.**  
It can be awkward to fit transit services into existing developments and often results in an inferior design. Transit elements should be included in the design at the initial stages of planning; failing that, transit space should be added to a development as the development is modified over time.
- 3. Access to activity centers should be provided for a variety of modes. Activity centers should be places where people can change travel modes.**  
Activity centers are a logical place for a change of travel mode. This movement between modes should be designed into the facility in a way that focuses the flow of users; this flow can provide a market for commercial activities. Be careful not to obstruct the flow between modes, in order to maintain a quality experience in the facility.
- 4. Transit facilities should be of the highest quality in order to compete with the automobile.**  
Facilities should be designed to provide a quality environment to attract and retain discretionary users. Transit's advantages of time, cost, convenience, and comfort should be leveraged to the greatest extent possible.

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<sup>35</sup> Rabinowitz et al., p. 10-13

**5. Transit facilities undergo dynamic change over time. They need to be actively managed and designed for change.**

Design of a facility is not a one-time event; new situations and markets will require modification and expansion. The design and management of the facility must be able to respond to these pressures as they arise.

**6. Transit should be user friendly; it should be clean, safe, accessible, secure, informative, and comfortable.**

Transit needs to overcome the traditional negative perceptions that exist. The design must present an attractive environment that establishes a positive image and identity for the system.

These principles are intended to address the issues involved in the interaction between transit use and private development space. The symbiotic relationship between the two is recognized and guided to generate the greatest benefit for the administrators and users of a station. Traditional problems are identified and resolved, while the unique opportunities are used to the best advantage.

The DOT report establishes a useful framework within which to approach the site selection and design process of a mixed-use facility. The following section presents the results of three applications of such a framework to specific station sites.

### **3.4 Three Case-Specific Approaches to Facility Design**

This section summarizes three examples of transit station development plans. Every transit facility has unique design requirements based on the specifics of its geographic location, program goals, and system administration. Each of the following examples is a response to a particular situation; the specific strategies and design criteria selected may not be applicable to all sites. Elements of the proposals are presented here to demonstrate the broad scope of issues relevant to site selection and facility design, as well as to gain insight into which aspects of site and design considerations typically receive more attention. The three examples used are Banfield Station in Gresham, Oregon; Alewife Station in Cambridge, Massachusetts; and Ruggles Station in Boston, Massachusetts.

#### ***3.4.1 CHNMB Associates' Proposal for Banfield Station***

**Overview.** In 1981, the Tri-County Metropolitan Transportation District solicited proposals for a Banfield Light Rail Transit Station Area Planning Program. Its goal was to use

urban design to ensure a high-quality development that reinforces the value of the transit improvements and upgrades the image of the station area in Gresham, Oregon. This is to be accomplished through the implementation of a project that is responsive to “the complex and dynamic nature of land use development, transit operations, and the market and institutional forces that influence development.”<sup>36</sup>

CHNMB Associates, a private design firm from San Francisco, prepared a strategy for urban design analysis and interventions in response to the request. The strategy is the subject of this summary. Two sections of the report are helpful in identifying issues relevant to mixed-use developments: the list of critical urban design issues and steps of the planning process.

**Urban Design Issues.** CHNMB identifies nine aspects of urban design critical to station area planning:<sup>37</sup>

1. Intensity of development (density)
2. Scale relationships (building height, bulk, setback)
3. Built form (shape, color, materials)
4. Shadow effects
5. Views
6. Historic preservation
7. Pedestrian activities
8. Image of the station area
9. Relationship to adjoining neighborhood and transit corridor context

The proposal argues that all major components of the environment must be considered simultaneously to ensure balanced and comprehensive planning.

**Steps of the Planning Process.** The planning process CHNMB employs is helpful for framing the approach to recommending specific principles for site selection and design. It involves five steps:<sup>38</sup>

1. Identify the key issues and opportunities of a site.
2. Establish priorities for the urban design.
3. Select goals and objectives to be met.
4. Generate urban design guidelines that satisfy the objectives.
5. Prepare final plans based on the guidelines.

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<sup>36</sup> CHNMB Associates, “Introduction”

<sup>37</sup> CHNMB Associates, “Approach”

<sup>38</sup> CHNMB Associates, “Approach”

This is a common, reliable approach to planning. It creates a hierarchy of intentions that starts with a broader vision and progresses to more detailed elements needed to achieve the vision. The process of generating recommendations must involve a decision about the level of the process being targeted for improvement. The principles proposed in Chapter Five target a higher, more conceptual level of the design framework.

### **3.4.2 Ann Abernathy's Proposal for Alewife Station**

**Overview.** This is the first of two proposals considered that targets a mixed-use transit environment. In her architecture thesis for MIT, Ann Abernathy proposes a design for the Alewife Transit Center at the northwestern terminus of the MBTA's Red Line. Her primary goal is to create a mixed-use transit center that serves as a catalyst for future development around the station.

Abernathy's proposal includes several steps for generating a final design that follow the concept of a hierarchy presented in CHNMB Associates' Banfield proposal. The elements presented here are the master plan goals, strategies used to determine design guidelines, design considerations, and elements of the design program.

**Master Plan Goals.** Abernathy identifies four primary goals her master plan should accomplish:<sup>39</sup>

1. Preserve existing amenities on the site, by maintaining ecological balance and exploiting the natural potential of the site.
2. Maintain, as far as possible, the existing demographic structure of the area.
3. Close the gap between what the community needs and then faces; there is a belonging that must be understood for all user groups. New uses must be compatible and accessible.
4. Create a place that has a regional image, but is compatible with the local setting.

These goals are directed by both Abernathy's subjective hierarchy of planning principles and by the context of the site. They are, however, applicable to virtually all transit facility settings.

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<sup>39</sup> Abernathy, p. 11

**Design Strategies.** Four broad strategies are used to shape the design guidelines being proposed.<sup>40</sup>

1. Due to the complex structure of access being provided for multiple modes, the circulation systems should be separated to ensure clarity and efficiency. The systems should also be integrated, however, to enable transitions among modes and general accessibility.
2. The design should allow for expansion, change, and re-use of the facility. This can be accomplished through zones of expansion and building components that are compatible with a “growth system” suggesting additions.
3. Devote special attention to the integration of the new development with the existing urban context. Areas around the station may be diverse and the facility design needs to address all of these, particularly along the site edges.
4. The facility should be designed so the first phase of development includes a mix of uses that creates a threshold level of density to achieve a “critical mass” of users, thereby enabling the uses to reinforce one another.

**Design Considerations.** Abernathy next moves from general goals and issues related to the site, to the specific site factors to which the design must respond.<sup>41</sup> The types of factors addressed are as follow:

1. Large form generators (highway, subway alignment, etc.)
2. Automotive circulation and parking
3. Pedestrian circulation among the transit system and other uses
4. Commercial space in the station intercepts pedestrian movement
5. Commercial space creates a virtual street through the space
6. Commercial spaces outside the station more accessible by automobile
7. Bridges (physical and psychological) established to surrounding areas

**Design Program Elements.** The goals, strategies and design considerations are ultimately combined to generate a design program that ideally responds to all three levels of guidance. Abernathy’s proposal includes the transit system, roads, commercial space (100,000

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<sup>40</sup> Abernathy, p. 16

<sup>41</sup> Abernathy, p. 33

sq. ft.), offices (25,000 – 50,000 sq. ft.), and 50 units of housing.<sup>42</sup> Elements of the design program that are broadly applicable include the following:

- Transit Space
  - Ease of modal splits
  - Facilitate movement of the disabled
  - Maximized natural lighting and ventilation
  - Definition of night-time zones of activity
  - Fare circulation
  - Clear, efficient access
  - Noise reduction elements
- Parking
  - Format and organization
  - Minimized congestion
  - Maximum and preferred walking distances
  - Number of spaces needed
  - Kiss-and-ride area
  - Buses
- Roads
  - Directions from which preferred access needed
  - General dimensions
  - Reduced externalities (noise, dust, vibration)
  - Visual quality of parkway
- Commercial Space
  - Critical mass for development (100,000 sq. ft.)
  - Adequate to compete with other local shopping destinations
  - Types and locations of retail spaces
  - Specific customer base targeted by commercial clusters
  - Service needs
- Offices
  - Recommended amount on site
  - Types of office uses that are appropriate for transit
- Housing
  - Road access separate from that of station
  - Preferred parking
  - Relation to existing nearby housing
  - Buffers from facility externalities

These design elements, although specific to the Alewife site, indicate the types of issues that must be addressed at a mixed-use facility.

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<sup>42</sup> Abernathy, p. 23

Abernathy's proposal for Alewife is a useful example of how to approach mixed-use development by establishing a hierarchical structure of goals and strategies that can respond to the specific characteristics of the site.

### **3.4.3 John Washington's Proposal for Ruggles Street Station**

The third example also deals with a mixed-use transit facility. In his architecture thesis for MIT, John Washington's development proposal is for a parcel adjacent to the Ruggles Street Station in the Roxbury area of Boston. Its goal is to integrate a variety of uses into a synergetic whole. The design and placement of infrastructure are intended to promote the overlap and intermixture of activities. Washington considers it essential to maintain the continuity and integrity of each pattern of activity.<sup>43</sup>

This plan involves a theoretical approach to urban design that is similar to Abernathy's method. This study, however, results in a different set of criteria being emphasized. By applying broader criteria proposed by other researchers, Washington establishes the following goals and objectives for his design, divided into four topics:<sup>44</sup>

#### **Circulation**

##### Goals:

1. To reinforce street activity along existing major movement systems.
2. Creation of movement systems to connect primary activity centers and cores.

##### Objectives:

1. To encourage a cross-corridor connection as a primary pedestrian movement system free of vehicular conflicts.
2. To clarify auto access, circulation, parking and pedestrian circulation and provide direct accessibility and convenient parking for transportation center and site.

#### **Image**

##### Goal:

1. To define project area and create a sense of place.

##### Objectives:

1. To maintain consistent massing and land uses along existing streets.
2. To differentiate program elements in form, scale and character.

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<sup>43</sup> Washington, p. 10

<sup>44</sup> Washington, p. 33

## **Massing**

### Goal:

1. Maintain human scale along major pedestrian routes.

### Objective:

1. To limit the extent of high-rise development; ideally no buildings over five stories high.

## **Land Use**

### Goal:

1. To unite physically separated and functionally distinct surrounding areas.

### Objectives:

1. To encourage appropriate future development in adjacent areas by maximizing the socio-spatial intermixture of activities at seam from which adjacent areas can grow new strength.
2. To encourage diversity of activity along movement system that will complement adjacent public spaces and provide for shared experiences.

Washington uses these goals and objectives to guide the elements of his design. The site-specific characteristics dictate certain interventions that combine to create the overall design proposed.

## **3.5 Conclusion**

The review of design literature reveals four recurring themes. These indicate issues common to most mixed-use transit facilities:

1. Context of the facility
2. Accessibility and traffic flow
3. Facility identity and integration
4. Flexibility of design and uses

These issues must be addressed to ensure successful facility location and design. The 'Site Selection' principles and the 'Basic Elements of Station Design' principles proposed in Chapter Five respond to these needs by recommending procedural elements that address these aspects of the development.



## 4 Existing Strategies for Joint Development

### 4.1 Introduction

This section presents summaries of research addressing the implementation of joint development projects. Two government reports and three site-specific analyses are included:

1. U.S. DOT Analysis of Joint Development
2. National Council for Urban Economic Development Report
3. Analysis of Charleston Center and Copley Place
4. Analysis of Kansas City Station
5. Analysis of Japanese Rail System

These works are not summarized in their entirety; only those sections relevant to determining principles for joint development implementation are included.

The goal of this section is to identify recurring themes in the literature that might indicate issues common to most joint development projects. The problems discussed and the recommendations made are listed for each work, and any themes are listed at the end of each summary.

The review reveals four broad themes common to the research:

1. Involvement of all parties  
Effective partnerships involve early and active participation by all parties with an interest in the development.
2. Efficient process  
The complexities of joint development demand a strong, clear framework to identify goals, responsibilities, and roles.
3. Unique resources  
One of the motivations for public-private partnerships is the special combination of resources contributed by all parties. These resources play a large role in the project's success.
4. Sensitivity of developer's position  
Private developers operate with a perspective and requirements that are very different than those of the transit agency. The transit agency must be sensitive to the developer's constraints.

These themes provide valuable guidance for the generation of the 'Implementation' principles proposed in Chapter Five.

## **4.2 U.S. Department of Transportation Analysis of Joint Development**

This study, conducted for the U.S. Department of Transportation (DOT), analyzes the issues involved in joint development transit projects. The research uses Atlanta's MARTA transit system as a starting point to identify and clarify the necessary components of successful public-private partnerships, and then conducts a broader review. Three elements of the final report are presented here: elements of MARTA's successful joint development projects, joint development mechanisms successful elsewhere in North America, and four key recommendations to agencies considering joint development activity.

### ***4.2.1 Elements of Successful MARTA Projects***

Review and analysis of MARTA's experience with numerous projects (both successful and unsuccessful) suggest the five following actions promote successful joint development:<sup>45</sup>

1. **Developer involvement in initial transportation planning** promotes developer interest in future development projects at transit sites.
2. **Transit agencies must take an active role in joint development.** Joint development potentials should be a part of route alignment and station location decisions.
3. **Direct station access** seems to foster developer interest.
4. **The local government and transit agency must establish clear policies supporting joint development.** Examples include zoning and enabling legislation for disposition of excess property, including subsurface, surface, and air rights.
5. **Transit agencies should create an office of joint development** to provide a single access point with authority to make deals and assist developers in putting together development packages.

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<sup>45</sup> E. Davis et al., p. ix

#### **4.2.2 Successful Mechanisms in North America**

The study next expands its scope to include a review of joint development mechanisms that have been successful throughout North America. These are summarized by grouping them into the following five topics:<sup>46</sup>

1. Public Acquisition of Land  
Strong real estate markets are essential for development, but they create assemblage problems. Public policy supporting land banking and public assemblage of land greatly increases the chances of success by keeping land prices low enough to attract developers and eliminating land speculations and holdout parcels.
2. Develop a true partnership  
The private sector is more than just a source of funds; it is a resource for developing a successful facility. The transit agency needs to demonstrate the value of the project to attract developers, then work with the chosen developer to ensure the needs of both parties are met. A quasi-public agency is often helpful for promoting joint development; Toronto and Buffalo have used such agencies to streamline the interaction between public and private sectors.
3. Zoning  
Zoning that supports transit-compatible development is essential to a project's success. Inflexible zoning can work against a developer by preventing the critical elements necessary for a commercial project's success. Cities such as Buffalo, Baltimore, and Atlanta have established transit-specific zoning districts to promote joint development.
4. Direct Station Connection  
Transit agencies recognize the importance of direct access between transit stations and private developments. Cities have used various methods to promote direct access, including a "System Interface" policy in Washington, D.C. and Floor-Area-Ratio (FAR) bonuses in San Francisco.
5. Route Selection and Station Location  
Decisions about alignment and station locations are often made in the absence of development planning, and are often dictated by right-of-way cost factors. Transit agencies need to realize that changes of only a few hundred feet can make a tremendous difference in the development potential of a station site.

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<sup>46</sup> E. Davis et al., p. 81

### **4.2.3 Recommendations to Agencies**

The report's review of transit joint developments in both Atlanta and other cities generates four recommendations expected to improve transit agencies' future experiences with joint development:<sup>47</sup>

1. Consider joint development during the planning stage  
A station's development potential can be realized only if the joint development process occurs prior to the start of construction. Full use of the private developer's expertise should occur from the start of the planning process. Development-unfriendly decisions made early often require extensive and costly efforts to rectify later.
2. Transit agency should adopt a uniform development policy  
A consistent policy will streamline the development process by making it as predictable as possible. The policy should prescribe active and consistent roles for all parties involved in the projects. Care must be taken that the policy conforms to enabling legislation that places any limits on the development role of the transit agency.
3. Establish a single access point of entry  
A single point of contact for private developers will eliminate the disincentive of dealing with multiple public agencies to carry out a project. A development-focused office at the transit agency will streamline the process and facilitate the agency having an active role in the project.
4. Become a true development partner  
A successful program requires commitment from the transit agency. If development is seen as an undesirable role by the transit agency, poor projects will result. The agency needs to accept the role it plays in influencing development and use it positively.

The three groups of policies and strategies in the DOT report highlight the broad scope of issues affecting partnerships between public agencies and private parties. Both the public and private sides of the process must be aware of how these projects differ from the ones they normally undertake, and compensated their expectations and behavior accordingly.

There appear to be three general themes in the recommendations made by the report. These can be summarized as:

- Early and active involvement of both parties in the planning process

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<sup>47</sup> E. Davis et al., p. 84

- Streamlined development process
- Sensitivity of the real estate development market

These themes will be useful for generating broader principles to guide joint development activity.

### **4.3 Nat’l Council for Urban Econ. Devt.’s Recommendations**

In 1989, the National Council for Urban Economic Development partnered with the Urban Mass Transit Administration to collect information about joint development techniques and study completed projects throughout the United States. The report compiles information about development patterns, financing trends, public tools for joint development, and public-private partnership techniques. Their research generates ten “Guidelines for Successful Joint Development”:<sup>48</sup>

1. Establish an effective economic development-transportation partnership.
2. Integrate economic development and transportation goals, and set priorities, through an action strategy and implementation plan within an adopted policy framework.
3. Identify and coordinate available resources to encourage private sector participation.
4. Identify potential joint development sites and developers.
5. Initiate dialogue with developers.
6. Conduct realistic market and feasibility studies early on to determine the best use for land.
7. Prepare a development program and plan.
8. Negotiate development arrangements.
9. Prepare and implementation agreement and obtain public approval.
10. Implement the agreement and the project.

While this framework covers the entire timeline of the project, the initial steps hint at deeper opportunities and challenges. Creating strong partnerships, establishing clear goals, and identifying resources are the three useful lessons from this analysis.

The lack of formal linkages between transportation and economic development, for example, is a recurring problem that complicates the development process and produces inferior facilities. In order to succeed, the partnerships must be “shared commitments to pursue common objectives, such as mass transit facilities, jointly determined by public, private and

community sectors and instituted as joint actions.”<sup>49</sup> The report further describes effective partnerships as “bridges of trust based on similar objectives but mindful of differences in roles.”<sup>50</sup> The project can proceed smoothly if the parties use an organizational form that facilitates such relationships.

Identifying goals and available resources early, and using them to the project’s full advantage will also increase the chances of success. The second and third guidelines emphasize the sharing of perspectives and information among all parties, with the goal of creating a development strategy that satisfies as many parties as possible by employing the resources those same parties can contribute.

#### **4.4 Three Case-Specific Analyses of Joint Development**

This section summarizes three analyses of joint development projects. Each development strategy is a response to unique factors including financing options, real estate market demands, political concerns, and institutional capacities. Each of the following examples is an analysis of a particular situation; the specific conclusions drawn by the researchers may not be relevant for all projects. The works are presented here to identify issues relevant to joint development. The three researchers presented here are Howard Davis (Charleston Center and Copley Place), James Thomas (Kansas City Station), and Makoto Saito (Japanese Rail System).

##### ***4.4.1 Howard Davis’s Research on Charleston Center and Copley Place***

To gain insight into the joint development process, Howard Davis researches the history of two projects constructed through public-private partnerships: the Charleston Center in Charleston, South Carolina and Copley Place in Boston, Massachusetts. By identifying the successes and failures of each, and the factors that contribute to them, Howard proposes eight “lessons” that can be applied to future joint development projects to increase their chances of success:<sup>51</sup>

1. **The “rules of the game” should be clearly established at the beginning** of the planning process, so that potential participants are aware of how they fit into the process, of their responsibilities, and of what is at stake.

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<sup>48</sup> “Moving Towards Joint Development”, p. 72

<sup>49</sup> “Moving Towards Joint Development”, p. 72

<sup>50</sup> “Moving Towards Joint Development”, p. 73

<sup>51</sup> H. Davis, p. 90

2. **Citizen review and impact assessment functions should be initiated early** in the planning process, before positions harden and before disputes arise.
3. **The opportunity to participate in a citizen review body should be available** to all interested persons, and the activities of the citizen review body should be widely publicized, thus adding to its legitimacy and credibility.
4. **The planning process should include mechanisms for incorporating the suggestions of the citizen review body** in the plans for the project, and for binding participants in the planning process to the agreements they make.
5. **Participants should not become locked into long-term, irrevocable agreements** at the beginning of the planning process: they should enter into agreements that allow them to test and then confirm or modify their working relationships and approach.
6. **Someone should be hired to organize and staff the citizen review body;** he/she should be trusted, flexible, and knowledgeable about the issues at hand.
7. **The citizen review body should be provided with added technical support.**
8. **Compensation should be viewed as an acceptable solution** to otherwise irreconcilable differences of opinion.

The guidelines Davis proposes clearly focus on the role of public participation in the planning process, largely due to the issues that arose in the development of the specific sites he studies. They do, however, emphasize some recurring elements of the process that apply to all parties:

- Establishment of a clear framework for the development process
- Involvement of all parties from the beginning of the process
- Flexibility to adjust the project in response to other parties' needs
- Flexibility to adjust the structure of the process as needed

These themes will be useful for developing principles for the implementation of joint development projects.

#### ***4.4.2 James Thomas's Research on Kansas City Station***

James Thomas approaches public-private partnerships from the private developer's perspective in his proposal for the adaptation and reuse of an historic train station in Kansas City.

His research provides insight into how developers approach such a partnership and the factors they analyze when considering a development opportunity.

Thomas begins with a three-point framework for approaching joint development partnerships:<sup>52</sup>

1. Identify the goals of each party
2. Identify the resources of each party
3. Identify the constraints of each party

These three elements help to determine where the project is heading, how it can get there, and what may hinder its success. The parties involved in the project now have a grasp on what they are trying to accomplish and the tools at their disposal.

Thomas then applies this framework to developers and lists the factors that influence a developer's position toward a project:<sup>53</sup>

#### Goals

1. Generate a profit (primary objective)
2. Flexibility (adapt to changing markets)
3. Achieve a specific financial return (based on initial investment and timeframe)
4. Reduce risk

#### Resources

1. Capital
2. Experience

#### Constraints

1. Need to satisfy lenders and investors
2. Limited selection of willing lenders for joint development

These issues set boundaries of behavior within which the developer must operate. The transit agency needs to be aware of these limitations, and to be accepting of a partnership structure that permits these boundaries and compensates for them where necessary.

According to Thomas, developers view the increments of development (spaces within buildings) differently than a transit agency.<sup>54</sup> Developers apply a different value system, namely economic return, to guide their actions. The building location, uses, and shell are all evaluated to

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<sup>52</sup> Thomas, p. 30

<sup>53</sup> Thomas, p. 31



determine how they affect the profitability of the building. Although some overlap in perspective occurs between the two parties, a transit agency must still be aware of the different attitudes guiding development.

