

required provisions could include the rerouting of buses to other stations along the subway-elevated line. These would be undertaken if the project were selected for renovation and funds were allocated by the agency.

SUMMARY

The process for selecting a renovation plan for transit-station improvement has been described and illustrated by using a complex urban terminal facility. The process involves the establishment of goals, objectives, and criteria for each affected interest groups and evaluation of the existing terminal in terms of its performance and present policy. Alternative station layouts that improve movement patterns, reduce conflicts, and limit walking are developed. Each alternative is evaluated from the viewpoint of the interest groups affected, and the results are depicted in a factor profile diagram. Dominance and trade-off analysis are used to select an alternative for implementation.

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Joint Development Around Intermodal Transfer Facilities

JEROME M. LUTIN AND CYNTHIA A. WALKER

Efforts undertaken in the city of Baltimore to initiate joint development around transit stations are examined. Under the provisions of the 1974 amendment to the Urban Mass Transportation Act of 1964, the U.S. Department of Transportation could make grants or loans for the establishment of transit corridor development corporations and for the purchase of land and the development of property adjacent to transit stations. Baltimore was one of the first cities to apply for funds under the new legislation. Although the Urban Mass Transportation Act of 1964 has since been amended to remove specific authorization for the funding of transit-corridor development corporations, the Urban Initiatives Program, established in 1979, provided funding for the Baltimore program. The key factors underlying the successful development of the Baltimore program are identified. Specific joint-development projects are examined, and the main points of the joint-development application are discussed. Observations are offered on the nature of contemporary joint development and the involvement of the public sector.

A fundamental premise of the Urban Mass Transportation Act of 1964 is that mass transportation systems are required for desirable urban development. Yet new rapid transit systems have not fulfilled their promise of inducing beneficial urban changes. These changes can be implemented if transit planning and land use planning are linked and are strengthened by the authority and resources to implement land development. This was the impetus behind enactment of the 1974 Young Amendment to the act, which provided for federal funding of transit corridor development corporations (TCDCs).

Since the 1974 amendment, only a handful of cities have taken steps to obtain Section 3 grants (discretionary capital grants) for use in setting up TCDCs. Among these, Baltimore is the closest to receiving funding. Portland (Oregon) and Denver are

also likely candidates. A number of other cities have undertaken preliminary joint-development studies and, under a grant from the Urban Mass Transportation Administration (UMTA), the Rice University value-capture team has studied several cities (1,2).

This paper examines the efforts undertaken in Baltimore to initiate joint development around several stations planned for the first section of the regional rail rapid transit system now under construction. Factors contributing to the joint-development program are discussed, and the history of the Baltimore effort is described. The organizational framework within which the joint-development plans were developed is discussed, and the joint-development application and constituent project plans are presented. The paper attempts to identify the key factors for a successful joint-development project. It is recognized, however, that each project is unique and no universal conclusions can be drawn from only one example. The paper concludes with some observations on the nature of contemporary joint development and the role of the public sector.

FACTORS LEADING TO JOINT DEVELOPMENT

The major factors that led to the joint-development projects undertaken in Baltimore can be summarized as follows:

1. A rail rapid transit system was already being built.
2. Baltimore was actively pursuing urban

development programs administered by a strong city agency, the Department of Housing and Community Development (HCD), which had already started two quasi-public corporations.

3. Baltimore's retail district was declining, and a study prepared by a consulting firm had pointed out the need for pedestrian connections and also developed a joint-development plan for the Lexington Market transit station.

4. The Baltimore Regional Planning Council (RPC) received funding from UMTA to study transit-station-area development and access. Local jurisdictions prepared most of the development planning for that study.

Baltimore Mass Transit System

The most obvious and crucial factor in the series of events outlined above was that a rail rapid transit system was being built in Baltimore. The completed system will cover three jurisdictions: the city of Baltimore, Baltimore County, and Anne Arundel County. Regional planning for the transit system was conducted by the RPC and coordinated with the three jurisdictions.

