
View of interior of the Shed

View of Head House and Manhattan skyline beyond from roof of Shed

For more than 350 years the site of the Liberty State Park Train Shed has functioned as a transportation hub with a long history populated by ferries, steamboats, and railroads. Today the most prominent landmark of this rich heritage is the Central Railroad of New Jersey head house and Train Shed (now commonly referred to as the Liberty State Park Train Shed). The restoration of the Head House began the process of memorializing the significance of this gateway to the history of New Jersey and the growth of the nation. The State of New Jersey has recognized the necessity for an overall plan for the Train Shed to complete its mission begun with the restoration of the Head House.

The shear scale of the Train Shed, covering more than 300,000 square feet, represents the number of immigrants, commuters, and visitors who have crossed the Hudson at this location. As one of the principal structures of the harbor and lower Hudson River the Train Shed offers spectacular views of Ellis Island, The Statue of Liberty and New York Harbor. Due to its current unsafe conditions, most people have not experienced the drama – the sense of scale and the connection with America's past. This Final Report for the Liberty State Park Train Shed Historic Preservation Master Plan describes how this unique historic structure can be restored and adapted to new uses which will enhance the facilities at Liberty State Park for new activities that complement those of the Head House and generate revenue. The project team has worked with a number of dedicated employees of the State of New Jersey to develop a viable plan to bring new life into the Shed. This report details these findings and recommendations. It is divided into six sections which are briefly summarized below.

History
The shed is on the National Historic Register and is the largest, and one of the few remaining, Bush type sheds ever built. It is a vestige of a bygone era when trains were the primary means of transportation connecting the gateway to the United States with the rest of the country. The Shed, and Liberty State Park, have a long history, much of it transportation-related.

- A ferry between the site and New York began operating in 1661.
- A steam engine factory was the base for the first steamboats on the Hudson River.
- The Hudson River and the Morris Canal are directly north of the Shed site.
- In 1864, the first terminus to the Jersey Central Railroad was built on the site.

The shed was constructed between 1912 and 1914. It was a major connection for immigrants coming from Ellis Island, as well as for commuters going to and coming from New York City. The Shed was closed in 1967 and has been an unused part of Liberty State Park since the mid 1970's due to its dilapidated and hazardous conditions.

Condition Assessment Survey
The team has surveyed and arranged for a number of tests of the material in the structure. The Shed is in a deteriorated condition for a number of reasons; major ones include over 50 years of heavy use as a train station, and over 30 years of abandonment where no maintenance has occurred. Of particular interest is the team's conclusion that the Black Tom explosion of 1916 caused significant damage to the cast iron columns of the shed. This, tied with drainage being run within structural columns, has created significant damage to the supporting structure. A comparison of the survey done by the team with one done in 1976 shows that settlement of the structure, a major concern in previous reports, is not a significant issue. The concrete roof structure is not salvageable and will need to be replaced as part of the restoration. As part of the conditions assessment, an environmental study was done indicating contamination in the soil, but not to such a degree that major remediation would be required.

Design Approach / Space Use Recommendations
The Shed offers an excellent opportunity for the State of New Jersey to enhance the amenities and mission of Liberty State Park, particularly by better relating the park to its transportation history. Based on analysis of the structure and the site, as well as interviews with people operating the Park and adjacent institutions, we analyzed and added to previous proposals for the use of the Shed. From this we have developed a Master Plan with a

number of proposed uses for the Shed:

- An exhibition space to be used by the Park and/or other entities and a pedestrian connection from the parking lot, west of the Shed, to the Head House and Ferry slips to the east of the Shed.
- A covered open space to be used for large exhibitions, gatherings, shows etc.
- A space for interpretive initiatives to present the terminal/park transportation history.

No single use could successfully fill the entire Shed space. We also feel that a variety of uses is more likely to lead to successful redevelopment of the Shed than a reliance on one activity which, if unsuccessful, would leave the Shed entirely empty.

Preservation Restoration Recommendations

We have reviewed the following alternate restoration schemes:

1. Full restoration.
2. Creation of a stabilized ruin with the removal of all concrete, which could be an intermediate step to full restoration.
3. Demolition. This is not recommended by the consultant team.
4. Do nothing and let the structure continue to deteriorate and collapses. This is not recommended by the consultant team.

Phasing/Estimate

Restoring the structure and infrastructure of the Shed will be an expensive undertaking of approximately forty eight million dollars. In addition, demolition of the structure, an option that we do not recommend, would cost approximately ten million dollars; hence, the cost of restoring the structure vs. demolition will be approximately thirty eight million dollars. Given availability of funds, we have proposed phasing of the work so that it can be accomplished over a number of years. The stabilized ruin would allow for safe access to the shed area by the public and would cost approximately thirteen and one half million dollars, not much more than demolition.

Scope of Work

As part of our work for the State of New Jersey we have developed a separate scope of work for the design and construction documents required for the preservation and restoration of the Shed.

Conclusion

It is a testament to the engineering design of the Train Shed that it has withstood the affects of heavy usage, a major explosion, harsh environment, and years of deferred maintenance. The shed's significance in the history of New Jersey and the United States demonstrates the need for its preservation. We feel that this report is a critical first step for preserving and restoring the Shed so the public can use and appreciate this wonderful, historic structure.

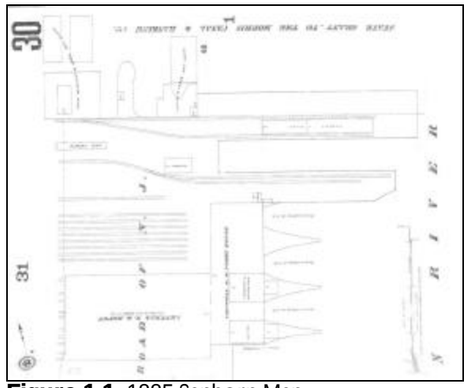


Figure 1.1: 1885 Sanborn Map

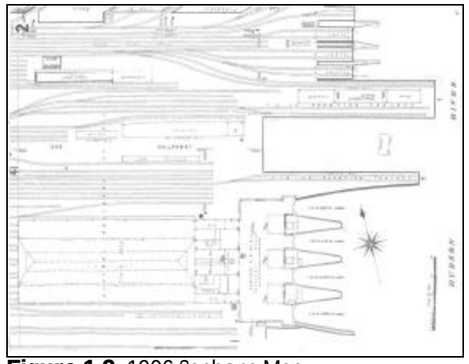


Figure 1.2: 1906 Sanborn Map

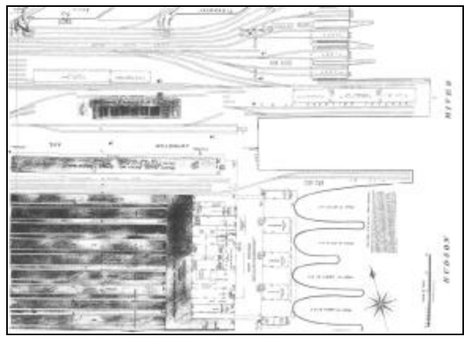


Figure 1.3: 1938 Sanborn Map

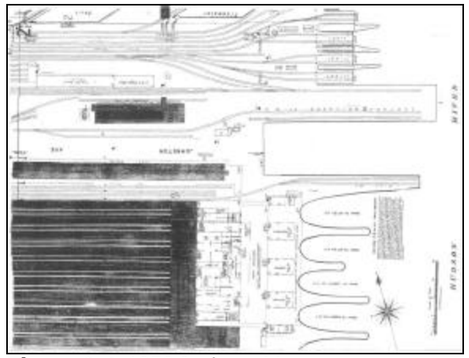


Figure 1.4: 1950 Sanborn Map

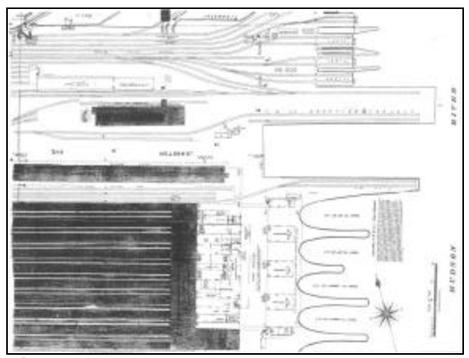


Figure 1.5: 1979 Sanborn Map

Early Site

The Train Shed at the Jersey City Terminal of the Central Railroad of New Jersey is located on the eastern coast of New Jersey, on the western bank of the Hudson River. It is positioned on a peninsula at the northeast corner of Liberty State Park. Less than 2,000 feet from the Statue of Liberty, and facing the skyline of Lower Manhattan across the New York Harbor, Liberty State Park lies in an area rich in history. The following is a brief synopsis of this history, taken primarily from the "CRRNJ Prospectus" [1]:

Often forgotten, the region was originally home to Native American Paleo-Indian populations from 14,000 to 8,000 BP, and later, to succeeding Native American populations dating up to the early 17th century. Known settlements, possibly of the Lenape Indians, existed on nearby Paulus Hook and in the immediate surrounding area, known as Communipaw Cove. Proximity to the Hudson River provided both a means of transportation and an abundant food source.

Dutch farm settlements appeared in the area during the 1630's, and, by 1642, settlers inhabited Communipaw Cove (now Liberty State Park). Fertile soil above the marshes, good conditions for livestock, and the abundance of oysters in "Oyster Bay" led to increased European settlement. A few decades of peaceful trading with the Indians eventually led to violent conflicts, including an ongoing war that lasted one and a half years.