Thomas concludes with three suggestions for accomplishing a successful joint development project. These take a strong “pro-developer” stance, but they are nonetheless informative for transit agencies attempting to work with private developers:<sup>55</sup>

1. **A project is more likely to be successful if its ultimate program and design are close to the developer’s conception of the project.** This is because the developer’s situation is more “sensitive” to variations.
2. **The transit agency’s contribution to the project must have economic value to the developer.** The contribution must be sufficient to make the project viable from the developer’s perspective.
3. **Due to fiscal constraints, the transit agency’s contribution should require as little financial input as possible.** Replace money with some other commodity (land, density bonuses, etc.) that has economic value to the developer.

While not presenting a comprehensive view of the joint development process, Thomas provides valuable insight into the attitudes and motivations of private developers. Transit agencies should use this insight to consider how they can approach joint development in a way that attracts developers while meeting their own needs.

#### ***4.4.3 Makoto Saito’s Research on the Japanese Rail System***

In contrast to the other works presented here, Makoto Saito’s research focuses on a foreign case study of joint development: the provision of rail infrastructure in Japan. Japanese rail systems are administered by “third sector” entities, essentially privatized agencies with government support. Although this model is not directly applicable to the U.S. transit situation, Saito provides explanations of three issues that face all public-private partnerships, regardless of their structure or context. These issues are risk distribution, project structure, and regulations.<sup>56</sup>

1. Risk Distribution  
Risk should be allocated in a way that does not impede the private sector’s incentive to minimize costs; the private developer must bear some of the risk to remain motivated to provide efficient service. At the same time, risk

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<sup>54</sup> Thomas, p. 68

<sup>55</sup> Thomas, p. 115

<sup>56</sup> Saito, p. 23

should not pose so great a burden that private developers will be reluctant to participate in the project.

2. Project Structure

The main goal of the structure is to ensure effective project delivery and operation. Two choices affect the fundamental strategy: whether public funds are provided directly (subsidies) or indirectly (incentives), and whether delivery of service components is segmented (provided by many parties) or systematic (entire process handled by a single entity). Saito argues that the American norm of using direct funding and segmented procurement is inefficient and should be changed. The development process should promote and structure a competitive environment to avoid the lack of incentive for efficiency inherent in a monopoly situation.

3. Regulations

In addition to typical regulations addressing safety and environmental issues, regulations for the behavior of the private sector are necessary to maintain efficiency, especially in a situation with limited competition. While controlling the private sector, these regulations must not reduce the private sector's incentives to operate efficiently and provide a high quality of service.

These issues are useful for considering how private developers fit into a joint development project. The relevant themes are the following:

- Ensuring efficient behavior by developers
- Creating sufficient incentives to attract developers
- Efficient operation through centralized management

The joint development framework must be structured to ensure specific behavior on the part of developers yet provide enough flexibility to be attractive to developers.

## **4.5 Conclusion**

This review of joint development research reveals four recurring themes. These indicate issues common to most projects created through public-private partnerships:

1. Involvement of all parties
2. Efficient process
3. Unique resources
4. Sensitivity of developer's position

These issues must be addressed by any joint development strategy that is to be effective. The 'Implementation' principles proposed in Chapter Five respond directly to these

needs by recommending procedural elements that address the identified challenges and make use of unique opportunities.

# 5 Principles Proposed for Mixed-Use and Joint Development

## 5.1 Overview

This chapter proposes principles for three aspects of mixed-use facility development: site selection, basic elements of facility design, and implementation. These are three key issues to be addressed by the transit agency and developer. For each topic, a brief overview is provided and several principles are proposed. The principles have been selected to highlight the most important considerations affecting the decisions to be made by the involved parties. They are to be used to form a preliminary development strategy that can be adjusted to respond to specific sites and situations.

<b>Principles for Mixed-Use Facility Development</b>
<u>Site Selection</u> <ol style="list-style-type: none"><li>5. The zoning and land uses of the area must be supportive of the proposed facility.</li><li>6. The demographics of the location’s permanent and daytime populations must be able to support the proposed facility.</li><li>7. The site must be accessible via the appropriate modes to support the proposed facility.</li><li>8. The location should be in a district whose character complements the type of proposed facility.</li></ol>
<u>Basic Elements of Facility Design</u> <ol style="list-style-type: none"><li>6. The facility’s design should be sensitive to the surrounding urban context.</li><li>7. The transit and non-transit spaces in the facility should be distinct, yet linked.</li><li>8. The facility must have strong, logical access routes both outside and inside the building.</li><li>9. Flexibility should be incorporated into the facility’s design.</li><li>10. Consistent design elements should be used throughout the facility.</li></ol>
<u>Implementation</u> <ol style="list-style-type: none"><li>6. The transit agency must approach joint development proactively.</li><li>7. Form a functional partnership among all parties as early as possible.</li><li>8. Leverage the particular strengths of each party.</li><li>9. Ensure sufficient legal authority and capacity to achieve the proposed development.</li><li>10. Create a dedicated entity to oversee the development process.</li></ol>

## 5.2 Site Selection

Site selection is the most fundamental decision to be made in the development process. It is needed even before the commitment to undertake development of a mixed-use

facility. A facility's location has a strong influence on its size, included uses, and design. Most important, however, the location will ultimately determine whether the facility succeeds or fails.

Not all sites that are appropriate for transit stations are well suited for mixed-use transit facilities. Mixed-use facilities have distinct needs and their locations must share a particular combination of attributes. These attributes must support use of both the transit system and of the other activities taking place within the facility and the surrounding area.

The required site characteristics will vary with the accompanying use; housing has different needs than office space, which has different needs than retail uses, and so on. The proposed principles, for the most part, address this issue by incorporating this variety into their explanations.

It should be noted that site selection occurs in three distinct situations:

1. Construction of new alignment
2. Construction of a new infill station
3. Renovation of an existing station

While each scenario has unique logistical constraints, the proposed principles apply equally to all three situations. One difference among these scenarios, however, does deserve separate consideration within the context of this research: new construction vs. renovation/retrofitting. This variable can generate significant consequences, and will be discussed at the end of this section.

The proposed principles do not address the most elementary site conditions. The variety of facility types, sizes, and designs make it impossible to deal with considerations such as parcel size, soil types, and topography outside of a case-by-case basis, nor are these the focus of this research. It is assumed that any site being considered for development has met the basic criteria of physical prerequisites for the proposed facility. The principles in this section address four site characteristics:

1. Zoning and land use
2. Demographics
3. Accessibility
4. District character

The issue of new construction versus renovation/retrofitting will also be considered.

### **5.2.1 Zoning and Land Use**

***The zoning and land uses of the area must be supportive of the proposed facility.***

This consideration goes beyond the mundane issue of the facility itself being permissible under the existing zoning. Mixed-use facilities require a particular balance of minimum population densities, compatible and supportive nearby land uses, and parking conditions in order to thrive. Zoning is the element that controls these variables; it is the basic framework within which the contemporary urban fabric is built.

Transit stations have a key requirement: population density. As with all commercial enterprises, a sufficient customer base must exist. In this particular case, users must also be attracted to use the transit service for it to thrive. The intensity of land uses surrounding the facility, as determined by zoning, directly influences the number of potential riders present in the area. In addition, land uses with low population densities, such as industrial facilities or housing with large minimum lot sizes, are inappropriate.

Similarly, any retail uses planned for the mixed-use facility will be extremely sensitive to the area's customer base. Profit margins for retail shops, supermarkets and restaurants are so thin, that even a minor decrease in customer base can have severe consequences.

The second aspect of zoning review is the determination of what land uses are permissible near the mixed-use facility. One simple consideration is whether the permitted uses are compatible with transit and the other uses planned for the facility. An easy example would be two gas stations located at the same intersection as the transit head house; the automobile-oriented uses not only fail to encourage use of the transit system, they discourage use by creating a negative environment around the station, as described in the principles of TOD.

The potential customer base for the transit system is also influenced by traffic and parking conditions in the area. To some degree, transit systems are in direct competition with automobile use. If local residents, employees, and shoppers have plentiful parking available for their use, they will not only be less land available for creating higher densities, but the local population will be less inclined to use transit. If, on the other hand, it is difficult to find parking nearby, people will use transit more often to access the area.

The amount of parking provided is often determined by a city's zoning code and design guidelines. Typically, a minimum number of spaces are required per 1,000 square feet of development or per dwelling unit, with the requirement varying by type of commercial land use. In addition, cities often provide on-street parking and commercial lots are developed as well. When combined, these parking resources can easily exceed the number of spaces needed in an area accessible by transit.

The surrounding uses should both complement the proposed facility and contribute to a pleasant environment. Mixed-use facilities with housing should be located in an area where other housing, as well as light retail that provides convenience to residents, is permitted. Retail facilities are more feasible in areas with dense residential or office land uses that will provide customers for the retail.

Beyond this, non-transit uses in the facility should, to a large extent, mirror the surrounding uses. Office space will be easier to lease in an area already seen as a professional district. Housing will rent more quickly if other housing (and the attendant schools, parks, etc.) are nearby.

While the existing zoning at the time of facility planning is important, the transit agency and the developer should keep in mind that zoning can change over time in response to various influences. This means that the parties may have the possibility of persuading the city to rezone the district in a way that is more supportive of the mixed-use facility. Another possibility is the creation of a special zoning overlay district around the transit facility.<sup>57</sup> At the same time, however, it is possible that other influences will cause the zoning to be changed in a way that makes the area less viable for transit-supportive development. These issues are discussed further in the 'Implementation' principles.

### **5.2.2 Demographics**

***The demographics of the location's permanent and daytime populations must be able to support the proposed facility.***

While an area's zoning enables a certain population density and favorable land uses, an adequate amount of people inclined to use transit must actually be present for the facility to

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<sup>57</sup> See the explanation of Puerto Rico's Law 207 in Chapter Five for an example of such a district.

thrive. It is not enough to evaluate the densities allowed by the current zoning; the existing and anticipated conditions of the site must be considered as well.

These considerations include not only the densities and land uses described in the Zoning section, but the types of people and the district's image as well. What are the income level and spending habits of the local residents and employees? Will they be inclined to shop in the retail space planned for the facility? White-collar office workers and blue-collar laborers have very different shopping and spending habits, something that has a direct relationship to any retail facility in the area.

Do all the residents, despite living in dense, high-rise housing, own two cars per household and therefore have less inclination to use transit? Will local residents, because of their income level and the social mores of the particular city, likely to view transit as socially inferior and refuse to use it? While impossible to quantify, these considerations can play a significant role in determining a facility's success, and are researched carefully by private developers.

Retail, office space and housing are susceptible to "image" issues. Stores and firms want to convey a sense of prestige and success, and to many, their location plays a large role in determining the company's image; they may not be willing to locate in a marginal commercial district, despite the availability of lower rents. Potential residents have the same concerns. The old adage "location, location, location" includes not only a site's relationship to amenities, but its character and perceived quality as well.

These issues can be summed up as two key questions: (1) Is the local population likely to use transit (either by need or by choice)? (2) Do the area's demographics create a strong real estate market and consumer demand for the non-transit uses being proposed for the facility? Analysis of census data and other quantitative information can provide some of the necessary information. Local census data can be analyzed with respect to industry guidelines for market areas. See Table 2-4 for the population requirements of different retail facilities. More qualitative market research should also be conducted to ensure a good match between the proposed facility and the local population of users.

### **5.2.3 Accessibility**

***The site must be highly accessible via the appropriate modes to support the proposed facility.***



It is not enough that people be present near a facility for it to succeed. Those people must be able to reach the facility easily enough for them to be inclined to use it. It is accessibility, more than any other factor, which creates links between a facility and the surrounding neighborhoods. Good access is perhaps one of the most difficult conditions to satisfy because it is dependent on so many factors. The key considerations for accessibility are a nodal location, convenient access by the relevant modes, and visibility.

**Nodes** are locations in the urban fabric with concentrated levels of activity and greater access. They occur for various reasons, such as at the intersection of major streets or at concentrations of popular land uses. Often, they serve as meeting points for physically separated and functionally distinct areas. Where this is the case, the people present often represent a diverse combination of incomes, ethnicities, lifestyles, and needs.

A nodal location is ideal for mixed-use facilities, because these facilities need a broad customer base to support their varied components. Transit facilities, which by their nature are often nodal locations, attract riders from a sizeable geographic area, by a variety of modes. Retail businesses also must be in a location with exposure to as many potential customers as possible. Likewise, office tenants like to be “where the action is” since location contributes to professional image. While many residents are less concerned about being in a travel node, the related level of activity and amenities are often considered a benefit.

**Convenient access** by multiple modes benefits all uses in a mixed-use facility. Transit and retail, by their nature, both rely on high volumes of traffic. The more people who have convenient access to the site, the greater the number of potential customers who will use the transit and shopping facilities, thereby contributing to the site’s success. Office space and housing, while not being as dependent on access for their viability since they are both “destination” uses, often with pre-determined users, still benefit from easy access. Convenient access by transit and/or other modes is considered a selling point for potential office employees and residential tenants, especially in soft real estate markets.

Pedestrian convenience was historically, and has become once again the principal concern for transit facility access. By its nature, transit relies on people who travel by foot, and therefore a transit station’s location must provide safe, comfortable, and convenient access for pedestrians. Streets leading to the facility should have adequate pedestrian amenities such as wide sidewalks, shelter from bad weather, and an interesting streetscape. While many of these

considerations are beyond the direct control of the transit agency or developer, the character of the surrounding neighborhoods can influence pedestrian use of a facility and therefore deserves attention.

Although pedestrian access is crucial, other transportation modes should not be neglected. While it is to the transit system's benefit to encourage transit use as much as possible, automobiles, buses and even bicycles should be accounted for as well. The type of facility being proposed determines the relevance of other modes. Stations that are transfer centers or park and ride facilities (see Chapter Two) require access by other modes. Beyond these obvious examples, however, there are other situations where automotive access is appropriate. Large housing complexes in the facility will require some residential parking; it is unreasonable to assume that all the people living at the site will rely solely on transit. Similarly, office space will require some parking. The degree to which this is true depends on a variety of factors, such as the extent and quality of the regional transit system and the cultural reliance on cars; the key point here is that automobiles cannot be ruled out entirely. Creative solutions such as parking sharing, in which a single parking lot serves different facilities at different times of the day based on need, can minimize the intrusion of automobiles into the environment.

When dealing with the issue of multi-modal access, it is essential that the location provide complementary access for the needed modes. Each mode must function well without detracting from the other modes. The normal losers in any access conflicts are pedestrians; they are often provided with marginal routes. However, pedestrians are a key asset for a mixed-use transit facility, and care must be taken to encourage their patronage. All modes should receive consideration, as dictated by the needs of the proposed facility.

When evaluating the accessibility of a location, **visibility** also plays a role. Even if a facility is nearby, people are less likely to use it if they can't see it. This is obviously relevant for someone who is not aware of the facility's presence, but it goes beyond that.

This issue is, in many ways, more of a psychological consideration than a logistical one. Any facility that relies on customer patronage, benefits from being able to constantly remind potential users of its presence. The more frequently people see a store, the more likely they are to go inside, whether it was their pre-selected destination or not. This is why retail spaces on well-traveled streets command higher rents than those on side streets. The same arguments apply to transit systems and, to a lesser extent, to office space.

For these reasons, the location selected for a facility should establish a strong presence, especially in areas of high activity. This consideration also affects design; the facility's size, style, and signage should be designed to make it as recognizable as possible (within limits of taste, of course).

#### **5.2.4 District Character**

***The location should be in a district whose character complements the type of proposed facility.***

This principle may, at first review, appear to be a mere restatement of the principles dealing with zoning and demographics. The issue being addressed here, however, deals with a more abstract component of site selection. Mixed-use facilities are more likely to succeed when they have a strong, positive identity. Being in a location that has a "sense of place" contributes to a facility's health and success. This can be a hard attribute to quantify, but the benefits are undeniable.

A positive identity can be generated in a number of ways. A concentration of popular pre-existing uses can create a particular atmosphere that becomes synonymous with the location. Historic sites or buildings often contribute to a location's identity; the rising popularity of the word "historic" in naming districts indicates cities' belief in this strategy. Whatever the cause, the important aspect is that such locations have an established cache that attracts people to the area, and to any facilities located within it.

Any enterprise, commercial or residential, benefits from being in a location with a popular identity. The "name brand" location helps to sell the facility by augmenting peoples' perception of it. The facility is perceived as successful because it is in a successful area.

Beyond the success of the area, its perceived character should complement the proposed uses in the facility. Retail stores will benefit from being located in a trendy shopping area; office tenants will want a location associated with authority or financial success; residents will enjoy being in an area with a reputation for attractive housing and status. The criteria may vary among uses, but the principle is the same: proposed uses should match the popular perception of the location and enhance it.

### **5.2.5 New construction of a facility is much easier than renovation of an existing transit station.**

A mixed-use transit facility can be created through new construction, either where no facility existed previously or where one did exist but will be demolished to enable new construction. Alternately, an existing building (either transit station or other, non-transit use) can be adapted to create a mixed-use facility.

From a logistical standpoint, it is much easier (and often less expensive) to build a completely new mixed-use facility, rather than trying to retrofit additional uses into an existing facility through extensive renovation or expansion.<sup>58</sup> Often, the existing structure was not designed with expansion in mind, and the structural elements, access points, and design make such modifications extremely difficult, if not impossible. The potential for the interruption of transit service during the construction process must also be factored into the decision.

For this reason, vacant sites should receive preferential consideration over existing facilities. The particular situations will each have their own benefits and costs to determine ultimate feasibility, but parties should carefully consider whether renovation and expansion of a facility will justify the ultimate cost in construction complications and compromised design.

## **5.3 Basic Elements of Facility Design**

Once a site has been chosen for a mixed-use facility, the next major issue to address is physical design. There are countless considerations that affect design. Hoel addresses the global considerations by grouping them in several different ways. Design criteria include safety, convenience, continuity, comfort, system coherence, and attractiveness. Social issues include human factors, graphics and information systems, physical features, criminal activity, public attitudes, access and parking, and commercial activities.

Different uses require different design elements, and different combinations of uses will likewise affect design. As with site selection, the following principles address key considerations across all potential uses and combinations. They are all issues to keep in mind as the design process progresses from concepts to construction documents. The principles address five aspects of design:

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<sup>58</sup> Byron Gilcrest interview, January 23, 2003

1. Sensitivity to context
2. Distinct yet linked interior spaces
3. Future flexibility
4. Access routes
5. Consistency of design elements

### **5.3.1 Sensitivity to Context**

***The facility's design should be sensitive to the surrounding urban context.***

As with any new development, the facility's design should complement and enhance the surrounding land uses and architectural styles. This includes both the size and style of the facility, as well as the proposed uses within it. This will not only lead to an attractive and useful facility, but may also minimize public opposition to the development.

Good design of a physical structure strives to reflect the nature of its location. A facility should mirror the scale and size of the surrounding buildings; it should not stick out as an eyesore. In the case of most transit systems, the alignment already creates a strong physical intrusion into a district: with the exception of underground lines, alignments use a large amount of land, create physical barriers to movement, generate noise pollution, and constitute imposing structures. As the main point of public interaction for the transit system, station facilities must strive to avoid these characteristics. They should, to some degree, blend into the neighborhood, while still being identifiable as transit stations. Wherever possible, head houses should have design elements such as height, mass, and setbacks that are architecturally compatible with the adjacent buildings. The designers must pay attention to the context of the facility location and complement it.

This is one of the potential benefits of mixed-use facilities: they are able to provide access to the transit system from within a structure whose use and style can easily fit in with the buildings around it. The design becomes less transit-dependent and its style and has more possibilities.

The basic design of the proposed facility also encompasses the non-transit uses that will be included. These plans should be sensitive to the types and amounts of activity that the area will support, from perspectives of both marketability and externalities of the uses. The amount of housing, office, and/or retail space in a facility will depend on the viability of such

uses in that location; developers will not be willing to build a facility that is not economically viable. The risk-adverse tendencies of developers and their lenders will place severe limitations on the scope of development planned for a facility and the feasible mix of uses, given the real estate conditions in that location and local lending practices. The non-transit uses of the space must be compatible with the location's market demand.

Furthermore, the mixed uses must be selected to create or maintain an attractive environment around the facility. The negative externalities generated by the proposed facility should be evaluated to ensure they do not encroach significantly on the neighborhood. Impacts from issues such as truck deliveries to stores or heavy rush hour foot traffic to/from office space must be considered as the facility is being planned.

The reasons for promoting a context-sensitive design are simple: it will create a more attractive place and minimize political opposition to the project. The goal is to create a facility that has a symbiotic relationship with its location. A mixed-use facility contributes to the character and identity of the area as much as any element discussed in the Site Selection principles, above. It is to the benefit of both the facility and its neighbors that this contribution be a positive one.

Mixed-use facilities can generate negative impacts, including congestion, gentrification, and possible crime. If local residents' fears of these impacts are not addressed by the design, the amount of political opposition to the project will increase. The developers must demonstrate how their project will make a positive contribution to the community by providing desired services, managing traffic around the site, and creating an enjoyable environment. For the sake of implementation efficiency and political capital, the transit agency and developer both benefit from proposing a plan that is attractive and acceptable to local stakeholders.

### ***5.3.2 Distinct Spaces***

#### ***The transit and non-transit spaces in the facility should be distinct, yet linked.***

The motivation for creating a mixed-use facility is that the different uses will benefit each other by providing complementary services and share a broader customer base. This goal is completely undermined if the design of the facility causes conflicts between uses in terms of identity, management, etc. Successful design entails creating a distinct space for each use while maintaining links among those spaces. This can be accomplished by defining zones of activity,

by allowing separate management and small-scale design appropriate to each use, and by preventing interference between uses.

Just because more than one use is present in a single building or site does not mean that the uses cannot be separated. Each use should have a clearly identifiable area of the facility in which it takes place. This strengthens the identity of the use by achieving an independent prominence within the facility, and enables the space to be tailored to the needs of the activity occurring within it. The facility should be divided into identifiable sections, with most areas dedicated to particular uses and other areas, such as lobbies, serving as shared common space. These public spaces enable movement between the private spaces in the facility. This will enable each use to establish a presence, while minimizing conflicts.

This compartmentalization enables flexibility in management, operation, and use-specific design. Different uses will be active at different times of the day, often with some areas of the facility in use while others are closed. Transit services typically have longer hours of operation than other commercial activities: trains may operate from 5:00 am to 1:00 am, for example, yet retail and office areas of the facility may be open only between 9:00 am and 7:00 pm. Conversely, residents must be able to access the on-site housing at any time of day or night.

Uses also have different design needs. Services occupying office space may want a more sophisticated, professional design for their environment, while restaurant operations require areas that can accommodate heavy traffic, frequent deliveries, and food spills. Distinct areas serving each use facilitate differences in service hours, varied maintenance needs, and so on.

