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Automobile Restricted Zones in Downtowns: Lessons from UMTA's Demonstration Program

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ABSTRACT

The implementation process, though critical to the success of any project, is not well understood by transportation planners. Implementation of innovative programs is a costly and time-consuming process. The experience from an innovative transportation program is summarized in an effort to contribute to better understanding of this important process and communicate some lessons to planners and decision makers. In 1975 UMTA's Office of Service and Methods Demonstration launched a program to test the concept of automobile restricted zones (ARZs) as a means of revitalizing the downtown environment. This would be achieved by improving transit access, pedestrian amenities, and circulation. A status report of the progress for the four demonstration sites--Boston, Memphis, New York City, and Providence--is presented. Information is based primarily on reports from planners in those cities responsible for the ARZ demonstration program.

Restricting automobiles in the central business district (CBD) by establishing pedestrian or transit malls is still considered an innovative and controversial technique because it attempts to solve downtown problems through structural change; however, it is not a new idea. Separation of pedestrian and vehicular traffic has been applied successfully in many European cities since the middle 1940s in response to high congestion in dense, historic urban centers. U.S. cities slowly have developed an interest in the technique as a means of improving the economic vitality of urban centers. Examples of other objectives of automobile restricted zones (ARZs) are to improve traffic conditions, encourage public transit and nonautomobile modes of travel, achieve better urban design, create a more relaxed and pleasant atmosphere for pedestrians, improve

environmental quality through the reduction of noise and air pollution, and increase safety by eliminating conflicts between pedestrians and automobiles.

According to Rubenstein (1) and Brambilla et al. (2), by 1977 about 90 U.S. cities had implemented downtown ARZs. The first ARZ was built in Kalamazoo, Michigan, in 1959. Subsequently, more malls were established in other cities at the rate of about one mall per year. This rate accelerated to about ten malls per year in the early 1970s and then declined in a pattern of development that resembles the s-shaped curve suggested in the literature on adoption of innovation (3). It is uncertain whether the decline observed during the latter years can be attributed to an expected slowing of the rate of adoption, or to a worsening of general economic conditions--inflation and cuts in governmental spending.

Assuming that the information on malls cited earlier (1,2) is complete, only 2 percent of all U.S. cities with populations greater than 5,000 had built ARZs before 1977. The proportion gets higher as city size increases. For example, one in four cities in the more than 0.5-million population category have implemented ARZs; this proportion drops to less than one in ten for cities with a population of less than 100,000. On the other hand, most malls (60 percent) have been built in urban areas of less than 100,000 inhabitants. This finding is not surprising because most cities fall into this population group. Although geographic distribution of ARZs provides little evidence that there is a spatial basis for the spread of malls, it appears that there is a higher concentration of such projects in a few densely populated states (i.e., California, Illinois, Michigan, and Pennsylvania).

Most of the ARZ literature focuses primarily on the study of impacts (4-8). There is another body of literature on malls that is characterized by its preoccupation with physical design features (1,2). Thus far, little attention has been paid to issues that relate to the planning and implementation process.

Analysis of ARZ experiences by Voorhees (5) has led to the identification of a number of key factors that are critical to successful planning and implementation. The preexisting characteristics of the area and the type of implemented automobile restriction measures appear to determine the magnitude and distribution of impacts. The level of downtown activity and maintaining accessibility are the two most important dimensions. The size and design of malls and their effect on overall transportation is another factor. Finally, political and institutional factors, such as quality of local leadership and support by the public, are also seen as important factors that influence successful implementation.

Despite the success of the first few malls in the early 1960s, imitation has been limited and modest in scale; they are usually confined to a single street and no more than a couple of blocks in length (5). According to Knack (9), most of the malls constructed in the U.S. have not failed outright, but few have lived up to their expectations.

Some malls have acted as catalysts for other redevelopment projects by demonstrating a firm commitment by the public sector to improving the downtown area (7). However, malls have not proven to be a panacea for the ills of our cities. Automobile restriction alone cannot reverse a situation or trend of decay in a downtown area that no longer has many activities because they have relocated, for example, Trenton, Pomona, and Riverside (6,2). The associated private commitments and how the ARZ links with existing developments determine the success or failure of a project.

Implementation of an ARZ project, especially in slow-growing cities or cities with a declining population, may improve conditions in the affected zone, but it is unlikely to generate new sales trade overall. Merchants in other downtown locations or in other city neighborhoods may lose or gain customers as a result of changes in traffic management. Similarly most of these changes may be expected to redistribute traffic, thus creating problems in neighboring streets (10). In another evaluation study of 10 cities with malls, the before and after conditions of businesses on the mall street were compared with other streets in the city. The study found a consistent reordering of types of businesses and an increase in retail-oriented businesses on the mall street, an increase in offices on the parallel streets, and a consistent large decline on the cross streets with no compensating gains in any particular sector of business (11).

ARZs are rarely supported by interest groups. Moreover, they are opposed frequently by the public and special interest groups. Among the potential problems associated with implementation of ARZs are diversion of traffic, reduction in user access to the zone, lack of vehicle mobility within the area, and delivery of goods. Merchants, especially those with small businesses, often have been the chief opponent of automobile restriction when it hampers the delivery of goods (12). Another survey showed that merchants fear decreased visibility and security, especially during evening hours because of the lack of automobile flow and parking on the street (6).