The first chartered ferry between the New Jersey coast and Manhattan began operating in 1661. This coincided with the construction of the area's first mill and the beginnings of industrial growth in the area.

Nearby Paulus Hook was the site of American fortifications during the Revolutionary War, which were eventually held by British forces from 1776 to 1783.

Just after 1800, streets and plots were laid out in Paulus Hook, which became Jersey City. The rapid growth and industrialization of the area saw the construction of many mills and a steam engine factory where Fulton developed the first steam boat. Increased pollution and poor water quality forced the eventual elimination of the local fishing industries.

The Morris Canal, begun in 1824 and completed in 1836, opened a 102.5 mile long water connection from Phillipsburg, Pennsylvania to Jersey City by linking the Delaware River to the Hudson, just north of the current location of Liberty State Park. This massive undertaking, though prosperous for several decades in the shipment of Pennsylvania coal and New Jersey iron to New York, was eventually superceded by the railroads.

The physical transformation of the area begun by the Morris Canal continued with the gradual filling of Communipaw Cove. The decades after 1850 witnessed the construction of multiple docks, the dredging of the Harbor and the creation of the Morris Canal Big Basin. In addition, the 1860 extension of the Central Railroad of New Jersey from Elizabeth to Jersey City resulted in substantial filling in the cove. Fill included over 200 million cubic feet of New York City garbage.

Jersey City Terminus of Central Railroad of New Jersey

Figure 1.6: Communipaw, Jersey City 1853

In 1864 the Central Railroad of New Jersey (CNJ) constructed a rail bridge over the Newark Bay to Jersey City south of the Canal Basin. This allowed for the opening of the Communipaw Terminal (named for the adjacent avenue), also known as the Jersey City Terminus of the Central Railroad of New Jersey. In 1864 the first in a series of stations was built on the site. In conjunction with the terminal, ferry service from this location to Manhattan was instituted.[2] Although the terminal complex was not completed until 1864, it already was handling 1,500,000 tons of freight and 1,400,000 passengers in that year.[3] The principal freight commodity handled was coal destined for New York City. The 1885 Historic Sanborn Fire Insurance Company Map of the site identifies a depot, or shed, covering 10 rail lines and lit by two rows of small skylights. (Figure 1.1) The depot was connected to a ferry house, which also housed offices, a restaurant and waiting room. Beyond the ferry house to the east, the map shows three ferry slips providing service to Liberty Street, New York and an annex to Brooklyn. Additional rail

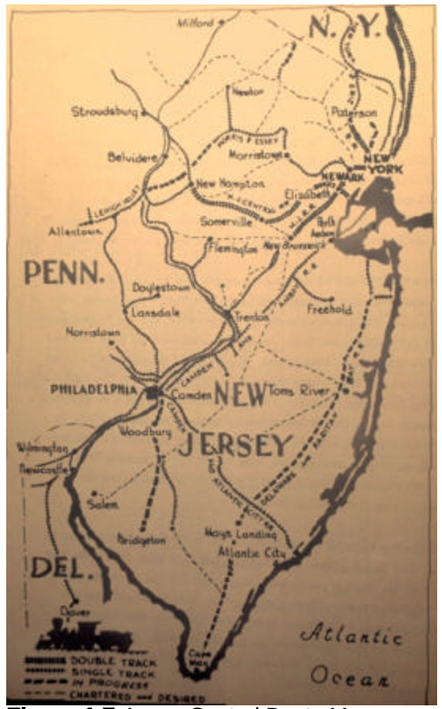


Figure 1.7: Jersey Central Route Map

Figure 1.8: 1889 Train Shed

Figure 1.9: 1889 Train Shed and head house

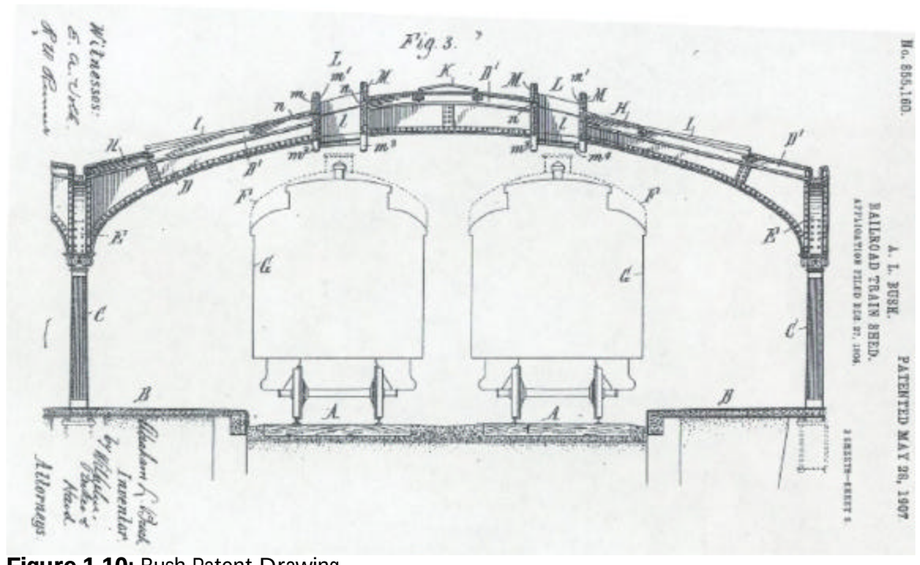


Figure 1.10: Bush Patent Drawing

lines were located to the north of the depot as well as an ice house, coal pockets and a dock with a freight rail line leading to it. The traffic to the Jersey City terminal, both freight and passenger, doubled every ten years between 1864 and 1890. This rapid growth rendered the original facilities insufficient by the mid-1880's. Planning for new facilities began in 1886.[4] In the same year, the Statue of Liberty was completed. The railroad consequently adopted the image of the statue as its logo due to its proximity to the railroad's busiest terminus. (Figure 1.13)

CNJ hired Architects Peabody and Stern of Boston to design the new head house and ferry concourse, which were completed in 1889. The Head House is a three-story brick bearing wall structure with iron framing, in an "…eclectic Victorian style best described as Richardsonian Romanesque with French Renaissance Revival overtones."[5] It measures 128' by 215' in plan, with a clock tower rising above. The building is largely extant today. The ferry concourse to the east was a single story wing with four ells, or slip houses, branching off to the east. The ferry concourse is no longer existing. (See Figure 1.15, a photograph taken in the early 1970's before demolition).

A second train shed to replace the original timber shed was completed in 1889. The new shed enclosed six platforms and 12 tracks. This traditional shed design consisted of a central long span gable with a ventilator at the apex flanked by lean-to sheds at the north and south, with a total plan area of 215' by 512'. The central gable was 75' in height and spanned 144'. (Figure 1.8) The clear span of the gabled portion was achieved with double-diagonal Pratt trusses. The trusses, purlins and braces were constructed of wrought iron. The columns supporting this structure were cast iron. A monitor ran the full length of the ridge. The structure was notable for its use of a Helliwell roof in its monitor, which was an English system of glazing without putty (reportedly also without leaks). The sidewalls of the lean-tos were brick with arched windows. This shed was also innovative in its early use of electric illumination. This second shed remained until 1913 when the Bush shed, still remaining, replaced it. In addition to the CNJ utilization of the new terminal, the Baltimore and Ohio railroad began service to Jersey City in 1890 through a lease agreement.3[6] Soon after, the Lehigh Valley Railroad also added service to the station. By 1891 the CNJ had 266 scheduled trains running through the station.

As the popularity of this terminus and Jersey City grew through the last decade of the nineteenth century, the railroad realized the need to expand the capacity of the system near the station. Around the turn of the century "the immense complex centered at Communipaw Avenue represented…the greatest concentration of rail facilities in the NY Harbor area."[7] By 1904 two bridges had been constructed and traffic to the Communipaw station increased to 17,500,000 passengers per year.[8] During the period from 1890 to 1915, 9 million of the 12 million immigrants who passed through Ellis Island reached the United States interior via the CNJ.[9]

The numbers of both passengers and freight continued to climb steadily, so the CNJ started planning for terminal expansion in Jersey City in 1910. (See Figure 1.6 for the Jersey Central Route Map). The master plan included the reduction of bottlenecks created by the approach track and bridge limitations, increasing the number of tracks in the yard, upgrading the freight facilities and replacing the passenger train shed. The number of tracks in the yard was increased from 12 to 20, and approach tracks were increased from 4 to 11. In 1912 the Railroad built a new bridge over the Newark Bay.[10]

These improvements allowed more trains to pass into the station. By 1912 there were 377 scheduled trains per weekday.[11] Expansion of the shed facility began in July of 1912 and was complete by the summer of 1914. The terminal had to stay in operation during the demolition of the original shed and the construction of the new station. This feat was accomplished by constructing a traveler platform over the tracks to remove and bring in new components for construction.[12] The new shed covers 18 of the twenty tracks and all 10 of the passenger platforms through a series of pitched concrete roofs supported on arched steel girders. The total shed measures 390 by 815 feet and has spans ranging from 39 feet to 43 feet. At this time there was also minor modernization of the head house.[13]

