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Rehabilitation of Suburban Rail Stations

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This paper reports the results of a study of the feasibility of rehabilitating underused suburban railroad stations. Seventy-seven stations on eight commuter lines in New Jersey were surveyed. Each station was inspected, photographed, and evaluated for its restoration potential by criteria that were developed for the study. The Red Bank station was selected as a case study. The study included the development of community and local government participation, the renovation of the 100-year old depot, the redesign of the passenger facility as an intermodal terminal for bus, rail, and taxi, the redesign of the pedestrian facilities, and an economic analysis. The municipality has now taken possession of the station, which is used by 1500 daily commuters. Preliminary architectural plans have been drawn up, the station has been designated as an historic site, and the building restoration and sitework are nearly completed. This study is intended to be a prototype for other restoration projects that could modernize urban transportation facilities while preserving historically valuable structures. The emphasis is on maximizing the economic benefits of the project.

Each day, approximately 500 000 Americans travel to work on commuter railroads. In the Northeast, seven of these private carriers are bankrupt, are unable to make a profit even on freight traffic, and have been federally reorganized into a single entity, the Consolidated Rail Corporation (Conrail). Passenger service exists only because of heavy federal and state subsidies and is often run entirely by public authorities. Although inter-city rail service is being steadily improved by the National Railroad Passenger Corporation (Amtrak), intraregional commuter service is barely adequate, and only on those routes where high concentrations of commuters bound for the central business district (CBD) create intolerable highway congestion. Off-peak, weekend, and non-CBD-bound travelers have little rail service. Over the past 40 years, service quality has steadily declined, breakdowns have become more frequent, cars have grown dirtier, and track and equipment have deteriorated. As conditions have worsened, more commuters have sought alternative means of going to work, primarily by automobile. As rail commuters have switched to automobiles, rail revenues have declined, which has caused even more cutbacks in service and less maintenance. Thus, today commuter railroads are in a continual downward spiral.

Because of decentralizing trends in metropolitan growth and the convenience of the automobile, it is unlikely that railroads will ever again have the major role in intraregional passenger transportation. But recent petroleum shortages and price increases have emphasized the need to conserve energy resources and, specifically, to reduce automobile travel. Railroads can be from 5 to 10 times more energy-efficient than can automobiles, depending on the number of seats occupied per vehicle. In addition, one railroad track has an hourly capacity approximately equal to that of 10 expressway lanes carrying automobiles. In certain applications, notably the journey to work, railroads can still provide an important service.

IMPROVEMENTS IN RAIL SERVICE

Where there are competing facilities, the commuter has a choice of travel modes. In selecting the preferred travel mode, he or she attempts to minimize travel time and cost and the discomfort of the trip. Trade-offs are made, since individuals value time differently, and since time spent in uncomfortable or unpleasant surroundings is more onerous than time spent in a pleasant environment. Travelers value time spent waiting for transit more highly than time spent riding in a vehicle (1). Transfers between modes also impose penalties beyond time and cost.

The relation between factors such as transfers, discomfort, inconvenience, and unpleasant surroundings and the decision to use rail transit is known to exist, although it is not easily quantified. Time and cost are not the only factors that influence modal choice.

Through subsidies from federal and state governments over the past decade, efforts have been made to improve service for rail commuters. Priority has been given to purchases of new cars and locomotives. In most metropolitan areas, electrified commuter service was established in the early 1900s, and cars built then can still be found in active service. These ancient vehicles have caused frequent breakdowns and delays, and their poor riding quality and environmental conditions have been major irritants to passengers. Newer

equipment with a smoother, quieter ride, more dependable and faster service, and better environmental-control systems helped to slow the massive defection of commuters from rail to highways.

With fleet replacement under way in many areas, attention is now being given to other types of service improvements. In New Jersey, in addition to subsidies for capital improvements, operating subsidies totaled more than \$50 million in 1976. Other states are providing similar levels of support. Improvements to commuter rail stations are planned in many areas. In the New York metropolitan area, the adoption of a new fleet of cars required the construction of new high-level platforms at stations on the electrified portions of the Long Island Rail Road and Penn Central Transportation companies. Other improvements to stations have usually involved the addition or expansion of park-and-ride lots. Some stations have been relocated to better serve commuters, particularly in areas where newly constructed urban beltways provide high-speed access from the suburbs to rail corridors.