The facility's layout must anticipate potential conflicts among uses, and seek to minimize them. Most important among these is customer flow through the building. Rail transit generates large pulses of pedestrian traffic through the station areas with the arrival of each train. Transit users assign a higher disutility to time spent in the station than in the train. For this reason, the facility should not have uses that create bottlenecks or obstructions in the path of transit riders. Cafes with tables, stores with "street furniture", and other uses that attract standing crowds should be located outside primary paths but should be adjacent. This enables a synergy between uses without creating conflicts. Similarly, uses that generate noise or strong odors should be sited appropriately.

While it is desirable to compartmentalize uses in the facility, it is also important to ensure a physical and psychological connection among them. Without this, the principal benefit

of a mixed-use facility is lost. This is achieved through shared common areas such as entryways, atria, and other spaces with views and access to all the uses. This issue of access routes is discussed further in the next principle.

### **5.3.3 Access Routes**

#### ***The facility must have strong, logical access routes both outside and inside the building.***

Just as the facility needs good regional access (as discussed in the Site Selection principles), the same principle should be applied to the site itself. The individual uses in the building must be served by good internal and external access routes incorporated into the design.

External entrances to the facility must create links to neighboring uses and areas. The design should anticipate the particular directions from which the clientele of each use will come, and provide a clear path to that use. The entrances should align with primary routes for each mode of travel being targeted. In addition, the topography and other site characteristics will influence the most convenient access points (people will avoid walking uphill if possible, for example). Good access encourages patronage of included uses and fosters development interest. The ultimate goal is to create bridges to the surrounding areas.

These access routes should then be continued inside the structure, with paths providing clear travel from entryways to common spaces from which all uses can be accessed easily. It is also important to ensure good access among the uses themselves, to maximize the sharing of customer streams; uses should “intercept” each other’s customers without causing conflicting flows. Thought must be given to both horizontal and vertical routes; mixed-use facilities often encompass multiple levels.

In some cases, it will be necessary to provide multiple access routes to single locations. There are two reasons for this. First, in times of heavy pedestrian flow, multiple routes will alleviate congestion and provide users with options from which to choose. Second, as explained above, different parts of the facility will be operating at different times. It is *essential* that a closed area not prevent access to other areas that are in service; failure to accomplish this jeopardizes the viability of the entire facility. Dual entrances easily solve this problem, although they can result in awkward travel routes. Careful thought must be given to how and when people will need access to each area.



### **5.3.4 Design Flexibility**

#### ***Flexibility should be incorporated into the facility's design.***

A traditional design flaw of many transit stations and mixed-use facilities is failure to anticipate future renovation or expansion. This is often why it is often easier to demolish an existing structure and start anew than it is to retrofit new uses and space. A design that is flexible enables three beneficial activities: planned phasing, adaptation to changing needs, and future expansion.

Mixed-use facilities are often developed through phased construction. The real estate market will dictate when private uses should be built on a mixed-use site. Transit facilities, however, are planned as part of a larger system and may be needed as soon as possible, even though there is currently insufficient market demand for the commercial space that will occupy the rest of the building. A facility design (and train system) that enables phased construction resolves this dilemma. All of the necessary infrastructure is planned and built from the start of the project, even though the completion schedule of the entire development may be unknown. Ideally, each use can be added as an additional module when the market demand for such space is present. This entails foresight in structural issues, access routes, and short-term design elements to fill the vacant spaces. The effects of later construction (noise, staging, etc.) on earlier phases must also be considered; this is particularly problematic for an operating transit facility and adds considerable time and cost to the construction process.

The facility should incorporate space that can be adapted to different uses over time, as demands change. While the design requirements of retail, office, and housing space make it extremely difficult to make such space interchangeable, thought can be given to making each category of space as versatile as possible. Moveable walls can be used to adjust the size of tenants' individual units, universal access to utilities and delivery facilities can be provided, etc., to maximize the long-term marketability of the facility's space. As with construction that can be phased, these design elements enable the facility to respond to cycles in the real estate market.

The design should also make future expansion of the facility possible. This enables the development to capitalize on its success by growing to meet increased customer demand. Too often, developers realize they underestimated the potential of the site and are limited to economic returns lower than those possible. Successful design elements for expansion include knockout panels in walls, orientation towards adjacent real estate and other techniques that are

easy to incorporate into initial design, but much harder to provide later on. Designers will benefit from considering possibilities for both air rights and “side rights” (horizontal expansion) in their plans. Foresight at the time of initial design can make it easy to adapt the facility to future needs.

### **5.3.5 Design Element Consistency**

#### ***Consistent design elements should be used throughout the facility.***

The final design principle concerns consistency of design elements throughout the mixed-use development. Some of the principles above that encourage a compartmentalization of the facility and the mixture of various uses can result in a site that seems disjointed or inconsistent. Users of a successful mixed-use site should perceive it as a single development, not as a primitive assembly of disparate components. Along with good access routes, consistent design elements serve to bring all the pieces together into a unified whole. Architectural elements, maps and signage, paving, and landscaping are a few of the ways to achieve continuity. All these combine to define a single “place”. Clarity of signage should be emphasized, since mixed-use facilities are often confusing because of their size. Just as a good transit system uses consistent signs and maps throughout the stations and vehicles to increase rider comprehension, so should a mixed-use facility maintain consistency in its signage. This signage should be coherent, yet distinct from the transit signage.

It is important to clarify that this consistency in design should be applied to the common space elements of the facility, but not necessarily to individual businesses or shops. To do so would eliminate some of the variety that creates visual interest, and would result in a sterile environment - something to be avoided at all costs. The design guidelines for these elements will need to achieve a balance between clarity and vibrancy, while preventing signs that detract from the pleasant environment. The result will be an interesting space through which people will be able to move easily.

## **5.4 Implementation**

The implementation of a mixed-use transit facility requires cooperation among parties with very different perspectives and interests. One of the greatest challenges of joint development is determining how these parties can work together effectively by reconciling differing goals, resources and constraints. The mutual interests and potential conflicts between

the transit agency and developer were explained in the “Joint Development” section of Chapter Two.

The principles that follow attempt to take advantage of common goals while recommending actions that identify and minimize traditional difficulties in the process. They have been selected to further the gains achieved by both parties to the greatest extent possible and to establish an effective and efficient development framework.

#### **5.4.1 Proactive Agency**

##### ***The transit agency must approach joint development proactively.***

Initiating joint development activity is a challenge. Public-private development of mixed-use transit facilities is a model that has yet to gain common acceptance in the development community and with development lenders. The burden of initiating joint development opportunities often falls on the transit agency in real estate markets where joint development has not been attempted before. For this reason, the transit agency must take a proactive approach to accomplishing joint development projects. This approach should include three elements:

1. Making a commitment to joint development
2. Creating development policies
3. Taking steps to attract developers

**The essential first step for a transit agency is to make a strong commitment to undertaking joint development.** The development of non-transit real estate projects is an activity that falls outside the purview of most transit agencies, and therefore can be an intimidating prospect for the agency. A lack of expertise, few precedents, and insufficient staff capacity on the part of transit agencies discourage many from attempting joint development. Recognizing these weaknesses and making a conscious decision to rectify them for the sake of implementing mixed-use facilities is a crucial hurdle to overcome. Giving staff an understanding and appreciation of the benefits TOD and mixed-use offers transit systems can motivate them to face these challenges.

Once committed to joint development, **a transit agency must implement consistent development policies.** Both the transit agency and local developers may be unfamiliar with the nuances of joint development projects, especially for transit facilities. A comprehensive set of

policies will generate three important benefits. First, it will inform the development process, so all parties have better comprehension of the complexities involved. Second, it will establish a procedural framework with an explanation of each party's role and responsibilities, so each party understands what will be required of it. Third, this clarification of responsibilities will hopefully relieve some of the wariness parties feel about entering such a project.

Precedents in cities throughout the United States and other countries can serve as models for how joint development can be implemented. It will be up to the transit agency to determine which precedents best match the situation of their city, their agency, and their real estate development market.

**The policy framework and the transit agency's subsequent actions must be able to convince developers of the viability of joint development.** The transit agency must take the necessary steps to attract developers to the project. While economic incentives will almost always be required, the transit agency should realize that the first joint development projects in an untested market must go even further. The agency must "sell" the project to the development community. It will be up to the agency to underwrite initial feasibility studies and real estate analyses, to determine which incentives will be adequate, and to demonstrate its commitment to the project. These must all present a convincing argument conveying the likely success of a mixed-use facility development through public-private partnership. This will require much work on the part of the agency, but will serve to demonstrate its interest and faith in the project.

#### ***5.4.2 Partnership***

##### ***Form a functional partnership among all parties as early as possible.***

Once a private developer has expressed interest in being a partner, it serves the interests of all parties to establish a functional partnership as early as possible. This does not refer to a legal partnership (although some form of one will be necessary); it is focusing on a meaningful sharing of information that leads to a more effective and efficient process.

Ideally, all the parties who will be involved with the development are included in the process from the very start. This is very often not the case, however. A transit agency has typically made many decisions about alignment route, station locations, and station design before a private developer has been selected, much less involved; the developer is often left to "fill in" the leftover space around the transit-related structure and spaces. It is also problematic if the

developer is ahead of the transit agency in the development process, and the agency's ability to design an effective station is constrained. While either approach does not preclude successful joint development, it will make the process less satisfactory for all the parties involved.

Given the potential conflicts in goals and strategies among the parties, it is important that each has an awareness of the others' perspectives. Such an understanding is not achieved instantly. The parties must have time to listen to each other, and to appreciate how their differences will influence the development strategy. This process will occur more effectively if all parties are able to meet and exchange ideas before the development has started, when time and budget constraints are not yet demanding constant action and progress. The more relaxed manner in which the parties can gain insight into each other's goals, the more successful the partnership will be.

Getting all the parties involved early in the process also allows each to state its particular needs in time to have them addressed in a meaningful way by the development strategy. This strategy should target the needs of *all* parties ultimately involved in the project, not just those who were present when the strategy was formulated. The best way for this to occur, of course, is for all the parties to be involved from the beginning. This will prevent the need for awkward revisions to the strategy later in the process, when such changes can cause significant costs or delays.

The purpose of devising this strategy with all the parties involved is to establish the development framework early, so all parties have an understanding of their responsibilities. If careful thought is given to the strategy now, and all parties have a role in its creation, the strategy can prevent later misunderstandings. Time spent now in resolving potential conflicts can save much time and frustration later in the process.

It is important to remember that local or state government may be a key player in the joint development process. Although they may not have a direct role, the cooperation of these agencies is often needed for zoning, enabling legislation, and/or funding purposes. The same issues that apply to the transit agency and developer are relevant for other government offices: getting them involved early and enabling them to play a meaningful role in determining the development strategy will earn their support of the project and prevent later conflicts.

The importance of effective partnerships cannot be stressed enough in the joint development context. The parties involved may be accustomed to having complete authority

over projects, but they must realize that mixed-use facilities will only succeed with all the parties working together to select and support a common goal.

### **5.4.3 Individual Strengths**

#### ***Leverage the particular strengths of each party.***

The principal argument for joint development is that different parties have different skills, and the combination of those skills enables the parties to create a better development than each would have been able to by itself. To this end, the particular strengths (and weaknesses) of the parties should be identified, so the development strategy can make use of them in an effective manner. The resources available to each party can be broadly classified as land, money, expertise, and influence.

**Land** is an obvious requirement for a development. Typically, the transit agency has already acquired the land on which the mixed-use facility will be built; this will have been dealt with during the process of alignment selection and procurement. If not, the transit agency may be able to gain control of the necessary land through eminent domain, by either exercising such authority itself or by doing so through the appropriate governmental agency. Transit agencies are well versed in acquiring land, and likely have the in-house expertise to conduct this activity.

The second major issue is **financing**. In joint development situations, money will come from various sources. Transit agencies typically use a combination of local, state, and federal money to fund capital projects. These funds often have stipulations attached that allow them only to be spent on transit-specific costs, meaning the remainder of the mixed-use facility must rely on other financial sources. The developer covers this shortfall by using its standard combination of investors and lenders. The transit agency can contribute additional economic benefit through its access to additional public sector financing techniques such as tax increment financing. These techniques allow the transit agency to make an economic contribution to the project without having to commit to a direct financial expenditure.

The transit agency and the developer should each be skilled in their respective areas of practice. The transit agency's staff knows how to navigate the numerous governmental procedures involved with the project. It can work with agencies to ensure the proper zoning, infrastructure improvements (such as roads and sidewalks), and legal approvals that will be needed. As stated above, the transit agency can also tap financial resources not available to

private developers. The developer should focus on managing the construction process and on securing any additional funding needed. Private developers often require more stringent control of the contractors, subcontractors, etc. and can more efficiently control construction of the facility. Care should be given, however, that the design criteria for the transit system – with which the developer may not be familiar – are carefully followed. The developer can also work with lenders to provide the information they will need before offering a loan for the project.

The final capacity to be addressed is **influence**. This is a broad category that covers the political figures, private institutions, local neighborhood organizations, and many others who are tied in some way to the project. The transit agency and developer will have pre-existing relationships with many of these, and should use these relationships to gather support for the development. Potential political challenges should be anticipated, and efforts made to address them early enough that they do not create a serious threat to the project. A list of key stakeholders should be developed, and the appropriate party should establish a relationship with those stakeholders throughout the development process.

#### **5.4.4 Legal Capacity**

##### ***Ensure sufficient legal authority and capacity to achieve the proposed development.***

In many cities, involvement in the development of non-transit facilities is a new role for the transit agency. The agency may not have been created with this purpose in mind, and its enabling legislation may not authorize such activity. It is critical that the agency both confirm its legal ability to be involved in joint development and work to gain any additional powers it will need to participate effectively in the project. These legal abilities include forming partnerships with private developers, using land holdings or financial resources for non-transit purposes, acquiring land for non-transit purposes, and control over development around the mixed-use facility. While only the first two are strictly necessary, access to all of these capabilities will greatly facilitate the development process.

Foremost, the transit agency must be authorized to enter into agreements with private developers. While transit agencies often work with private companies, they are typically contractors and consultants hired by the agency. It is much less common for a transit agency to be an equal partner where costs, profits, and/or risks are being shared. The enabling legislation should be reviewed to confirm that such agreements are allowed. If they are not, the necessary

amendments to the legislation should be lobbied for and accomplished before joint development begins.

Even if a transit agency is authorized to enter into development agreements, it is not always allowed to use its assets freely. Many transit agencies are limited to developing and operating transit-specific facilities, and mixed-use facilities of the type discussed here may not meet the necessary requirements. Since it would be impossible to separate the transit- and non-transit-spaces under the principles presented in the “Basic Elements of Station Design” section, the agency must be authorized to be involved in non-transit development. The enabling legislation should be reviewed and any necessary changes sought before development begins. It is important to note that the legislation may be vague in its stipulations of what the transit agency is and is not authorized to do. Even in cases where it is possible to interpret the enabling legislation as permitting joint development, it is strongly advised that changes be made to have the legislation explicitly specify joint development and non-transit development as permitted activities. This will eliminate any doubts and will discourage potential lawsuits from project opponents seeking to cause delays or halt the project.

Closely related to the previous issue is that of acquisition of land for non-transit use (as opposed to the use of land *already* held by the transit agency). While this is a subtle difference, it is relevant. Tren Urbano is one example of a transit agency with differing restrictions for land acquisition and use.<sup>59</sup> While it is not strictly necessary that the transit agency be responsible for all land acquisition (the developer can always buy the land on the open market), the transit agency is often able to acquire the land for a lower cost. Furthermore, granting powers of eminent domain directly to the transit agency can greatly increase the efficiency of land assembly. If possible, the enabling legislation should be drafted to include these powers.

An ability that is by no means necessary, but can be extremely beneficial to the project, is the right to review any development plans proposed for the area around the mixed-use facility. Given the particular balance of local land uses and densities needed for a mixed-use facility to thrive, the surrounding developments play a crucial role in the life of the facility. Recognizing this, cities are beginning to grant powers of review to the transit agency for any



projects to be built near the station. For example, Tren Urbano has design approval rights over any new development within 500 meters of a transit station. This ability allows the transit agency (and developer) to influence factors that are outside its normal scope of authority, but that nonetheless exert a strong influence on the mixed-use facility's viability.

These capabilities all can greatly benefit the joint development process. They not only prevent certain legal challenges from being brought against the development, they enable the transit agency to assume a more influential role in the public-private partnership, and allay some concerns private partners and their lenders may have about the legality of the development strategy.

#### **5.4.5 Dedicated Entity**

##### ***Create a dedicated entity to oversee the development process.***

The final recommendation for implementation is the creation of an entity within the transit agency that is dedicated solely to joint development activity. This entity, referred to here as the "development office", should be semi-autonomous and may be authorized to oversee joint development independently. The benefits for creating a development office include nurturing a staff with development expertise, providing a single contact point for private developers, avoiding much of the typical government bureaucracy, and creating a "project champion" for mixed-use facilities.

While transit agencies have real estate departments involved with the acquisition and disposition of large amounts of land, few have staff expertise and time dedicated to the issues specific to joint development. Given the complexities of public-private partnerships and of mixed-use development, the transit agency (and other parties involved) will benefit greatly from the creation of a staff group whose only purpose is joint development. The creation of a development office demonstrates the transit agency's commitment to joint development, which can attract potential employees with the needed dedication and expertise. These staff people will then be able to work in an environment where they can focus their efforts on joint development and not be distracted by the other normal duties of the transit agency, resulting in more effective use of staff time and better results.

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<sup>59</sup> Tren Urbano's legal capabilities are discussed in Chapter Six.

A development office will be attractive to private developers for two reasons: it will establish a single contact point for the developer, and it should prevent much of the typical government bureaucracy that delays the development process. One of the strongest disincentives for a private developer to undertake joint development is the maze of government offices and approvals that must be navigated. Too often, the public side of the partnership does not provide adequate support for the private sector, which is unfamiliar with the complexities of the government process. This often prevents a developer unfamiliar with the governmental process from attempting joint development.

A development office eliminates these problems. Staffed by people familiar with both sides of the development process, the office serves as an intermediary between the two. It acts as *the* contact point for the private developer, greatly easing the burden on the developer to identify the proper people and offices with whom to work. Much of the uncertainty and administrative hassle is eliminated, and the developer is free to concentrate on its part of the project. At the same time, the development office establishes relationships with the agencies at various levels of government who will be involved in the approval process for the project. This is an efficient use of time, since the development agency will be repeating these steps for each joint development project undertaken, unlike the private developer who may be involved in only a single project.

An important role of the development office is to serve as the “project champion” for joint development of facilities. Given that these facilities are still a relatively new model in the United States, both the public and private sectors can be reluctant to undertake them. A staff of people who believe in the benefits of joint development, understand the concerns of both sides, and are dedicated to carrying out the process effectively, can keep the projects on track and overcome opposition much more successfully than a few individual supporters within a transit agency. A separate development office instills a faith in the legitimacy of joint development and devotes staff people to the sole purpose of supporting it. Until joint development and mixed-use transit facilities are commonly accepted models, a project champion like a development office is a critical element of the development framework.

A crucial issue for all parties to address is the structure and capacity of the development office: who runs it, to whom does it report, and what powers does it have? The development office can be a staff group within the transit agency that reports directly to the

agency president. It can also be an independent development authority, composed of city officials, transit officials, and developers, that is outside the direct control of the transit agency. There is no single “correct” model; the particulars will depend on the political situation in the city, the structure and capacities of the existing transit agency, and the needs of the real estate development market.

The primary recommendation made here is that the development agency be granted the greatest amount of authority that is politically acceptable to the transit agency and to local government. Greater powers will enable the development agency to act more effectively and more efficiently. Care must be taken, however, not to create a rivalry or power struggle between the development office and the transit agency; such a situation can undermine the cooperation necessary for successful joint development.

## **6 Application of Principles to Tren Urbano**

### **6.1 Overview**

This chapter applies the three sets of principles proposed in Chapter Five to the Tren Urbano rail system in San Juan, Puerto Rico. It begins with a brief overview of the City of San Juan and the transit system. Two separate analyses are then presented. First, the Tren Urbano agency's institutional capacity and activities to date are considered with regards to the 'Implementation' principles, and recommendations for modifications and future actions are made. Second, two station sites are reviewed in light of the principles for 'Site Selection' and 'Basic Elements of Station Design', and recommendations are made for both. The reviewed sites are the Roosevelt Station in the Phase I alignment, where the station structure has been completed and adjoining parcels have been targeted for joint development; and the Degatau station, a planned station location on the proposed alignment extension to Carolina.

The results of this section provide a better understanding of the proposed principles through their application to real-world situations, an evaluation of Tren Urbano's approach to joint development to date, and the opportunity to consider whether the proposed principles cover all of the critical aspects of facility development.

### **6.2 City of San Juan**

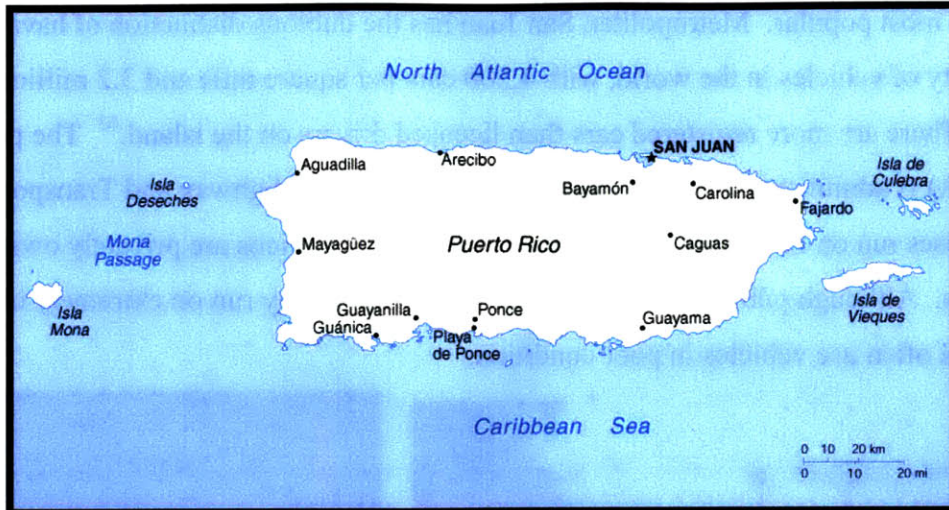
San Juan is located on the Caribbean island of the Commonwealth of Puerto Rico. The island is approximately 3,500 square miles in area and has a population of 3.8 million people.<sup>60</sup> Puerto Rico is a territory of the United States: its residents are U.S. citizens, the island is eligible for participation in U.S. federal programs, and U.S. federal laws apply to the island.