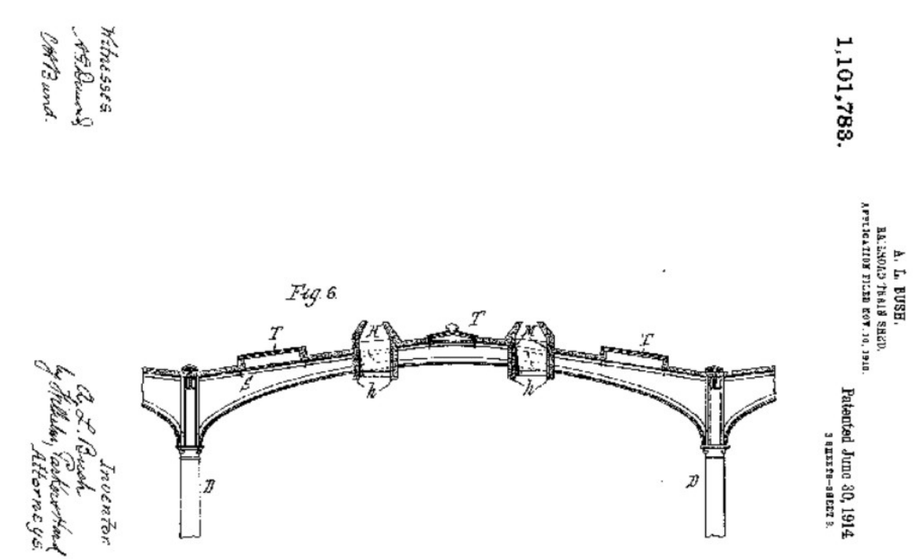


Figure 1.11: Bush Patent Drawing

Figure 1.12: Historic aerial view of Shed and surrounding Jersey Central Facilities

The new shed, which replaced the traditional long-span shed, was a patented design by A. Lincoln Bush. The original design was patented by Bush under # 855,160 on May 28,1907 (application filed December 27, 1905). (Figure 1.9) The Bush shed proved much more efficient than the traditional shed construction. The design reduced the effects of smoke and gases on the structure and people by allowing ventilation of gases through longitudinal vents. By decreasing trapped smoke, the maintenance and cleaning of the metal structure and skylights was reduced; and, by decreasing the roof height, these areas were more accessible for maintenance.

The first Bush Train shed was completed in 1906 at the Lackawanna Railroad terminal in Hoboken. The shed design revolutionized the industry. By 1914, this type of shed had been installed in twelve stations. Although the Bush shed was quite popular, its design was made obsolete by the invention of the butterfly shed. The butterfly shed covers only the platform, making it more economical, but provides less passenger protection from wind driven precipitation.[14]

The shed at the Jersey City Terminal is the largest of these types to be built; its design had several improvements over the original design. Some of these improvements are listed in Bush's 1910 patent, #1,101,783 dated June 30, 1914 (applied for November 10, 1910). (Figure 1.11) This shed's design has many of the same aspects of the earlier Bush design, but it revises the smoke vent opening, preventing the entrance of excessive amounts of snow and rain. The smoke, arranged lengthwise over tracks, has side walls with upper ends converging and lower ends extending below the roof line. This feature kept precipitation from being blown in through the vents.

The trends of culture, politics and economics greatly affected the use of the terminus over the next half-century. The Jersey City station handled 14,500,000 passengers in 1911; 18,137,000 in 1920, and 21,000,000 passengers in 1929 – the station's peak use. Of these passengers, 75 to 80% were typically commuters. The passenger load decreased during the depression and then increased during World War II, but this increase only brought the number back to about 18,000,000.[15]

All railroads in the country were taken over by the U.S. Government during WWI.[16] In 1918, the lines once operated by the B&O and the Lehigh Valley suspended passenger service into the Communipaw station. The B&O continued to bring freight service to this terminus, but the Lehigh Valley had already moved their freight service.

In 1920, the operation of the railroad returned to private ownership. Over the next few decades other transportation modes began to limit the use of the railroad; in 1920 only 10% of freight traveled by other modes, but by 1935 this number approached 40%. Even after the B&O restored service to the Jersey City Terminal in 1926, the loss of freight traffic and the heavy taxes levied by the state of New Jersey led to the CNJ's bankruptcy filing in 1939.[17] There was an upsurge of traffic in 1945, after WWII, but this lasted only about five years.

A decade later it was evident that the heyday of the railway was gone, the last steam engine left the Jersey City Station in 1954, headed for Cranford, NJ. Diesel service continued out of the station until 1967. In 1958, the B&O railroad permanently ceased passenger service to the Jersey City Terminal. In that same year, an accident at Newark Bridge killed 48 and injured 50, and helped accelerate the demise of the Central Railroad of New Jersey. Within two years the company entered a contract with the State of New Jersey for commuter passenger services, limiting the company's jurisdiction of the railroad.

The New Jersey Department of Transportation was formed in 1966. The following year it enacted the Aldene Transportation Plan. This plan was proposed several years earlier to economize and consolidate the railroad traffic in New Jersey. All Jersey Central commuter trains were diverted through the City of Aldene and eventually terminated at Newark Penn Station.[18] The Aldene Transportation Act led to the Railroad finally giving up the Jersey City Terminal and bequeathing the remainder of their trains to the Pennsylvania Railroad.

Figure 1.13: Aerial view of Shed, Ellis Island and Statue of Liberty

Figure 1.14: Shed in use as a movie set

Figure 1.15: Ferry Terminal in front of Head House

Figure 1.16: Shed under construction

Figure 1.17 Historic photo of Shed in operation

The Jersey City Terminal complex is significant as an early intermodal transportation center as clearly described in *National Register of Historic Places Inventory – Nomination Form*:

"Railroad Maritime Terminals of the Port of New York

The Jersey City Terminal of the Central Railroad of New Jersey was one of seven fully developed railroad maritime passenger terminals that once existed at the Port of New York. The maritime terminal was a harbor side terminus of a railroad that provided direct transfer to regularly scheduled ferry boats connecting the terminal with a city center separated from the terminal by a body of water. These maritime terminals, as an architectural type and in their technological development, were unique to the New York/New Jersey Harbor and San Francisco Bay. They were excellent solutions to one of the most complex circulation problems that had yet been encountered in railroad station design.

Large terminal railroad stations have often been acknowledged as being the essential architectural type of the Victorian/Edwardian era and presented one of the most challenging circulation requirements of any building type fostered by the Industrial Revolution. These maritime terminals were further complicated by the unique intermodal nature of train/ferry terminal. In addition to handling both train and ferry passengers (both commuter traffic and baggage-carrying long distance travelers) and express and mail haulage, the ferry terminal also was required to accommodate local vehicular traffic (originally horse drawn, later motorized).

The seven physically unified railroad maritime passenger terminals that emerged fully developed by the latter 19th century, after evolution that began with the earliest railroad construction to the New York harbor's edge in the late 1830's were:

New York, West Shore and Buffalo Railroad, Weehawken Terminal (New York Central Railroad); last service in 1959. "Weehawken Ferry."

Delaware, Lackawanna and Western Railroad, Hoboken Terminal; last ferry service in 1968, terminal still in train service as Erie-Lackawanna Railroad. "Hoboken Ferry."

Erie Railroad, Jersey City Terminal; last service in 1958; terminal demolished. "Pavonia Ferry."

Pennsylvania Railroad, Jersey City Terminal, superceded in 1910 by Hudson River Tunnels to Pennsylvania Station in New York City; terminal demolished. "Jersey City Ferry."

Central Railroad of New Jersey, Jersey City Terminal; last service in 1967, Jersey Central trains rerouted to Penn Central Railroad Newark Station. "Communipaw Ferry."

Staten Island Rapid Transit, Staten Island Terminal (City of New York); only working maritime terminal, historic terminal demolished. "Staten Island Ferry."

Long Island Railroad, Long Island City Terminal; superceded in 1908 by East River tunnels to Pennsylvania Station in New York City; terminal demolished. "Hunters Point Ferry."[19]

Only two of these intermodal train/ferry facilities survive: The Hoboken terminal of New Jersey Transit now largely connects to PATH (subway) service, although there is a ferry operation; and the Jersey Central facility in Jersey City, whose train shed is being studied in this report. Over the last ten years there has been a resurgence of ferry service in the New York Harbor. The importance of the intermodal nature of the Train Shed should be kept in mind in developing re-use plans.

