PENNSYLVANIA STATION:
A SYSTEM OF REUSE
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The purpose of this thesis is to examine the possibilities for the revitalization of an abandoned railroad station and to derive from the project significant issues and strategies which can be applied to any reuse project.
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To Luke, for his constant love and support.

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THE RAILROAD STATION

The station, as he entered it, was murmurous
With the immense and distant sound of time.
Great, slant beams of moted light
Fell ponderously athwart the station's floor,
And the calm voice of time
Hovered along the walls and ceiling
Of that mighty room,
Distilled out of the voices and movements
Of the people who swarmed beneath.

It had the murmur of a distant sea,
The languorous lapse and flow
Of waters on a beach.
It was elemental, detached,
Indifferent to the lives of men.
They contributed to it
As drops of rain contribute to a river
That draws its flood and movement
Majestically from the great depths,
Out of purple hills at evening.

Few buildings are vast enough
To hold the sound of time,
And now it seemed to him
That there was a superb fitness in the fact
That the one which held it better than all others
Should be a railroad station...

For here, as nowhere else on earth,
Men were brought together for a moment
At the beginning or end
Of their innumerable journeys,
Here one saw their greetings and farewells.
Here, in a single instant,
One got the entire picture of the human destiny.
Men came and went, they passed and vanished,
And all were moving through the moments of their lives
To death,
All made small tickings in the sound of time—
But the voice of time remained aloof and unperturbed,
A drowsy and eternal murmur
Below the immense and distant roof.

- Thomas Wolfe
INTRODUCTION

Daniel Burnham designed Pennsylvania Station in 1898, an era when railroads were the primary means of long-distance travel. The building served as a terminal for the Pennsylvania Railroad, and provided office, health care and dormitory space for employees of the Railroad on upper floors. The building consists of a large 2-story waiting area enclosed by skylights, surrounded by a rectangular 12-story donut structure and headed by a Beaux Arts rotunda at the outside front elevation. The rotunda was recorded for the Historical American Buildings Survey in 1963-64 and was listed in the National Register of Historic Places in 1976.

At the present time, Amtrak provides service from the train shed behind the building, but the main terminal is empty. The current vacancy of the building is due to many factors, including the decline of railroad traffic following World War II, the bankruptcy of the Pennsylvania Railroad in the seventies, and the abandonment of the building by Conrail a few years later. The City of Pittsburgh owns the property and is in the process of negotiating proposals with developers.

The purpose of this thesis is to investigate some possibilities for the reuse of the abandoned building. Society has become much more complex since 1898, as have architecture and the needs of users. Pennsylvania Station will still serve train passengers, but the function of the building must become more diverse. The dynamic quality of the interior space brought about by functions of the Railroad must be replaced by the dynamic character of multiple functions.

While old functions of the station building need to be incorporated into new functions, a goal of this study is to emphasize the strength of the existing design. This project represents one viewpoint in
the restoration/renovation controversy surrounding the revitalization of historic properties. Several underlying issues must be confronted when reusing a building of this character. These issues will be discussed and applied to the initial question to be addressed ..... "what becomes of a building which was designed for a specific purpose once the initial use is either obsolete or no longer of primary importance?"
RAILROAD SPACE VS. CITY SPACE

From the mid-nineteenth to the mid-twentieth century, the railroad station was a symbol of the evolution of American civilization. The facade of the station in each city reflected the wealth of the town and the pride of its citizens. Great railway corporations were at the height of their power and they built monumental stations to complement their imperial attitudes.

Pennsylvania Station is much like other railroad stations built during this era. The building represents a transition of spatial perception. Citizens were leary of the advent of industrialization. The idea of travelling by railroad was difficult to comprehend. The railroad was seen as a limitless space; a system of conveyance which had the power to move people across unimaginable miles in an unprecedented length of time.

The large classical masonry reception building has been thought of as a "stimulus shield". The station building gave people a sense of security and a beautiful environment to wait in before moving into the steel and glass world of the train shed. The train shed was a function of industrialization. The security of the finite "city space" was replaced by the infinite "railroad space".

Railroads not only brought with them a change in the perception of space, but a change in perception of time as well. Solar and local time had to become standardized for schedules and efficiency of the railroad systems.
It is interesting to note in this study of reuse that the station building and train shed themselves represent an attempt to reconcile old and new. The steel and glass offered a glimpse of the future and the masonry building reflected the security of preindustrial days.