San Juan, located on the northern coast of the island, is the capital and the largest city in Puerto Rico. It is a geographically large urban area, comparable in size and density to many large cities in the continental United States. The city of San Juan has 500,000 inhabitants, and the greater San Juan Metropolitan Area has a population of 1.6 million.<sup>61</sup>

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<sup>60</sup> *Puerto Rico Herald* website ([www.puertorico-herald.org](http://www.puertorico-herald.org))

<sup>61</sup> *Puerto Rico Herald* website ([www.puertorico-herald.org](http://www.puertorico-herald.org))



**Figure 6-1: Map of Puerto Rico. San Juan is located near the northeast corner of the island.**

The development pattern in San Juan reflects the predominance of the automobile in Puerto Rican culture and presents challenges to the successful implementation of a rail transit system. Like many American cities that experienced tremendous population growth after World War II, the rapid construction of highways and widening of arterial roads created sprawling suburbs around the relatively dense urban core. Buildings in the commercial districts are auto-oriented, with prominent parking and few streetfront amenities for pedestrians. Many homes are located in gated communities whose geographic scale and street patterns discourage transit use. Even dense retail districts are auto-oriented, with streetfront parking that often spills into, and blocks, what few sidewalks exist.



**Figure 6-2: Typical streetfront parking that blocks pedestrian use of sidewalks.**

There are three dominant modes of transportation in San Juan: private automobiles, buses, publicly operated buses, and privately operated jitneys (“públicos”). Of these, private cars



are by far the most popular. Metropolitan San Juan has the dubious distinction of having the highest density of vehicles in the world, with 4,200 cars per square mile and 3.2 million car trips each day.<sup>62</sup> There are more registered cars than licensed drivers on the island.<sup>63</sup> The public bus system (AMA) is administered and operated by the Puerto Rico Highway and Transportation Authority; buses run on fixed routes and regular schedules. Públicos are privately owned and operated vans. Although públicos typically have fixed routes, they run on extremely irregular schedules and often use vehicles in poor condition.



Figure 6-3: San Juan bus station. San Juan público station.

### **6.3 Tren Urbano System**

In response to growing population, increasing sprawl, and rapidly escalating traffic congestion, the government has been focused on providing better transit alternatives for San Juan. In the early 1990's, planning began for the implementation of a heavy rail transit system to serve San Juan: Tren Urbano was born.

Tren Urbano is seen as the opportunity to create the framework for a regional transit system. The rail system will form a spine from which feeder routes using buses and públicos will extend. Transit service will be coordinated among the modes to ensure a comprehensive integrated network. In addition, five potential extensions of the rail system are in the planning stage (although none have been confirmed for construction as of this writing), to increase the

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<sup>62</sup> Proakis, p. 135

<sup>63</sup> Tren Urbano publicity materials

scope of the network. San Juan also plans to foster transit-oriented development with a new land use plan that employs zoning and other techniques.<sup>64</sup> The hope is that this strategy will effectively halt the pattern of sprawl that typifies San Juan and begin a new trend of reduced reliance on automobiles.

Sited on an alignment originally intended for a highway, the first phase of the Tren Urbano system (“Phase I”) will be 17.2 kilometers long, with 16 stations serving strategic commercial and residential areas in Bayamon, Guaynabo, Río Piedras, Hato Rey, and Santurce. The majority of the guideway will be elevated, although some sections will be at- or below-grade, and one section will be underground. The estimated travel time from one end of the alignment to the other is approximately 30 minutes.

Phase I is scheduled to begin operations in September 2003, with an estimated project cost of \$1.4 billion. The system will use 64 electric trains, traveling at 55 miles per hour.<sup>65</sup> The administration anticipates an initial daily ridership of 100,000 people, growing to an average of 115,000 daily boardings by 2010.<sup>66</sup>

Tren Urbano is a symbol of the hope for a new San Juan that will thrive in the 21<sup>st</sup> Century. The Puerto Rican government has dedicated a tremendous amount of time, energy, and money to the creation of the system. The next several years will show whether this vision is based on a legitimate optimism that San Juan can adapt to embrace a new urban philosophy.

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<sup>64</sup> These techniques are explained in more detail in Section 6.4.5.

<sup>65</sup> Tren Urbano publicity materials

<sup>66</sup> Marshall, Alex; “Train, Si! Sprawl, No!”

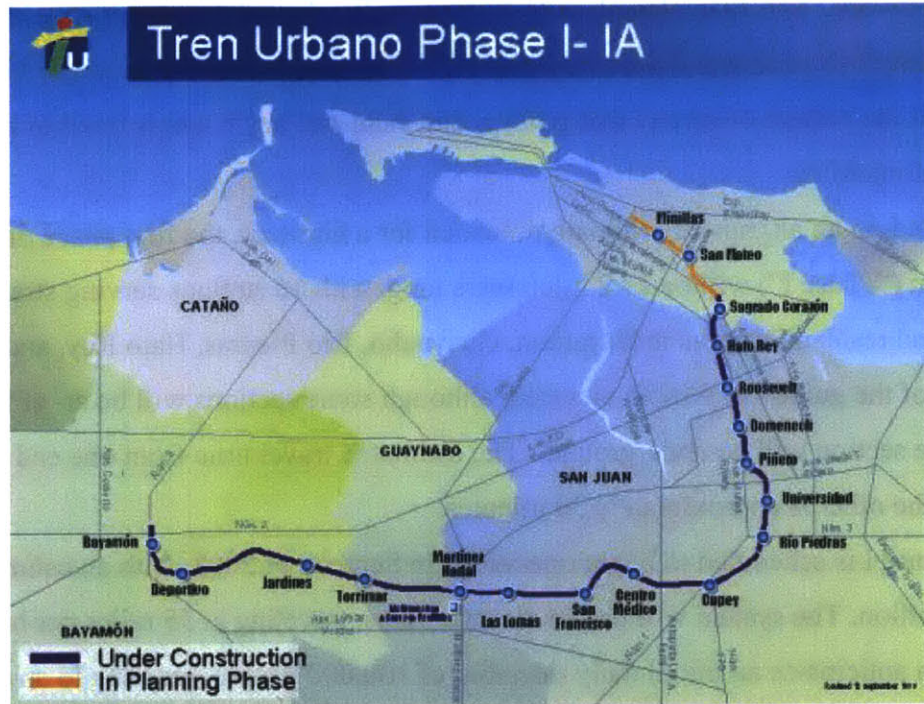


Figure 6-4: Map of the Tren Urbano Phase I alignment (with station locations).<sup>67</sup>



Figure 6-5: Maps of the vision for the full transit rail network.<sup>68</sup>

<sup>67</sup> Tren Urbano planning documents



## **6.4 Analysis of Tren Urbano's Approach to Joint Development**

### **6.4.1 Introduction**

The Tren Urbano rail system is administered by the Puerto Rico Highway and Transportation Authority (HTA). Although there is a group of HTA employees working on Tren Urbano, the rail system does not yet have a separate agency responsible solely for its operation. For this reason, the HTA's capacities and policies will be the subject of this review. The 'Implementation' principles proposed in Chapter Five are listed here again and serve as the outline for this analysis of HTA's approach to joint development projects:

#### **Implementation Principles**

1. The transit agency must approach joint development proactively.
2. Form a functional partnership among all parties as early as possible.
3. Leverage the particular strengths of each party.
4. Ensure sufficient legal authority and capacity to achieve the proposed development.
5. Create a dedicated entity to oversee the development process.

### **6.4.2 Proactive Approach**

The HTA has taken a positive approach to joint development opportunities for Tren Urbano. This attitude is prevalent in many of the agency's policies and strategies, due to an eagerness for mixed-use facilities at multiple levels of government involved with Tren Urbano: the Commonwealth, the municipalities, and the transportation authority.<sup>69</sup>

The Tren Urbano staff has established a comprehensive planning vision for Tren Urbano. This vision embraces the principles of transit-oriented development as a means of encouraging both transit ridership and transit-friendly patterns of development. The specific designs proposed for station areas are meant to "promote an active transit- and pedestrian-oriented environment" to encourage street activity and transit ridership.<sup>70</sup>

Joint development is seen as an integral part of this strategy. The HTA identifies an "aggressive joint development strategy" as one of four critical public policy strategies to be

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<sup>68</sup> Tren Urbano planning documents

<sup>69</sup> Alden Raine interview, March 14, 2003

<sup>70</sup> Domenech RFP, p. 2

developed,<sup>71</sup> and the “Development Vision for the Tren Urbano Corridor, Phase I” (August 2000) states, “for Tren Urbano to realize its full potential, it must not only connect existing sources of ridership, but help create new ones.”<sup>72</sup> The goals of joint development projects are established in the HTA’s “Joint Development Program: Request for Qualifications” issued in April 2002:<sup>73</sup>

- Reinforcement of transit ridership
- Promotion of transit-oriented development
- Job creation
- Tren Urbano parking
- Revenue

These goals illustrate an interesting aspect of the Tren Urbano vision. According to Elmo Ortiz, the urban design manager for Tren Urbano, the HTA has not established concrete economic criteria for the joint development program; it currently targets political and social goals in San Juan, without establishing a clear hierarchy in priority among urban fabric, land use, revenue, etc.<sup>74</sup>

The HTA currently controls approximately 87 acres of land around the Phase I stations that are available for joint development, as well as air rights over the alignment.<sup>75</sup> Much of this land will be offered for joint development as ten parcels at six station sites. All of these parcels are surplus land not needed for transit purposes; no land was acquired solely for development purposes.<sup>76</sup> This was a conservative approach, due to limitations in the existing enabling legislation and the HTA’s inexperience with joint development. Since joint development is new to Puerto Rico, the agency saw the need to proceed slowly, and to begin with fewer, more marketable development parcels.

### **6.4.3 Partnerships**

The HTA is establishing partnerships with developers through a traditional method that suits the agency’s minimal expertise on joint development, but that is not optimal for incorporating all the parties’ goals because the developers are becoming involved late in the

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<sup>71</sup> “Development Vision for the Tren Urbano Corridor, Phase I and IA”, p. 11

<sup>72</sup> “Development Vision for the Tren Urbano Corridor, Phase I and IA”, p. 3

<sup>73</sup> Tren Urbano RFQ, p. 5

<sup>74</sup> Elmo Ortiz interview, January 15, 2003

<sup>75</sup> “Development Vision for the Tren Urbano Corridor, Phase I and IA”, p. 16

process. In April 2002, the HTA issued a Request for Qualifications (RFQ) to solicit developers interested in the joint development parcels at the stations. From the 18 developers who applied, 15 were accepted as potential developers. The HTA is now in the process of issuing an individual Request for Proposals (RFP) for each development parcel, for which the accepted developers can choose to propose a development project. To date only one RFP, for Parcel A at Domenech Station, has been issued. Later RFPs will be prepared as the HTA feels is appropriate.

All of the RFPs in this round are for sites where the station head house and track guideway will have been completed. This means that the developers will have to work with the existing physical limitations, and “design around” the stations. In addition, the HTA will set forth specific goals, design requirements, and terms of the development deal for each site.<sup>77</sup> Although the criteria have some flexibility, it is minimal at best.

Few financial incentives are being offered to potential developers. The Domenech RFP sets a land value to be paid to the HTA (in the form of lease payments), and does not offer any of the common financial mechanisms that have been used to assist developers with similar projects in other cities.

The HTA does not realize that the circumstances in San Juan, namely the lack of precedents for joint development of such facilities, will probably require incentives to be provided to developers in order for the joint development program to thrive. The HTA is accustomed to receiving impact fees from developers for highway frontages (for which there is strong market demand), and does not seem to appreciate that this situation is different. The only concession the HTA makes to developers is that it will assist the developer in seeking zoning relief to decrease the number of required parking spaces.<sup>78</sup> The HTA is doing this for transit-supportive purposes anyway, however, rather than to provide financial assistance to the developer.

This combination of factors does little to attract developers. The process imposed by the HTA brings the developer to the project late in the process, after many design and financial decisions have already been made. This prevents the developer’s goals from being integrated into the project strategy smoothly, and marginalizes the developer’s role in preparing the

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<sup>76</sup> Ismael Rodriguez interview, January 15, 2003

<sup>77</sup> See Domenech RFP for example

strategy. The developer is being asked to work within a fairly rigid and limiting set of rules, in a context where the HTA should be working to attract development partners rather than alienate them. It remains to be seen how the San Juan development community will respond to the RFPs.

In contrast, the HTA has worked well with municipal and Commonwealth governments to gain their cooperation and support. The vision for the system openly includes local government as a partner in supporting transit-oriented development, and the government has responded with zoning and legislative changes that facilitate the creation of supportive station environments. These are discussed in the “Legal Capacity” section below.

#### **6.4.4 Relative Strengths**

Not enough joint development activity has taken place on Tren Urbano to evaluate how well the individual strengths of the transit agency and developers will be leveraged. Given the rigid framework the HTA establishes in the RFQ and RFP, it appears the transit agency intends for the parties to work on their respective components of the project independently. This, in theory, allows each to do what it does best, although some cooperation between the two will be required.

It is also too early in the joint development process to evaluate how San Juan developers will make use of the opportunity presented by Tren Urbano; it can be assumed, however, that competent developers will make full use of the financial and legal tools available to them.

The HTA does not appear to have taken advantage of the many tools available to it. The agency has worked well with the Commonwealth and municipal governments to accomplish changes to zoning and enabling legislation in order to support joint development. It has not, however, pursued the financial incentives that can attract developers. Alternative financing techniques and governmental subsidies have not been incorporated into the HTA’s strategy, a fact that may significantly hinder the joint development program. Since little joint development activity has taken place in Puerto Rico, the HTA may need to overcome developers’ initial reluctance to participate in the program by providing incentives. Once successful precedents have been established and developers see the value of these projects, the HTA can phase out the incentives.

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<sup>78</sup> Domenech RFP, p. 15

### **6.4.5 Legal Capacity**

The HTA has the legal authority to carry out joint development. Successful efforts have been made to improve the enabling legislation and zoning explicitly to support the joint development program.

In August 2000, the Commonwealth government enacted Law 207 to amend the HTA's enabling legislation in support of joint development.<sup>79</sup> This action was a response to two issues: the old legislation (1) did not list joint development as an explicitly authorized activity for the HTA to undertake, and (2) specified that when the HTA disposed of excess land, the prior land owner had the right of first refusal on the parcel. Both aspects greatly hindered joint development by exposing projects to potential lawsuits and uncooperative landowners. Law 207 grants certain powers to the HTA. First, the HTA is now explicitly authorized to acquire and use land for joint development (although the agency still may use eminent domain only to acquire land for transit-specific purposes). Second, within a 500-meter "Zone of Influence" around a station, the HTA can transfer land it owns completely at its own discretion. Third, every proposed development within the Zone of Influence (regardless of who owns it) must receive written approval from a transit review panel, to encourage transit-supportive land uses. Finally, the HTA can apply to the local planning board to create a "Special District" around a station. The Special District must be at least as large as the Zone of Influence, and establishes an area for which a master plan will be prepared (similar to a Planned Use Development in the United States) to further transit-supportive development.

Compared to the limited capacities of transit agencies elsewhere, this combination of powers gives the HTA significant legal authority to plan and carry out joint development.

Zoning in the three municipalities served by Phase I (San Juan, Bayamon, and Guaynabo) is being addressed to make it more responsive to the needs of transit-oriented development. Bayamon and Guaynabo have already amended their zoning ordinances, although none of the current joint development parcels are in either municipality. The new zoning

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<sup>79</sup> This explanation of Law 207's features is based on an interview with Alden Raine, March 14, 2003.

ordinance for San Juan has been drafted and was approved by the Puerto Rico Planning Board in November 2002, but has not yet been signed by the governor.<sup>80</sup>

The primary element of the revised zoning is the creation of Tren Urbano overlay districts around each station. The overlays are the same size as the Law 207 Zones of Influence (500-meter radius) and are intended to make nearby developments more transit-supportive. The new zoning is crucial for allowing sufficient residential densities around stations, and for enabling the HTA to negotiate trade-offs with developers under its own authority. One critical issue the zoning does not address is a reduction in the minimum number of parking spaces that must be provided. Current zoning establishes the commercial parking requirements shown in Table 6-1.

**Table 6-1: San Juan Zoning Parking Requirements for Commercial Uses<sup>81</sup>**

<b>San Juan Zoning Parking Requirements for Commercial Uses</b>	
Office	One space/25 square meters
High-volume office	One space/15 square meters
Retail	One space/15 square meters of sales; One space/70 square meters of storage
Restaurant	One space/5 square meters, plus one space/3 employees

Considering the HTA’s emphasis on putting retail shops and restaurants in the ground floors of mixed-use facilities, these parking requirements will be counter-productive because the parking facilities will likely be located in the intended locations of the shops and restaurants. Fortunately, zoning relief is available in San Juan, and the HTA is confident the projects can be exempted from the parking requirements on a case-by-case basis.

#### **6.4.6 Dedicated Development Office**

The Tren Urbano staff is a currently a department of the Puerto Rico Highway and Transportation Authority. No separate authority or agency exists solely to administrate and operate the transit system. Siemens, the company constructing the system, has been hired to operate the system for the first five years of operation (with an option to extend the contract for an additional five years. It is hoped that a transit agency will have been established by the time

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<sup>80</sup> Unlike Bayamon and Guaynabo, San Juan’s zoning is controlled at the commonwealth level, because San Juan does not have a master plan that authorizes the municipality to determine its own zoning.

<sup>81</sup> Domenech RFP, p. 15

this contract expires in 2008. This transit agency will oversee Alternativa de Transporte Integrado (“ATI”), a program to coordinate the three primary transit services in San Juan (Tren Urbano, the Metropolitan Bus Authority (“AMA”), and the privately-operated jitneys (“públicos”).<sup>82</sup> The goal of ATI is to coordinate services among the different services to ensure a comprehensive multi-modal transit network. It is unclear how this new transit agency will be incorporated into the existing administrative structure.

It is unclear, however, whether the new transit will have a branch dedicated specifically to joint development activities. It is likely that the current structure, in which a group of Tren Urbano employees, headed by Carlos Novoa, work on joint development projects, will continue. There is no indication that a separate development office or agency will be created.

<b>Implementation Evaluation: Tren Urbano</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Proactive Agency	Excellent	Very positive attitude; strong vision; active planning process
Partnership	Poor	Developers join too late; developers given little influence
Individual Strengths	Fair	HTA uses legal powers but no financial resources; developer activity undetermined
Legal Capacity	Excellent	Clear enabling legislation; land acquisition powers; Zone of Influence
Dedicated Entity	Poor	Not yet in existence; future plans uncertain

## **6.5 Recommendations for the Tren Urbano Agency**

The analysis of the HTA suggests three recommendations related to the implementation of joint development at Tren Urbano stations:

- Create a strong development office within the transit agency
- Incorporate mixed-use considerations earlier in the planning process
- Focus on later phases of Tren Urbano as key opportunities

These steps will support a more effective and efficient joint development projects by empowering all the parties involved in the process.

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<sup>82</sup> Lourdes Suárez presentation at Tren Urbano offices, January 7, 2003

### **6.5.1 Create a strong development office within the transit agency**

If joint development is to succeed at Tren Urbano stations, it must be supported by an office of people dedicated solely to this task. It will also create a pool of staff with technical expertise on joint development. The HTA's current approach to involving developers (late in the process and with little consideration for the financial realities of the market) indicates a lack of sensitivity to the needs of developers and will most likely hinder joint development in San Juan. An office dedicated to joint development can create a realistic framework that will attract developers and further the HTA's goals. It will also foster confidence among developers by demonstrating the HTA's commitment to joint development projects.

### **6.5.2 Incorporate mixed-use considerations earlier in the planning process**

Forcing developers to design mixed-use facilities around pre-constructed head houses leads to inferior facility designs and mediocre access between the transit and private spaces of the facilities. While it is recognized that the HTA's primary focus for Phase I is to implement the transit system rather than focus on transit-oriented development, early successes in joint development projects will be critical to demonstrate the potential of the program for long-term buy-in from the development community.

Future plans for joint development parcels should solicit comments from developers *before* issuing an RFQ or RFPs, so this input can be used to generate a process that better supports the goals of both parties. Future construction should also consider how head houses and adjoining facilities will relate to each other in terms of access, scale, and creating a unified facility.

### **6.5.3 Focus on later phases of Tren Urbano as key opportunities**

Several people connected with the Tren Urbano project have pointed out that Phase I needed to focus on the creation of the transit system itself, rather than on the "soft side" of transit implementation.<sup>83</sup> Once the system becomes operational in late 2003, the HTA staff will have an opportunity to devote more efforts to transit-related issues such as joint development. Five potential expansions of the alignment are already in the tentative planning process, with Phase II

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<sup>83</sup> Esteban Sennyey, Alden Raine, Elmo Ortiz



to Carolina being the most likely candidate for implementation. The HTA and ATI should build on the foundation of joint development-supportive work that has already been completed, to make sure future alignments offer more successful joint development opportunities. Decisions about alignment location, station locations, and land acquisition being made now should reflect the desire for joint development projects. One such opportunity, the Degatau station site on the proposed Carolina extension, is considered later in this chapter.

#### **6.5.4 Conclusion**

The HTA has taken significant steps to promote joint development opportunities at Tren Urbano stations, especially in light of Tren Urbano's short history. It has established political support for mixed-use facilities, and has obtained the legislative capacity and zoning to support them. A better framework needs to be developed, however, to support joint development at an administrative level within the transit agency and to create a development environment that will be sufficiently appealing to attract developer participation.

### **6.6 Station Analysis Overview**

In this section, two Tren Urbano stations will be analyzed according to the recommended principles. The first site, Roosevelt Station in Hato Rey, has completed head houses, with a vacant parcel adjacent to the south head house. The 'Site Selection' principles and 'Basic Elements of Station Design' principles will be applied to the site and the existing structure.

The second site, the proposed Degatau Station, is on the proposed extension of the Tren Urbano alignment to Carolina. Although the alignment and approximate station locations have been chosen, no firm commitment to the project has been made and no construction has yet occurred. Only the 'Site Selection' principles will be applied to this site.

The purpose of this section is to evaluate the sites (and in the case of Roosevelt, the station design) and their suitability for joint development. A recommendation will be made for each as to whether joint development should be pursued at that site. In addition, design recommendations will be made for the Roosevelt joint development parcel.

## **6.7 Roosevelt Station Site Analysis**

### **6.7.1 Introduction**

Roosevelt Station is an elevated structure in the center of Hato Rey, a thriving financial district. It is located at the intersection of Avenida Franklin D. Roosevelt and Avenida Muñoz Rivera, two of the primary thoroughfares in the area. Roosevelt station has a projected ridership of almost 6,800 daily boardings.<sup>84</sup>

Two parcels of vacant land are being targeted for joint development. Parcel B is located one block to the east along Avenida Franklin D. Roosevelt, and will not be considered in this analysis. Parcel A, the subject of this analysis, is located directly south of the southern head house and includes space underneath the elevated guideway. It has an area of approximately 17,000 square meters (4.2 acres) and has 200 meters (656 feet) of frontage along Avenida Muñoz Rivera.<sup>85</sup> The site is evaluated according to the ‘Site Selection’ principles from Chapter Five:

#### **Site Selection Principles**

1. The zoning and land uses of the area must be supportive of the proposed facility.
2. The demographics of the location’s permanent and daytime populations must be able to support the proposed facility.
3. The site must be accessible via the appropriate modes to support the proposed facility.
4. The location should be in a district whose character complements the type of proposed facility.