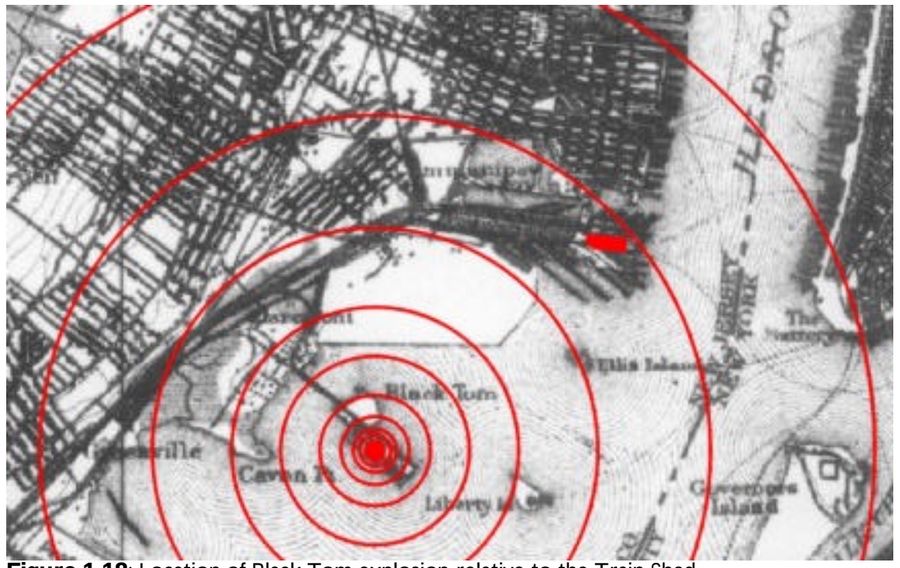


Figure 1.18: Location of Black Tom explosion relative to the Train Shed

Black Tom

Located near the southeast corner of Liberty State Park is the site known as Black Tom. It was originally a small island, and was later enlarged by fill to be utilized by the Railroad companies as freight yards for the loading and unloading of goods from ships. On July 30, 1916, a series of explosions caused massive destruction to the area. (Figure 1.18 & 1.18)

Prior to the United States' official entry into World War I, large amounts of munitions were shipped to the Allied forces in Europe directly from the freight cars and barges at Black Tom. Sabotage by German agents caused the Black Tom explosions. Damage caused by the explosions was extensive and included several deaths and millions of dollars in losses. After several freight cars caught fire, a number of barges loaded with dynamite caught fire and exploded, shattering nearly every window in Jersey City and Lower Manhattan, reaching as far north as Times Square. Buildings in the immediate vicinity were destroyed, and many, including the Statue of Liberty and structures at Ellis Island, were damaged. Documentation of damage to the Train Shed was not found, but the presence of drawings, dated after 1916, for the replacement of skylights indicates one of the obvious results of the nearby explosion.

One of the largest acts of sabotage on U.S. soil, Black Tom remains largely forgotten. It was seen by many as an important catalyst for the United States' eventual involvement in the war, and, thus, adds to the historical richness of the Liberty State Park.

Figure 1.19: Damage from Black Tom explosion.

Liberty State Park

The State of New Jersey acquired the first parcels of the site in 1965. By 1969, the State controlled 227 acres. In 1976, the 800-acre Liberty State Park opened with the terminal as a focal point. The 1889 head house and concourse structure were restored in 1980. This portion of the station is currently used as a ticketing area for the ferry and museum for the Central Railroad of New Jersey. This study looks at the feasibility of rehabilitation for the Bush Train Shed and the future use of this terminus.

[1] students.cec.wustl.edu, p.1
[2] students.cec.wustl.edu, p.1
[3] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Beginnings to Penn Station, Chicago: University of Chicago Press, 1980., 1, p.64
[4] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Beginnings to Penn Station, Chicago: University of Chicago Press, 1980., 1, p.142
[5] *National Register of Historic Places Inventory – Nomination Form*, September 18, 1975, p. 3.
[6] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Beginnings to Penn Station, Chicago: University of Chicago Press, 1980.,1, p.149
[7] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to Present, Chicago: University of Chicago Press, 1981,2,p.70
[8] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Beginnings to Penn Station, Chicago: University of Chicago Press, 1980.,1, p.66
[9] students.cec.wustl.edu, p.5 ??????
[10] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to Present, Chicago: University of Chicago Press, 1981,2, p.202
[11] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to Present, Chicago: University of Chicago Press, 1981,2,p.137
[12] HABS/HAER, p.22
[13] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to Present, Chicago: University of Chicago Press, 1981, 2, p.202
[14] Meeks, Carroll, The Railroad Station and Architectural History, New Haven, Conn: Yale University Press, 1956., p.122.
[15] Condit, Carl, The Port of New York: A History of the Rail and Terminal System from the Grand Central Electrification to Present, Chicago: University of Chicago Press, 1981,2,p.202
[16] http://students.cec.wustl.edu/~mjs6/cnj_hist.html, Highlights of the Central RR of NJ
[17] http://students.cec.wustl.edu/~mjs6/cnj_hist.html, Highlights of the Central RR of NJ
[18] www.kalmbach.com/trains/archive/aug98/njt.html.com , p.2
[19] *National Register of Historic Places Inventory – Nomination Form*, September 18, 1975, Item 8, p. 1-3.

Relationship to the Park

Figure 3.1: Parking lot to the west of the Train Shed

Figure 3.2: Bus drop off to the north of the Train Shed

In order to propose uses for the Train Shed, it is important to look at the Train Shed's relationship to Liberty State Park, and, in turn, the Park's relationship to the surrounding areas.

Park Access / Points of Interest
Drawing 10 shows the Train Shed and adjacent Head House situated on a peninsula at the far north-eastern corner of Liberty State Park. It is one of several attractions within the Park's boundaries. Circles representing 5-minute walks from the center to the edge illustrate the disjointed nature of the Park's facilities. (A ¼ mile radius, or 5-minute walk, is often used by planners as a measure of distance for pedestrian movement; as a general rule of thumb, when walking distance exceeds 5-10 minutes, many people choose alternate means of transportation to reach their destination.) Pedestrian movement within the Park to various points of interest requires travel far beyond a comfortable distance for most people, especially during the cold winter months The Train Shed/Head House is virtually isolated from pedestrian access. .
Currently, Park access consists of the following:

- Car access at 2 points: 1) near Liberty Science Center
  2) at the westernmost corner of the Park
- Ferry access at 2 points: 1) ferry slip east of Head House, with service to Statue of Liberty and Ellis Island
- 2) ferry slip in marina, with service to Manhattan
- NJ Transit Bus Stops: Bus from Jersey City (connecting with PATH) stops at Liberty Science Center, but access is not readily apparent.
- NJ Transit Light Rail Stop: New light rail with connections to PATH system has opened, and is located at the Park entrance adjacent to Liberty Science Center.

Park Transit Alternatives
Though beyond the scope of work for our study, a vision for transportation within the Park with connections to New Jersey and New York mass transit is important for the future of the Park and Train Shed. It is the best way to open the Park's resources to more people without the detrimental side-affects of car access.

Given the mass transit points of access listed above, there is clearly a missing link between the new light-rail stop near the Science Center and the Train Shed/Head House/Ferry dock complex. (See Drawing 11) With a transportation connection here, New Jersey residents and tourists would have easy access to the Train Shed and ferries leaving for the Statue of Liberty, Ellis Island and Manhattan; and residents and tourists from New York would have easier access to such attractions as Liberty Science Center. The consolidation of ferry service to the ferry slips east of the Head House will contribute to the effectiveness of the connection; future ferry service may even include access to Governor's Island, several points in Manhattan, and various Park-related sites in the New York Harbor area. Beyond this essential transportation link, a more comprehensive transit loop around the entire Park could be pursued, but, again, is beyond the scope of the current study.

The detailed development of any in-park transportation service needs further, in-depth study. The possibilities for Train Shed programming are explored in more detail in the Marketing Analysis.

Train Shed's Immediate Park Context
The repetitive, expansive area of the Train Shed, while creating a relatively uniform interior spatial experience, is bordered on its four sides by very different conditions.

- To the north, the Shed is bordered by vehicular access lanes, including charter bus drop-off and short-term

parking. Views are to Jersey City beyond the Morris Canal Big Basin. (Figure 3.2)
- To the east, the Shed connects to the restored Concourse and Head House structures. Through several openings, there are spectacular views of the Manhattan skyline beyond the ferry slips. (Figure 3.4)
- To the south, the Shed opens onto a large grassy field and the waterfront "Liberty Walk". There are unobstructed views of Ellis Island and the Statue of Liberty beyond. (Figure 3.3)
- To the West, the Shed faces an existing parking lot, with views to the Park and Liberty Science Center beyond. (Figures 3.1 and 3.6)

These varying conditions provide a starting point for locating possible uses within the Shed.

Marketing Analysis

Figure 3.3: Ellis Island and south lawn from the Train Shed

Figure 3.4: Ferry slip to the east of the Head House

In analyzing ideas for use of the Train Shed, a number of things should be kept in mind. They include:
1. Appropriate uses for a historic structure located in a State Park, as per Liberty State Park's Mission Statement.
2. The implications of attendance trends for the Park and related attractions.
3. The potential of an activity being a success both in terms of user acceptance and obtaining financing.
4. The suitability of a use to the structure, and the potential impact of the use on the structure.
5. Other developments that will impact the park (discussed in the Conclusion of the Section).

1. Appropriate Park Uses
The mission statement of Liberty State Park includes: provide public access to the New York Harbor, provide an appreciation and understanding of its estuarine ecosystem, related transportation, and immigration history, and provide the opportunity to enjoy outdoor recreation activities. The Shed provides an excellent opportunity to implement and further these goals. We feel that, at present, the Park is weak in providing an appreciation and understanding of the transportation and immigration history of the Park. The Train Shed's original use and history is an obvious way to remediate this.

2. Use / Attendance Statistics
Park attendance in 1999 is reported at 4,273,957 people.

The following is additional information related to Park use/attendance for 1998:
- Circle Line: 792,129 people visited Ellis Island / Statue of Liberty from the Park.
- Liberty Science Center: 741,968 persons visited.
- July and August are the busiest months; December and January are slowest. Central Parking Facility (Liberty Science Center): 133,056 vehicles
- Swimming pool: 14,479 persons (Note the pool was closed in 1999.)
- CRRNJ Terminal: 398,666 people visited.
- Ferry Service Parking Facility: 149,434 vehicles
- Interpretive Center: 21,029, mostly school groups, visited this educational center, which focuses on our dependency upon the estuarine resources.