Initial planning, which began in 1961, envisaged a 65-mile regional system with six radial corridors. The original system (phase 1) was to be 28 miles in length. Of this initial system, an 8.5-mile segment known as the Section A line has been financed and is under construction. The Section A line, budgeted to cost \$721 million, is expected to be in operation by 1982 with an average daily patronage of 83 000 riders. A map of the Section A line and its station locations is shown in Figure 1.

Section A is being constructed by the Mass Transit Administration (MTA) of the Maryland Department of Transportation (DOT) and is being financed through an UMTA capital grant. The local share of the grant is provided, by means of a state gasoline tax, from state transportation funds. Funding for the remainder of the proposed system is uncertain.

The next segment to be built will probably be the extension of the Section A line through Baltimore County to Owings Mills. This paper focuses on Section A transit-station joint-development projects.

Active City Development Programs

A second major contributing factor in the Baltimore joint-development projects was the city's active urban renewal and community development programs and the political composition of the city that made these programs possible. A municipal organizational chart that clarifies the role played in the joint-development projects by city departments and officials is shown in Figure 2 (3).

The key positions can be outlined briefly as follows. The mayor, the chief executive of the city, has the power to veto ordinances passed by the City Council and to appoint municipal officials. These appointments, which are subject to City Council approval, include city department heads as well as members of boards and commissions that govern city agencies. The mayor has the power to appoint "special agents"--in effect, to establish new offices or appoint coordinators who can transcend departmental limitations.

The Board of Estimates determines the city's fiscal policy. It consists of the mayor, the city solicitor and the director of public works (both appointed by the mayor), the comptroller, and the president of the City Council (the latter two posts filled by election at large).

The City Council is a single-chamber legislative body consisting of 18 members (elected from districts) plus the president. The City Council votes on ordinances and resolutions.

The Planning Commission, a nine-member body appointed by the mayor, is charged with the oversight of the Baltimore Planning Department. The Planning Department prepares Baltimore's comprehensive plan, which is then adopted by the Planning Commission. The plan contains a one-year capital budget and a six-year capital development program for all proposed physical development in the city. The plan includes the location and extent of public improvements, such as subways. The Planning Department is organized into several areas: commission services, area planning, citywide systems planning, facilities planning, design services, and support services. When the transit system was in the planning stages, the Planning Department studied the land use impacts of the transit system, including the consideration of joint development. The Planning Department has cooperated with other agencies in preparing transit-station joint-development planning concepts.

The HCD builds and manages public housing; enforces the housing, building, and zoning codes; and carries out urban renewal and community development programs. The HCD contains several divisions: administration, construction and building inspection, home ownership development program, housing management, information services, land development (in urban renewal areas), neighborhood development, relocation, resident family services, and planning (for urban renewal areas).

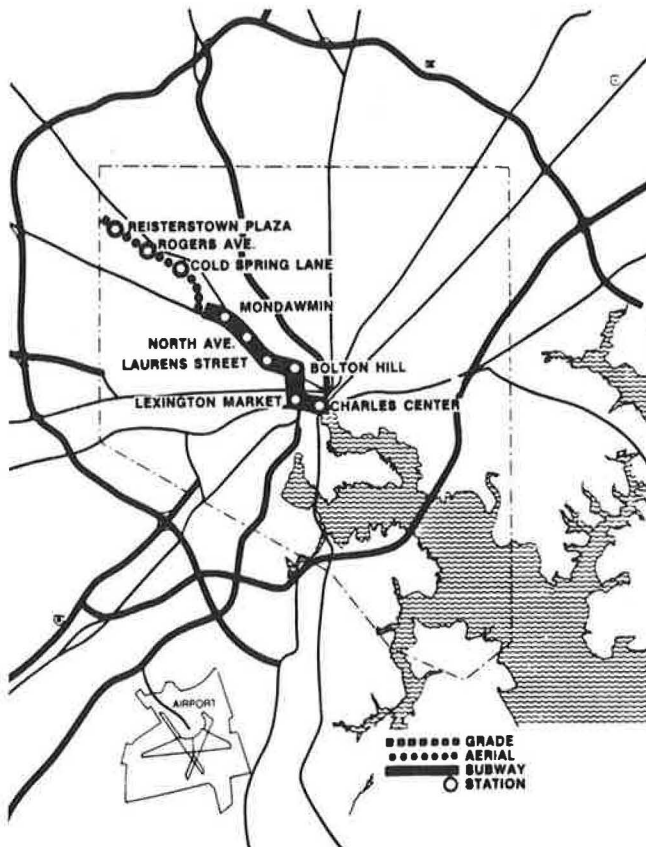
The HCD, an active department, has already sponsored two quasi-public development corporations. Charles Center-Inner Harbor Management, Inc., is concerned with downtown development, and the Baltimore Economic Development Corporation deals with industrial development. Because the land around each transit station in the proposed system was declared an urban renewal area by the city, this land falls under the jurisdiction of the HCD. The HCD has been instrumental in the evolution of joint development around transit stations in Baltimore.