Assessments of effectiveness have come primarily from mass media articles and hearsay that have no scientific validity. It is unfortunate that opinions formed in this way tend to stress the short-term negative aspects of ARZs. Negative media reports coupled with the predominance of the private car as the transportation mode in America tend to perpetuate feelings of uncertainty and fear about automobile restrictive measures in many cities. Federal and city planners have gone so far as to avoid even the use of the term ARZ because of its negative connotations. Most evaluation studies have used designs that consist of individual before and after and ex post facto case studies, or comparisons of case studies. Only limited general conclusions about effectiveness can be drawn from such studies.

Over the last 8 years UMTA's Office of Service and Methods Demonstration (SMD) has played a pioneering and critical role in sponsoring the development, demonstration, and evaluation of innovative transportation techniques and in disseminating this information to the public. Funding for SMD projects usually covers planning and data collection costs, and additional funds for capital and operating expenses are solicited from other sources (13). The development of the ARZ program is one of UMTA's SMD initiatives. In this paper some background on the history and progress of SMD's ARZ program is provided and an attempt is made to draw lessons from that experience as a guide to urban planners.

UMTA ARZ DEMONSTRATION PROGRAM

In 1975 UMTA's Office of SMD launched a comprehensive project to determine the feasibility and effectiveness of ARZs in U.S. cities. The SMD's concept of an ARZ goes beyond the traditional scope of pedestrian malls. It refers to managing automobile use in a larger geographic area with a transit intensive orientation. The purpose of the study was to investigate existing experience, evaluate the feasibility of concepts, identify and evaluate potential sites for suitable demonstration projects, and de-

sign demonstration programs for selected sites (14).

As part of the project, 75 cities were contacted to determine their interest in a demonstration program. Forty-five cities responded favorably with information about their plans. The process to determine the probable success used indicators of past performance, present commitment, and future planning in the areas of institutional performance, transportation factors and urban form, and opportunities that would be supportive of the ARZ concept (5,11, 14).

As a result of this process, five cities with the highest potential for a successful demonstration were selected: Boston; Burlington, Vermont; Memphis; Providence; and Tucson. Burlington dropped out of the SMD program at an early stage; however, it did receive an UMTA capital grant to implement the Church Street Mall in 1982. Tucson's plan was to implement a temporary ARZ in connection with a local festival. This was done without much preparation or public information. The local traffic congestion that resulted created strong opposition in both the media and with the political leadership, which killed the project. Traffic congestion had never been a problem and there were few pedestrians (15). New York City was selected later as the fourth site.

A brief description of the status of the program in the four cities is given in the next section. The descriptions are based primarily on reports from planners in those cities who are responsible for the ARZ demonstration program. Their presentations were delivered at the 1982 Annual Meeting of the Transportation Research Board. A summary of the ARZ project characteristics is given in Table 1.

CASE STUDIES

Boston: Downtown Crossing

Boston's ARZ project covers an area of approximately 100 acres in the heart of the active CBD of a metropolitan area of 3 million persons. The area is characterized by an old, narrow, irregular, and congested street pattern. The land use in the area is primarily office and retail with a high employment density that attracts a high volume of pedestrian traffic. Even before the ARZ, more than 50 percent of those with destinations in the downtown area used the public transit system.

The proposed ARZ had several objectives: reduce vehicle and pedestrian congestion and conflict; achieve economic revitalization in terms of support, expansion, and diversification of the existing activities; and improve the image and physical appearance of the area.

The ARZ plan attempted to meet these objectives by eliminating automobiles and parking within a zone of 12 blocks, which included six different streets (see Figure 1). This represents a departure from traditional linear malls. The design simplified the maze-like traffic routes and created needed space for pedestrians; the mall was then improved by removing curbs, widening sidewalks, and paving with

TABLE 1 ARZ Project Characteristics

Site	Description	Main Objectives	ARZ Plan Characteristics	Funding: Estimated Amount ($M)	Funding: Source	Associated Developments: Cost ($M)	Associated Developments: Type	Project Status and Evaluation
Boston: Downtown Crossing	Population: 641,000 Office and retail uses High employment density High transit use High pedestrian traffic	Reduce vehicle congestion Economic revitalization Improve image and attractiveness	Total to partial elimination of vehicles for 6 streets Improve pedestrian environment Revise transit routes Transit mall	2 1.5 1.5 Total cost estimate of project: 5	UMTA SMD UMTA and FHWA capital grants City[a]	30 100 21	Apartment and retail Hotel and retail Faneuil Hall-Quincy Market	Construction completed in 1979; transit mall eliminated Evaluation completed Spring 1982 reported increase in volumes of pedestrians, reduction in automobile trips, and strengthened retail activity
Memphis: Madison Avenue	Population: 623,000 Office, banking and retail uses, hub of transit system	Extend revitalization effects of existing mall Encourage reuse of vacant buildings Improve transit services	Shuttle bus service between CBD and Medical Center Major bus terminal Street sidewalk improvements Transit marketing	1 0.1 0.3 Total cost estimate of project: 1.4	UMTA SMD State City[b]	40	Office investments	Construction completed in 1982; successful redevelopment, and shuttle bus service very successful Evaluation study in progress
New York City: Broadway, Times Square, theater district, and retail uses	Population: 8,000,000 High transit use High pedestrian traffic High traffic congestion	Eliminate conflicts between pedestrians and vehicles Economic revitalization Improve pedestrian environment Improve traffic flow	Close traffic for 4 blocks Create 3 pedestrian plazas Transit mall one block Revise vehicle circulation TKTS ticket booth	3 1.5 2.3 Total cost estimate of project: 6.8	UMTA SMD FHWA City[c]	320	Portman Hotel proposal	EIS[d] completed in 1980 Mall lost support May 1982 and has been delayed indefinitely
Providence: Kennedy Plaza	Population: 156,000 Financial, retail, and governmental center High employment density	Eliminate conflicts between pedestrians and vehicles Improve attractiveness Improve transit services	Create transit mall and pedestrian plaza Improve transit interface Revise vehicle circulation	1 5.1 1.3 Total cost estimate of project: 7.4	UMTA SMD UMTA capital grant City	 100 100	Improvements to Union Station Office buildings Capital Center project	Plan reached consensus in spring 1982; construction expected to start summer 1983