The following information, extracted from a recent report commissioned by the Liberty Science Center, pertains as well to other planned attractions within the Park.[1] While general in nature, this data gives insight into the way in which tourist attractions are recommended. It is also useful as a tool to determine what objective and subjective elements feed into the reputation of a particular area.

When asked by the consultants, New York tourist professionals mentioned Liberty Science Center, on an unaided basis, only 27% of the time, indicating low awareness for Manhattan tourists and lack of familiarity by tourism professionals. Barriers cited include: too far from Manhattan, inconvenient to get to, takes a full day, tourists not interested in science museums, not in AAA Guide to NYC.

Figure 3.5: Head House and Concourse

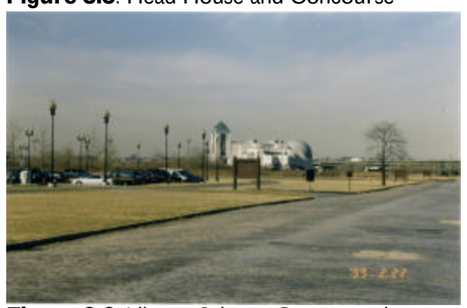


Figure 3.6: Liberty Science Center to the west

Programming / Ideas for the Shed

Tourist professionals look for several things when recommending family entertainment: child friendliness, ready and easy transportation, value, safety, known quantity (good feedback), no language barriers, unique opportunity, fun for children and adults, other attractions in proximate area, educational, close to hotel. General activities which get recommended are: museums, shopping, sightseeing tours and cruises, parks, themed attractions like Disney and Warner, restaurants, historical sites. It is possible to receive more attention from tourist professionals by sending brochures, free tickets and representatives to concierges and tourism agents; inviting professionals to the area or site; offering short tours; providing dedicated transit from a mid-town locale.

Visitor attractions suggested by Manhattan tourist professionals include The Statue of Liberty first, and Liberty Science last, of fifteen named draws. We think that with a greater critical mass of attractions at the site, this would elevate the Park in the minds of both tourists and tour professionals.

3. Use and Financing
Based on review of this report and additional discussion with staff of the State of New Jersey, recommendations will be developed for funding specific uses of the Shed.

4. Use / Structure Suitability
The Train Shed's repetitive structure has certain inherent limitations and advantages for potential uses, including the following:

- Low ceiling height
- Repetitive column spacing, which could obstruct distant views
- Good accessibility potential
- Large square footage with flexibility for division

We met with a number of interested parties to discuss potential uses for the Train Shed. They include:

- Statewide and Liberty State Park staff from the State of New Jersey Department of Environmental Protection, Division of Parks and Forestry.
- E. Koster, President and CEO, Liberty Science Center. We have scheduled an additional meeting with a number of members of the Science Center staff to review our preliminary recommendations and the potential role of the Center in their implementation. Discussions will be incorporated into the Final Report.
- R. Wells, Director of Planning and Development, Ellis Island Immigration Museum, Statue of Liberty Monument.
- Walter Grosselfinger: United Railroad Historical Society of New Jersey (URHS) which is developing a New Jersey Railroad Museum.
- Paul Taylor, Bureau of Parks at the Department of Environmental Protection
- C. Craft, Project Co-coordinator, of the Metropolitan Waterfront Alliance, an informal coalition of all agencies, groups and people involved with the greater metropolitan waterfront.
- Dr. Sally Yerkovich, Executive Director of the New Jersey Historical Society in Newark, New Jersey.

Based on these meetings, discussions, analysis, and review of the previous reports listed in the Bibliography, the following are previously proposed as well as new ideas/uses for the Shed. We have grouped them by type:

A. Covered Open Space
   - Music Bowl in the nature of Ozawa Hall at Tanglewood with music stage under the Shed and bermed areas outside shed for extended viewing.
   - Boat and car shows and other large scale trade shows.
   - Festival market booths for holiday retail shows, antique fairs, etc.

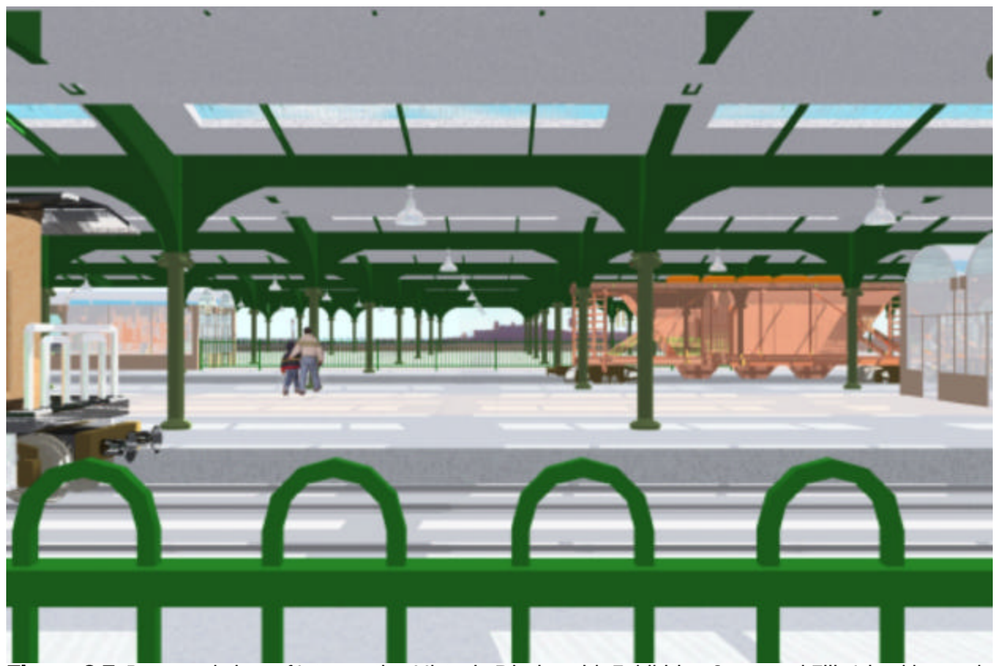


Figure 3.7: Proposed view of Interpretive Historic Display with Exhibition Space and Ellis Island beyond

B. Exhibition/Museum facilities
   - o Exhibit areas
   - o Museum shop
   - o Railroad museum
   - o Use of old train cars for restaurant and exhibitions
   - o History of train stations along the New York Harbor
   - o Industrial Crafts Center and Craftsmen Guild Center
   - o New Jersey State Fire Museum with fire fighting equipment and exhibits
   - o Science and Technology Museum (tied to Liberty Science Center)
   - o History and exhibits of the area starting with the Paleo-Indian population in 14,000BC
C. Conference Center
D. Restaurants
E. Agricultural Center in conjunction with a Farmer's Market
F. Circulation between parking lot and ferry.
G. Terminal for in-park transportation

A. Covered Open Space

When the shed is restored, shows and fairs that now are in the outdoor area could come under the shed roof. Inclement or very sunny weather would not interfere with the enjoyment of a trade show, boat or car show, arts or antique festival, etc. In fact, when shows like an Airstream trailer show come to the Park, an ancillary trade show or swap meet with purveyors of equipment and parts could be part of an indoor event.

Musical events could be produced with an indoor /outdoor staging. Staging could be at the edge of the Shed and seating on the lawn outdoors. Smaller concerts can continue to be held in the concourse between the Head House and the Shed.

We have explored the idea of an agricultural and farmers market but have concluded that the traditional farmers market would not be successful at this location. A regularly scheduled market should be located in a residential neighborhood that is easily accessed and visible. This location is more suitable to a large-scale type of event with agricultural exhibits and sales.

B. Exhibition/Museum Facility

Ellis Island

The connection with the island and its history is compelling and should be explored. In meetings with the Director of Planning and Development of the Ellis Island Immigration Museum, Statue of Liberty Monument, Richard Wells, we sensed a positive view of this suggestion. Twenty percent of the attendance of 5.2 million comes from the New Jersey side. This number is increasing, as there is more room on the ferries leaving from the New Jersey side. Those people, 1,040,000, must all come through the project site area, in full view of the Train Shed.

The Museum collects materials with a direct connection to Ellis Island and the Statue of Liberty, of which 90% are documents. The collection is about immigrants' arrival on Ellis Island, as opposed to their departure. It is rotated, so that only a small percentage is on view at any given time. Currently, there is a small exhibit that tells the immigrant story of movement through the various train stations, including Jersey City, Hoboken, and New York. Reproductions of paper materials, photos, documents, letters, etc. could be made available. The exhibit can be small and integrated into other historical informational exhibits. The experience on Ellis Island is usually a full day and it is thought that much more information for those visitors would be exhausting. In addition, Ellis Island officials are planning more immigration related programming.

Figure 3.8: Proposed view of Interpretive Historical Display

Plans to develop the southern half of Ellis Island include "a setting for meeting including local corporate conferences and global peace talks, with new museums devoted to America's immigrant heritage and the study of public health."[2] These developments could be tied into further uses at the Train Station and Shed, particularly since accommodations for the Conference Center are envisioned to be off of the island. One proposal is to have them just outside Liberty State Park. This will create added pressure/need for an in-Park transportation system.