Joint development requires cooperation between the public and private sectors and within the public sector as well. The formal organization of the city has been described. However, the actual nature of the cooperation and the informal links between the mayor and the various departments cannot be described in an organizational chart. These informal links evolved over time out of the formal structure.

As noted above, the first segment of the rapid transit system is being built entirely within the city of Baltimore by the MTA, a state agency. For the planning and construction of the line, it was necessary that the MTA cooperate with the city and its departments. In Baltimore's "strong mayor" form of government, the mayor has the power to appoint municipal officials. One such appointed official, the mayor's physical coordinator for transportation, was also, at the time that construction of the transit system began, the HCD commissioner. Under this authority, a transit task force was established to serve as a liaison between the MTA and the city and its departments. The transit task force was to deal with problems in the construction of the transit system within the city of Baltimore.

The transit task force was composed of two former HCD employees, who were paid through contracts with HCD. When the offices of physical coordinator for transportation and commissioner of HCD were no

Figure 1. Section A of Baltimore rapid transit system.



longer held by the same person, the members of the transit task force remained contractual employees of HCD. While the transit task force was to deal with the construction of the transit system, it also became involved in the joint-development projects. The members of the task force, as former HCD employees, had been active in the Charles Center-Inner Harbor projects. They had also been staff members on the city's Retail District Study.

Declining Retail District

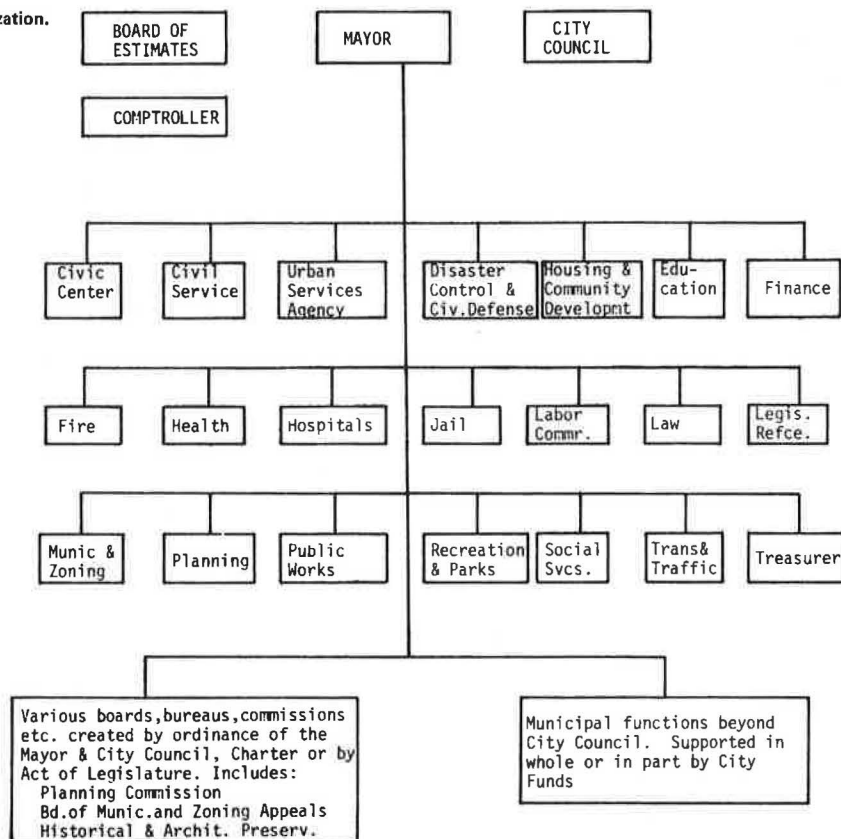
The Retail District Study was established in 1974 to examine Baltimore's declining downtown retail district. The Retail District Executive Committee included the Retail Merchant Association, the Greater Baltimore Committee (GBC), and city staff members. The main thrust of the study was provided by the GBC. Founded in 1954, this committee is composed of business interests concerned with the vitality of downtown Baltimore. The GBC actively supported the Charles Center-Inner Harbor projects and then began to focus on the declining retail district.

