1. NAME OF PROPERTY

Historic Name: Holland Tunnel

Other Name/Site Number:

2. LOCATION

Street & Number: Connecting Lower Manhattan and Jersey City, Running Under the Hudson River

City/Town:Vicinity: New York City & Jersey City State: NY & NJ

County: NY & Hudson Code: 061 & 017 Zip Code: 07310 & 10013

3. CLASSIFICATION

Ownership of Property
Private: ___
Public-local: ___
Public-State: X
Public-Federal: ___

Category of Property
Building(s): ___
District: ___
Site: ___
Structure: X
Object: ___

Number of Resources within Property

Contributing	Noncontributing	
____	____	buildings
____	____	sites
5	____	structures
____	____	objects
5	____	Total

Number of Contributing Resources Previously Listed in the National Register: 0

Name of related multiple property listing:

4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1986, as amended, I hereby certify that this ____ nomination ____ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ____ meets ____ does not meet the National Register Criteria.

_____ _____
Signature of Certifying Official Date

_____
State or Federal Agency and Bureau

In my opinion, the property ____ meets ____ does not meet the National Register criteria.

_____ _____
Signature of Commenting or Other Official Date

_____
State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I, hereby certify that this property is:

____ Entered in the National Register
____ Determined eligible for the National Register
____ Determined not eligible for the National Register
____ Removed from the National Register
____ Other (explain):_____

_____ _____
Signature of Keeper Date of Action

6. FUNCTION OR USE

Historic: TRANSPORTATION Sub: vehicular

Current: TRANSPORTATION Sub: vehicular

7. DESCRIPTION

ARCHITECTURAL CLASSIFICATION: Other: Cast iron subaqueous tunnel

MATERIALS:
Foundation: N/A
Walls: Cast iron tubes
Roof: N/A
Other: Glazed tile walls (interior)

Describe Present and Historic Physical Appearance.

The Holland Tunnel carries vehicular traffic through two parallel tubes beneath the Hudson River, connecting the lower west side of Manhattan, New York with Jersey City, New Jersey. The nominated resource includes the twin tubes and four large ventilation buildings. [See Figure #1] The overall length of the nominated resource is 9,210′ for the north tube and 9,275′ for the south tube. Portal to portal, the north tube of the Holland Tunnel is 8,558′ long and the south tube is 8371′ long.

The north tube carries two lanes of traffic from New York to New Jersey, and the south tube carries two lanes of traffic from New Jersey to New York. The design of each tube is best understood when broken down into its three components: the central subaqueous portion, the enclosed approach tunnels on either side of the subaqueous portion, and the open-cut approach ramps which connect the enclosed approach tunnels to the surface grade level.

The subaqueous portions of the twin tubes are slightly more than a mile long (5,480′). Constructed by the shield method of tunneling, these cylindrical tubes are 29′5" in diameter and run approximately 15′ apart.[1] The tunnel lining is made up of cast iron rings 2.5′ wide. Each ring is made up of fourteen 6′ long

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[1]The original planned tunnel diameter of 29′ was expanded by a half foot after design tests showed that larger fresh air intake and foul air exhaust ducts below and above the tunnel roadway would reduce the cost of ventilation. "Building the Hudson River Vehicular Tunnel," Engineering News-Record (May 8, 1924): 798.

segment pieces, plus a smaller arch key piece, all of which are connected with steel alloy bolts.[2]

After thousands of these rings were assembled, the interior of the tube was lined with 19" of concrete. The cylindrical shape of the subaqueous portion of the tunnel is not evident to the commuter because a dropped ceiling, raised roadway, and perpendicular walls give the exposed throughway a rectangular appearance. The two-lane roadway of the subaqueous portion of tunnel is 20′ wide, 12.5′ tall, and maintains a nearly level grade. [See Photograph #1] The original plan called for painting the concrete and leaving it as the final interior surface. This was modified, however, after the project's Chief Engineer made a tunnel inspection trip to Europe. After noting the advantages in lighting, appearance and sanitary conditions which a wall of glazed ceramic tiles afforded, the Chief Engineer sought and won approval for incurring the additional cost of high grade tile. The side walls were covered with white tile which was trimmed with two rows of yellow/orange tile along the bottom and two rows along the top. It was reported that under the advice of a "color psychologist," tiles of blue, green, or red tints were rejected due to their "depressing effects."[3]

On either end of the north and south subaqueous tubes are the enclosed approach tunnels. These portions of tunnel are approximately 1000′ on the New York side, and 500′ on the New Jersey side, terminating at the tunnel portals. Their construction is rectangular in cross section as opposed to the circular tube of the subaqueous portion, and they were constructed using the cut-and-cover method New Yorkers were familiar with in their subway construction. If not for the noticeable increase in grade in the approach tunnels, the motorist would be unable to distinguish the approach tunnels from the subaqueous portion of the tunnels; the roadway, tile walls and ceiling appear identical. The approach tunnels deviate from the parallel course of the subaqueous tubes, following irregular paths so that the exit and entrance portals on either side of the river end up two blocks apart to diffuse traffic congestion. [See Figure #1]

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[2]Cast steel segments were used in the rings adjacent to the river air shafts.

[3]"Hudson Vehicular Tunnel at New York," Railway Review (February 26, 1921); "Lining Procedure in Holland Vehicular Tunnel," Engineering News-Record (December 3, 1925): 905-6; and Carl C. Gray, The Eighth Wonder, (Cambridge, MA.: The University Press, 1927) p. 22. The north tube was lined with domestic tile and the south tube was half lined with Czechoslovakian tile and half with tile from the Saar region of Germany. "Lining Procedure in Holland Vehicular Tunnel," p. 906.