Interpretive History of the Area
In addition to including the above references to Ellis Island and those immigrants who came through Jersey City, there is a rich and larger history to be told. Much of this is related to the history of transportation. Some of the general aspects include the following: (Note: Much of this is described in more detail in the History section of this report)

1. Paleo-Indian population in 14,000-8,000BP to succeeding Native American populations.
2. The Dutch farm settlements.
3. Revolutionary War forts were built in Paulus Hook.
4. Streets and plots were laid out in Paulus Hook, which became Jersey City, in 1800. Robert Fulton located his foundry and dry dock here and perfected the first steamboat to ply the Hudson.
5. In 1834, the Paterson and Hudson and the NJ Railroad opened. Jersey City's steel industry supplied the iron and brass castings for the surrounding railroads. The Cunard Line established a Liverpool to Jersey City link in the mid 1800s which was successful due to the city's links to ferries, railroads, and hotels.
6. The Colgate Soap Company built its first factory in 1847 and soon produced 25 million pounds of soap yearly.
7. The Morris Canal from Phillipsburg to Jersey City terminated here.
8. The Black Tom explosion occurred in 1916 on a Lehigh Valley freight train.

Railroad History
The next part of the interpretive history would include railroad history. We have been informed that the New Jersey Railroad Museum will be in Phillipsburg. However, some aspects of railroad history and some rolling stock could be used at the site in an interpretive and support manner. For example, building systems, which need to be in the sheds, could be housed in railroad cars. Snack shops, a gift store, and information could also be housed in cars.

Using the interior of the Head House, the ferry slips, and the Shed for exhibits of real and fabricated equipment and narrative materials would provide an in depth and lively look at this important historical, social, transportation, and industrial node. It would also provide enough educational and entertainment interest for the public to make a special trip to the area, beyond heading for Ellis Island. This impulse would be strengthened by the addition of a vehicular circulation system around the Park, connecting the study site to the parking lots, Science Museum and Interpretive Center. We believe that this would be very attractive to residents and tourists in the New Jersey and New York metropolitan area. Exhibitions of Transportation and Technology, organized by the Dept. of Environmental Protection Division of Parks and Forestry. with guest curation by other area museums, such as the Liberty Science Center, could be part of this presentation.

C. Conference Center
The creation of a Conference Center would only make sense if the entire Shed were enclosed and heated. Although a possibility, we do not think this is a good idea from a preservation perspective since it would significantly alter the historic character of the structure. It also would be in direct competition with plans to develop a conference center on Ellis Island.

D. Restaurants

Figure 3.9: Proposed view of Pedestrian Circulation and Park Exhibition Area

Food, though an ancillary use in planning the Train Shed, is always an important element in the visitor's enjoyment of a place. Currently, food is available from hot dog / pretzel vendors located inside the Head House (where food consumption is prohibited) and outside in fair weather. A diner exists at the southwest entrance of the Park, and a cafeteria exists in Liberty Science Center. There is a lack of food suppliers to encourage a day-outing in Liberty State Park.

A sit-down restaurant on the site is best suited for a location in the Head House. Historically, a restaurant / dining hall existed there; and most importantly, the Head House affords the waterfront views of the Manhattan skyline. We suggest that any major restaurant on the study site be located as close to the water and views as possible, as this would be its main selling point. Any other food establishments (café, snack bar) located on the site should have another asset to offset the lack of view. This could be achieved by its location in a converted train car with nostalgic and historical references for which the Train Shed is well suited. Re-use of the Shed will create additional need for permanent or temporary dining facilities.

E. Agricultural Center

There have been proposals to turn the Shed into a gigantic green house, as an agricultural center. We feel this will not work for a number of reasons.

- This would significantly alter the historic character of the Shed.
- Greenhouses are very high in humidity, which, even when designed for, cause significant stress to the structure.
- The soil below the Shed consists of hazardous materials. Major remediation would be required to allow for the planting of agricultural products in the soil.

For these reasons we have given no further consideration to this idea.

F. Circulation Between Parking Lot and Ferry

A linear pedestrian connection between parking and the Head House could run through the sheds. (Currently, circulation is around the north of the Shed.) This connection could be animated by outdoor exhibits, art installations, interesting advertising, video monitors, and fiber optic lighting. It could include an introduction to Ellis Island and the Statue of Liberty. This would also continue the multi-mode movement about the site. Other modes of transit are ferry, light rail, and train. The use of one longitudinal bay of the Shed would facilitate this pedestrian link. We explored a system similar to an airport mover, but it would be very expensive and not in keeping with the character of the Park.

G. Terminal For In-Park Transportation

As previously identified, there is a great need for public transportation in the Park. The Shed is a natural place to terminate such a service since it would connect the ferry service to other attractions and would continue the original historic intermodal nature of the Shed. The use of antique trains could turn this transportation system into an attraction and tie it to exhibitions of transportation history, which we are proposing for the Shed. Concerns have been raised by Park staff on the feasibility of this idea. If, upon further study, this is not feasible, the use of modern train cars, light rail, or internal combustion vehicles, possibly made to look like old trains, would be an alternate way to develop the transportation connection.

Structures within the Shed

To meet requirements of toilets, utilities and to create enclosed heated spaces for exhibitions and other functions, new structures will need to be constructed in the Shed. Where possible, we recommend the use of rail cars or, if not feasible, new structures that give the feel of rail cars. This would be both an attraction and create structures in keeping with the historic nature of the Shed.

Space Use Recommendations

Figure 3.10: Proposed view of Public Meeting / Exhibition Space

Section 4 will detail how we propose to restore the Liberty State Park Train Shed structure. As important an issue of how to restore the structure is what to put in the structure once it is restored. The following are our recommendations for uses to be placed in the Shed.

Based on the preceding analysis, we are proposing multiple uses for the Shed structure for the following reasons:

- No use that we envision could comfortably occupy 301,451square feet of space covered by the structure.
- A variety of park department and public needs and objectives could be simultaneously met.
- A public project of this size should not rely on a single use. If that use fails to garner financing or approval, there will be nothing else to take its place without further delay and negative sentiments.

The Master Plan, Drawing 13, shows a suggested layout of the proposed uses as follows:

1. An exhibition / pedestrian circulation space to be used by the Park of approximately 63,549 square feet or 21.1 percent of the Shed area. This would be located at the north section of the Shed, adjacent to the bus drop off It would create additional area for park exhibits. These exhibits could include a connection to Ellis Island, historic rail cars of the type immigrants would have taken from the Shed upon leaving Ellis Island, a history of the Black Tom explosion, a history of immigrant groups who traveled through the Shed, and a history of Jersey City, which surrounds the Park and whose residents are heavy users of the Park. We feel that this would also offer a connection from the parking lot to the west of the Shed to the Head House and Ferry slips to the east of the Shed.. (Figure 3.9) However this might be in conflict with the recently developed exterior connection to the north of the Shed. This area would also offer a location for a terminus of an in park transportation system, if one is developed.

2. A covered open space of approximately 119,732 square feet or 39.7 percent of the Shed area to be used for large exhibitions, gatherings, shows etc. (Figure 3.10) This would allow the park to expand this type of activity and provide a covered space for it. We propose locating this function at the southern side of the Shed adjacent to the large open grass area already used for this type of activity. This area also has wonderful views of Ellis Island, the Statue of Liberty and the New York Harbor.

3. An interpretive exhibition space of approximately 118,170 square feet or 39.2 percent of the Shed area. (Figures 3.7 and 3.8) It would be appropriated to include exhibitions of transportation history connected to the Park's history and surrounding New York harbor. Exhibitions for this facility could be developed by local museums such as the Liberty Science Center, as well as national traveling exhibitions such as those developed by the Smithsonian. It could use the rich transportation history of the site and the structure as a starting point to talk about issues of transportation. This would be located in the middle section of the Shed. In our Preliminary Report we had looked at creating enclosed, climate controlled, structures that would fit on the track bed area to give a feeling of where trains were in the Shed. However, in discussion with exhibition experts it has become clear that spaces with a maximum width of twenty-five feet would be severely inadequate for proper exhibition space. In the final plan we propose wider spaces that would allow for good exhibition layout. These structures would be designed so as not to cause damage to the historic fabric of the train shed structure and to be removable. The design of these structures would await the development of specific plan for operation of this space.