In 1974, the Retail District Executive Committee hired Arthur, Cotton, and Moore and Associates as consultants to study the retail area and propose solutions. The study called attention to the need for pedestrian connections to link the retail area to other areas in the city. The study also pointed out the potential for joint development and fostered the concept of Baltimore Gardens, a joint-development project around the Lexington Market station.

Transit-Station-Area Development and Access Study

The idea of joint development around the Lexington

Figure 2. City of Baltimore municipal organization.



Market transit station (i.e., Baltimore Gardens) gave impetus to the planning for all stations and to the application for UMTA funding under the 1974 Young Amendment. However, this was not the only factor. When the transit system was being planned, the Planning Department had looked at the land use impacts of the proposed transit system. The planner who had been in charge of the Baltimore city impact study attempted to secure funding to look more closely at the station areas in the light of joint development. In 1970, he began an application process to obtain UMTA funding to study the stations. Inasmuch as the transit system was a regional system, UMTA felt that the application should involve study of the station areas of the entire system and should be coordinated by the designated metropolitan planning organization, the RPC.

In 1974, funds from the state of Maryland and UMTA were committed to the Regional Planning Council for the comprehensive Transit-Station-Area Development and Access Study (TSADAS), which considered all stations of the rapid transit network. This study was part of a unified transportation planning process that outlined the duties of, and coordination between, the city of Baltimore, Anne Arundel County, Baltimore County (the three local jurisdictions), the Maryland DOT, the MTA, the state highway administration, and the RPC. The RPC worked with the three local jurisdictions to develop "policies and guidelines for transit-related development in station areas included in Phase I of the Baltimore Rapid Transit System" (Section A line) (4). Each jurisdiction prepared data and planned development for stations within its boundaries.

Thus, the city used TSADAS funds to plan development around the transit stations. The Baltimore Gardens concept for the Lexington Market station had already been prepared by Arthur, Cotton, and Moore and Associates in conjunction with the HCD. The Planning Department studied the remaining stations, developed station-area profiles, and also explored joint-development possibilities for these stations.

Application for UMTA Joint-Development Funds

Out of a combination of these factors emerged Baltimore's plans for joint development around three transit stations: Lexington Market (Baltimore Gardens), North Avenue, and Reisterstown Plaza. Other transit stations, such as the Cold Spring station, have joint-development possibilities but were not included in Baltimore's application for UMTA funds. Plans for the three stations selected for joint development were the result of a combination of efforts by the consultants who worked on the Baltimore Gardens concept, the TSADAS work team (primarily planners from the city Planning Department), planners from the HCD urban renewal planning division, and the transit task force.

Baltimore applied for Section 3 UMTA funds to develop the three stations. The decision to submit the application was made in September 1976, and the application was filed in January 1977. A study of the environmental impact of the three stations is expected to be completed around September 1978.

Baltimore was among the first cities to apply for, and will probably be the first city to receive, Section 3 UMTA funding. The funding request for the projects is outlined below (5, p. 9a):

<u>Project</u>	<u>Funds Requested (\$000 000s)</u>
Lexington Market station (Baltimore Gardens)	7.0

<u>Project</u>	<u>Funds Requested (\$000 000s)</u>
North Avenue station	0.9
Reisterstown Plaza station	0.9
Formation of TCDC (for six years at \$200 000/year)	1.2
Total	10.0

Baltimore's application for UMTA funds includes a request for \$1 200 000 for the formation of a TCDC. This corporation would be a public-private partnership under the guidance of the HCD. As mentioned previously, the HCD currently guides two such quasi-public corporations (5).