[a] Implemented by the Boston Redevelopment Authority.
[b] Implemented by the Center City Commission.
[c] New York City capital budget.
[d] Environmental Impact Statement.

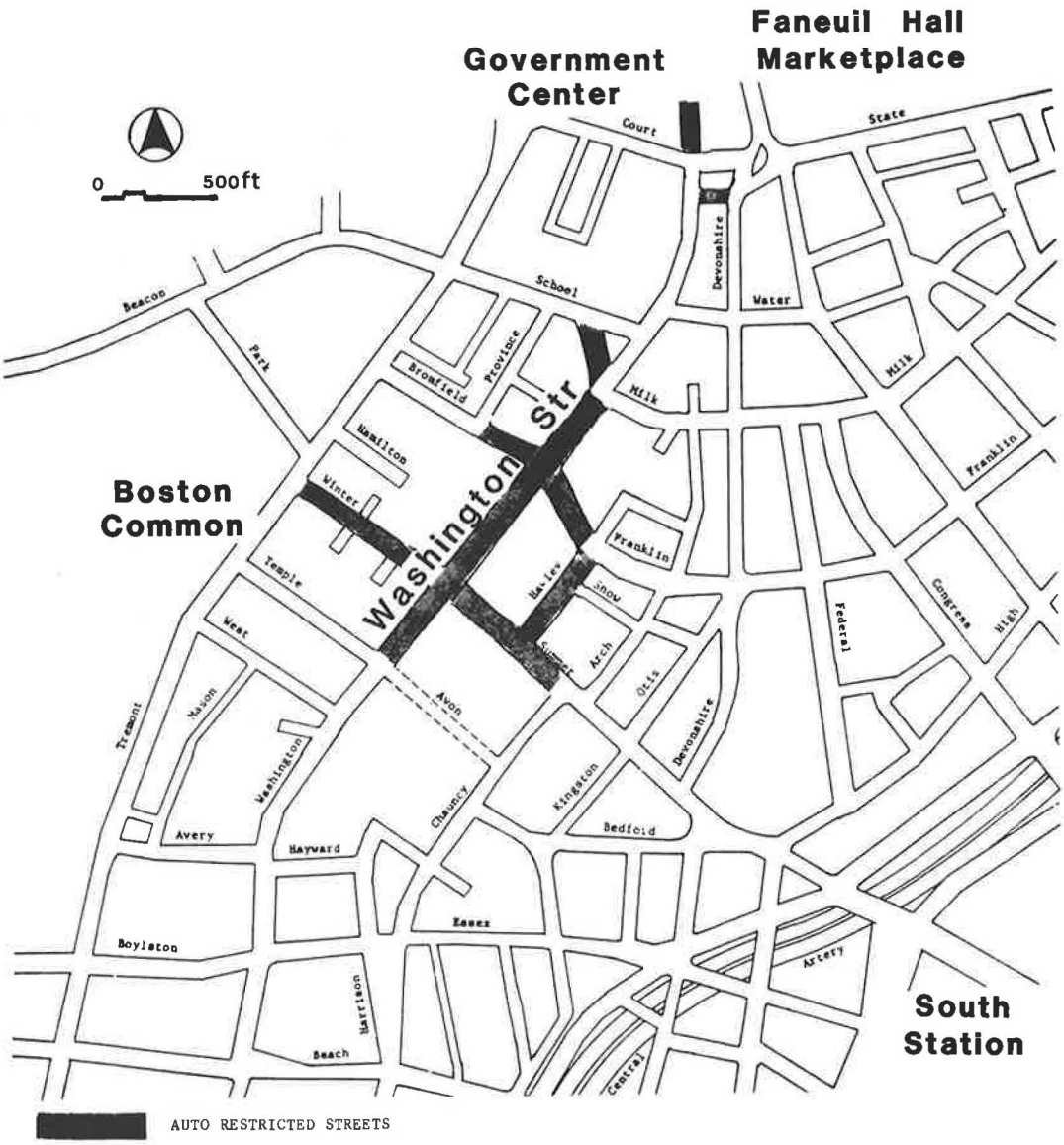

FIGURE 1 Boston: Downtown Crossing.

bricks. In contrast to other pedestrian and transit malls, Downtown Crossing includes a minimal amount of street furniture.