### **6.7.2 Zoning and Land Use**

The current rezoning in progress in San Juan, and the Zone of Influence created by Law 207 will allow sufficient density to support transit and a mixed-use facility on the site. The surrounding area within walking distance is a mix of dense, high-rise commercial zoning (primarily to the north and to the east), retail zoning (to the south), and mid-density residential zoning (to the west). A neighborhood park is located immediately west of the station and is separated from the parcel by the elevated guideway. Overall, this creates the opportunity for a good mix of uses and high density of people to support both transit and a variety of potential land uses within the mixed facility.

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<sup>84</sup> Tren Urbano RFQ, p. 18

The zoning code will require an excessive number of parking spaces for a transit-linked facility. The HTA believes, however, that zoning relief from parking requirements will be provided for Tren Urbano developments and hopes to substitute extra height and density for parking.<sup>86</sup>

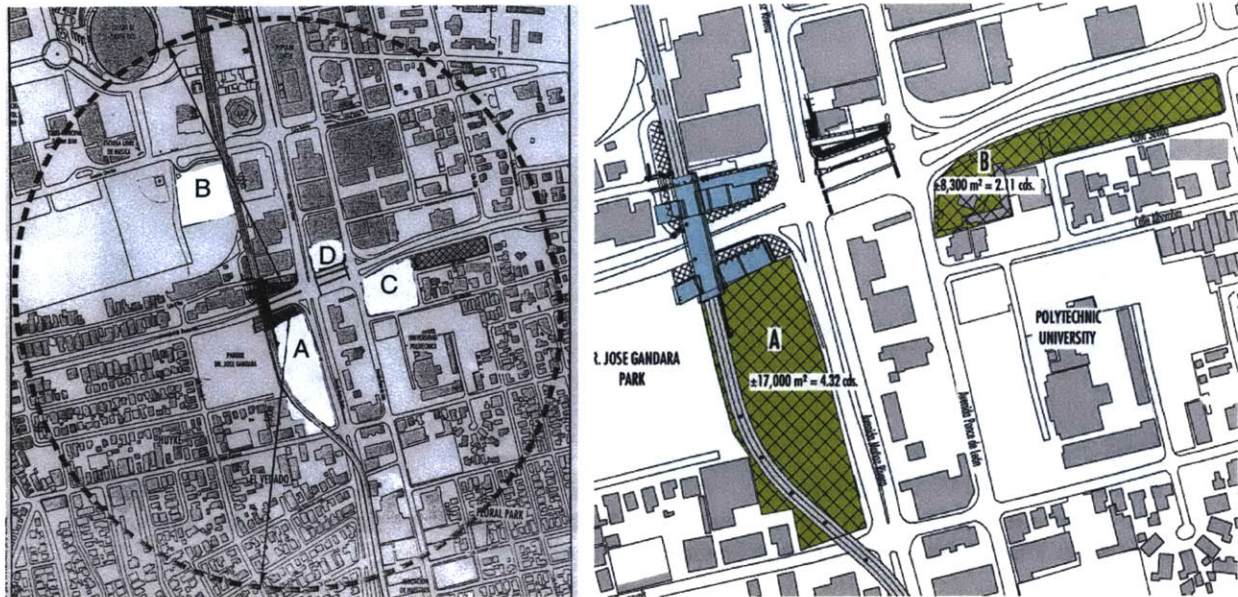


Figure 6-6: Diagrams of site and surrounding area. Parcel A (marked in both diagrams) is the subject of this analysis.<sup>87</sup>



Figure 6-7: The district around the Roosevelt site. Photos facing south and north, respectively, along the east side of Avenida Muñoz Rivera from the site.

<sup>85</sup> Tren Urbano RFQ, p. 18

<sup>86</sup> “Development Vision for the Tren Urbano Corridor”, p. 87

<sup>87</sup> Tren Urbano Planning Documents



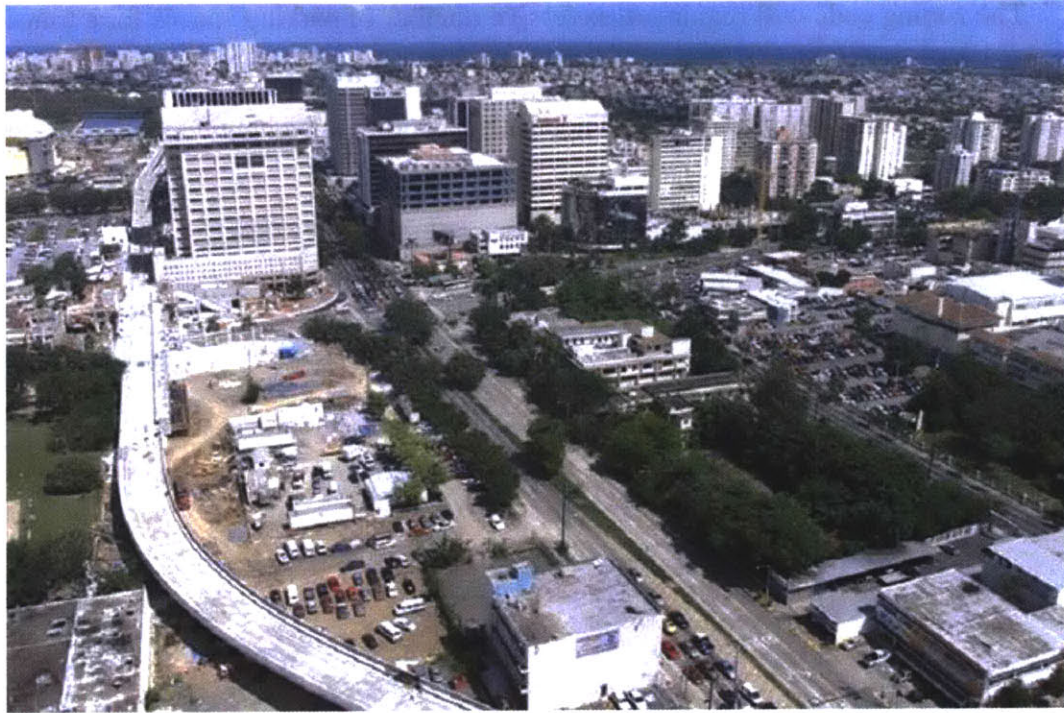


Figure 6-8: Aerial view of Roosevelt site, facing north. Parcel A is the large dirt area visible next to the guideway. (Note: This photo pre-dates head house construction.)<sup>88</sup>

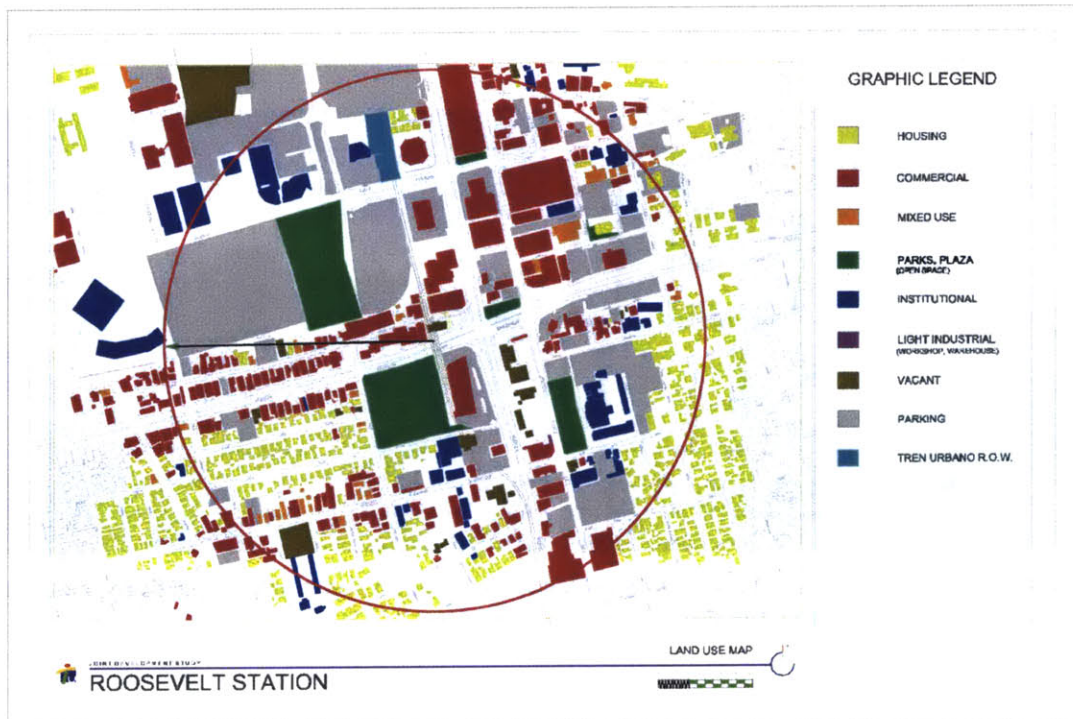


Figure 6-9: Current land uses around Roosevelt Station site (station spans the west side of the intersection at the center of the diagram). Note the diversity and close proximity of uses.<sup>89</sup>

<sup>88</sup> Tren Urbano planning documents

### **6.7.3 Demographics**

The Roosevelt Station will serve an area with a population of mixed lifestyles and incomes. This creates a strong potential customer base for a mixed-use facility.

Workers in the many nearby office buildings and banks to the east have higher incomes that will support retail shops and restaurants in the facility. This same group, however, may be less inclined to use the transit system because of available parking in their office buildings and a dubious opinion of transit. There are enough employees in the area that a good number should supplement transit ridership.

Additional information is needed to determine if the residents to the west of the site are likely to support the facility. They may take advantage of retail and food services, but it is unclear if they will make use of the transit system. A windshield survey of the area indicated that almost every home has at least one car. The residents may offer a long-term opportunity to convert drivers to transit riders.

Sitting at the intersection of different land uses, Parcel A should be a viable commodity in the real estate development market. San Juan currently has a surplus of office space, but there is a housing shortage.<sup>90</sup> This may mean that Tren Urbano's original intention of constructing an office building on the site should be modified to replace office space with additional housing for the area. This alternate land use will also support the transit facility, create additional activity on the street, and increase demand for retail and dining businesses.

### **6.7.4 Accessibility**

The development site benefits from excellent accessibility and visibility. It is located on a corner at the intersection of two of the principal streets in the district, both with substantial automobile traffic. Numerous offices, stores and residences are within easy walking distance of the site. The Hato Rey Transit Center (servicing AMA and Metrobus routes M, ME, MII, A3, A9, C10, C11, B15, B16, B17, and B41) is located directly across the street from the station. The width of the intersection and the elevated station structure create sightlines that reach for several blocks in to the West and East, ensuring visibility to and from the facility. The primary detrimental aspect of the site with regard to access is the large width of the adjacent streets.

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<sup>89</sup> Tren Urbano planning document

<sup>90</sup> Elmo Ortiz interview, January 15, 2003



Crosswalks and signals currently exist, but further study should be conducted to ensure safe and convenient pedestrian movement across the streets.



**Figure 6-10: The Hato Rey Transit Center on Ave. Franklin D. Roosevelt. View of the site from the transit center. Note the excessive width of the streets.**

### **6.7.5 District Character**

Roosevelt station sits at the center of the “Milla de Oro” financial district of Hato Rey, on a site the HTA refers to as the “100% corner”.<sup>91</sup> It is an area with a strong, positive identity within San Juan that will contribute to the identity of the facility.

Hato Rey is a thriving commercial district. The mix of offices and retail stores creates a vibrancy in the area. The clean, modern buildings surrounding the site indicate its popularity and success. The facility will benefit from the district’s professional image.

The facility will also benefit from the residential neighborhood to the west; this should serve to create a balance with the strong urban nature of the site. The district has nice, comfortable single-family homes with well-maintained yards. Parque José Gándara, adjoining the site on its west side is one of the few public parks in the area and is extremely popular with local residents.<sup>92</sup> The park’s large green spaces and tall trees create a pleasant environment directly adjacent to the facility.

The presence of the transit center across the street and the park to the west create a higher level of pedestrian traffic than is normal for most areas of San Juan. This is a tremendous

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<sup>91</sup> “Development Vision for Tren Urbano Corridor”, p. 87

<sup>92</sup> The park is so popular that extensive measures were taken to ensure the elevated guideway and head house did not impact the park in any way.

advantage for the facility, which must convey an image of bustling pedestrian activity among the heavy automobile traffic of San Juan.

All these factors create an environment that should complement a mixed-use transit facility, especially one with ground-floor retail and office or housing above, as the HTA has planned.



Figure 6-11: Parque José Gándara and the residential neighborhood west of Roosevelt Station.

### 6.7.6 New Construction vs. Retrofit

One potentially negative aspect of the site is the pre-existence of the guideway and head house. Any joint development project will have to be designed around the existing structures. It does not appear that any provision has been made for direct access between the private development and the head house. While people will be able to move between the two by using the sidewalks out on the street, this can detract from the image of the site as a unified development.

Site Selection Evaluation: Roosevelt		
Principle	Rating	Comments
Zoning & Land Use	Excellent	Dense zoning; high-density; mixed land uses
Demographics	Good	Mixed population; medium- to high-density; auto-inclined
Accessibility	Excellent	Prominent location; high traffic area; near transit center
District Character	Good	Strong, positive identity; active area; park nearby

### **6.7.7 Conclusion**

The Roosevelt Station site has a combination of elements that seem well suited for joint development. The surrounding land uses, permanent and daytime populations, excellent accessibility, and district character should support the type of development proposed by the HTA. The only drawback is the need to work with the existing transit structures on the site; this problem is understandable, however, given that Tren Urbano is a new transit system and construction of the station needed to progress as rapidly as possible.

## **6.8 Roosevelt Facility Design Recommendations**

### **6.8.1 Introduction**

The HTA has proposed a mixed-use facility for Parcel A at Roosevelt Station, with retail space on the ground floor facing the street and office space on the upper floors. This is anticipated to be a dense high-rise development. This section will briefly review and critique the design guidelines set forth in the RFP for Domenech Station (a site very similar to Roosevelt), and then make design recommendations for the site based on the ‘Basic Elements of Station Design’ principles proposed in Chapter Five:

#### **Facility Design Principles**

1. The facility’s design should be sensitive to the surrounding urban context.
2. The transit and non-transit spaces in the facility should be distinct, yet linked.
3. The facility must have strong, logical access routes both outside and inside the building.
4. Flexibility should be incorporated into the facility’s design.
5. Consistent design elements should be used throughout the facility.

### **6.8.2 Domenech RFP**

Domenech is the first Tren Urbano joint development site for which an RFP has been issued. Since the Domenech and Roosevelt sites are so similar (Roosevelt is one stop North of Domenech on Avenida Muñoz Rivera, and both have parcels that front on a major street and lie partially underneath the guideway.), the Domenech RFP can provide an idea of what the HTA will propose for Roosevelt. The HTA’s plan for Domenech follows the standard principles of transit-oriented development: the promotion of an active environment that is transit- and pedestrian-friendly. A recessed arcade is required along both street frontages to provide shelter,



and the ground floor must have retail uses to attract pedestrian traffic. The HTA will also seek zoning relief to reduce the number of on-site parking spaces required.

The scale of the mixed-use facility is limited to a height that will complement the elevated head house, while blocking the view of the guideway from the street. The goals are to make the head house the visually defining structure of the site, to create a continuous “street wall”, and to minimize the visual impact of the guideway. This may differ from the Roosevelt RFP, where the parcel is larger and nearby buildings are taller.

These requirements strive to make the facility one that will contribute to the urban fabric of the district by activating the public realm and providing pedestrian amenities, without visually dominating the immediate area. These goals are consistent with the ‘Basic Elements of Station Design’ principles that have been proposed, and are well suited to the parcel at Roosevelt as well.

### ***6.8.3 Sensitivity to Context***

The nearby buildings do not impose limits on the Roosevelt Station’s size or architectural style. Hato Rey is an eclectic blend of high rises and smaller buildings with varying styles from modern glass facades to traditional stucco walls. The size of nearby buildings and of the intersection on which the facility is located will require a structure that is large (the building on the North site of Roosevelt facing the site is roughly 20 stories), so it will not “get lost” in the area.

Parque José Gándara is the one element of the area to which the development must be sensitive. Adjoining the development parcel on the west, the park has numerous trees (most approximately 40-50 feet tall), including some that are on the lot line separating the park from the facility site. Care should be taken not to have a building that overshadows the park (which has no high-rises on any of its other boundaries); a buffer space should be maintained between the park and any structures taller than the trees.

### ***6.8.4 Distinct, Yet Linked Spaces***

As with Domenech Station, there is no indication that Roosevelt will have any direct access between the head house and the private portion of the development. It appears people will need to exit one structure entirely, and enter the other from the street sidewalk shared both.

The end result will be spaces that are physically separate from each other. The independent operation of each will be easier, but they will not be taking full advantage of their proximity to each other.

#### **6.8.5 Strong, Logical Access Routes**

Since no provision has been made for direct access between the head house and the joint development structure, careful thought should be given to how people can be channeled between the two halves of the site. The mixed-use facility's entrance should be oriented towards the intersection for two reasons. First, this is the direction from which most pedestrian traffic will arrive at this location. Second, this puts the entrance as close as possible to the entrance of the south head house.

An additional access consideration is to create a pedestrian route between Avenida Muñoz Rivera and Parque José Gándara by dividing Parcel A into two lots. This would accomplish two things. First, it would break up the large Parcel A block, creating two pedestrian-scale blocks instead of one "super-block". Second, it would create an association between the development and the park, a popular neighborhood site.

#### **6.8.6 Flexibility**

No indication has been given that there is flexibility in the design of the Roosevelt head houses. Designed for operation without links to adjacent development, there does not appear to be any possibility of linking them to mixed-use facilities.

The design of the joint development facility should anticipate future changes in uses of the space, and be planned accordingly. The retail spaces on the ground floor should receive particular attention, since the types of businesses that can operate in this setting will almost definitely change over time. The parcel is "land locked" – there is no opportunity for horizontal expansion, so potential expansion need not be incorporated into the design.

#### **6.8.7 Consistent Design Elements**

Design elements can be used to compensate for the lack of integration between the transit and development facilities by creating a psychological link between the two. Devices such as distinctive paving, consistent signage, and maps that include both facilities would identify them as a single development in people's minds. This can be expanded to have the

architectural style of the mixed-use structure match that of the head houses. This may be inappropriate or impractical, however, depending on the size limit of the building.

<b>Facility Design Evaluation: Roosevelt</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Sensitivity to Context	Good	Minimal limitations on design; facility should be sensitive to adjacent park
Distinct, Linked Spaces	Poor	Pre-existing headhouse without easy means of integration
Access Routes	Poor	Pre-existing headhouse; users must likely exit and re-enter separate buildings
Flexibility	Unknown	No design yet proposed
Design Element Consistency	Unknown	No design yet proposed

### **6.8.8 Conclusion**

While the Roosevelt site is a prime opportunity for joint development because of its location, the HTA’s phased approach will almost certainly prevent the development of a mixed-use facility that is tightly integrated with the transit space already constructed.

Recommendations have been made to promote connections between the two, but this case study should serve as an example for the planning of future station designs. Mixed-use needs must be considered early, while the transit space is being designed, if the two are to work as a single development.

## **6.9 Degatau Station Site Analysis**

### **6.9.1 Introduction**

Phase II of the Tren Urbano System is a proposed 12-kilometer extension of the alignment from the Rió Piedras station east into the municipality of Carolina. (See Figure 6-12 for alignment map.) This extension would add nine additional stations, and is projected to increase the system-wide daily ridership by 85,700 people.<sup>93</sup> According to the “Carolina Corridor Study”, prepared in September 1988 to evaluate potential alignments and station locations, the introduction of a rail transit system is likely to reinforce and intensify the patterns of commercial and high-density development already present. The guideway would parallel PR-3, the primary east-west transportation spine between San Juan and Carolina.

The Degatau Station (formerly referred to as the Trujillo Alto Station) would be the second station east of Río Piedras. It would be located at the intersection of PR-3 and PR-181, the major road leading south to the municipality of Trujillo Alto. (See Figure 6-13 for a map of the proposed station site.) The Degatau Station is projected to have almost 6,800 daily boardings.<sup>94</sup>

The siting of the two highways and the site topography dictate that the station platforms would be below-grade, constructed by cut-and-cover methods. This may require that additional land be acquired for construction staging, land that would be vacant upon station completion. This presents the opportunity for a joint development project at the site. It is assumed the transit alignment will be on the south side of PR-3, although this will be determined by many decisions yet to be made concerning the construction of the trackway and the nearby stations' potential for joint development. The site will now be reviewed according to the 'Site Selection' principles from Chapter Five:

#### **Site Selection Principles**

1. The zoning and land uses of the area must be supportive of the proposed facility.
2. The demographics of the location's permanent and daytime populations must be able to support the proposed facility.
3. The site must be accessible via the appropriate modes to support the proposed facility.
4. The location should be in a district whose character complements the type of proposed facility.

#### **6.9.2 Zoning and Land Use**

Since it is located in the municipality of San Juan, the Degatau Station is subject to the same zoning considerations as the stations in Phase I. A new zoning ordinance has been prepared and approved by the Puerto Rico Zoning Board, but has not yet been signed by the governor. The new ordinance includes several provisions to allow increased density around Tren Urbano stations and foster transit-supportive development

Law 207, passed in August 2000, enables the HTA to promote desirable land uses and development within a 500-meter radius "Zone of Influence" around each station. This overlay district strongly encourages transit-supportive development.