Conclusion

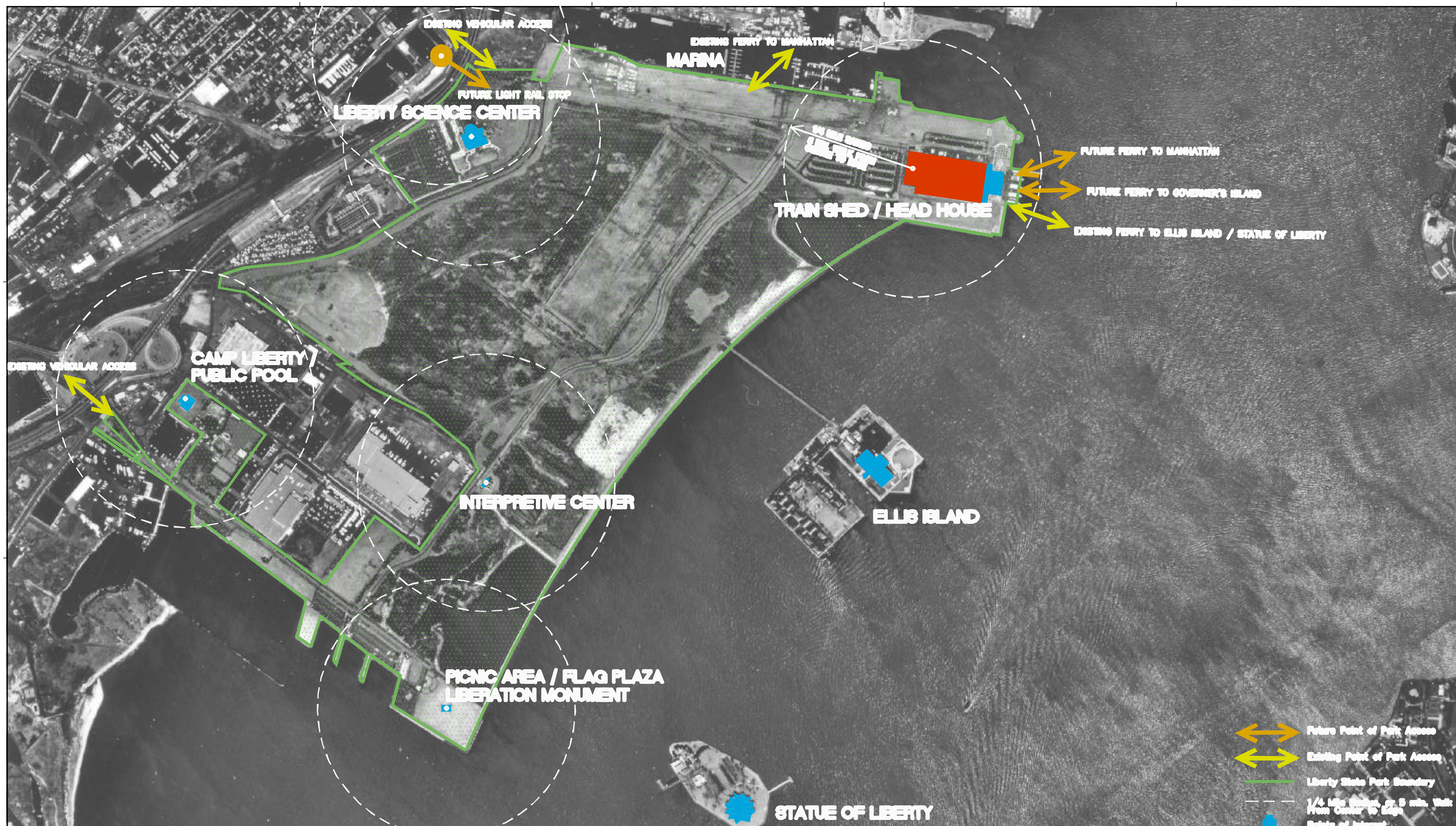
A program of the nature we are suggesting takes a large and creative marketing effort. It must be pitched to those making suggestions to tourists and be easily explained. This includes hotel personnel, tour guides, AAA, convention and visitor bureaus, as well as drivers of public vehicles, like cabbies, bus drivers, ferrymen and ticket takers. The entire park can be an all-day or partial-day visit and very convenient for those with or without cars. It

must have its own brand name, which will elicit all the activities available. In addition, the entire Park is part of the larger concept, which is New York Harbor. We expect that some time in the near future, water vehicles will connect all the points within the harbor, like a bus connects neighborhoods. Visitors will be able to get on and off and partake in as much of a site as they wish. The Metropolitan Waterfront Alliance is currently undertaking a feasibility study for a "Harbor Loop" making 18 stops within the harbor, including the study site, with a 49-passenger water taxi. The Train Shed has the potential to create a memorable, enjoyable, public place that contributes to the exceptional collection of New York Harbor sites and monuments.

We believe that with more tourist related options on the waterfront, like new hotels on the New York waterfront and on the New Jersey Turnpike, the development of Ellis Island's southern end and Governor's Island, better water linkage of all harbor sites, the Shed is ideally situated. If some of the activities above were implemented, along with an enhanced transit system feeding the site and the Science Center, a highly successful educational and entertaining element would be introduced.

[1]

[2] *New Jersey Plans Grand Makeover for Ellis Island*, The New York Times, January 21, 2000 pages B1 & 6



\9929\9929 10- Park Access

LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION PLAN

Morris Pesin Drive, Hudson County, Jersey City, NJ 07305

DBC Project No. P0701-00

State of New Jersey
Honorable Christine Todd Whitman, Governor

DEPARTMENT OF THE TREASURY
Peter R. Lawrence, Acting State Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION
Robert Russiano, Director
Steven Sutkin, Assistant Director

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Robert C. Shinn Jr., Commissioner

DIVISION OF PARKS AND FORESTRY
Gregory Marshall

Architect: CURTIS + GINSBERG ARCHITECTS LLP
180 Varick Street, 5th Floor, New York, NY 10014

Structural Engineer: LZA TECHNOLOGY
641 Ave. of the Americas, New York, NY 10011

Conservation Consultants: MARTIN WEAVER
SHELLEY SASS

Title:
PARK ACCESS / POINTS OF INTEREST

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Job No.: 9929

Date: 5/17/00
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Scale: N.T.S.

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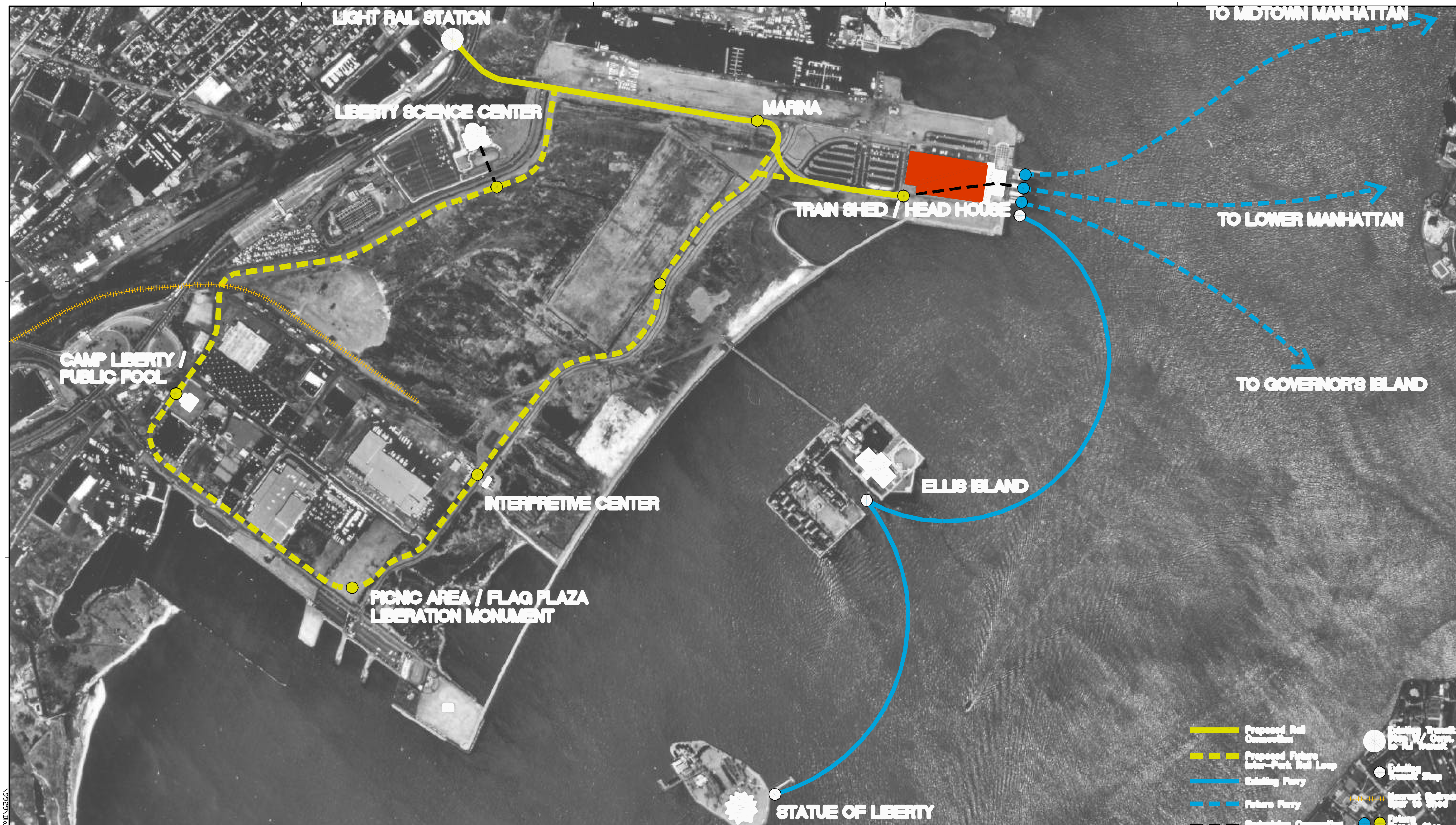

LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION PLAN

Morris Pesin Drive, Hudson County, Jersey City, NJ 07305

State of New Jersey
Honorable Christine Todd Whitman, Governor

DBC Project No. P0701-00

DEPARTMENT OF THE TREASURY
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Structural Engineer: LZA TECHNOLOGY
641 Ave. of the Americas, New York, NY 10011