Transit flow was also improved by revising route patterns for local and express buses. Bus extensions that were a result of the revised routing were eliminated at the end of the grant period, 27 months after initiation, because of the loss of transfers to the Metropolitan Boston Transportation Authority (MBTA), which meant a loss of revenue. Another feature of the ARZ plan was a transit mall on Washington Street. The incremental approach followed in implementing the project provided the city with the opportunity to test the concept and the flexibility to modify the project design. Initially the transportation changes were implemented without any physical improvements. After a trial period, area merchants believed that conflict between pedestrians and buses was detrimental to their business. Washington Street was closed to buses, making it exclusively a pedestrian mall.

The Boston ARZ was completed in 1979 and was the first SMD project to be implemented in a relatively short time--only 2 years after the completion of the feasibility study. Final costs were about $5 million of which $2 million for noncapital expenditures was funded by an UMTA SMD grant, and more than one-half of the $3 million for capital costs was funded by FHWA and UMTA grants. The rest was financed by the city of Boston. The project was implemented under the direction of the Boston Redevelopment Authority. Strong merchant support has led to the formation of a centralized merchant group, the Downtown Crossing Association, which coordinates promotion and assists with maintenance (8).

Several other developments were in progress or being planned in the vicinity. The Faneuil Hall-Quincy Marketplace, a $21 million project nearby, financed through Federal Renewal Funds, opened before the ARZ started. Two other developments were expected to have a positive effect on the ARZ by drawing higher numbers of pedestrians into the area. These were a $30-million combined apartment and retail building and a $100-million combined hotel and retail building.

Cambridge Systematics, Inc., the consulting firm responsible for evaluating the Boston ARZ, has measured impacts in six major areas that are directly related to the ARZ objectives. These include travel, economic, and institutional impacts. Data were col-

lected during four time periods: before implementation, during construction, 6 months to 1 year after implementation, and 18 months to 2 years after implementation. The data collection involved a combination of surveys, pedestrian traffic counts, business inventories, interviews, records, and observations (16).

The final report was issued in the spring of 1982 (17). The results indicated increased volumes of pedestrians especially at lunchtime, a slight increase in transit use, a decrease in automobile trips to downtown, an increase in occupancy of automobiles visiting downtown, an increase in restaurants and chain stores opening in the area, and retail activity that had not increased but was strengthened by the growth in minor business transactions by the lunchtime crowds. Surprisingly, the expected increase in traffic on nearby parallel streets did not occur. The historical trend of decreasing retail activity in the downtown area was halted by the implementation of the project. The relationship between reduced automobile traffic and long-term economic revitalization, however, is complicated by a variety of other factors that are occurring simultaneously, such as other major developments, physical improvements, and promotional activities in the Downtown Crossing (8).

Memphis: Madison Avenue ARZ

Memphis, a city of more than 0.5 million people and once the office and retail hub of the Mid-South, had experienced two consecutive decades of decline and disinvestment (18). In an effort to reverse this trend, the local government and concerned downtown property owners funded the development of a master plan to change the image of the downtown. Part of the plan was accomplished by establishing a 10-block pedestrian mall (one of the largest in the United States) on the main street, which is the center of retail business and the hub of the public transit system. The funds for the construction of the $6-million Mid-America Mall were raised from the downtown property owners through the creation of the Central Business Improvement District. The mall, which was completed in 1976, did not immediately solve the downtown problem; however, it created an attractive atmosphere and a functional space and attracted a large number of users. In 1977 the Center City Commission (CCC), a full partnership between government and the private business community, was established. An UMTA ARZ demonstration grant was awarded, not to create an ARZ, but to continue the ongoing redevelopment process (18). The ARZ plan adopted a unique approach. Emphasis was directed away from major new facilities or services to consideration of selective improvements that could be made to expand and enhance the automobile restricted area.

The grant objectives included linking the Medical Center (a nearby concentration of employees and visitors) to the downtown, improving conditions for transit riders, extending the effects of the mall and downtown revitalization, encouraging reuse of vacant buildings, and maintaining high levels of accessibility and circulation.

The actual ARZ program included a downtown bus terminal, shuttle bus service ("Hustle") on Madison Avenue between downtown and the Medical Center, a bus terminal canopy and Medical Center bus shelter, streetscape improvements, and marketing. The street and sidewalk improvements experienced delays because of a problem with underground structures (see Figure 2).

The project was financed by a pledge of $100,000 from the state of Tennessee and a $960,000 grant from UMTA in September 1978. The ARZ project exceeded its budget by $333,000. The additional funding was provided by a capital improvement fund