These station improvements have been directed primarily toward increasing capacity and reducing delays. Other factors, such as comfort, station appearance, and impacts on the surrounding urban environment, have largely been ignored. Frequently, to increase capacity and speed, the most expeditious course has been to close or demolish existing stations, some of them of important cultural and historical value. Their replacements are generally uninspiring. This paper reports a study in which historical and environmental concerns were given high priority in the rehabilitation of a commuter rail station to increase its cultural value to the community as well as to improve its transportation efficiency.

HISTORIC PRESERVATION

Although the importance of railroads has diminished, there is a growing awareness of their historical role in the development of the nation. Some of the more important rail facilities are worthy of preservation as a part of our national heritage, regardless of their future role in transportation. In other instances, it is possible to preserve and restore historically valuable railroad facilities and improve conditions for rail travelers at the same time.

Of the many types of buildings and engineering works erected by the railroads in their 150 years of operation, none has been more visible or symbolically expressive than the passenger terminal. As John Maas (2) writes:

Today the railroad station is often a backwater on the wrong side of town. In the nineteenth century it was the hub of the community, the link to the Great World—the wretched roads were blocked by snow and mud for months, good highways came only after the automobile. Railroad was the nineteenth century's premier industry, it offered the finest careers to ambitious men, the most jobs to skilled workers. The Victorian railroad depot was a place of glamour and excitement and designed to look the part.

As the importance of railroad technology increased during the nineteenth century, the passenger station developed into a unique architectural type. In large cities, terminals were created to handle unprecedented volumes of passengers and were designed as civic monuments by some of the most famous architects of the day. Probably the most significant of all American stations was Pennsylvania Station in New York, designed by the distinguished firm of McKim, Meade, and White and completed in 1910. Patterned after the Baths of Caracalla, its main waiting room had a vaulted ceiling 46 m (150 ft) high, and the main concourse was roofed with iron

and glass vaulting (Figure 1). When this great landmark was demolished in 1963, architects and preservationists fought in vain to save it. Its irrevocable loss is a tragic sacrifice of an important part of our history for short-run economic gains. Elsewhere, in Chicago; Memphis; Portland, Maine; and Spokane, landmark stations have been razed because they were no longer needed as transportation centers and the urban land that they occupied was valued highly by real estate developers.

In the past decade, however, the public has recognized that the continual destruction of landmarks in the name of progress and urban renewal is robbing our heritage. In many cities, terminals have been rehabilitated and converted to new uses. In Washington, D.C., Union Station has become a national visitor center. The elegant Mt. Royal station in Baltimore has become part of the Maryland Institute College of Art. In Chattanooga, Tennessee, the 70-year-old terminal station has been renovated into a restaurant and hotel complex. Smaller stations, such as those in Lincoln, Nebraska; Fargo, North Dakota; and Oberlin, Ohio, have also been reused. But much work remains to be done. At present three monumental landmark stations are threatened with destruction: Reading Terminal in Philadelphia, one of the largest remaining glass and steel trainsheds in the nation; Union Terminal in Cincinnati, with its huge rotunda and murals; and the incomparable Grand Central Station in New York. In cities and towns all over the country, other stations are in danger.

Many stations have been lost through fire, deterioration, vandalism, or demolition. Others, some still in use, are badly deteriorated because of lack of maintenance. Not all stations were noteworthy examples of design or endowed with historical significance, and their continued existence would serve no useful or worthy purpose. In some areas, however, passenger stations are valuable community resources. The preservation and restoration of selected stations could have a beneficial effect on rail ridership and on the cultural and economic lives of the communities they serve.

The preservation of railroad stations has received attention at the national level (3). Title 49 of the Code of Federal Regulations was amended in 1975 to include Part 256—Financial Assistance for Railroad Passenger Terminals. This action provides 60 percent federal funding for planning, preservation, and restoration of passenger railroad terminals. Other federal funds are also available for historic preservation from the National Endowment for the Arts and the Department of the Interior.