The table above indicates that the Baltimore Gardens project constitutes \$7 million of the \$10 million UMTA request. A breakdown of the funds requested from UMTA is given in Table 1 (5). Construction costs for 100 000 ft² of retail space and 60 000 ft² for entertainment purposes, at \$40/ft² (approximate total \$6.4 million), have not been requested to be paid by the UMTA grant (5).

Lexington Market Station

Baltimore Gardens would consist of a combination of new retail and entertainment development intermixed with a public garden and a park. Pedestrian connections are planned between the nearby transit station, at Eutaw and Lexington Streets, and the new development and park and already existing stores. This concept was possible because one of the department stores on the corner of Howard and Lexington Streets went out of business (nationwide), thereby freeing the land for possible new construction. The planning context and site plan are shown in Figure 3. The area has a 23-ft slope down Lexington from Eutaw to Howard. If the site is excavated, therefore, a three-level transit station with pedestrian connections at each level is possible. The subway mezzanine level would be fed by Lexington Mall, the middle retail level would connect to Lexington and Saratoga Streets at midblock, and the upper level would be Eutaw Street (5). The three levels are shown in Figures 4-6.

North Avenue Station

The North Avenue station is located in a declining low-income residential neighborhood. Projected station development would include a new station entrance and pedestrian connections to a proposed high-rise housing unit for the elderly, with convenience retail shops on the main floor. A breakdown of the UMTA funding request for this station is given in Table 2 (5).

The success of the North Avenue station development hinges on the proposed high-rise housing unit for the elderly. This unit would contain 260 one-bedroom apartments, for which rental would run about \$350/month. The housing would be financed by funds from the U.S. Department of Housing and Urban Development (Section 8), the Federal Housing Administration, and the Maryland Department of Economic and Community Development (5).

Reisterstown Plaza Station

The Reisterstown Plaza station is to be located near a regional shopping mall. The new development would consist of pedestrian connections and a publicly developed pedestrian route linking the transit station, a nearby railroad station, and the shopping mall. Office and retail sites along the pedestrian route will be made available to private developers. The development site is currently vacant land except

for one vacant single-story structure (5). The key issue in the area is to coordinate any new development of the vacant land with the transit station. The breakdown of the UMTA funding request for this station is given in Table 3 (5, p. 30).

COORDINATING JOINT DEVELOPMENT

Joint development demands coordination among many agencies, at various levels, in both the public and private sectors. In Baltimore, coordination was necessary among (a) private-sector interest groups and local community groups, (b) the developer, (c) the mayor, (d) city departments, (e) the transit authority, (f) the regional transportation agency, (g) the RPC, (h) the state DOT, and (i) UMTA and other federal agencies. To achieve the required coordination in such a project, there must be some person or agency that is able to (a) maintain an overall view of what is going on in the city and the region, (b) make policy or have access to policy-makers, and (c) work with UMTA, the state DOT, the transit authority, and the developer.

In Baltimore, the high level of coordination necessary for successful implementation of joint development was provided through the HCD. The head of the HCD had direct access to the mayor, and the

department possessed powers broad enough to maintain a wide scope on the project. The initial, informal coordination of the project by HCD was formalized, as the project moved ahead, with the creation of the transit task force.

The important factors to note are that the timely implementation of joint-development projects should involve the use of techniques familiar to the city and should be done through familiar channels. This is especially pertinent in public-private ventures because time is an important cost factor in private developments. Wherever possible, the agency with the best track record of success should be used.

CONCLUSIONS

During the past several decades, entrepreneurs and real estate developers have been quick to take the initiative in acquiring land around highway interchanges and airports. Prior to the large-scale involvement of government in the construction of highways, when large-scale railroad and streetcar systems were being constructed, the transit companies themselves often acquired, developed, and sold the land adjacent to their rights-of-way. Suburban housing, downtown commercial centers and railroad stations, and even amusement parks at the ends of trolley lines are all manifestations of the well-understood economic relationship between land development and public transit access.