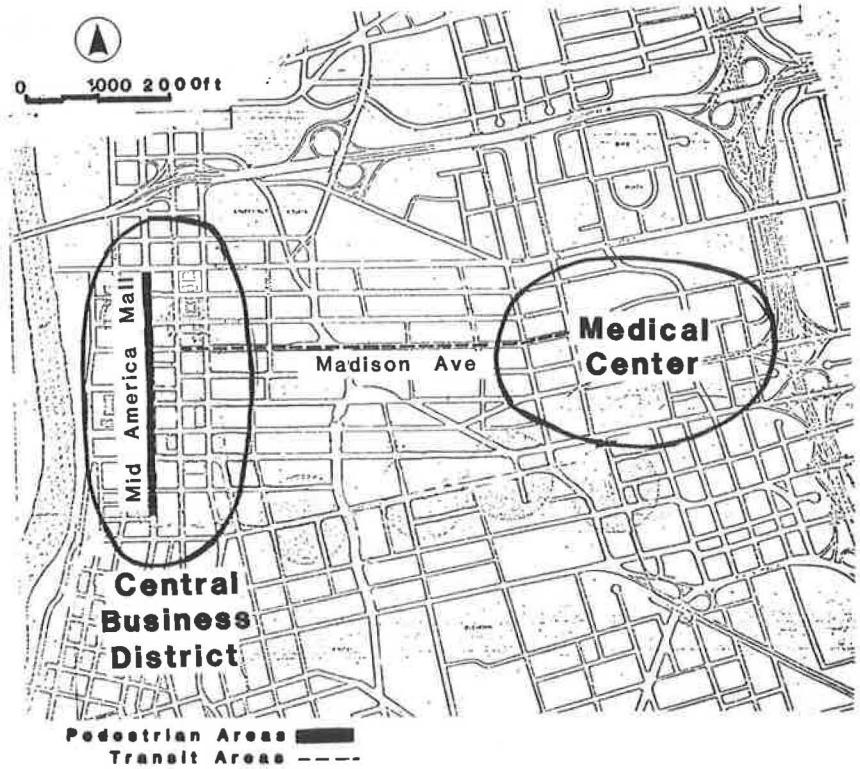

FIGURE 2 Memphis: Madison Avenue ARZ.

(which was established at the request of the CCC shortly after the grant was awarded) in the city and county budget. The ARZ program was instrumental in creating this fund.

Because of construction delays, only 70 percent of the contract was completed by January 1982. Charles Rivers Associates, the consulting firm responsible for the evaluation study, has not yet completed the evaluation. So far information available indicates that the ARZ is successful. Downtown private investment has increased substantially, from $250,000 in 1977 to $40 million in 1981. Buildings are being purchased, restored, or renovated. The bus terminal, Hustle bus, and a new streetscape all played a role in the decision to reuse buildings. The marketing for the shuttle bus also appears to be successful. It averages 62,000 passengers a month and there are reports of increased downtown patronage by Medical Center employees (18).

New York City: Broadway Plaza

New York City's proposed Broadway Plaza is located in the heart of Times Square and the theater district in Manhattan, a densely populated area that is the center of the city's tourist, entertainment, and convention industries. Broadway runs on a diagonal in what otherwise is a pure orthogonal grid system of streets. New York is the most transit-oriented U.S. city; during rush hour 90 percent of the trips are made by transit, and 60 percent of the midday traffic consists of taxis. Broadway carries a volume of traffic that is 60 to 75 percent of that carried by 7th Avenue.

The objectives in creating Boradway Plaza were to improve the pedestrian environment, eliminate pedestrian conflict with automobiles, help revitalize and maintain the area as a focus for theater and tourist activities, and improve traffic flow by eliminating the complex Broadway and 7th Avenue intersection.

The ARZ plan developed four blocks as a series of integrated pedestrian and transit plazas between 45th and 49th streets, one of which shared space with a transit mall closed to automobile traffic. The plan also included a motorist, tourist, and theater information center that would incorporate a new TKTS discount theater ticket booth (see Figure 3). Enforcement of parking regulations was also a component of the ARZ plan.

In 1980 an Environmental Impact Statement prepared by UMTA documented the city's selection of Broadway Plaza as the preferred alternative (19). The cost estimate for a revised scaled-down plan (two blocks were dropped in the May 1981 budget) was $6.8 million to provide a quality environment; $3 million were expected from UMTA, $1.5 million from the FHWA's Federal Aid Urban System Program, and $2.3 million from the capital budget of the city of New York and the state with possible participation from the Economic Development Administration (EDA) and the Urban Development Action Grant (UDAG) program.

The idea of closing Broadway for a mall had been discussed by the city since 1974; it received support from the Department of City Planning and Transportation and had the endorsement of Mayor Koch. The Broadway Plaza proposal had become linked with the popular Portman Times Square Hotel Project. City officials in favor of the mall project have acknowledged privately that as a condition to the approval of the hotel project, an architect had been asked to redesign the hotel's entrance so that it would become an integral part of the pedestrian plaza (20). The 2,000 room hotel, including a 1,500-seat theater, had received wide public support; therefore,

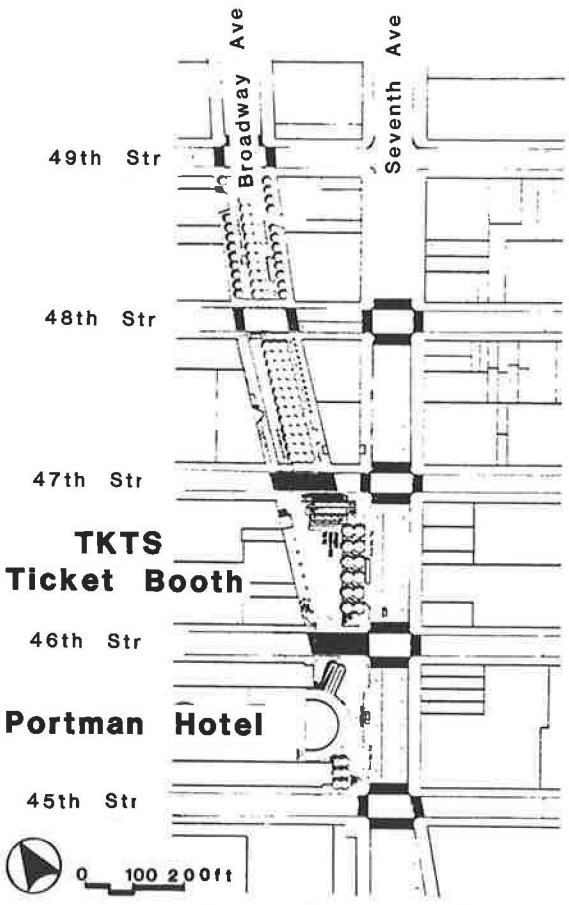

FIGURE 3 New York City: Broadway Plaza.

the hotel became a key element in the Broadway Plaza implementation strategy (21).