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<sup>93</sup> "Carolina Corridor Study", p. ES-5

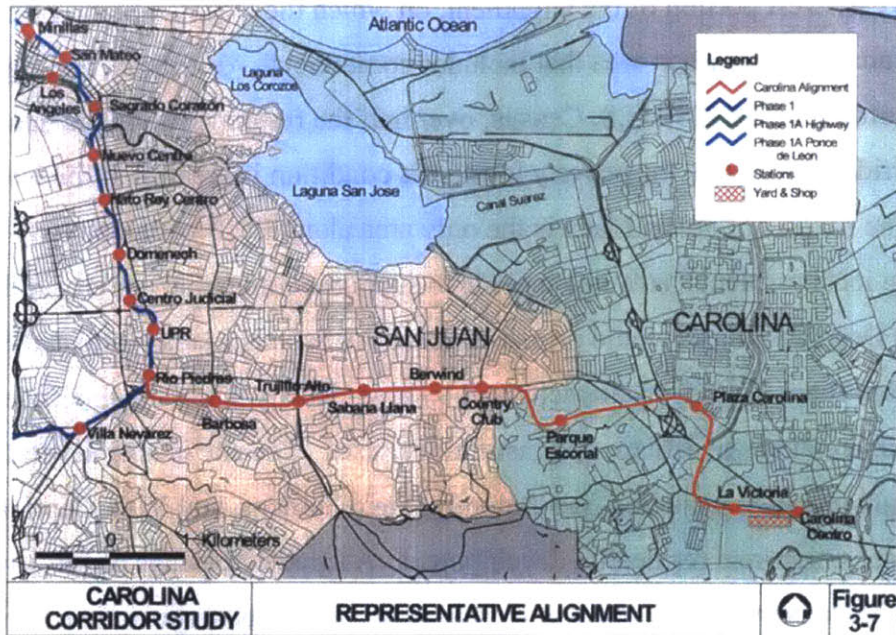


Figure 6-12: Map of the proposed Tren Urbano extension to Carolina. The Degatau site is the station labeled as “Trujillo Alto.”<sup>95</sup>

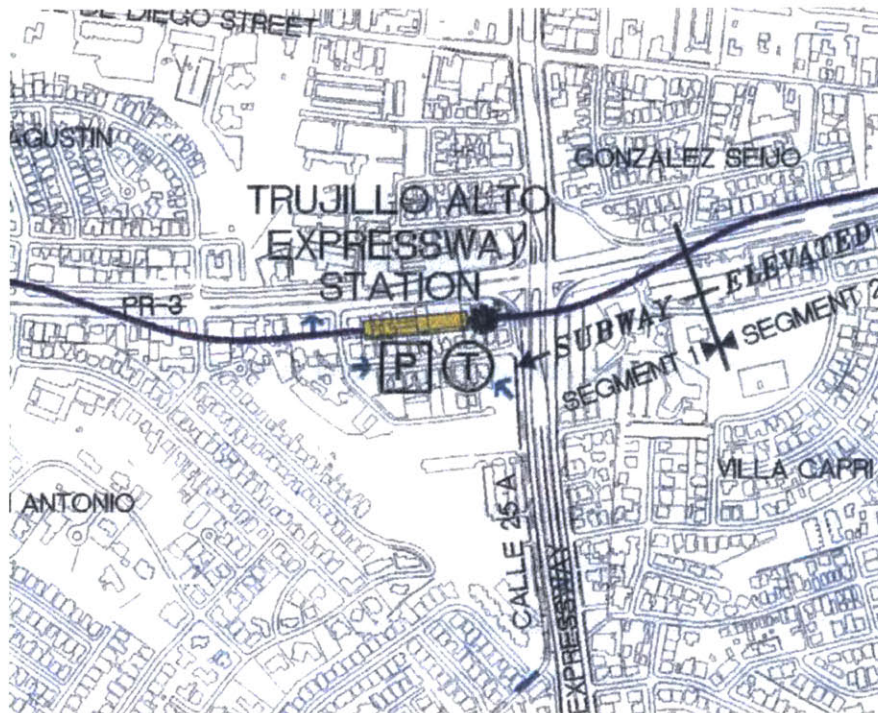


Figure 6-13: Site plan of the proposed Degatau Station (formerly named Trujillo Alto).<sup>96</sup>

<sup>94</sup> “Carolina Corridor Study”, p. 4-5

<sup>95</sup> Tren Urbano planning documents

<sup>96</sup> Tren Urbano planning documents

### **6.9.3 Demographics**

The east-west portion of the alignment, on which the Degatau Station would be located, serves an urban/suburban area that includes commercial, residential, and light industrial land uses. According to the 1990 U.S. Census, over half the residents along the San Juan portion of the PR-3 corridor live below the poverty level; this condition is greatest at the western end of the corridor. The barrio of Sabana Llana is the only area along PR-3 with a poverty level below 50%,<sup>97</sup> meaning local residents have less income to support commercial activity at the site.

The Degatau Station would primarily serve the Sabana Llana Norte and Sabana Llana Sur barrios of San Juan. These are characterized by high-density urban neighborhoods, supporting commercial areas, offices, and institutional uses. The site is near several well-established neighborhoods, including San Antontio, Park Gardens, and Villa Capri, and the Concordia Gardens high-rise residential development. At-grade crossings of PR-3 would extend the facility's effective service area north of the highway; these crossings could potentially be incorporated into the facility's design. The Carolina Corridor Study identifies two major trip generators within 400 meters of the facility site, the Concordia Shopping Center and the Les Flamboyanes Shopping Center.

The area's strong residential base and integrated mixture of additional land uses would probably support and complement a mixed-use transit facility on the site. The Carolina Corridor Study states that this combination of nearby land uses "provides an opportunity for a mixed-use development of high-density residential, commercial, and office uses. The development would compliment the Concordia Gardens high-rise development to the east...and provide a land-use buffer for the single-family development to the south."<sup>98</sup>

### **6.9.4 Accessibility**

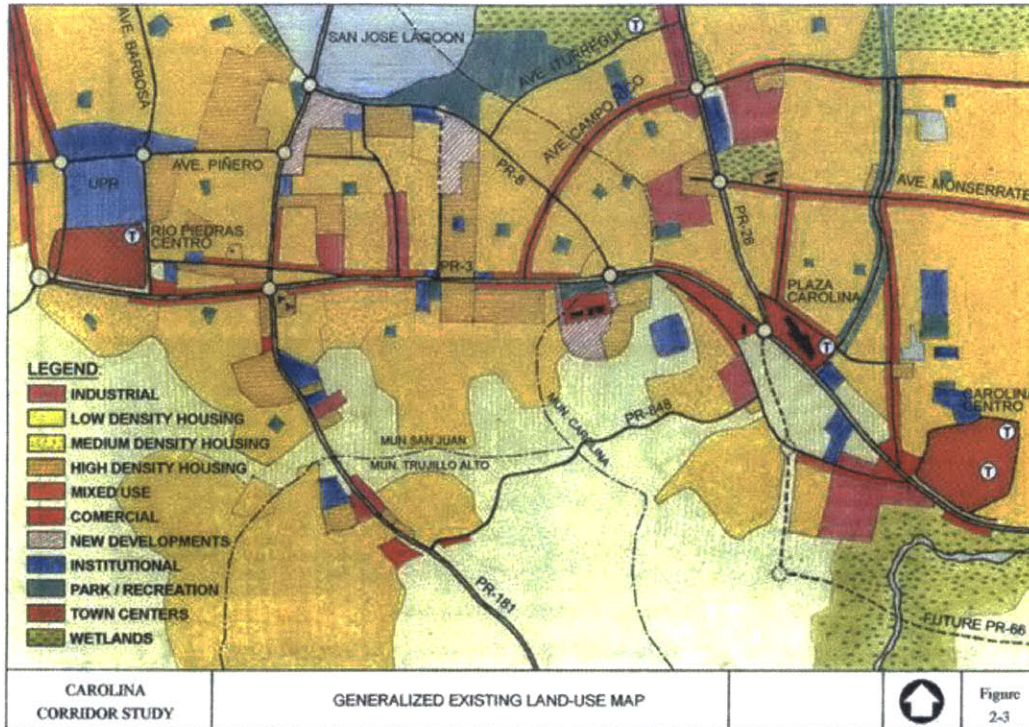
The Degatau Station's position at the intersection of two major transportation corridors (PR-3 and PR-181) makes provision for drop-off and inter-modal transfers extremely important. It is intended to be a modal hub with provisions for bus, públicos, and park-and ride operations, including a 500-space parking facility.

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<sup>97</sup> "Carolina Corridor Study", p. 2-6

<sup>98</sup> "Carolina Corridor Study", p. 3-18





**Figure 6-14: Map of existing land uses surrounding Degatau site.**

The two highways, however, also pose challenges for providing access to the site. First, the volume of traffic on both roads and the bi-level interchange (PR-181 crosses PR-3 on an elevated bridge, forming a physical north-south barrier) create an unattractive and potentially unsafe environment for pedestrians. PR-3 is a very heavily used automotive corridor, and is especially devoid of any pedestrian amenities. This problem is shared by all the proposed station locations on the Carolina Corridor, and the HTA recognizes that significant improvements of pedestrian facilities will be required.<sup>99</sup>

The second issue related to the highways is that the interchange makes automobile access to the facility site awkward. The bi-level interchange prevents direct access from the highway to the site; drivers will need to use circuitous routes on side streets, when coming from certain directions. Potential solutions to this issue have been proposed by Sonia Miranda-Palacios and Ryan Park in their theses dealing with station design.<sup>100</sup>

<sup>99</sup> “Carolina Corridor Study”, p. ES-5

<sup>100</sup> See Miranda-Palacios and Park

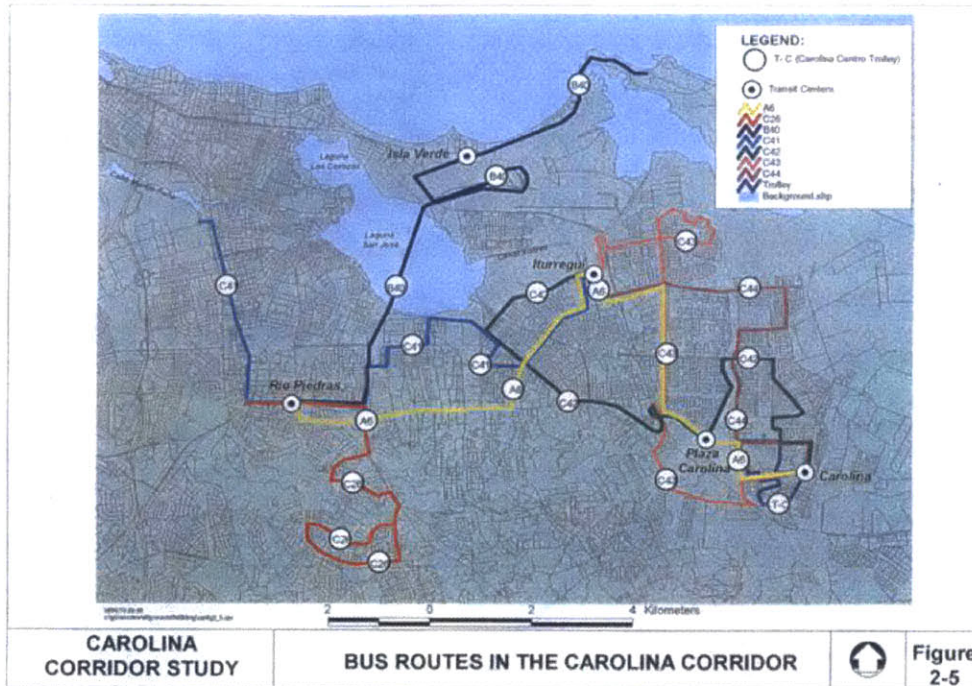


Figure 6-15: Bus access routes in the Carolina Corridor.

### 6.9.5 District Character

Although the existing mix of land uses will probably support a mixed-use facility, the character of the station area leaves something to be desired. According to the Carolina Corridor Study, “much of the visual environment of the Carolina Extension along PR-3 is dominated by a chaotic collection of auto-oriented signs and land uses that has accumulated over the past 30 to 40 years.”<sup>101</sup> The area around the Degatau station site, however, is nicer in condition and style. The commercial uses fronting on PR-3, combined with the residential sections located behind, have created a neighborhood with a strong identity and sense of belonging.



Figure 6-16: PR-3 West, with view towards Carolina. Note the low-density land uses and wide streets.<sup>102</sup>

<sup>101</sup> “Carolina Corridor Study”, p. 6-6

<sup>102</sup> Photo by Sonia Miranda-Palacio



<b>Site Selection Evaluation: Degatau</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Zoning & Land Use	Good	Transit overlay and Law 207; medium-density, mixed land uses
Demographics	Good	Strong residential base; middle-income; large effective service area
Accessibility	Fair	Auto-dominated environment; physical barriers to pedestrian access; multi-modal hub
District Character	Poor	Auto-oriented; some commercial activity

**6.9.6 Conclusion**

The Degatau site has a combination of elements that make joint development of a mixed-use facility feasible, although perhaps not ideal. It also presents the opportunity to create a new town center for the neighborhood. If plans move forward, the HTA will need to address the access issues and character of the site. Both can be resolved through thoughtful design supplemented with the appropriate infrastructure (pedestrian byways, etc.), but this site will require more effort to ensure the success of a mixed-use facility than other sites might.

## **7 Application of Principles to Chicago Transit Authority**

### **7.1 Overview**

This chapter applies the three sets of principles set forth in Chapter Five to the Chicago Transit Authority (CTA) rail transit system in Chicago, Illinois. It begins with a brief overview of the City of Chicago and of its transit system. Two separate analyses are then presented. First, the CTA's institutional capacity and activities to date are considered with regards to the 'Implementation' principles, and recommendations for modifications and future actions are made. Second, two station sites are reviewed in light of the principles for 'Site Selection' and 'Basic Elements of Station Design'. The reviewed sites are the Ford City Mall, the terminus of the proposed extension of the Orange Line; and the Howard Station, an existing joint development project at the northern terminus of the Red Line, where the station is currently undergoing a redesign process.

The results of this section are the same as those for the Tren Urbano analysis in Chapter Five: a better understanding of the proposed principles through their application to real-world situations, an evaluation of CTA's approach to joint development to date, and the opportunity to consider whether the principles proposed in this thesis are sufficient to cover the critical aspects of facility development.

### **7.2 City of Chicago**

Chicago is located in the state of Illinois, on shore of the southwest corner of Lake Michigan. The city was founded in 1837 on the site of a former trading post. Referred to as "Second City" because of its former status as the second largest city in the United States after New York City, Chicago has long been a focal point of population and commerce in the Midwest. This is due to its role as the nation's transportation hub during the era of the railroads in the 1800's and early 1900's. The city has 2.9 million inhabitants, while the Chicago

Metropolitan Area has a population of 9.2 million people and encompasses 5,600 square miles.<sup>103</sup>

The development pattern in Chicago is typical of older cities in the United States. Established in a time before the existence of automobiles, the city has a dense urban core that grew up around its transit system and includes all types of land uses. The city is designed with a rectilinear grid. Although the urban core remains dense (especially in comparison to younger American cities), Chicago has also experienced substantial growth in its suburbs. Initially accessible by streetcars, the suburbs now display land use patterns typical of automobile-oriented environments. Land uses are much less dense the farther they are from the center of the city, an effect Mike Shiffer of the CTA describes as “Manhattan in the center of Los Angeles.”<sup>104</sup> The transit systems in Chicago have attempted to respond to this expansion by extending bus and rail service into the suburbs.

### **7.3 CTA Rail System**<sup>105</sup>

The City of Chicago has three primary transit systems: Chicago Transit Authority (CTA) operates all city buses and transit rail; Metra runs the intercity commuter rail; and PACE operates a suburban bus network. The Regional Transportation Authority (RTA) is the taxing authority that oversees all three systems, although it has limited planning authority or capacity.

The CTA is the largest of the three agencies, and the second largest transit system in the United States. It provides service to Chicago and 38 suburbs, with a total daily ridership (trains and buses) of 1.5 million. The CTA has 12,000 employees, an \$800 million operating budget, and a \$400 million capital budget.

The rail portion of the CTA’s operations evolved out of numerous private street railways from the early 1900’s. Over time, these lines consolidated into several private rail companies. This process continued until the CTA was established in 1947 to join the two primary networks, the Chicago Rapid Transit Company and the Chicago Surface Lines. CTA became the sole operator of transit services in Chicago in 1952.

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<sup>103</sup> 2000 U.S. Census

<sup>104</sup> Mike Shiffer presentation at MIT, February 21, 2003

<sup>105</sup> All information in this section is taken from the CTA website ([www.transitchicago.com](http://www.transitchicago.com)) and Mike Shiffer’s presentation to the CTL at MIT, February 21, 2003.

Today, the CTA's rail network uses 1,200 cars to serve 143 stations over seven routes comprising 222 miles of track. These routes include trackways that are above- and below-grade. The daily ridership of the rail system is 556,000, 65% of whom are "choice riders," people who have the ability to use some other mode of transportation.

Although the rail transit system is well integrated into Chicago's urban fabric, it faces certain challenges. The 100-year old system is in need of substantial rehabilitation and upgrades. Many of the platforms are undersized and do not meet current ADA standards for accessibility. The system is also responding to shifting land use and development patterns. The formerly blighted inner ring around the city center is becoming gentrified and growing ridership levels are placing increasing demands on the system. At the same time, the system must address the sprawl occurring in the suburbs by extending the rail lines. The renovation of existing stations and construction of new stations offer an excellent opportunity to implement mixed-use facilities in a well-established transit network.

## **7.4 Analysis of CTA's Approach to Joint Development**

### ***7.4.1 Introduction***

The CTA administers and operates both the rail transit system and the bus system in the City of Chicago and, to a limited extent, its nearby suburbs. For this reason, the CTA's capacities and policies will be the subject of this review using the proposed 'Implementation' principles from Chapter Five:

#### **Implementation Principles**

1. The transit agency must approach joint development proactively.
2. Form a functional partnership among all parties as early as possible.
3. Leverage the particular strengths of each party.
4. Ensure sufficient legal authority and capacity to achieve the proposed development.
5. Create a dedicated entity to oversee the development process.

### ***7.4.2 Proactive Approach***

The CTA is currently extremely reluctant to be involved in joint development projects. The administration's position is that the agency should focus on providing transit services and not undertake development activities. There needs to be some change in this position for joint development to have a possibility of occurring.

This attitude is notable because the CTA has embraced the importance of transit-oriented development and sees itself as having the responsibility to actively promote the movement's principles. In 1996, the agency published "Guidelines for Transit-Supportive Development," a 50-page booklet explaining the ways in which transit-oriented development will benefit Chicago and presenting detailed urban design guidelines for areas around stations. The Forward states,

"Creation of the guidelines was initiated by the CTA to formalize **its role as an active participant in development planning** for the improvement of the transportation system in its service area. Such improvements, it is hoped, will also improve CTA's market share and increase customer satisfaction." [Emphasis added]<sup>106</sup>

It is unfortunate that the agency does not see this role as an "active participant" including direct involvement in development because it squanders an opportunity with much potential.

The CTA's efforts at promoting transit-oriented development have been fairly successful. The city administration has accepted TOD as a legitimate goal and has incorporated its principles into the current process of updating the city's zoning ordinance.<sup>107</sup>

The agency's strong stance against joint development appears to be the result of three key factors: the CTA's recent negative experiences with joint development projects, the CTA's desire to concentrate its limited resources on excelling at its primary goal of providing quality transit service, and the CTA's perspective on the real estate market in Chicago.

The CTA has not always been unwilling to attempt joint development of mixed-use transit facilities; the transit system has a long history of direct connections between train platforms and privately owned buildings, both by elevated walkway and underground tunnels. Recent projects, however, have caused problems for the CTA and resulted in mediocre developments. Two recent examples of negative experiences with joint development are the retail/residential facilities at the Howard Station and the State Place housing development at the Roosevelt Station, both on the Red Line. These were situations in which the CTA partnered with private developers in an attempt to create transit-oriented developments adjacent to stations. Both projects resulted in developments that are "transit-adjacent" more than transit-oriented;

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<sup>106</sup> "Guidelines to Transit-Supportive Development", p. i

<sup>107</sup> "Principles for Chicago's New Zoning Ordinance", p. 36

they both turn their backs on the station and have generous provisions for parking. The results do little to foster transit use and generated negative publicity for the CTA.

The CTA has made a policy decision to focus its efforts on the provision of transit service. This has been done with the intent of concentrating on the type of work that makes CTA unique, work seen as its primary goal and for which its staff has the expertise to do well. The attitude is that the agency should focus on what it can do well, rather than on those things that might benefit the agency but will require additional staff or expertise. This ties into an agency goal to streamline the agency and make it as effective and efficient as possible. While understandable for its intentions, this perspective could be considered shortsighted because it misses an opportunity for long-term benefit for the agency.

The third reason the CTA shuns joint development is the belief that the real estate market does not warrant direct involvement by the transit agency. The CTA argues that Chicago is a city that has grown up around its transit system. Dense, transit-oriented development has occurred through market forces, without interference by the city or transit agency. Why should the CTA expend effort on something that will happen on its own?

The flaw in this perspective on the real estate market is the expectation that what happens in the central city will also happen in other parts of the city that are less dense. All of the “natural” transit-oriented development is situated in neighborhoods that developed before the prevalence of the automobile. Chicago’s outer edges, however, grew with a very different land-use pattern. While denser than the suburbs of many other American cities, they are still auto-oriented. The CTA, in completing the Orange Line and Blue Line in the 1990’s, has recently expanded its rail service into areas where it will have to compete directly with the automobile. Market forces are less likely to generate transit-oriented development in this setting. For this reason, the CTA may benefit from taking a more direct role in developing a pattern of land use that will support the transit system.

The CTA does not currently meet the need of having a proactive attitude towards joint development and mixed-use transit facilities. This will be a critical first step in achieving joint development projects in Chicago.

### ***7.4.3 Partnerships***

Given its attitude toward joint development, the CTA has done little to foster strong partnerships with private developers. What partnerships exist seem to do so more by force of

necessity than desire on the part of the CTA. The history of poor results with previous joint development projects, such as those at Howard and Roosevelt Stations, imply challenges in the communication process between the CTA and private developers. It is difficult to determine the specific causes of these problems, but likely suspects, such as inadequate communication between the CTA and developers or insufficient authority over facility design, can be inferred.

In contrast to its relationship with developers, the CTA appears to have a strong rapport with the City of Chicago. The two entities work well together in planning transit-related strategies, and the City seems eager to promote use of the transit system.

Unfortunately the City, while being a willing advocate of transit, does not always provide concrete benefits. The zoning reform process currently underway is an excellent example: While the City has stated its desire to encourage land use that is compatible with transit, the proposed zoning amendments do not create any transit-supportive zoning regulations such as increased land use densities or reduced parking requirements.<sup>108</sup> The only step the new zoning ordinance will take is to establish “transportation districts” to preserve existing contiguous corridors that can be used for transit systems.<sup>109</sup> While this can be blamed on irresolvable political considerations, the end result is still a lack of helpful action from the City.

The third potential party, private developers, are apparently disinterested in public-private partnerships with the CTA. According to Bennet Haller from the City’s Department of Planning and Development, developers are now reluctant to provide direct access between their buildings and transit stations, primarily out of concern about security, cleanliness and the image of the development. The developers are less concerned about transit access because they believe office workers commute primarily by Metra (Chicago’s commuter rail system), although statistical research shows this is not the case; bus and rail transit are still the dominant modes used for commuting.<sup>110</sup> This is in contrast to Chicago’s long-standing tradition of having direct access between transit stations and the adjacent buildings.

The overall situation pertaining to cooperation among the various parties with potential involvement in joint development projects clearly leaves something to be desired.

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<sup>108</sup> Tim Barton (Zoning Reform Commission, City of Chicago) interview, January 28, 2003

<sup>109</sup> “Chicago Zoning Reform: Module 2 Draft 1/17/03”, p. 6-4

<sup>110</sup> Bennet Haller interview, January 28, 2003

#### **7.4.4 Relative Strengths**

The lack of joint development activity makes it difficult to evaluate the strategic use of different parties' strengths in such a program. The CTA has expertise in both land acquisition and facilities development. The CTA has also demonstrated skillful use of regulation, government programs, and government subsidies to promote the transit system. It might be assumed that the CTA would use these skills to its advantage in a joint development situation.