The author of this thesis contends that it is important to keep Pennsylvania Station alive at all costs because it represents a symbol for civilization which has had no replacement in the latter part of the twentieth century.
Pennsylvania Station is a visual terminus along the axis of Liberty Avenue, the principal thoroughfare through Pittsburgh's central business district.

It is the fourth structure to serve the Pennsylvania Railroad in Pittsburgh. The previous buildings included an Italianate structure, which was burned during the Pittsburgh railroad riots of 1877, and a less elegant replacement which was built in 1882.

The management of the Pennsylvania Railroad, being in an expansive mood and the turn of the century, commissioned Daniel H. Burnham of Chicago to design a new terminal building in Pittsburgh. After several preliminary designs, the completed building was typical of many buildings designed by Burnham during this era. The elevation is that of a classical column, with the first two floors forming the base, floors three through nine forming the shaft, and floors ten through twelve forming the capital. Except for a granite plinth, the building is largely constructed of ornamental terra cotta over a steel truss framework.

The elaborate rotunda (originally built as a carriage dropoff) is considered by many architectural critics to be the finest design ever created by Burnham's office. The domed rotunda, with its four-centered arches and elegant turrets, was a dramatic "gateway to the city" for people arriving by train. A lower ramp in front of the rotunda provided access to a loading dock area.

The main waiting room, or concourse, was a grand two-story space with marble floors and multi-colored glazed terra cotta on columns surrounding the large room. The peripheral area housed functions such
as a restaurant, ticket counters and lounges. The second floor faced into the concourse level, with its interior windows below the double skylight of the main concourse.

No photographs of the main waiting room are included in this study because there is presently very little to show. Renovation through the years included an unattractive suspended ceiling; and virtually no daylight enters the space because the skylight system has been painted black since World War II.

The site itself slopes upward from Liberty Avenue to the rotunda and main concourse level, rising 14 feet. The area surrounding the station is soon going to be a diverse transportation network. Amtrak uses the shed behind the building, but currently only four trains per day provide service. However, an express bus ramp which was recently built connects this part of the city with the eastern suburbs. The commuter buses will discharge and load passengers at the side of Pennsylvania Station and a subway station is also proposed for this location. The new subway system will provide access to the downtown area and will continue to the southern suburbs. These forms of mass transit, the commuter buses and subway system, are an assurance to developers that Pennsylvania Station has potential to be a heavily used building. Proposals for the first two floors are geared mostly toward the needs of commuters.

Pennsylvania Station is in an area which is now going through dramatic changes. Unfortunately, the large and beautiful train shed behind the station is destined to be destroyed. An elevated highway ramp is to be constructed in order to connect the major arteries of the city. This ramp will be directly behind Pennsylvania Station and the height of the ramp is not enough to clear the peaks of the train shed roof.

A recently built convention center has shed new light on an area which has disintegrated through the years. Pennsylvania Station is directly across the street from the city's Greyhound bus terminal and
on the borderline of the warehouse/wholesale district. It is also diagonally across from a parking lot and two blocks from the convention center. The changes in the area involve the revitalization of several blocks of warehouses and construction of a new convention hotel/office complex on the site of the parking lot. While so many places are gradually declining, it is reassuring to see such a positive effort to make this area an exciting part of the city once again.

One of the abandoned warehouse structures, known as the Buyer's Mart, is being considered for conversion into an international marketplace for food and gifts. Part of the proposed master plan of this thesis is an attempt to connect the station building with the bus station, convention center, convention hotel and Buyer's Mart.
1. Pennsylvania Station
2. Site of Convention Hotel
3. Convention Center
4. Bus Station
5. Buyer's Mart
6. Commuter Bus Ramp
7. Site for new Subway Station
EXISTING FIRST & THIRD FLOOR PLANS
The proposals in this study are based on the idea of a mixed use building which incorporates hotel, office and retail functions. Pennsylvania Station is located on the intersection of Grant Street and Liberty Avenue. Grant Street is virtually a row of law firms and corporations. The reuse concept involves office condominiums with overnight accommodations for corporate executives and staff members. Nothing comparable exists in Pittsburgh at this time, and the need for a convention hotel is being met by the construction of a hotel on the site between the convention center and the railroad station.