When transit again became a "favored" mode of transportation in the United States and federal funds became available to construct new lines, much of what the transit operator and real estate speculator of yesteryear had known had to be relearned at considerable expense. Yet the coordination of land development with public transit in the 1970s is much different from that in the 1910s. Much current transit construction is occurring in older, mostly fully developed communities, whereas most real estate speculation is still taking place primarily at the urban fringe, which is dominated by the automobile. The dramatic

Table 1. Funding request to UMTA for Baltimore Gardens station.

Item	Cost (\$000s)
Land preparation	
Business relocation	484
Land acquisition (69 750 ft ²)	4288
Demolition of existing structures and site preparation	640
Public area development and pedestrian connections	
Plaza construction (32 750 ft ² at \$20/ft ²)	655
Upper-level public walkways	160
Glass coverings	328
Plantings and furniture	50
Vertical circulation and connections	395
Total	7000

Figure 3. Baltimore Gardens site plan.

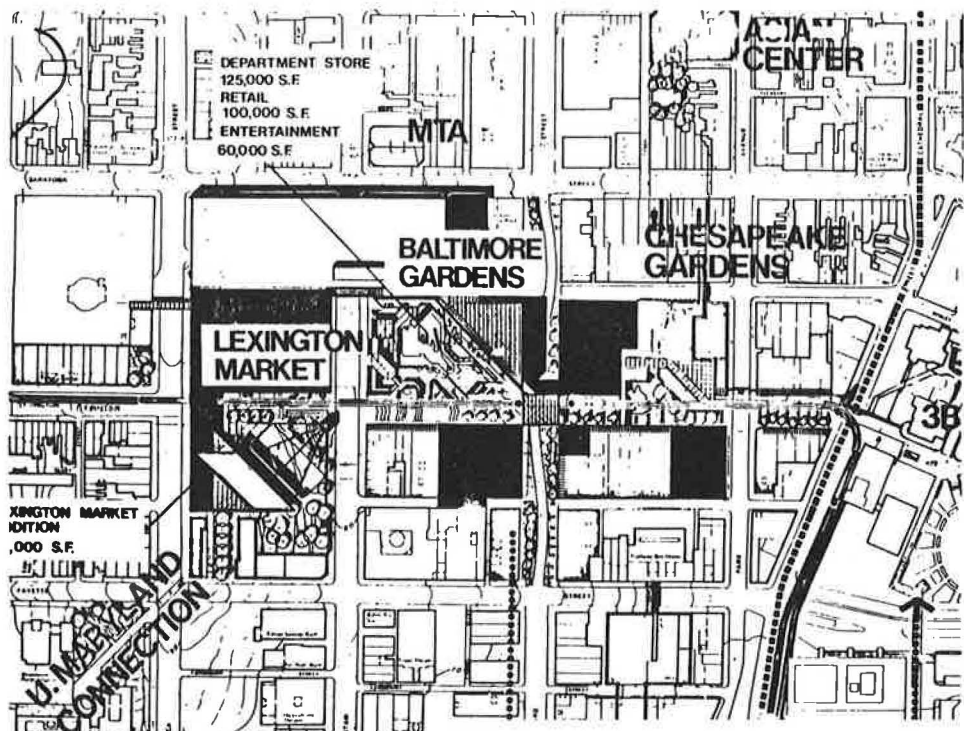


Figure 4. Baltimore Gardens: upper level at Eutaw Street.

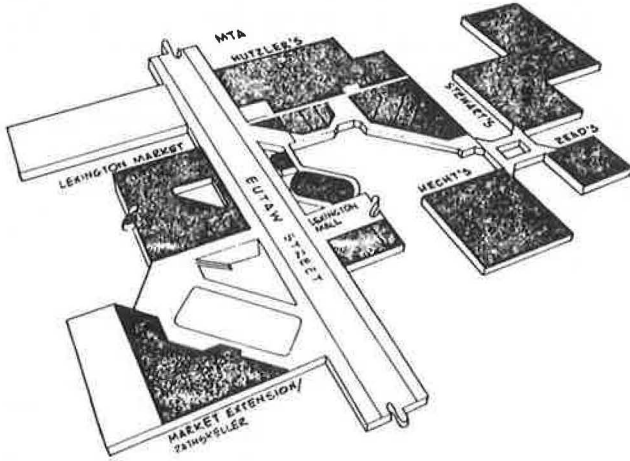


Figure 5. Baltimore Gardens: middle retail and entertainment level at Paca Street.