#### **7.4.5 Legal Capacity**

The CTA has the legal capacity necessary for successful participation in a joint development program. It has legal authority to use its land for joint development projects, as demonstrated by the projects at Howard Station and Roosevelt Station. Although Illinois's 1870 constitution dictated that land held by a transit agency must revert back to the prior fee owner when no longer used for transit, this requirement was eliminated by the new state constitution in 1970.<sup>111</sup>

The CTA also has the right to exercise eminent domain to acquire land. The law states that the agency may take land for "its purposes".<sup>112</sup> It is ambiguous whether this power extends to land intended for mixed-use facilities, but this approach has never been legally challenged.<sup>113</sup> Historically, according to Luann Hamilton of the Chicago Department of Transportation, most of the existing CTA facilities gained through the use of eminent domain were acquired for the CTA by the City of Chicago.<sup>114</sup>

#### **7.4.6 Dedicated Development Office**

The CTA does not have an office or group of employees dedicated to a joint development program. The agency's current lack of interest in pursuing joint development activities makes such a commitment superfluous.

The CTA's Planning Department, which is a branch of the Transit Operations Division, is responsible for development activities. Despite its lack of notable success with joint

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<sup>111</sup> Ellen Partridge (CTA Legal Department) interview, April 15, 2003

<sup>112</sup> Illinois State Code: 70ILCS Sect. 3605-7 and Sect. 3605-8

<sup>113</sup> Ellen Partridge (CTA Legal Department) interview, April 15, 2003

<sup>114</sup> Luann Hamilton interview, April 8, 2003



development efforts, the Planning Department staff seems knowledgeable about issues and strategies related to joint development.

<b>Implementation Evaluation: CTA</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Proactive Agency	Poor	Strong reluctance to undertake joint development
Partnership	Poor	Limited interest from CTA or developers; past attempts less than successful
Individual Strengths	Good	Strong staff expertise; full use of resources
Legal Capacity	Good	Sufficient powers; some ambiguity in enabling legislation
Dedicated Entity	Poor	No office or staff dedicated to development

## **7.5 Recommendations for the Chicago Transit Authority**

The CTA’s almost complete lack of involvement in joint development activity means that any effort to development such a program within the agency should focus on the fundamental steps in accomplishing this goal. Although the agency has the institutional capacity to implement public-private partnerships, it would need to undergo a fundamental attitude shift with regards to joint development. In addition, the unsuccessful projects in the recent past may indicate that the CTA was ineffective in communicating its goals for the projects to the developers involved, or that the developers were unwilling to be supportive of the transit agency’s needs. These factors suggest the following recommendations for the CTA:

- Reconsider focusing on joint development.
- Develop a clear vision and goals for a joint development program.
- Seek out private partners who share the same vision and will support that vision.

These are important first steps the CTA could use to establish a strong foundation on which to build a successful joint development program.

### ***7.5.1 Reconsider focusing on joint development***

Joint development projects can offer substantial benefits to a transit system. They attract potential transit users, contribute activity to the urban streetscape, and can bolster the identity and image of the transit system. This is especially true in the less dense areas of Chicago, such as those the CTA is targeting with expansion of the rail transit system. Although it will require a temporary suspension of its opposition to joint development, the CTA

administration should conduct a thoughtful analysis of the costs and benefits joint development projects involve. The agency should also analyze the causes behind its recent negative experiences with joint development, and determine whether those factors can be reasonably eliminated in the future.

### ***7.5.2 Develop a clear vision and goals for a joint development program***

If the CTA decides to attempt joint development again, it must develop a strong vision for the program. This will not only guide the efforts of the CTA staff working on such projects, it will enable the CTA to communicate its goals and needs more effectively to potential partners in the development process. The components of a successful program can only follow from a clear set of objectives. The CTA will need to assess its situation, and determine which goals best fit its situation, resources, and intended level of commitment.

### ***7.5.3 Seek out private partners who share the same vision and will support that vision***

One key way in which the CTA can facilitate any future efforts at joint development is by selecting partners who understand and are sympathetic to the agency's goals. While all developers are motivated by the same principal concern, namely a positive financial return from a project, some are more supportive of transit-oriented development than others. As the popularity of the movement grows and, more importantly, the number of successful mixed-use transit facilities increases, developers have gained an increased comprehension of the rationale behind such developments.

The CTA should screen its development partners to find those with whom it can cooperate more effectively due to a shared vision of the project outcome. This is especially important in the early efforts of such a program, so that successful developments can be used as precedents for future projects with other developers.

### ***7.5.4 Conclusion***

The CTA clearly has much work ahead of it if joint development is to be successfully implemented in Chicago. The crucial element – the desire to carry out development of mixed-use facilities through public-private partnerships is absent within the agency's administration. Little can be accomplished without a fundamental shift in the policies of the CTA. Fortunately,

should such a shift occur, the agency has a competent staff with enough expertise in development issues to begin the implementation of a joint development program.

## **7.6 Station Analysis Overview**

In this section, two CTA transit stations will be analyzed according to the recommended principles. The first site, Howard Station at the northern terminus of the Red Line, is an existing transit station. Howard currently has a joint development project under construction, although there has been some controversy about what the final results of the development process will be. In addition, the existing mixed-use station is being targeted for a substantial reconstruction to take place in the near future. The ‘Basic Elements of Station Design’ principles will be applied to the site to consider the current design of the facility and propose recommendations for design changes.

The second site, Ford City Mall, would be the southern terminus of the proposed extension of the Orange Line. The ‘Site Selection’ principles will be applied to the site to consider whether it is an appropriate location for a joint development facility.

## **7.7 Howard Station Design Analysis**

### ***7.7.1 Introduction***

Howard Station is the northern terminus of the Red Line, one of the oldest rail lines in Chicago. It also serves the Purple and Yellow (“Skokie Swift”) Lines, which head north and west (respectively) out of the City of Chicago. The site has existed as a station for some time, but has been the focus of redevelopment activity in recent years. The site’s location in a neighborhood commercial district and an available parcel of land adjacent to the site led to it being developed as a mixed-use facility through a public-private partnership. The drawn-out development process resulted in a complex that, despite its inclusion of the transit station in its design, does not meet the standard criteria for a transit-oriented design. As a result, the CTA is currently redesigning the portion of the site it controls in an attempt to resolve some of the shortcomings of the original design. The developer who controls the bulk of the site, however, is unwilling to make design concessions in support of transit.

The current design of the facility will be evaluated using the ‘Basic Elements of Station Design’ principles proposed in Chapter Five:

### Facility Design Principles

1. The facility's design should be sensitive to the surrounding urban context.
2. The transit and non-transit spaces in the facility should be distinct, yet linked.
3. The facility must have strong, logical access routes both outside and inside the building.
4. Flexibility should be incorporated into the facility's design.
5. Consistent design elements should be used throughout the facility.



Figure 7-1: Map of Howard Station district located at north end of Red Line, north of central Chicago.<sup>115</sup>

### 7.7.2 Howard Station Joint Development History

Howard Station has been targeted for joint development since the late 1980's. The CTA recognized the potential for the adjacent parcel of land it controlled, and the City wanted to contribute to the commercial redevelopment of the district. The City declared the site a Redevelopment Area, making it eligible for tax-increment financing (TIF) and bond financing.<sup>116</sup> It still took another year to attract a developer willing to undertake the project. The developer prepared plans to construct a 200,000 square-foot retail facility including a major food store anchor and numerous smaller shops, as well as entertainment uses and a 200-unit apartment complex. Approximately \$7.5 million in public grants and subsidies were committed to the

<sup>115</sup> CTA website ([www.transitchicago.com](http://www.transitchicago.com))

<sup>116</sup> Linda Fuller interview, January 30, 2003

project.<sup>117</sup> The project suffered numerous setbacks and the developer gave up on the project in the early 1990's.

In 1994, a new developer undertook the project. This time, however, the City used a Planned Development Process (similar to a Planned Unit Development) to establish the right to construct a shopping center. Since the site was no longer a Redevelopment Area, it did not qualify for government financial assistance, but it was also no longer subject to specific design criteria. It is unclear how it was determined who would have the right to approve the design of the facility, but it is clear that the CTA did not have adequate authority to influence the design. The result is that the shopping center design is extremely transit-unfriendly.

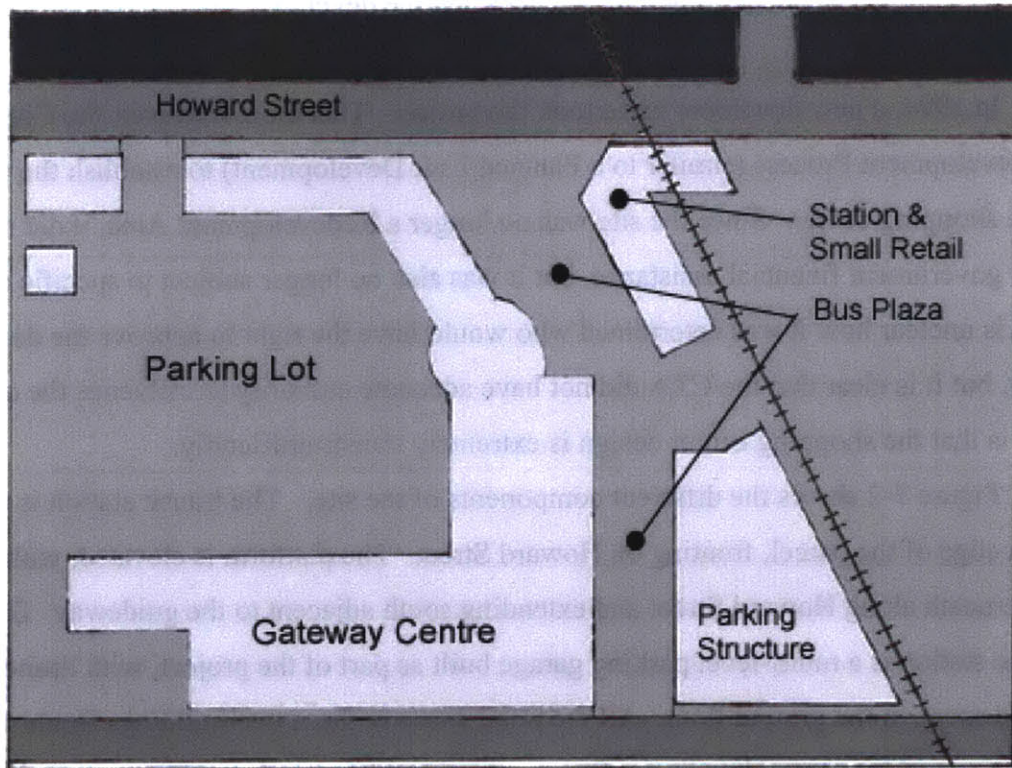
Figure 7-2 shows the different components of the site. The transit station is sited at the eastern edge of the parcel, fronting on Howard Street. The platform is elevated, with retail space underneath along Howard Street and extending south adjacent to the guideway. Directly south of the station is a multi-level parking garage built as part of the project, with limited commercial space in the ground floor. All the retail space in these two buildings fronts onto a transit plaza served by several bus lines. On the east side of the plaza is additional retail space, also facing the plaza. From here, the site slopes up to the east, with the site's main retail shopping center, the "Gateway Centre," located a full story above the transit plaza. The shopping center forms a rough "U" shape wrapped around a surface parking lot, with the transit station and bus plaza on the outside of the "U". The Gateway Centre, still under construction, effectively excludes access from the transit station; shoppers must exit the station entirely, walk west on Howard Street, and enter the shopping center through the driveway.<sup>118</sup> The entire site has effectively been cut in half, with the transit station and some small retail space on one side and the Gateway Centre on the other.

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<sup>117</sup> Peter Fahrenwald interview, January 30, 2003

<sup>118</sup> The site was still under construction at the time of the site visit, and more direct access between the two parts of the site may eventually be possible.





**Figure 7-2: Howard Station Site.** Note the effective division of site into two halves. The Gateway Centre has upper level retail facing the parking lot and lower level retail facing the transit station. (Diagram not to scale)

### **7.7.3 Sensitivity to Context**

Howard Street is a mid-level commercial district with a variety of building styles and uses, the majority of which are two or three stories. The mixed-use facility has an appropriate scale for the surrounding buildings, and it maintains the continuous streetfront along Howard Street. The project sticks out, however, because its design and building materials are more modern and less ornate than those of the other buildings; this is made more noticeable by the project's large size in relation to the other buildings nearby. The architectural detailing of the project does not give it sufficient character to match the charm of the neighborhood.

The retail spaces included in the development seem appropriate for the area. Residents strongly supported the development, so it can be assumed that there is a perceived need for the services that will be provided. The supermarket was already open for business at the time of the site visit in January 2003 and appeared to have a strong customer base, as did the few other storefronts that were occupied.



**Figure 7-3: View of Howard street facing east toward the site. View of on-site retail storefronts closest to Howard Street. Note the differences in the architectural styles.**

### ***7.7.4 Distinct Yet Linked Spaces***

The fundamental problem with the design of the site is the strong sense of separation between the two halves of the development. If the transit building and associated retail did not share similar design elements with the Gateway Centre, they would appear to be two entirely independent developments that occurred next to each other. The Gateway Centre exposes a large blank wall to the transit center, although there is some retail tucked underneath and a large opening that provides a view into the surface parking lot. The bus plaza in the center serves to isolate the two halves from each other by creating a “no man’s land” between the two. The grade change also raises the Gateway Centre a full story above the retail spaces in the eastern half of the site. These factors combine to establish two separate sites, rather than a unified development.



**Figure 7-4: The disconnect between the two halves of the site. The left photo is taken from the station platform, facing west toward the Gateway Centre. The right photo is taken from the Gateway Centre parking lot facing east toward the station. Note that neither half is visible from within the other.**



### **7.7.5 Strong, Logical Access Routes**

Assuming that convenient access is established between the main shopping center and the eastern half of the site, the development appears to have good access routes for movement throughout the site. According to Bob Bushwaller, an elevated pedestrian walkway is planned between the parking garage (which will have direct access to the rail transit area) and the Gateway Centre. This will enable pedestrians to cross over the bus plaza easily, and minimizes the impact of the grade change on the site. It is unclear whether there will be additional access linking the two halves by stairs or escalator between the transit plaza and the Gateway Centre.

Within the east half of the site, it is easy for pedestrians to travel from the rail transit facility at the street edge back along the row of retail shops to the parking garage and additional retail space at the rear of the parcel. The retail is easily accessible, but does not impose barriers to hinder the movement of transit riders.

The bus plaza presents a problem by blocking easy access between the ground level retail spaces on both sides of the plaza. People wishing to travel from one side to the other must negotiate several lanes of stationary and moving buses in order to cross. Even people exiting buses will have to cross the bus lanes to get to the west half of the site. The driveway for the bus plaza also creates a large gap in the street edge of Howard Street. If it is compatible with the flow of bus traffic, it would have been preferable to have buses enter and exit at the rear (south end) of the facility; this would have enabled a continuous pedestrian path from east to west across the site as well as a continuous street façade of buildings along Howard Street.



**Figure 7-5: Access routes. The direct link between the station entrance and nearby retail. The bus lanes form a barrier between the two retail areas serving the east half of the site.**



### **7.7.6 Flexibility**

The loose integration of the transit space and the retail space does not require a sophisticated design to allow changes in uses or expansion. The site is predominantly horizontal, and there is some additional land available for further development.

The retail spaces that have been constructed appear to encompass a variety of sizes and configurations, making them able to accommodate a broad range of tenants. This is especially the case when the shopping center is considered as well. The Gateway Centre has the facilities to support tenants with specialized needs or a heavy delivery schedule.

### **7.7.7 Consistent Design Elements**

The development does use consistent architectural elements on all its structures. This is the one element of the project that indicates it is a single development. The white building facing and red accents are used on the retail space under the platform and guideway, the parking structure, and both sides of the Gateway Centre. The one architectural component of the facility that is inconsistent is the elevated guideway as it extends north from the platform.

Since the facility was not completed at the time of the site visit, there was nothing in the way of signage. This will be an important way to establish a better connection between the two halves of the site. Signage in each location should reference businesses in both sections of the site, and maps should indicate the best routes for moving between the transit area and the Gateway Centre.

<b>Facility Design Evaluation: Howard</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Sensitivity to Context	Fair	Proper scale; continuous streetfront; incongruous materials
Distinct, Linked Spaces	Fair/Poor	Site split in half with limited access between; each half works well, but only partially serves transit
Access Routes	Good	Clear routes; some bus interference
Flexibility	Good	Variety of space sizes; some room for expansion
Design Element Consistency	Excellent	Same features throughout both halves of the development

### **7.7.8 Conclusion**

The Howard Station/Gateway Centre development does not present a unified mixed-use development. The site is split into two halves, with one serving transit riders and the other serving people arriving by car. As the CTA considers how to redesign the site to better achieve the goals of transit-oriented development, it should focus on establish the best routes possible between the eastern portion of the development and the Gateway Centre. This is the element that has the most potential for improving the current state of the site.

## **7.8 Ford City Mall Site Analysis**

### **7.8.1 Introduction**

The Orange Line is the newest line in the CTA's transit rail system, having been completed in 1993. It provides service between Chicago's Loop district and Midway Airport, southeast of the central city. The CTA is currently planning a two-mile extension of this line, with the new terminus adjacent to the Ford City Mall near the Chicago city limits. Eight bus lines, including one that runs from the existing Orange Line terminus to the mall, currently serve this site. When this extension is completed, it is possible that buses bound for Midway from the south will terminate their routes here instead.

The proposed station location is north of 76<sup>th</sup> street, between Cicero Avenue and Pulaski Road. The site presents a potential opportunity for joint development. The surrounding land uses create an environment that might support the implementation of a mixed-use transit facility.

The site is evaluated according to the 'Site Selection' principles from Chapter Five:

#### **Site Selection Principles**

1. The zoning and land uses of the area must be supportive of the proposed facility.
2. The demographics of the location's permanent and daytime populations must be able to support the proposed facility.
3. The site must be accessible via the appropriate modes to support the proposed facility.
4. The location should be in a district whose character complements the type of proposed facility.

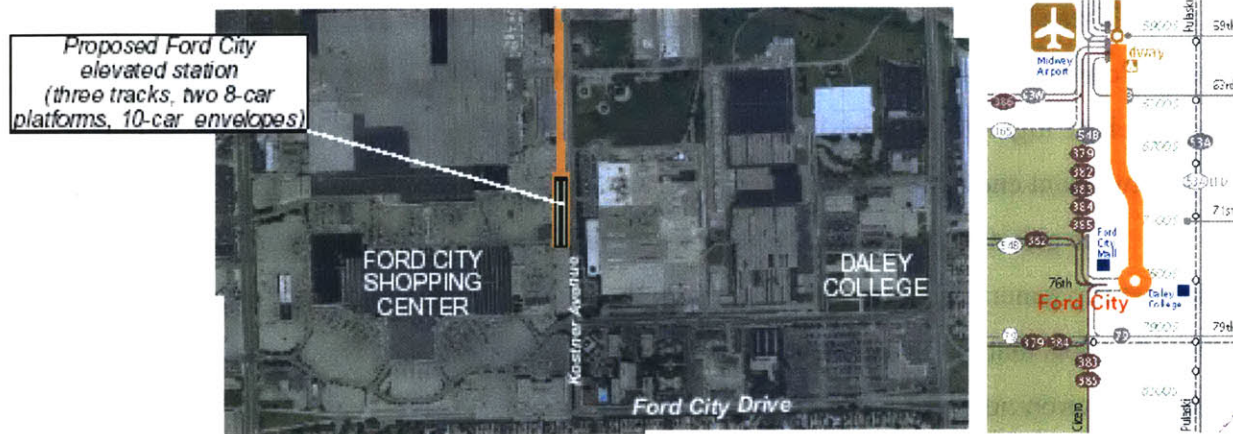


Figure 7-6: Map of the planned Orange Line extension to Ford City and an aerial view of the station site.<sup>119</sup>

### 7.8.2 Zoning and Land Use

The area around the station site is currently zoned for several different uses, some of which would complement a mixed-use facility. The land on which the site is located, as well as the land to the north and east, is zoned as a manufacturing district. Most of this land appears vacant, although there are some one-story plants and distribution centers fronting onto W. Ford City Drive, southeast of the site.

The land west of the site (where the mall is located) and immediately south of the site is zoned for commercial activity. The Ford City Mall is the most prominent land use in the area. It is a large, stereotypical enclosed suburban mall surrounded by large surface parking lots. Despite the mall's size, there were relatively few shoppers in the mall when the site was surveyed in late morning on a Saturday in January.

The areas south of the site are zoned for two types of residential use: the north side of Ford City Drive has mid-rise and high-rise housing projects, while the area south of the street is zoned as a low-density residential district (single-family homes with a minimum lot size of 5,000 square feet and a maximum floor-area-ratio of 0.9). This boundary between the two land uses is located about 350 meters south of the site.

Farther east along Ford City Drive is Daley College, a commuter college with a large surface lot on the south side of Ford City Drive. The lot is connected to the main school building by an elevated, enclosed pedestrian walkway over the street.

<sup>119</sup> CTA planning documents

These land uses may have the density necessary to support a mixed-use facility. The area has a low overall density, but the presence of a few large trip generators (the mall, the college, and the high-rise housing) could be sufficient, if access between the station and these uses is convenient enough to attract riders.

The prevalence of available parking around the site may discourage transit use. The two largest trip generators for people coming *to* the area, the mall and the college, both have large surface lots that eliminate the need for visitors to use transit and create an unpleasant pedestrian environment that further discourages transit use. It is unlikely that the zoning would ever be changed to limit parking enough to change this.

At the same time, however, the plentiful parking could benefit the transit facility. Since it will be the terminus of the Orange Line and has large residential districts to the south, the site is a logical place for a park-and-ride facility. The amount of space available would allow commuters to park at the station and take the train to work. One of the CTA's considerations for this extension is that the commuter parking lots at the Midway and Pulaski, currently the two southernmost stations in the alignment, are full by 6:45am daily.<sup>120</sup> This may be a strong enough feature to generate sufficient ridership.