Unfortunately, Title 49 funds are available only for stations served by Amtrak, and other programs emphasize the reuse of railroad stations as cultural facilities. There is little support available for restoring active rail commuter stations at the local level. Further, many of the stations that best typify nineteenth-century Victorian station architecture are located in smaller communities. They are often modest wooden structures rather than the large masonry terminals found in major cities. These small stations are not monumental architectural landmarks, but they are often fine examples of vernacular architecture, built from indigenous materials and displaying unique examples of detail produced by local craftsmen. It is the rehabilitation of these small and medium-sized stations to which this study is addressed.

In a time of limited availability of resources, the restoration of public, non-revenue-producing facilities has a low priority. If resources are to be expended on rail station-rehabilitation projects, they must be carefully allocated to the areas in which the impact on community welfare will be maximized.

REHABILITATION CRITERIA

To ensure the relevance and viability of this project, the rehabilitation potential of each station was evaluated by the following criteria.

1. The station must be located on a rail line currently in use for passenger service. Preference is given to stations with a high volume of passenger traffic.
2. The station must be in an area that has the potential to support commercial activity. In some highly urbanized areas, land use changes have shifted commercial activity and residences far away from the rail transportation corridors, and the areas adjacent to the stations have been converted to industrial uses or highway corridors or have been abandoned. The revitalization of stations in such areas would be successful only if it were related to a major urban-renewal effort. At the other extreme, some stations are located in rural areas where the population is insufficient to support commercial activity.
3. The station building must be structurally sound and in reasonable condition, so that the restoration costs do not exceed those of demolition and the construction of a new facility.
4. The station should have historic and aesthetic value. Although these qualities are difficult to define and measure objectively, a reasonable test would be the ability to qualify for historic-site status under the guidelines established by the New Jersey Department of Environmental Protection. The designation of the station on the Historic Register ensures its preservation in any project requiring state or federal funds and is a prerequisite for several categories of restoration grants.
5. The community served by the station should be heterogeneous with respect to income and race. Traditionally, railroad commuters are upper-income professional people. Often, the communities served by the commuter lines are among the wealthiest in the state. In effect, renovation of stations in these communities with public funds would be an unwarranted subsidy to the rich. Preference should be given to stations in middle-to-lower-income communities with predominantly middle-income transit ridership.
6. The local government and business community should have demonstrated some interest in and commitment to the restoration project. Without local support and active involvement, it is unlikely that the restoration project will have a significant impact on the community. Local officials must be willing to participate.
7. The possibility of functionally retrofitting the station should exist. The project should not be simply a restoration of an active station. Most of the railroad stations in the late nineteenth century were designed for travel conditions that are different from those that exist today. Large waiting rooms and baggage facilities are no longer needed. The primary emphasis should be on accommodating high peak-hour volumes, park-and-ride facilities, and fast and convenient transfers between modes.

PROJECT DESCRIPTION

Because of the uncertain future of the bankrupt commuter railroads, the outcome of the study was expected to be the development of planning and design concepts, rather than a physical restoration. However, the circumstances that were found, particularly the strong community support and local recognition of the historic and economic value of railroad stations, permitted the

project to shift from conceptual planning to an actual station restoration.

The first task was a survey of 77 suburban railroad stations on eight commuter lines. Many of these had deteriorated beyond hope of restoration. A few were maintained in excellent condition, most often by private nonrailroad owners or local governments. The majority, however, are still used and in varying states of disrepair. Each station was inspected, photographed, and evaluated, and Red Bank, New Jersey, was selected for rehabilitation.

RED BANK STATION

The Red Bank railroad station is on the fringe of the CBD and is surrounded by deteriorated parking lots and a number of small business establishments. It has a daily flow of 34 trains and 1500 rail commuters, and serves as the terminus for five local bus lines and as a scheduled stop for four intercity bus lines. Consequently, it is the hub of public transportation in the community although continued physical deterioration in the area could destroy its economic vitality. Improvement of the rail station, however, could provide the impetus to preserve and increase the economic viability of the area (4).