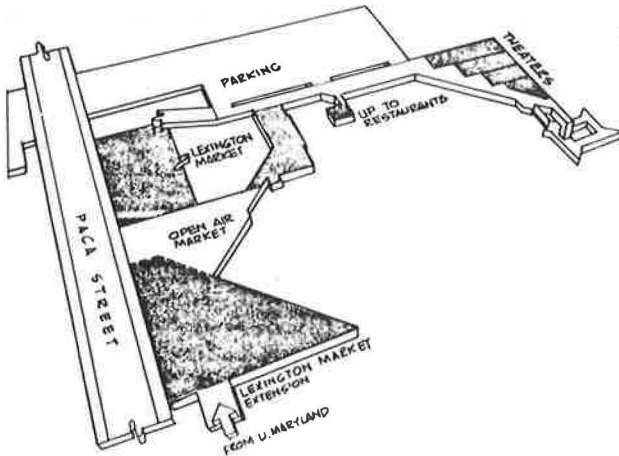
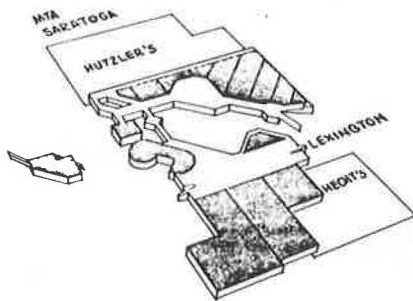


Figure 6. Baltimore Gardens: lower-level subway mezzanine at Lexington Mall.



increases in development along transit lines that occurred in past years are not likely to occur now, at least not if development is left entirely to the private sector.

The city of Baltimore went beyond the traditional passive municipal role of planning and entered the sphere of the private entrepreneur. The government became the planner and developer, a trend that has been growing steadily over the past two decades and has finally been relinked with transit planning and construction. To achieve this linkage, it was necessary to adopt innovative approaches.

Table 2. Funding request to UMTA for North Avenue station.

Item	Cost (\$000s)
Land acquisition (30 000 ft ² at \$10/ft ²)	300
Business relocation	50
Demolition of existing structures	85
Site coverings, plaza development, coverings, and connections	400
Purchase of options or partial or full interests plus specialized planning and technical studies	65
Total	900

Table 3. Funding request to UMTA for Reisterstown Plaza Station.

Item	Cost (\$000s)
Land acquisition (\$4/ft ²)	
Private development (100 000 ft ²)	400
Public pedestrian connections (50 000 ft ²)	200
Subtotal	600
Demolition of existing structure	3
Site improvements and preparation; pedestrian path, underpass, and overpass	200
Purchase of options or partial or full interests in adjacent parcels plus specialized studies and appraisals	97
Subtotal	300
Total	900

Innovation, however, may involve--as it did in Baltimore--the development of a unique package of individual methods that in themselves are not new or especially innovative. In fact, it appears that success is most likely when proven development techniques--those with which the municipality has had previous successful experience--are used in the joint-development process.

The Baltimore case illustrates the use of "tried and tested" development techniques in the pioneering area of joint development. In Baltimore, joint development involved the use of urban renewal and quasi-public management corporations. The use of these two techniques in a pioneering area such as joint development came about because Baltimore operated through the HCD, which had a tradition of decision making. The city already had a strong and active urban renewal program, and the public was accustomed to the city's activity in this area. Therefore, in implementing joint development, the city declared land around the transit stations to be urban renewal areas, which fall under the jurisdiction of the HCD. The city had also supported two previous quasi-public management corporations and was therefore acquainted with this technique.