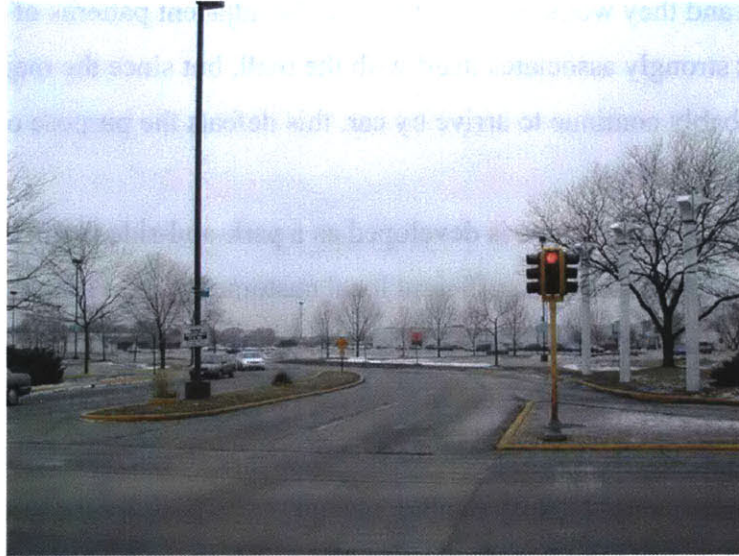


**Figure 7-7: Three types of residential development near the site.**

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<sup>120</sup> “CTA Rail System Expansion Proposals”, March 17, 2002 draft





**Figure 7-8: The entrance to Ford City mall and its parking lot. This view of the lot faces west toward the mall from the proposed facility site.**



**Figure 7-9: The Daley College student parking lot and the elevated walkway from the lot to the main campus building.**

### **7.8.3 Demographics**

The immediate land uses around the site do not appear to provide a permanent population that is sufficient to support transit or most uses that might be incorporated into a mixed-use facility. Figure 7-10 illustrates the relative densities of local residents and employees who constitute the potential customer base for the facility.

The site is far enough from the existing areas of housing, that residents from those areas would be unlikely to patronize retail uses as pedestrians. Similarly, the site is too isolated to be used for residential or office space; it would be difficult to find willing tenants for either

use and they would not complement the adjacent patterns of development. Retail might succeed if it strongly associates itself with the mall, but since the majority of mall customers would probably continue to arrive by car, this defeats the purpose of incorporating the space into a transit facility.

If the site is developed as a park-and-ride facility, mixed-use may still be viable despite the lack of a sufficient local customer base. Park-and-ride stations typically serve between 5,000 and 10,000 daily passengers arriving from within a radius of three to six miles (see ‘Station Typologies’ in Chapter Two). This significantly expands the potential customer base of the facility beyond the residents and employees within walking distance. This increase in ridership might justify retail development, especially for services that target commuters making a modal switch from train to car in the evenings, such as dry cleaners, a supermarket, and food services. These, combined with some mall-related retail could be a successful combination. It should be noted these will compete with the strip malls located to the west on Cicero Avenue. An analysis of the broader area around Ford City Mall would be necessary to determine if enough park-and-ride commuters will be attracted to support retail development.

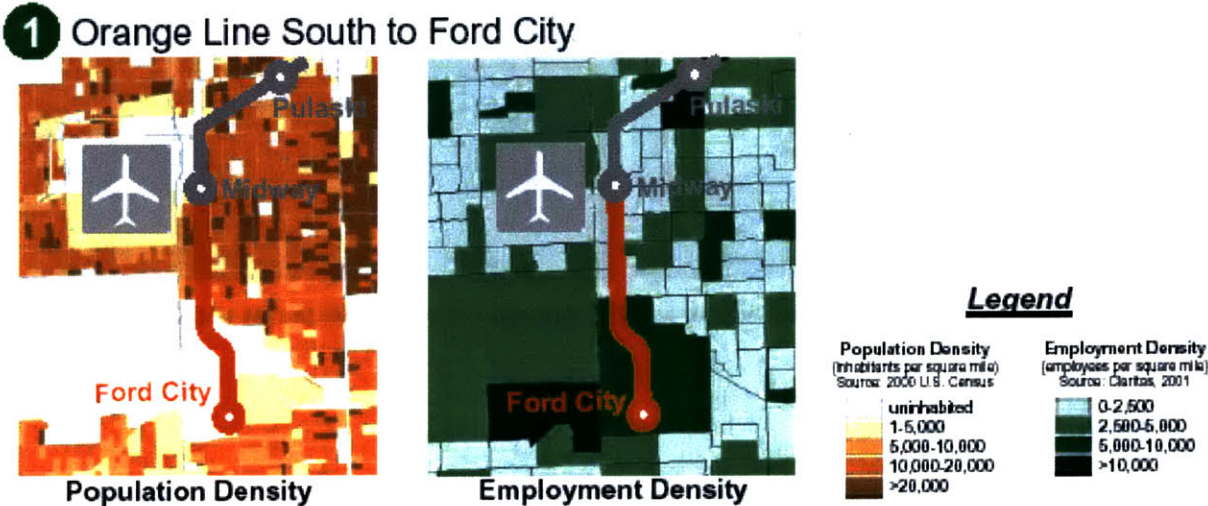


Figure 7-10: Population and employment densities around the proposed Ford City station site.<sup>121</sup>

<sup>121</sup> CTA planning documents

#### **7.8.4 Accessibility**

The Ford City Mall site has accessibility characteristics that are well suited for a park-and-ride facility but that discourage pedestrian traffic.

Automotive access to the site is excellent. Cicero and Pulaski are major north-south arterial roads serving the district, with a high combined traffic capacity. Ford City Drive is only an access road connecting the two, but it has sufficient width for at least two lanes in each direction. This enables convenient car access from both sides of the facility. The parcel available for development is large enough to provide ample parking as well.

The site is too isolated and lacks sufficient amenities to attract pedestrian traffic. It is situated on a “super block” approximately one mile long; it is at least 850 yards in either direction to the nearest north-south cross street. These distances far exceed the commonly accepted limit of a maximum of one-quarter mile for pedestrian travel. The low-density residential neighborhood to the south is within reasonable walking distance, but substantial improvements would have to be made to the area to make the environment pleasant; to get to the site, residents currently must get past a large fence, across two very busy streets, and through an industrial district. Direct access between the site and the mall currently exists, although a strong pedestrian route through the mall parking lot should be established to strengthen the connection between the two.

These factors suggest the majority of transit riders using the station would probably arrive by automobile or bus. This, combined with the proposed station’s position as a route terminus, strongly suggests the station should be designed as a park-and-ride facility.

#### **7.8.5 District Character**

The incongruous mix of large-parcel land uses leads to an unattractive environment with little character. The excessive amount of surface parking and the large featureless structures that dominate the landscape create an industrial atmosphere that will do little to attract users for either transit or retail patronage. The mall serves as an effective “anchor tenant” for the district, making it identifiable to most people, but it is insufficient to provide the site with a sense of place, much less one that is appropriate for a mixed-use facility. The juxtaposition of conflicting uses creates a locale that is more of a seam between districts rather than a district, itself.





Figure 7-11: A view of the station site from the south. Low-density, pedestrian-unfriendly area around site.

Site Selection Evaluation: Ford City Mall		
Principle	Rating	Comments
Zoning & Land Use	Fair	Good mix of uses; low-density; mall is major activity generator
Demographics	Poor	Insufficient permanent population; potential for park-and-ride
Accessibility	Fair	Good auto access; poor pedestrian access/environment
District Character	Poor	Weak identity; unattractive environment; more of a seam than a district

### 7.8.6 Conclusion

The Ford City Mall site is suitable only for a park-and-ride facility targeting commuters. The low density of permanent and daytime populations is insufficient to support a general mixed-use facility and the pedestrian-unfriendly characteristics of the site may discourage local residents, employees and students from walking to the facility.

The site's role as a terminus and the convenient access it provides to downtown Chicago make it a logical site for a transit station, especially a park-and-ride facility. The addition of a mixed-use component will only be viable if the development includes services and businesses targeted at mode-switching commuters.



## 8 Conclusion

### 8.1 Overview

This section considers the results generated by the application of the proposed principles to the test cases in San Juan and Chicago. The principles are evaluated for their usefulness and thoroughness. Based on this evaluation, topics for additional research work are suggested.

### 8.2 Response to Test Cases

The two transit agencies and four sites reviewed all demonstrated many of the issues that affect mixed-use facilities and joint development. They enabled an analysis of these issues and highlighted opportunities and challenges unique to mixed-use and joint development projects. The test cases also provided a means of applying the proposed principles to real world situations. A clearer understanding of the principles was achieved through a demonstration of their applicability, strengths, and weaknesses. The test cases facilitate an evaluation of the principles and identify opportunities for revision and improvement. All of the test case results are repeated here for reference.

#### **Implementation Evaluations:**

<b>Implementation Evaluation: Tren Urbano</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Proactive Agency	Excellent	Very positive attitude; strong vision; active planning process
Partnership	Poor	Developers join too late; developers given little influence
Individual Strengths	Fair	HTA uses legal powers but no financial resources; developer activity undetermined
Legal Capacity	Excellent	Clear enabling legislation; land acquisition powers; Zone of Influence
Dedicated Entity	Poor	Not yet in existence; future plans uncertain

<b>Implementation Evaluation: CTA</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Proactive Agency	Poor	Strong reluctance to undertake joint development
Partnership	Poor	Limited interest from CTA or developers; past attempts less than successful
Individual Strengths	Good	Strong staff expertise; full use of resources
Legal Capacity	Good	Sufficient powers; some ambiguity in enabling legislation
Dedicated Entity	Poor	No office or staff dedicated to development

**Site Selection Evaluations:**

<b>Site Selection Evaluation: Roosevelt</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Zoning & Land Use	Excellent	Dense zoning; high-density; mixed land uses
Demographics	Good	Mixed population; medium- to high-density; auto-inclined
Accessibility	Excellent	Prominent location; high traffic area; near transit center
District Character	Good	Strong, positive identity; active area; park nearby

<b>Site Selection Evaluation: Ford City Mall</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Zoning & Land Use	Fair	Good mix of uses; low-density; mall is major activity generator
Demographics	Poor	Insufficient permanent population; potential for park-and-ride
Accessibility	Fair	Good auto access; poor pedestrian access/environment
District Character	Poor	Weak identity; unattractive environment; more of a seam than a district

**Facility Design Evaluations:**

<b>Facility Design Evaluation: Roosevelt</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Sensitivity to Context	Good	Minimal limitations on design; facility should be sensitive to adjacent park
Distinct, Linked Spaces	Poor	Pre-existing headhouse without easy means of integration
Access Routes	Poor	Pre-existing headhouse; users must likely exit and re-enter separate buildings
Flexibility	Unknown	No design yet proposed
Design Element Consistency	Unknown	No design yet proposed

<b>Facility Design Evaluation: Howard</b>		
<b>Principle</b>	<b>Rating</b>	<b>Comments</b>
Sensitivity to Context	Fair	Proper scale; continuous streetfront; incongruous materials
Distinct, Linked Spaces	Fair/Poor	Site split in half with limited access between; each half works well, but only partially serves transit
Access Routes	Good	Clear routes; some bus interference
Flexibility	Good	Variety of space sizes; some room for expansion
Design Element Consistency	Excellent	Same features throughout both halves of the development

**8.2.1 Approaches to Implementation**

Tren Urbano and the CTA display very different approaches to joint development. Each is indicative of the age and prior experiences of the respective agencies.

Tren Urbano, a new transit system, embodies an optimistic attitude. The agency recognizes the opportunities mixed-use facilities provide to encourage better TOD around stations, and it is excited about pursuing those opportunities. The agency sees itself as an agent for change in urban development patterns and is willing to assume this role. At the same time, the agency is hindered by its lack of expertise or experience to implement these facilities as effectively as possible. The agency has needed to focus on implementation of the transit system itself and is only now turning its attention to joint development projects. This has resulted in a program that may not be structured properly to attract developers in the existing real estate market in San Juan. It is likely that Tren Urbano will adapt and improve its approach over time, as it gains experience and learns from early projects.

The CTA's position is a stark contrast to Tren Urbano. Almost 100 years old, the CTA operates in a city that has grown up around transit and has based its urban fabric on the availability of transit. It is an agency with substantial staff expertise and institutional experience with many aspects of transit systems, including joint development. Although the CTA encourages TOD, the agency does not want to be directly involved in development projects. It believes it can achieve greater benefit by focusing on the provision of transit service. Past experiences suggest that joint development is unnecessary in Chicago; some portion of the real estate market recognizes the value of transit and incorporates it into land use patterns. In addition, the CTA's past experiences with joint development, most unsuccessful, have created a reluctance to attempt it in the future. It can be argued that this represents a shortsighted view on the part of CTA; as transit rail service expands, it will be more important to encourage proper land use through direct means.

Together, the two agencies demonstrate some of the fundamental issues surrounding joint development. CTA's past failures indicate the complexities and challenges involved in joint development. Tren Urbano's focus on joint development suggests its importance in encouraging TOD around transit stations in cities that are not already transit-independent. Both are valuable lessons for other transit agencies considering the future in their cities.

### **8.2.2 Site Selection**

The four sites used as test cases do not demonstrate the full potential of mixed-use facilities. All are locations that were determined on the basis of alignment position and service areas; none were explicitly chosen with mixed-use in mind. Nonetheless, they demonstrate how sites can be reviewed for mixed-use facilities, and why some are better than others.

Since none of the sites is in full service yet, it is impossible to evaluate their success based on location. Each site, however, highlights certain aspects that must be considered. Roosevelt demonstrates the most potential, with a strong combination of high-density in a popular district, mixed land uses, and excellent access; these virtually guarantee its success, barring major design flaws. Degatau is an average site, with a typical mix of characteristics that are transit-compatible but not necessarily transit-supportive; this situation limits the type and scale of mixed-uses that are feasible on the site. Ford City Mall demonstrates how certain sites are appropriate only for certain facilities. Ford City's qualities dictate that a park-and-ride

facility be developed there; the uses and design will need to address automobiles as much as it addresses pedestrians.

Given the range of possible sites for facility development, a transit agency must consider how to prioritize mixed-use elements of its transit system. If mixed-use is a strong goal, the transit agency should make decisions about alignment and station locations with this in mind. To do otherwise greatly limits the viability and ease of implementing such facilities.

### **8.2.3 Facility Design**

The two facilities evaluated for their design demonstrate the importance of master planning mixed-use facilities and of communication between the transit agency and developer. Each has design elements that will limit activity on the site and create a less optimal environment for TOD; sadly, most of these issues were avoidable.

Roosevelt shows a lack of forethought regarding the design of mixed-use development. The trackway and headhouses were constructed based on transit system design needs, without knowledge of the other land uses that may ultimately be present on the site. These later developments will have to work around the existing structures, creating awkward layouts and poor links between them and the headhouse. While it is acknowledged that Tren Urbano did this largely out of necessity, the agency will benefit from incorporating mixed-use into its design process earlier for future projects.

Howard demonstrates the need for a clear, unified vision and good communication to guide design. It is an example of how the conflicting needs of the transit agency and the developer can result in a design that attempts to serve both by splitting in two, rather than focusing on the common goals the parties share. The facility's design is really two developments, one with small shops for the transit agency, and one with auto-oriented retail to satisfy the developer's and lender's financial needs. Better communication between the two parties may have enabled a stronger overall site plan that met everyone's goals.

## **8.3 Evaluation of Results**

The goal of this thesis is to provide transit agencies with insight into the key issues involved in mixed-use and joint development. A set of principles was proposed to highlight and explain these issues, and to generate recommendations for specific sites.

It is important to assess the principles, and determine whether they are a valuable tool for transit agencies interested in undertaking mixed-use facilities and joint development. Their usefulness and thoroughness should be considered. The principles can be useful in two ways: educating transit agencies about key issues, and generating recommendations for specific situations. The principles should address the major issues that influence development; any significant omissions should be noted.

This evaluation should take into account that the principles are meant to provide a general framework for development efforts. Guidelines with a greater level of detail will be necessary to determine specific designs and policies.

### **8.3.1 Usefulness**

Overall, the principles appear to achieve a high level of utility. They are informative and they can be applied to actual situations to generate evaluations and recommendations.

The principles identify and explain key issues involved in the joint development of mixed-use facilities. These issues, which include zoning, accessibility, unified design, partnership frameworks, and legal capacities, indicate particular opportunities and challenges of which the transit agency should be aware during the development process. Through the exploration of these issues, a better comprehension of the overall process is achieved. Transit agency staff will be better informed and have a clearer perspective on their objectives and the techniques used to accomplish them.

The principles are also capable of generating evaluations and recommendations specific to individual situations. As demonstrated in the Tren Urbano and CTA test cases in Chapters Six and Seven, transit agencies' approaches to joint development and the siting and design of mixed-use facilities can be reviewed to determine what aspects are beneficial and which should be modified. Particular strengths are acknowledged so they can be used in the best way possible. Weaknesses are identified to determine potential problems that must be addressed. These evaluations can also generate recommendations for specific action on the part of the transit agency.

### **8.3.2 Thoroughness**

The proposed principles are intended to cover a broad range of issues relevant to the development process. In doing so, they do not achieve a high degree of thoroughness. Although

this can be justified by the stated intention of the thesis, it would be helpful to have information about additional topics and to provide a greater level of detail.

The principles address many key issues, but there are always more to consider. The framework used to select principles: the focus on three aspects of the development process (site selection, basic elements of facility design, and implementation) and a target of five principles for each category, imposes limits on the topics to considered in the process. There are many other aspects of the development process that are worthy of consideration. Issues such as financing, real estate market trends, and how specific land uses interact with each other, can have a tremendous effect on how a transit agency approaches development projects and what the ultimate outcomes of these projects are.

An important issue not covered by the principles is the issue of human scale. The design principles should have addressed the importance of making transit facilities more welcoming by having access routes, building scales and design features intended for pedestrians rather than car passengers. This can have a significant effect on a person's comfort and enjoyment of an environment.

The role of local and regional government in joint development projects is discussed briefly in this thesis, but does not receive the attention it deserves. Governments play an active role in affecting urban development patterns, and an understanding of their goals and techniques are crucial knowledge for a transit agency undertaking joint development.

The scope of the review is broad; the principles cover both physical and institutional aspects of development. The result is that many topics are addressed, but few are addressed in great detail. Specific quantitative information, a deeper exploration of some issues, and additional case studies exemplifying the principles would provide a valuable resource to transit agencies. Precedents of successful projects would be valuable to agencies attempting new types of development.

The thesis addresses zoning and demographics, but does not provide specific data on which to base evaluations. Transit agencies must know what the requirements of different land uses are if they are to develop mixed-use facilities; real estate developers rely on this information as a primary determinant of what projects to undertake.

## **8.4 Suggestions for Further Research**

This thesis establishes a strong foundation for additional research. The proposed principles have identified aspects of the development process that have tremendous effects on the ultimate outcome. It would be useful to select specific issues for more thorough examination, and to generate detailed guidelines to address particular aspects of the development process. This process could be done for one of the three elements on which this thesis focuses, or for an even more specialized component of the process.

The transit agency officials and developers interviewed during this research expressed the need for a greater understanding of certain issues. They were particularly interested in the mechanisms available for joint development. These include the legal structure of the development agreement and the development entity, financing options, and the phasing of construction as it relates to the financing of the project and the commencement of operations of different parts of the facility. Any of these pose an excellent opportunity for further research that will be of benefit to the parties involved in the development process.

## **8.5 A Vision for Mixed-Use Transit Facilities**

Transit-oriented development is rapidly becoming a necessity in American cities. Land use patterns, commuting trends, and personal habits are all succumbing to the influence of the automobile. People spend more time driving and less time interacting; the result is cities that reflect this lack of human presence with barren landscapes and isolated focal points of activity.

If we are to preserve environments that are enjoyable and that encourage active participation by people, we must create strong urban centers. These revolve around movement by foot and are dominated by people rather than automobiles. To accomplish this, alternate methods of transportation must be provided to decrease reliance on the automobile. Land use patterns with higher densities that enable trip chaining and increase the frequency of chance social encounters must be encouraged. The real estate market has demonstrated that it will not address this need without active intervention from those who care about the quality of urban environments, because the current market supports auto-dependent development.

Mixed-use transit stations created through joint development are a transit agency's primary opportunity to support this vision of a better urban future. By including activities in and around transit stations, the agency can do its part to help build a focal point for the local



community. The societal benefits these facilities generate are increased transit ridership, reduced reliance on cars, an enhanced streetscape, and increased pedestrian activity in the public realm. They also help to prevent the “doughnut effect” of barren land that often surrounds transit stations and detracts from the pedestrian environment. Transit agencies need to realize that modern land use patterns do not support transit systems; development densities are too low and automobile-related infrastructure discourages transit use. If transit is to thrive in American cities in the future, the transit agencies must recognize and accept their *full* range of possible roles for increasing ridership; providing good transit service must be supplemented with joint development projects that encourage TOD.

Many transit agencies are reluctant to undertake the development of mixed-use facilities. They believe the obstacles are too great and the benefits too few. Many of these challenges have been discussed at length in this thesis: institutional capacity, conflicts with developers, and unsympathetic real estate markets; all are cited by transit agencies as insurmountable obstacles. It is simple to point out, however, that this is not the case. Cities such as Washington, D.C. and Toronto have implemented modern successful mixed-use facilities that achieve benefits for both the community and the transit agency. It may not be easy reconciling the social and financial goals that often conflict in joint development projects. Thorough study of the factors that influence development, however, enables a transit agency to attract the necessary partners and establish a framework that accomplishes both parties' aims.

The goal of this thesis is to educate transit agencies about the key issues of mixed-use facilities and joint development. This is accomplished through a set of proposed principles to direct three aspects of the development process: site selection, basic elements of facility design, and implementation:

<b>Principles for Mixed-Use Facility Development</b>
<p><u>Site Selection</u></p> <ol style="list-style-type: none"> <li>1. The zoning and land uses of the area must be supportive of the proposed facility.</li> <li>2. The demographics of the location's permanent and daytime populations must be able to support the proposed facility.</li> <li>3. The site must be accessible via the appropriate modes to support the proposed facility.</li> <li>4. The location should be in a district whose character complements the type of proposed facility.</li> </ol>
<p><u>Basic Elements of Facility Design</u></p> <ol style="list-style-type: none"> <li>1. The facility's design should be sensitive to the surrounding urban context.</li> <li>2. The transit and non-transit spaces in the facility should be distinct, yet linked.</li> <li>3. The facility must have strong, logical access routes both outside and inside the building.</li> <li>4. Flexibility should be incorporated into the facility's design.</li> <li>5. Consistent design elements should be used throughout the facility.</li> </ol>
<p><u>Implementation</u></p> <ol style="list-style-type: none"> <li>1. The transit agency must approach joint development proactively.</li> <li>2. Form a functional partnership among all parties as early as possible.</li> <li>3. Leverage the particular strengths of each party.</li> <li>4. Ensure sufficient legal authority and capacity to achieve the proposed development.</li> <li>5. Create a dedicated entity to oversee the development process.</li> </ol>

These principles are used to explore the opportunities and challenges the key issues present to the transit agency. This enables the transit agency staff to achieve a greater comprehension of the development process required for these facilities, as well as an appreciation for the benefits mixed-use facilities generate. Armed with this knowledge, transit agencies can begin the process of playing their role as an active agent in urban change through the support of transit-oriented development.

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