As of January 1982, the Broadway Plaza proposal had been endorsed by all major business groups and taxi drivers and it appeared ready for implementation. Since then, support has rapidly eroded. Three historic theaters were demolished to clear the site for hotel construction. This event, although not directly linked to the plaza, caused a public outcry. The hotel developer withdrew support by stating his intent to abandon the mall, thus signaling the end of the project. The project had never received the unqualified support of either the city council or the theater community in the Times Square area. The area is an important site in terms of symbolic value to many who were reluctant to see it change. Many expressed concern about both traffic problems and the possibility that a pedestrian mall could become a gathering place for loiterers in the theater district (20). Finally, theater interests, which had supported the mall when the city had said it was necessary to the construction of the hotel, withdrew their support in the spring of 1982.

Providence: Kennedy Plaza

The city of Providence, with a population of 150,000 in a metropolitan area of approximately 1 million, serves many regional and statewide functions. The city has declined somewhat in recent decades; however, the downtown remains active, primarily because of the concentration of government employees. The Providence ARZ is proposed to be located in the Kennedy Plaza, a large traffic oval around a central

park, adjacent to the major activity generators of the CBD, retail and financial district, the civic center, Cathedral Hill, and Union Station (see Figure 4). The area has a high employment density. Activity peaks at lunchtime and between 4 and 6 p.m., but diminishes at the end of the business day and is moderate to light on weekends.

There is a railroad station at the edge of downtown and Rhode Island Public Transit Authority (RIPTA) buses carry 30,000 passengers per day to and from the CBD. The ARZ includes a multiple-legged intersection. Congestion and conflicts in the compact, irregular downtown are a problem. Pedestrianization has been popular in Providence since the creation of Westminister Mall in 1965.

Providence's primary objective for creating an ARZ is to improve the attraction of the downtown and the interface between transit and pedestrians. By providing an ARZ it is hoped that more varied activities and around-the-clock use of the downtown will be encouraged. Other objectives are to improve conditions for transit riders, eliminate conflict and congestion among vehicles and pedestrians, and provide adequate vehicular circulation.

There are several components to the ARZ plan. Pedestrian areas are to be created, connecting the various districts and nodes of activity to the retail district. The pedestrian area in front of Union Station and Kennedy Plaza is to be increased and developed as a new focus for the downtown. Pedestrian areas would include amenities such as benches, lighting, landscaping, and widened sidewalks. The circulation would be improved by revising the routes, eliminating some parking spaces, and developing a transit mall.

Part of the major downtown intersection would be closed off for the creation of City Hall Plaza. Each street would have its own plan for deliveries. Loading zones would be improved and parking restrictions enforced. Transit conditions would be improved by designation of exclusive busways and the provision of amenities such as bus shelters and better connections to the pedestrian network by rerouting buses to provide through service in the downtown. Rerouting would reduce the need for transfers and the walking distance required of transferring patrons. The plan suggests a downtown free-fare zone from 10 a.m. to 3 p.m., and includes recommendations for managing the activity program (22).

The final costs are estimated to be $7.4 million, of which $960,000 will be for operating costs covered by the UMTA Section 6 grant. The city will contribute $1.3 million to complete the project.

At the time of the ARZ proposal, Providence was also seeking funds for other projects. They were preparing an urban renewal plan for the Union Station-Kennedy Plaza area. Since that time the Federal Railroad Administration has decided to proceed with station renovation, thus making it possible to include this important link in the transit and pedestrian improvement plan. Additional future investments include major public projects such as the Capital Center project, which will cost close to $100 million. Other private sector projects of more than $100 million have been committed or are projected to add substantially to the investment within downtown Providence; thus the Kennedy Plaza project assumes the role of catalyst for all of these other projects (23).

The plan has undergone several evolutionary changes starting with the 1977 concept plan that was the basis of the UMTA application. Attempts to refine the concept plan revealed several problems, most of which involved an attempt to fit too many pieces into too little space (24). Other problems dealt with conflicting objectives of various downtown interests and the transit authority. More recently the city, in consultation with the Kennedy