Baltimore had submitted its application for joint-development funds to UMTA in January 1977. It was not until October 19, 1979, more than 2.5 years later, that UMTA approval was given. The delay in approving Baltimore's application may be attributed to a variety of causes. However, it is clear that establishment of the UMTA Urban Initiatives Program in 1979 provided the impetus for releasing the funds. Although the joint-development legislation had existed since 1974, joint development was given low priority because of competing demands for Section 3 funds. It was not until President Carter made urban revitalization a matter of administration policy that joint-development funding became available. In addition, since no additional appropriations were released by Congress, Baltimore's application necessitated shifting funds from other discretionary projects. It is clear from

the Baltimore experience that a well-defined federal policy toward joint-development funding is necessary.

In spite of the difficulty in obtaining federal funds for joint development, UMTA has clearly articulated the requirement that municipalities that seek funds for rail transit construction must commit themselves to a program of land use plans, zoning policies, and development incentives that will "support or reinforce the developmental impact and shaping influences of the rail transit system" (6). Station areas are to receive specific attention so that high-density private development in the station areas will be maximized. The plans for Baltimore's station area development outlined in this paper should serve as a model for other urban areas seeking funding for rail transit systems.

ACKNOWLEDGMENT

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Abridgment

Transit Centers: A Means of Improving Transit Services

ANNE TAYLOR-HARRIS AND THOMAS J. STONE

The role of transit centers in improving the overall effectiveness of an urban bus transit system is defined and assessed. Transit centers are defined as physical facilities that facilitate the movement of buses and, thus, of bus patrons. Transit centers are more than park-and-ride lots because they can be located in high-visibility locations, even in the downtown core, and thus can serve to increase the attractiveness of transit. They are major transfer points at which several types of routes can come together. Express and local routes, as well as pulse-scheduled circulators, can thus provide the bus user with many potential destinations and greatly reduce transfer time. Transit centers can be located in the central city, on freeways, or in suburban activity centers. Planning guidelines are developed to assist in the successful planning and implementation of transit centers. These guidelines address general locational considerations, bus berths, parking, accessibility, and potential joint-development opportunities. These planning guidelines are used to locate and conceptually design a potential transit center for the Salt Lake City area. It is concluded that the impact of current pioneer transit-center projects in the United States should be closely monitored.

Transit centers are physical facilities that help to coordinate the movement of buses and people and thereby facilitate the use of transit. Each can generally be categorized as either a central-area, an on-freeway, or an outlying transfer center. The purposes of a specific transit center are usually defined by its location. Central-area centers provide off-street downtown distribution for radial express-bus operations. On-freeway transit centers are built right into the right-of-way of the freeway and thus eliminate the need for express buses to leave the freeway and travel on local streets to a suitable location for loading or unloading passengers (1). Outlying transfer terminals help intercept motorists and buses in an outlying area, facilitate passenger transfer to other express and local lines, and also provide convenient access for transit patrons.

The Denver Regional Transportation District has

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applied for funding to build three outlying transit centers this year and another three next year. The San Diego Transit Corporation has included four on-freeway transit centers and one suburban transit center in its Five-Year-Plan Update (1979-1983). These transit agencies are two of the pioneers in the use of transit centers for bus transit alone. This paper discusses the expanded use of the third type of center--outlying transfer--in medium-density communities with a bus transit system. Basic planning and design guidelines are explained and applied in relation to a conceptual design for a transit center in the Salt Lake Valley.

FUNCTIONS OF AN OUTLYING TRANSIT CENTER

Until recently, transit facilities located outside of the downtown area have been used to collect commuters from residential areas and thus have functioned solely as park-and-ride lots. Although this is still a major function of a transit center in an outlying area, it is not the only one. Such a center can also serve as a main transfer point between bus routes and can offer possibilities for joint development. Because available funding is at a premium, joint-development possibilities become especially attractive and can increase the feasibility of the transit center.

As an interface between line-haul transit and local collection (either by bus or by automobile), the transit center makes it possible to reduce local transit services into the city center. Passenger travel time can be reduced through an expansion of express service and through wider station spacings on express transit routes. Thus, the operation of a transit center as a transfer point to a line-haul