Meetings with local officials started in May 1975. A preliminary site plan was prepared for discussion with local transit operators, and a preliminary cost estimate of \$400 000 was developed. This estimate was used as the basis for a grant application for improvement funds submitted to the Federal Railroad Administration. Other improvement grant applications were prepared for submission to various federal agencies. A commitment of \$50 000 was obtained from the Department of Housing and Urban Development community block grant program.

A study of potential revenue generation from the improved commuter parking areas around the station and concession rentals showed that annual gross revenues of \$20 000 to \$40 000 could be expected, which is more than enough to cover the operating costs to the community. The Borough of Red Bank then leased the railroad station from the Central Railroad of New Jersey on October 14, 1975, for a period of 5 years with an option to buy, and plans are now under way to purchase the station from the new owner, Conrail.

The project included historical research on the station. It was built in 1876 and was a handsome Victorian design with a great deal of ornamental woodwork. Since there were no plans of the station available, measured drawings were made of the existing building, and the design of the ornamental woodwork was taken from old photographs and picture postcards (Figure 2). An application for historic site designation was then filed with the New Jersey Department of Environmental Protection. The building was placed on the state historic register December 24, 1975, and designation as a national historic site was announced in July 1976.

A final site plan was completed, and the borough appropriated \$25 000 to begin site improvements. A certified restoration architect was retained to complete working drawings of the ornamental woodwork from the measured drawings of the station. By using these as patterns, the regional high-school industrial arts department fabricated the ornamental woodwork. The original Victorian paint scheme and colors were investigated, and several local industries contributed paint and materials. The restoration of the station exterior is now complete, and underground utilities, curbing, and new sidewalks have been installed. The parking-area paving and the sitework are not yet completed.

Figure 1. Pennsylvania Station, New York (1908).

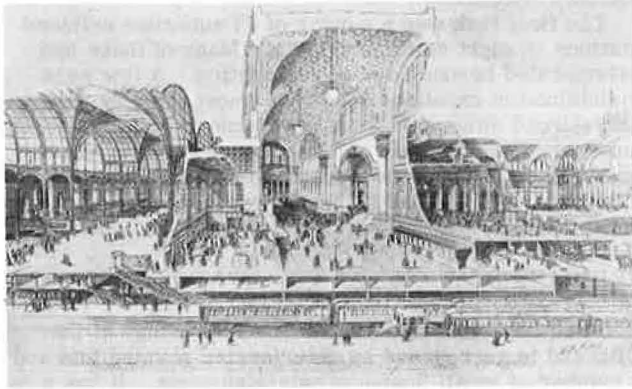


Figure 2. Original appearance of Red Bank Station (1876).



Figure 3. Existing station in May 1975.



Station Environment Prior to Rehabilitation

In general, the station was in disrepair. In 1945, the ornamental Victorian woodwork that had distinguished it had been removed. Unsightly wooden vestibules had been placed around the east doors, and it was characterized by peeling paint, dirt, and accumulated trash (Figure 3). A lack of trash receptacles on the platform resulted in refuse strewn along the track.

Traffic congestion was a significant problem in the area. In addition to the traffic generated by the station, the railroad cuts diagonally at-grade through a major intersection adjacent to the station. The pavement in

the 120-automobile parking lot was deteriorated, with large broken-up areas and many potholes. At times of inclement weather or train delays or both, a backup of kiss-and-ride pickup cars clogged the parking area during the evening rush hour. The pedestrian conditions were also poor. Bus passengers were required to cross a busy street to board the buses after purchasing their tickets at the bus terminal. The sidewalks were broken and in general disrepair and pedestrian crosswalks were unmarked. A pedestrian underpass under the tracks was poorly lit, foul-smelling, and often flooded because of clogged drains, and passengers often chose to cross the tracks by walking around standing trains.