Given the need for luxury accommodations and the ideal configuration of the building, a mixed use plan seems appropriate. Transportation functions will remain outside the building, and the ground and first two floors of the building will be primarily devoted to public space and retail areas. The waiting room will retain much of its character as a transportation hub.

The following issues are relevant to this project and must be discussed prior to making specific design proposals:

Circulation. It is necessary that the circulation pattern of the main concourse of Pennsylvania Station be adapted to the modern use of the building. The station no longer represents a line of progression between the rotunda and the train shed. The idea of the building providing a stimulus shield is no longer valid and the waiting room must instead become a meeting point of various functions. The lines of progression will diverge, and the circulation pattern may become slightly more complex.
The original building contrasted sharply with the steel and glass train shed behind it. Again, the concept of the stimulus shield is no longer valid and this study will make an attempt to integrate the steel and glass train shed architecture into parts of the site. This integration is not only appropriate in revitalizing the building, but it is necessary to keep the train shed architecture alive once the actual train shed behind the building is replaced by an expressway.

Public Space Vs. Private Space. The separation of public and private space will be a difficult problem in this reuse effort. Obviously, the hotel and office space can be separated from the main commuter space simply by being on separate floors. However, a hotel lobby is necessary and it must be accessible from the main concourse level.

The rotunda may remain the primary entrance to all functions of the building, but a separation is needed between areas for commuters and areas for hotel guests and workers.

The conflict of public and private functions was not as important an issue when Pennsylvania Station was built. The entire building housed various functions of the railroad, and the private offices were on the floors above the public space of the waiting room. An elevator lobby in the periphery provided access to the offices from the main concourse.

Clarity of Organization. An important aspect of the original design of Union Station was the clarity of the organization of functions and circulation. The symmetry of the plan and sheer volume of space in the waiting room were an aid to this clarity.

A common practice in reuse projects of this type is to move the skylight system to the roof, creating a huge atrium space in the building. The two story waiting room in Pennsylvania Station is a vital part
of its history and its proposed function. A large atrium would not only destroy the obvious separation of functions, but would ruin the beautiful proportions of the interior waiting room space.

Proposals for each floor of the building will be guided by the need for uncomplicated floor plans and visual access to parts of the building.

Transience Vs. Permanence. The transient nature of commuters creates the need for a flexible space to serve a variety of functions. By contrast, the hotel and office areas offer a stability that justifies putting those functions into a more permanent type of space.

The Existing Design as a Generator. Each floor of Pennsylvania Station will represent a system of design which has evolved out of the existing floor plan and section. The site will also be studied to find ways of complementing the rotunda without overshadowing it.
PROPOSALS

The Rotunda. The rotunda will continue to serve as a primary entrance to the building, as well as a semi-enclosed area which draws people through to various indoor and outdoor functions. The existing loading dock in front of the building is be removed to allow for a large volume of vehicular traffic in front of the rotunda. The rotunda itself will be for pedestrian traffic only. It may also support the functions of suitable transient vendors; the rotunda would make an ideal summer marketplace.

Above all, it should be stressed that the rotunda is the most grand and special element on the site. As such, it deserves to survive intact.

The Terminal Building. Proposals incorporate plans for public, semi-public, semi-private and private space on each floor.

The ground floor, accessible from Liberty Avenue, provides a secondary entrance to upstairs functions. Light wells serve the office area.

The main concourse level (first floor) is divided into retail functions and hotel functions. The hotel lobby is elevated three feet to provide separation from the rest of the floor.

A new steel and glass train shed roof covers the Amtrak station and continues around the building to cover the sidewalks.

The second floor is also a part of the two-story waiting room space. Balconies overlook the hotel lobby from the bar/cafe area.
Typical floors are each comprised of office space, guest rooms, suites and space for various functions, including 24-hour room service and conferences. Dotted lines on the floor plan represent areas where the ceiling is lowered. These interstitial areas will accommodate mechanical equipment and provide some continuity of design in the building. Corridors, typically monotonous in such buildings, will open and close as one progresses through the space. Plenty of daylight and high ceilings contrast with structural piers, service functions of guest rooms and lowered ceilings. The ceiling heights vary from floor to floor and are shown on Section BB.

The Site. The rotunda is used to generate a pattern of connections. Steel towers serve as reference points for the four corner turrets of the rotunda. These towers contain stairs and support an elevated network of pedestrian walkways.