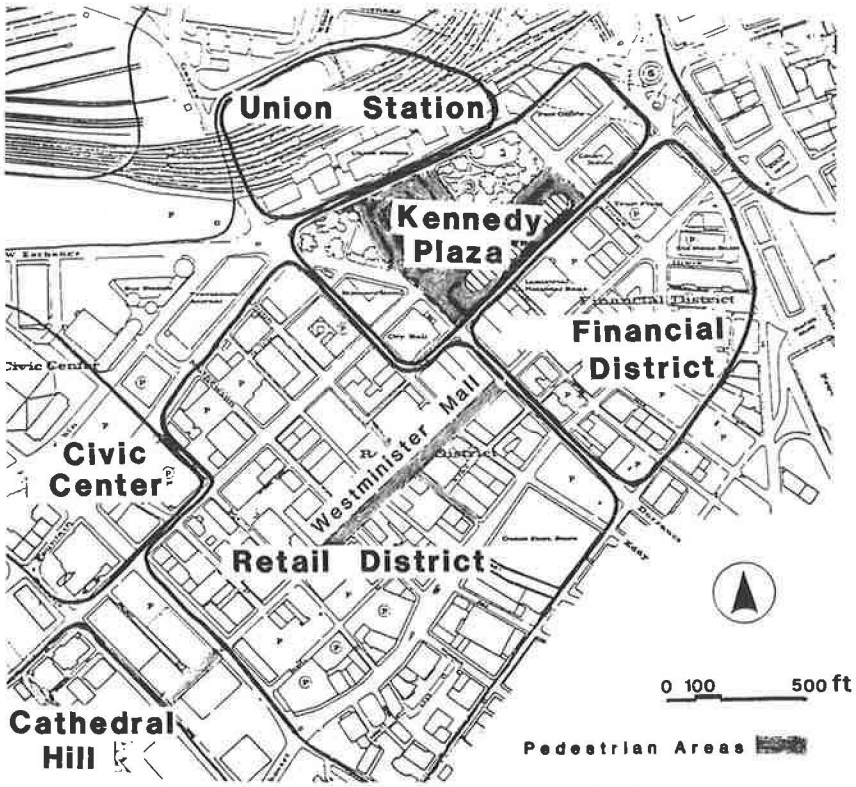

FIGURE 4 Providence: Kennedy Plaza.

Plaza Advisory Committee, has developed a consensus plan that is said to meet the original objectives of the demonstration program and also allow a degree of flexibility (23,24). According to the latest information, construction was expected to start in the summer of 1983.

CONCLUSIONS AND LESSONS FROM THE SMD ARZ EXPERIENCE

UMTA's experience with the ARZ demonstration program has been lengthy and full of obstacles. Great effort and determination are required in all steps of the process from planning and design to construction and management to ensure successful completion of a project. Of the six cities originally selected more than 7 years ago, only two have implemented ARZs within the SMD program and a third is approaching the construction phase. Boston is the only city to complete a successful full-scale ARZ on time. The Memphis ARZ essentially involved improving transit circulation and upgrading the streetscape of an existing mall. The project encountered several construction delays.

In Providence, after many delays in reaching an agreement, a substantially scaled down design has achieved concensus and construction is expected to start soon. In New York the project's popularity had its ups and downs but never received official city endorsement. Tucson and Burlington dropped out of the SMD program in the early planning stages.

The experience of the ARZ programs leads to the conclusion that the technical ability is insufficient to plan and complete successfully an ARZ project that is responsive to problems in a particular area. The political and managerial problems associated with the coordination of both public and private interests during the process of adopting an acceptable ARZ plan have been found to be formidable. Unexpected obstacles are frequent and even when circumvented, cause delays that are costly in dollars, momentum, and support.

Planning decisions in a pluralistic society result from a complex, dynamic interaction among actors in the community (public, planners, and politicians) who have different objectives, perceptions of reality, and power to influence events. Any decision inevitably produces some successes and some failures. For example, some businesses (e.g., chain shops and fast-food restaurants) tend to do better than others when automobiles are restricted. One recurring problem is that cities are perhaps attempting to satisfy too many objectives, some of which may be conflicting.

Automobile restrictive zones have been promoted by UMTA primarily to improve traffic conditions and encourage public transportation. Cities have developed an interest in the technique as a means of revitalizing their downtowns. These two goals appear to be mutually compatible. Traditionally federal agencies have offered attractive financial incentives to promote innovative demonstration projects. Cities generally respond because of the money involved; but they try to ameliorate unpopular aspects, such as automobile restriction, to make them more palatable to opposition groups. The effects of such compromises on achieving the original federal objectives and meeting local needs has been a subject of debate.

Although the ARZ demonstration program has not been completed, some important lessons in project implementation have emerged that can be useful to urban decision makers. The implementation successes and failures of the ARZ demonstration will be examined in view of the critical factors identified in the Voorhees study (5), and the evaluation criteria will be reviewed for future use. Boston was successful because its downtown possesses an ideal combination of many of the preconditions, in terms of economic vitality, accessibility, and transportation infrastructure. The Downtown Crossing case demonstrates that under the appropriate conditions an automobile restriction project can be an important activity that contributes to the economic revitalization of the CBD.

Under the current competition for capital funds, amenity-related transportation projects can only be advanced when they are part of a comprehensive urban development strategy. All four cases examined had concurrent major urban revitalization programs in their respective areas and the ARZ improvements were intended to build on, extend, and solidify those programs.

The experiences in the four case studies highlight timing as an important factor. The critical nature of timing was observed best in the Broadway Plaza case where the relative strength of project support was reversed before the plan could be completed. In the Boston case the timing was favorable. Although downtown retail interests had previously prevented implementation of automobile-free zones in Boston, the opening of the Faneuil Hall Marketplace turned merchants into enthusiastic supporters and the project was swiftly implemented.