Conservation Consultants: MARTIN WEAVER
SHELLEY SASS

Title:
TRANSIT ALTERNATIVES

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Job No.: 9929

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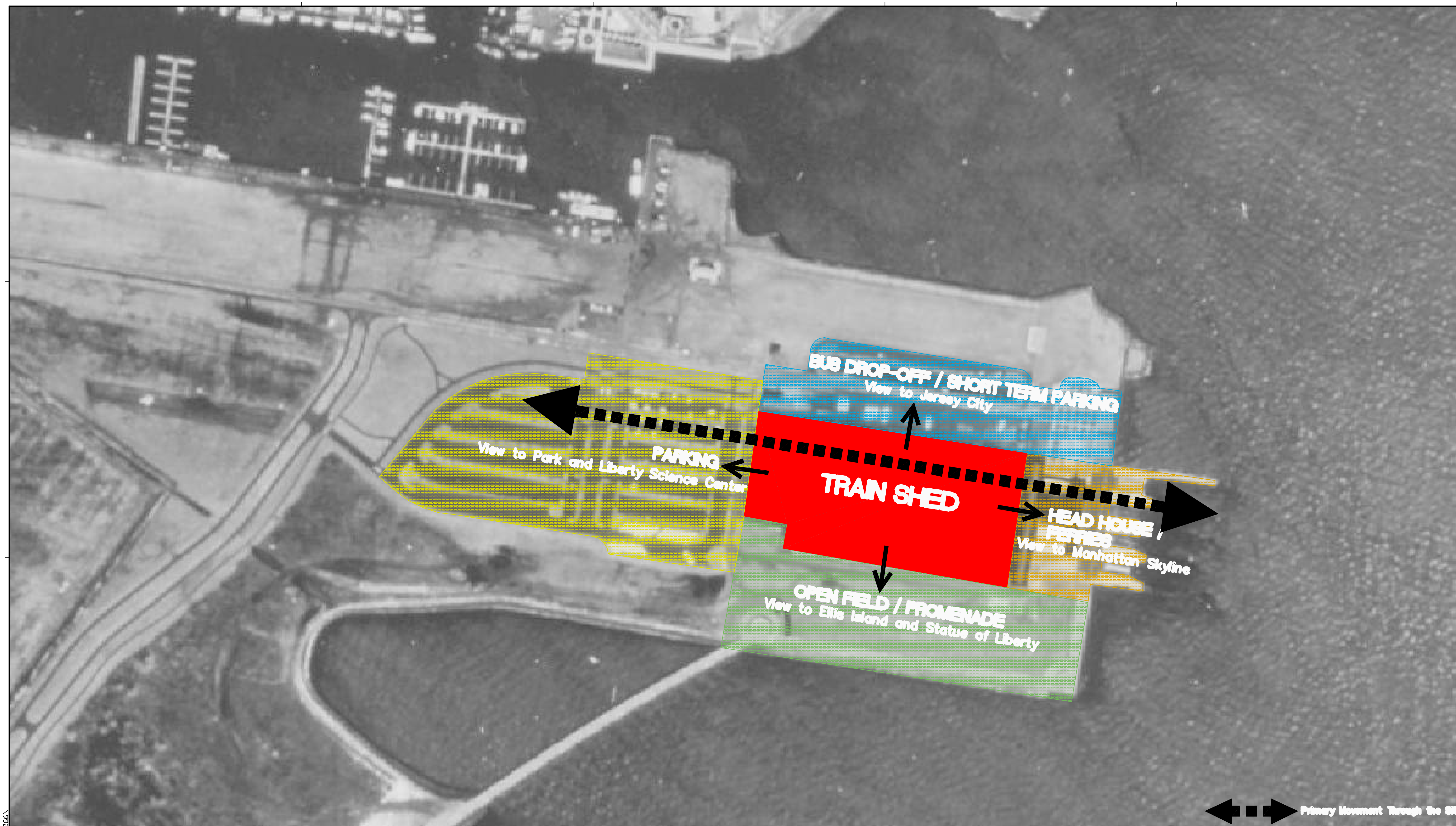
\9929\Diagrams\9929 P-2 Park Transit



\9929\9929 12 Immediate Context

LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION PLAN

Morris Pesin Drive, Hudson County, Jersey City, NJ 07305

State of New Jersey
Honorable Donald T. Francesco, Acting Governor

DEPARTMENT OF THE TREASURY
Peter R. Lawrence, Acting State Treasurer

DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION
Robert Russiano, Director
Steven Sutkin, Assistant Director

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Robert C. Shinn Jr., Commissioner

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180 Varick Street, 5th Floor, New York, NY 10014

Structural Engineer: LZA TECHNOLOGY
641 Ave. of the Americas. New York, NY 10011

Conservation Consultants: MARTIN WEAVER
SHELLEY SASS

Title:
TRAIN SHED: IMMEDIATE CONTEXT

Scale: N.T.S.

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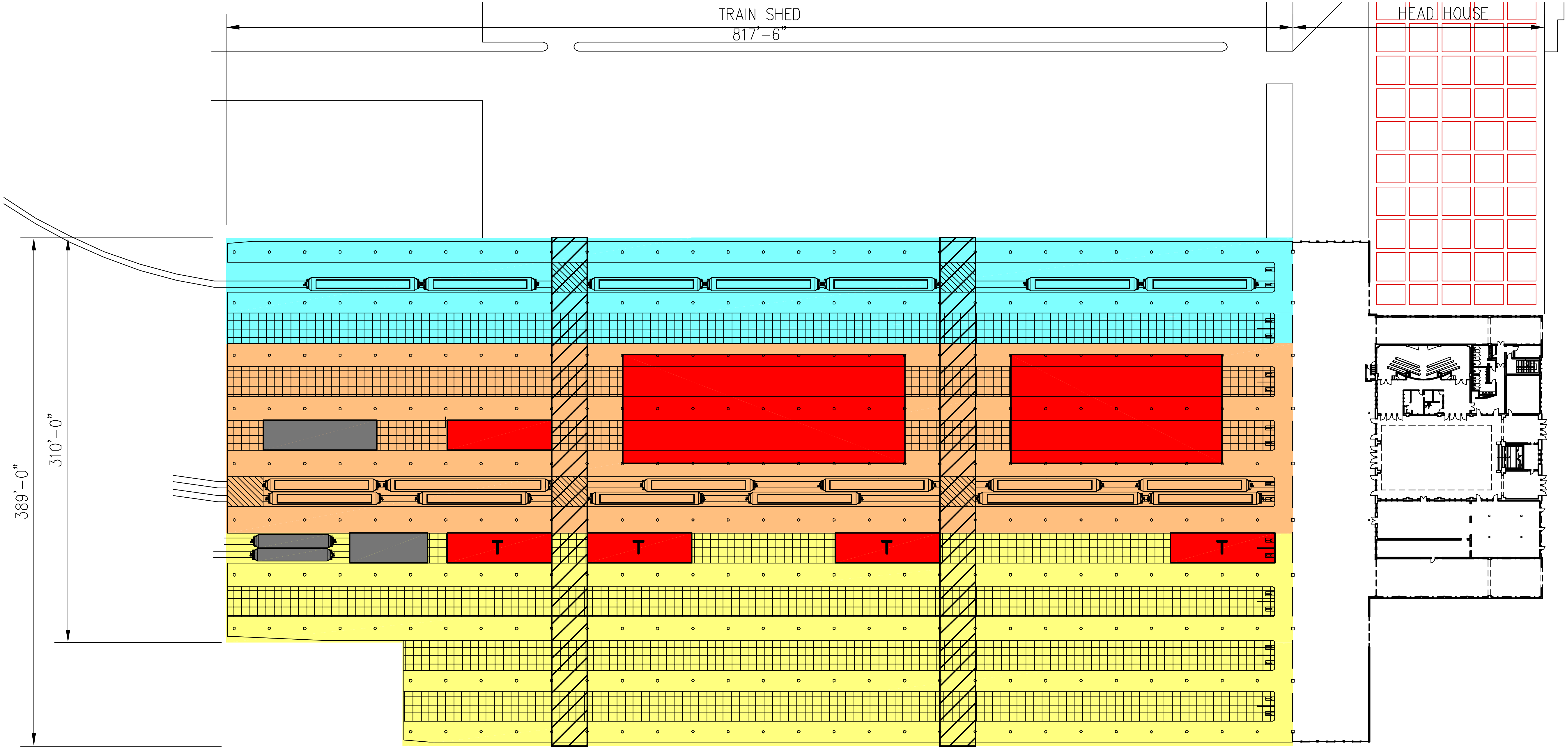

- REMOVABLE BRIDGES OVER TRACK BEDS
- PAVERS OVER TRACK BEDS
- UNENCLOSED EGRESS PASSAGES
- USE: ENCLOSED SERVICE STRUCTURES
- USE: PARK EXHIBITION/PEDESTRIAN CIRCULATION
- USE: INTERPRETIVE EXHIBITION SPACE
- USE: COVERED MEETING/ EXHIBITION
- USE: ENCLOSED STRUCTURES (TOILETS, EXHIBITION, GIFT SHOP, TICKETS, ETC.)
- T TOILETS

0 4' 20' 40' 80'

LIBERTY STATE PARK TRAIN SHED HISTORIC PRESERVATION PLAN

Morris Pesin Drive, Hudson County, Jersey City, NJ 07305

OBC Project No. P0701-00

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Conservation Consultants: MARTIN WEAVER
SHELLEY SASS

Title:
MASTER PLAN: PROPOSED USES

Date: 5/17/00
Scale: 1" = 50'

13

\9929\9929 13-Master Plan