Goals and Objectives

The project was initiated to fulfill three basic goals. These were

1. To encourage more people to ride mass transit,
2. To enhance the economic viability and amenity of the community adjacent to the railroad station, and
3. To instill civic pride and increase community awareness of the history of the borough through the preservation and restoration of one of the oldest public buildings in town.

The specific objectives of the rehabilitation project were

1. To restore the station to its original exterior appearance;
2. To provide new high-quality facilities for intermodal operations, specifically bus, taxi, park-and-ride, and kiss-and-ride;
3. To provide new platform shelters and related passenger-convenience facilities;
4. To improve and repave parking facilities;
5. To improve pedestrian access to the station;
6. To provide information displays about transit routes and schedules;
7. To reduce traffic congestion;
8. To coordinate public transportation and improve service; and
9. To provide additional landscaping and visual interest.

Site Improvements for the Red Bank Station

Figure 4 shows the site plan for the first-stage improvements to the station. The design attempts to respond to the visual elements in the site context, as well as to the transportation requirements. Because the railroad runs diagonally through the site, pedestrians and drivers lose a sense of orientation to the street system. This is especially true at the Bridge Avenue and Monmouth Street intersection. Thus, the design of the parking lots and platform shelters tries to visually relate the geometry of the railroad tracks to that of the street system. To do this, another diagonal element, the east-side parking adjacent to the station, is used to counter the effect of the track and station orientations. This creates the effect of the station front being on Monmouth Street although it is actually in the middle of the site. The design also attempts to focus attention on the restored station by creating a small plaza in front. All of the public transportation activity is concentrated in one area, to increase ease of transfer and to permit shared use of facilities. A well-defined pedestrian system is developed to link bus and rail platforms directly to the sidewalk system. The long diagonal

Figure 4. Proposed site plan for Red Bank Station.