A grand connection is needed between the rotunda and other parts of the city. The rotunda must be emphasized by creating more adjacent space than what currently exists and by using the design to generate new structure and functions.

The site plan shows in diagrammatic form the relationship of plaza, steel lowers and walkways to the adjacent buildings and rotunda.

The site plan also depicts the roofs of a proposed new bus station and a new subway station. These structures would be constructed of steel and glass.

New designs for the site should not compete with the old design. The towers refer to the rotunda, but, rather than duplicating that architecture, an attempt is made to complement it with new materials.
1. Loading Dock, Service
2. Storage
3. Retail
4. Restroom
5. Office

GROUND FLOOR PLAN
1. Rotunda
2. Service
3. Open to Below
4. Retail
5. Hotel Lobby
6. Front Desk
7. Hotel Office
8. Ramp to Lobby
9. Restroom
10. Amtrak Station

FIRST FLOOR PLAN
SECOND FLOOR PLAN

1. Main Kitchen
2. Banquets
3. Restaurant
4. Open to Below
5. Restroom
6. Service
7. Bar/Cafe
EAST AND WEST ELEVATIONS
TYPICAL GUEST ROOMS
The future of Pennsylvania Station at this time is uncertain. The developers in charge of the project are having difficulty finding an anchor tenant. Sentimentality of local citizens has sparked interest in the building, but the resulting media coverage has not yet seemed to help.

Pennsylvania Station has been engulfed in political and bureaucratic tangles for years. In fact, a study of the politics surrounding the project would encompass an entire book in itself. Unfortunately, the delays caused by land ownership conflicts and developer disputes seemed to have made the financial burden of rehabilitation too difficult to bear.

This thesis has evolved under the hopeful assumption that there will be a revitalization of Pennsylvania Station in the near future.

Pennsylvania Station is a fascinating reuse project because the initial use of the building is not entirely obsolete. The building has been abandoned for several years, but the upgrading of the area surrounding the station has produced an unusual opportunity to make the building a more diversified version of what it once was: an urban hub of transportation systems and a civilized public area.

Several ideas about reuse of old and valuable buildings have emerged from this study. There does not seem to be a definitive guiding principle behind all reuse projects; each one must be studied in and of itself. However, the following notes are included to demonstrate that a series of steps can be taken to respect the existing and add the new:
1. Thorough knowledge of the original design and use of the building is essential. This includes awareness of the historical context and societal changes during the course of the life of the building.

2. Make sure that new functions or purposes are compatible with the original structure and design of the building.

3. Meticulously accurate historical restoration is not always appropriate.

4. One should remember that details are critical, but can be secondary to concepts in reuse efforts.

5. Do not compete with the original design. Make every effort to complement and reinforce the strength of the existing design.

6. Do not assume that "reuse" means "redesign" - let the physical design of the existing building generate the architecture of reuse.

7. Let ideas from the original design create patterns of reuse.

Adapting a building of yesterday to the needs of our time requires an awareness of the past and sensitivity toward the changes imparted upon the building. This thesis is an attempt to reconcile the old with the new and to make a plea for quality reuse projects of all types.
REPAIR:

All environmental change is a process of differentiation . . . A process of remodeling. All design projects are remodeling projects since all projects are interventions into a set of existing circumstances. There are no new sites and no vacant lots. The design process is essentially a process whose goal is to "repair" the existing circumstances. Understanding this fundamental fact makes the issue of "OLD AND NEW" an issue for any project on any site.

J. Meadows, Cascade East Corporation

Notes About Old & New


DESIGN DEVELOPMENT REPORT. Prepared by the Ehrenkrantz Group, New York.

DESIGNING DOWNTOWN PITTSBURGH. Architectural Record, April, 1982.


OLD MADE NEW, NEW AMID OLD. Architecture, November, 1983.


PITTSBURGH'S NEGLECTED GATEWAY: THE ROTUNDA OF THE PENNSYLVANIA RAILROAD STATION. James D. Van Trump. Published by the Pittsburgh History and Landmarks Foundation.

THE RAILROAD STATION. From "A Stone, A Leaf, A Door: Poems by Thomas Wolfe".


Photographs on page 16 courtesy of the Carnegie Library of Pittsburgh, Photographic Department.
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