Agreement on the size and design of the ARZ was found to be a source of difficulty and a cause of delays. Providence, in particular, encountered many problems in reaching a consensus on the design. There is much to be gained by maintaining an experimental attitude and flexibility in management and enforcement so that the ARZ may be adapted to the needs of the particular area. For example, during the trial period in Boston, the high pedestrian volume on Washington Street was observed as contributing to conflicts between pedestrians and buses. The merchants came to the conclusion that the buses were more of a detriment than a help to their business and asked that they be removed (8). Automobile restriction does not appear to be a serious detriment to automobile circulation, as was feared. In the case of Boston, where the evaluation study has been completed, it was discovered that the change in travel demands has been accommodated fairly easily (8).

Finally, institutional and political influences proved to be another key factor. It is important that private interests be involved in the planning, funding, implementation, and operation of ARZs. Some of the most successful malls (e.g., Minneapolis) were initiated locally and financed primarily with private funds. The success of the Boston and Memphis ARZs can be attributed to strong support from the political and business community. In Providence it was not until the city developed a strong citizen participation program that it was able to reach the final project implementation phase. It can be argued easily that one of the reasons New York City has been unable to implement its plan has been the inability to solidify the support of various interest groups.

Personal Comments and Need for Further Research

There are two categories of issues that deserve further attention. One deals with substantive questions about the nature of the ARZ as a planning strategy and its effectiveness, and the other deals with the general procedural questions about the decision-making process, particularly the implementation phase.

To address fully the issue of ARZ effectiveness,

some methodological questions need to be considered, such as the following: Once some changes have been observed in the downtown, with what confidence can the observed changes be attributed to the ARZ demonstration projects? What has been learned from such demonstrations that is transferable to other cities?

Although SMD programs have made a significant contribution to the promotion of experimentation and scientific evaluation of innovative programs, it is only a beginning. It is essential that studies such as these, which involve systematic monitoring and evaluation of experimental projects, continue so that understanding will improve and conclusions can be drawn that will be applicable to a wide range of situations. (See the last paper in this Record by Loukissas.)

The second set of questions that needs to be addressed concerns the procedural aspects of local decision making and implementation. What are the critical sociopolitical and environmental factors responsible for the initiation, formation, and implementation of ideas regarding CBD revitalization and ARZ projects in particular? How are development decisions generated and how does the original idea grow and mature to the level of a project? In fostering acceptance and endorsement of innovative ideas, what is the role of personal and organizational motives, the timing of decisions, external factors, preconditions of the environment, and community needs? How does the ARZ technique compare with alternative strategies to achieve the same CBD revitalization objectives? Although evaluation studies are conducted for cases that have been successfully implemented, little is known about the many cities that have attempted to institute ARZs but have not been successful.

The literature on implementation provides only a limited conceptual framework that can assist in answering these questions (25). The author has been commissioned by UMTA to conduct an assessment of the implementation problems of the ARZ demonstration program. The focus of this study will be to investigate the implementation process that communities undergo while attempting ARZ projects, as well as other CBD revitalization projects.

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The Automatic Guideway Transit Experience in Cleveland, Houston, Los Angeles, and St. Paul

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ABSTRACT

Extensive interviews were held with participants in and observers of the automated transportation systems planning processes carried out in Cleveland, Houston, Los Angeles, and St. Paul while each of these cities was participating in the Downtown People Mover Demonstration Program (1975-1981). The purpose of these interviews was to document in detail the specific institutional, political, economic, and technical factors that were addressed and ultimately influenced each city's decision whether or not to continue in the demonstration program. Of particular interest were the factors that were unique to a new automated technology as opposed to factors that might be confronted by any large capital project. The results of this analysis can be used by the federal government in shaping new initiatives (irrespective of whether they are oriented to new technologies) and by local planners to aid in understanding the types of factors, nontechnical as well as technical, that must be faced in similar future projects.

In 1976 UMTA selected six cities to participate in the Downtown People Mover (DPM) Demonstration Program. Two of these cities--Detroit and Miami--were encouraged to consider using UMTA funds previously committed to fixed guideway systems to build downtown circulator systems. Four other cities--Cleveland, Houston, Los Angeles, and St. Paul--were declared eligible for newly committed federal funds to cover 80 percent of the cost of designing and implementing automated circulation systems in their downtowns.

Early in the program, Cleveland and Houston decided to withdraw. Subsequently, St. Paul also chose to withdraw from the program and Los Angeles stopped its plans for an automated downtown circulator when federal funding of the DPM program was suspended. Although no longer part of a demonstration program, planning and construction of automated downtown circulators is continuing in both Miami and Detroit with federal participation.

In an effort to understand the local factors and circumstances that led to the withdrawal of four cities from the program, extensive case studies were conducted in each of these cities. The purpose of the case studies was to document in detail the specific institutional, political, economic, or technical factors that led to each city's decision and to attempt to distinguish which of these factors were unique to a new automated technology and which factors might have confronted any large capital project. The results of this analysis can be used by the federal government in shaping new initiatives (irrespective of whether they are oriented to new technologies) that may confront a similar set of factors at the local level and by local planners to aid in understanding the types of factors, nontechnical as well as technical, that must be faced in similar future projects.

The findings from all four case studies are synthesized in this paper. The issues that were common to all cities as they considered participation in the DPM program have been identified along with unique issues confronted in each city that still may have some significance at the national level.

The material in this paper has been drawn from a report to UMTA (1) that also includes full case studies for each of the four cities. The site visits were structured to include interviews with representatives from local, regional, state, and federal agencies as well as local and state elected officials, representatives of the business community,