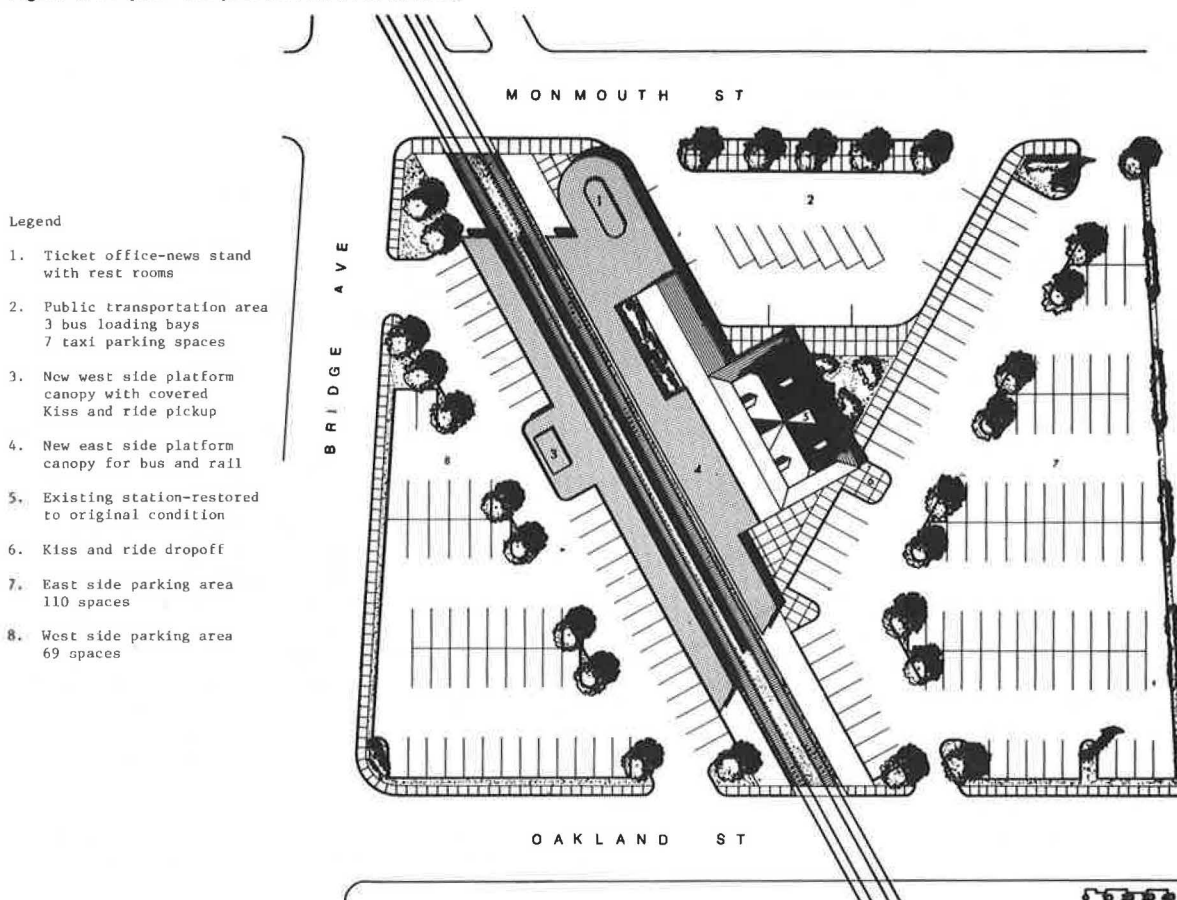


Figure 5. Red Bank Station after restoration (1976).



walk on the east side follows the path of the original flagstone walk and is intended to strengthen pedestrian links to the main business district east on Monmouth Street. The trees are placed in distinct rows to help focus attention on the station and to provide a softening and delineating element between the access roads and the parking areas.

The site plan has the following features.

1. The oval area is a new combination ticket office and newsstand. This facility, approximately 3 by 6 m (10 by 20 ft), would contain ticket counters and information for bus and rail passengers. A concession

would be included to sell newspapers, magazines, and coffee to morning commuters. New public rest rooms would be provided. If desired, other transportation activities such as a taxi dispatcher and parking permit sales could also be accommodated. This facility is located at the most heavily used area of the station, where it can serve all modes equally well. Being outdoors, it can serve passengers much more quickly and easily than can the existing ticket office. It is highly visible and provides a convenient point for obtaining schedule information.

2. This area of the site is reserved for public transportation. Space is provided for seven taxi parking spaces in the center, and cabs can pull up to the curb to load and unload passengers. The area can accommodate up to five buses loading simultaneously. There is sufficient space for each of three buses to parallel-park, unload, and pull out without blocking the others. All traffic enters the area counterclockwise to provide maximum visibility for the bus drivers.

3. The existing west-side waiting room and shelter will be demolished and a new 61-m (200-ft) long canopy will be constructed in its place. The new shelter will be closer to the track, to provide weather protection for passengers boarding the train. The platforms will be 4.6 m (15 ft) wide. A 6 by 14-m (20 by 45-ft) extension of this canopy will shelter the entrance to the pedestrian tunnel running under the tracks, and will create a covered pickup area for kiss-and-ride commuters.

4. The east-side platform will have a similar 61-m (200-ft) long canopy. This canopy will connect with the existing station and the kiosk containing the new ticket office. At its widest point, it will cover the 14-m (45-

ft) distance between the bus loading area and the north-bound platform.

5. The existing station has been restored to its original condition and color scheme, as shown in Figure 5. The slate roof has been repaired, and the chimney will be rebuilt to its original height. All of the original ornamental woodwork has been replaced. Once the ticket facilities have been moved to a more convenient location outside, a suitable commercial tenant will be found to occupy the station and produce rental income for the property. Four possible types of commercial activity that seem suitable for the interior are restaurants, banks, municipal offices, and antique shops or boutiques. The interior restoration will be deferred until the tenant has been found.

6. This small extension of the sidewalk will provide a convenient drop-off for kiss-and-ride commuters.

7. The east-side parking area contains 110 parking spaces. Thirty-two of these are adjacent to the station. If desired, they could be designated for use by the station tenant or used as metered parking. The remainder could be used for monthly permit-holding commuters.

8. The west-side parking area contains 69 parking spaces for commuters. Both lots contain 90-deg-angle parking to use the space most efficiently. The lots will be asphalt-paved and surrounded by concrete curbing. All of the parking spaces are 5.8 m long by 2.7 m wide (19 ft long by 9 ft wide) with concrete wheel stops where necessary. Those portions of the lots adjacent to the public streets have a parallel 0.9-m (3-ft) wide grass strip and a 1.5-m (5-ft) wide sidewalk along the street. There are concrete curbed islands at the end of each row of parking spaces. Each island has two shade trees and an organic ground cover or a decorative paving surface.

Design of New Shelters

The proposed canopies should be of simple contemporary design, using lightweight steel construction with transparent panels for wind protection and visibility. They should contain ample space for advertising posters in standard 1.52 by 1.23-m (60 by 48-in) double-bill panels. These panels should be carefully designed into the structure so that the advertising becomes a harmonious and visually interesting element. As a potential source of revenue, outdoor advertising should be encouraged, but within the limits set by the designer. No advertising will be permitted on the restored portion of the station. In the design of the new canopies and the ticket office, the signs and transportation-information displays should be included as an integral part. Other elements, such as telephone booths, benches, bicycle racks, and trash receptacles should also be included in the design. The overall effect should be that of a well-thought-out modern system of passenger facilities, but the new facilities should not outshine the restored station structure.

Economic Potential

The initial construction-cost estimate of \$400 000 is conservative and may be significantly reduced. It is expected that federal funding will be available for 50 percent of this, and that in-kind services provided by the borough can be used for much of the local share. The potential revenues are shown below.

<u>Source</u>	<u>Amount (\$)</u>
Parking	
On site (179 spaces at \$0.50/d)	19 690
Other lots (147 spaces at \$0.50/d)	16 170

<u>Source</u>	<u>Amount (\$)</u>
Services to taxi and bus companies	1 200
Concessions, including advertising and vending machines	500
Newsstand rental (\$300/month)	3 600
Station rental (\$200/month)	2 400
Total	43 560

Parking provides the bulk of the income. The maximum likely parking charge is \$0.50/day. If operating expenses are reduced, parking charges should be lowered to encourage more people to use the facility. A daily average charge of \$0.25/day would still yield annual revenues of \$17 930 at 100 percent occupancy.

CONCLUSIONS

Many of America's aging railroad stations are a unique part of our architectural heritage. The preservation of these stations, however, in the face of declining rail traffic and industrywide bankruptcy, is quite uncertain. If we are to succeed in preserving some of the more important landmark railroad stations, appeals to sentiment and decency may be insufficient motivations. It will be necessary to establish that these stations are valuable resources to the community and yield perceivable direct or indirect economic benefits.

This study tested the hypothesis that railroad stations could be recycled as better railroad stations. It was posited that communities with rail passenger service had a better opportunity to preserve their stations because the historic significance of the station is interwoven with its traditional economic and transportation roles. The following criteria for the selection of candidate stations for rehabilitation were established:

1. Is there sufficient rail-passenger volume to warrant continuation of rail service?
2. Does the potential exist for increased commercial activity?
3. Is the station structurally sound?
4. Does it have historic and aesthetic merit?
5. Is the local community sufficiently heterogeneous to permit an equitable expenditure of public funds on the project?
6. Is there interest and support from local government and the business community?
7. Does the potential exist for functional transportation improvements and intermodal transfers?

This pragmatic approach to the question of restoration offers the best chances for success.

The professionals in transportation planning and engineering have all too frequently ignored cultural and historical considerations in creating new facilities to replace the old. The grime and dilapidation that characterize many rail stations invite scorn and arouse the instinct to tear them down and build something modern and clean. We fail to look beneath the dirt for the hidden beauty and importance of these structures.

The tragedy of the situation is that of all of the groups in our society we, the transportation professionals, have the most to lose. For the structures that we have torn down are the symbols of our profession, monuments to the past achievements of transportation planners and engineers. If future generations are to admire and respect the achievements of today's transportation-system designers and builders, the tradition of preserving historic transportation facilities must be strongly established within the professional community itself.

ACKNOWLEDGMENT

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