The entire length of the tunnel was originally paved with granite blocks from Maine. In 1955 the granite was replaced with an asphalt roadway.[4]

Extending east of the New York portals and west of the New Jersey portals are the open-cut approach ramps which rise from the portals to street grade. The ramps are flanked by granite-faced concrete retaining walls, which reach an average height of 18′ at the portals. [See Photographs #2 & #3] The extant ornamental lighting fixtures replaced the original fixtures in the 1950s. The width of the ramp at the portal is 30′.

The tunnel utilizes the transverse-flow type of ventilation system. In addition to the two tubes, the tunnel includes two land and two river ventilation buildings, one of each near either shore. The foundations for these large structures were laid by caissons and after they were grounded at the appropriate subaqueous elevation, the tunnel was excavated so that the traffic tubes would run through the steel caissons. The land and river ventilation buildings are of steel and reinforced concrete construction, and are faced with buff-colored brick. The five-story New York Land Ventilation Building is 122′ tall. [See Photograph #4] The perimeter of this structure is trapezoidal to fit on its irregularly shaped lot. It is 50′ wide, and 184′ long on the east side and 154′ long on the west side. The four-story New York River Ventilation Building stands in the river, approximately 900′ west of the Manhattan shoreline. [See Photograph #5] It measures 50′ by 106′ and stands 107′ above the pier deck (which is 7′ above mean high tide). The four-story (plus a raised foundation) New Jersey Land Ventilation Building is 84′ tall and measures 75′ by 115′. [See Photograph #6] The four-story New Jersey River Ventilation Building measures 50′ by 105′ and is 107′ tall above the pier deck. [See Photograph #7]

A series of 8′ diameter intake fans draw fresh air from outside the ventilation buildings through louvers along the buildings exterior walls. That volume of air is then divided among fourteen fresh air ducts and blown into a 17′ wide duct which runs beneath the two-lane roadways of each tube. [See Figure #2 & Photograph #8] From these ducts, the fresh air enters a series of small air supply ports located 10 to 15 feet apart along the curb of the roadways. The incoming fresh air then combines with the hot gases generated by the traffic, and rises toward the dropped ceiling. A series of 8′ diameter exhaust fans located in the ventilation buildings then draws the fouled air through long narrow slits in the ceiling, into the 21′ wide domed exhaust air duct which is 5′8" high at the apex. From there, the air is drawn through one of fourteen exhaust air ducts, into the

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[4]"Vehicular Tunnel Under Hudson River Paved With Granite," Engineering News-Record (October 29, 1925): 726; Letter from Sandra McCullough, Port Authority of NY & NJ, to Robie Lange, National Park Service (November 17, 1992) (History Division NHL File).

enclosed exhaust air ducts in the ventilation building, and out the building's exhaust stacks. The exhaust fans are enclosed within a duct, and the intake fans are in the open, close to the building's louvers. [See Photographs #9 & #10] Each of the fourteen intake and fourteen exhaust ducts work in conjunction with three adjustable-speed fans, only two of which are required to provide the maximum quantity of air movement (the third is held in reserve). A total of 84 fans comprise the heart of the ventilation system. When operating at full speed, they can completely replenish the air in the tunnel every 1.5 minutes.[5] Twenty-four hours a day, automatic recording devices in the exhaust ducts report information on the tunnels' carbon monoxide levels to the central control station.[6]

To facilitate evacuation during a severe fire or other emergency, the tunnel contains five cross connections through which motorists can, after abandoning their vehicles, walk from one tube to the other. These passages are located at the base of each land and river shaft, and at the mid-river sump pump.[7] [See Figure #1]

Large piers were originally constructed above the tunnel from the shore to the river ventilation buildings. [See Photograph #7] They served to protect the shallower ends of the tunnel from possible damage caused by deep draft boats, but they were also used as shipping piers. The New Jersey pier remains, but only the pilings remain from the New York pier after its demolition in 1985. Although the Newport Development Company owns this pier, the Port Authority maintains access rights for maintenance and for use as an emergency exit from the tunnel via the river ventilation building.

Despite modifications to the toll plazas (new toll booths and lane patterns), the general traffic patterns, as established by the separation of the exit and entrance portals, remains largely as designed.[8]

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[5]"The Holland Tunnel and Its Ceramic Tiling," The Ceramic Age (July 1927): 7.

[6]The ventilation system continues to use the same type of centrifugal fans as those designed in the 1920s. The fans' original chain drives have been replace with belt drives, and some of the generators have been replaced. The ventilation system is currently controlled from the New Jersey garage #2, but local control of the fans in an individual ventilation building is also possible from each ventilation building.

[7]"Method of Operating Holland Vehicular Tunnels," Engineering News-Record (November 3, 1927): 702.

[8]The original toll plazas [See Photograph #11] were redesigned in 1954 and again in 1988. Until 1971 tolls were collected in both directions; at that point the New York toll

Other modifications to the tunnel include new lighting, paving, a new computer-monitored traffic control system, automatic traffic detectors, closed circuit television and two or three generations of enclosed observation stations which were introduced some years after the tunnel's completion. Finally, powered catwalk cars were recently added to transport the tunnel police to these observation stations.[9]

The contributing elements of the nominated property are the twin tunnels (considered a single structure, which includes the two subaqueous portions, the four enclosed approach tunnel sections, and the four open approach ramps), and the two land and two river ventilation buildings. The toll plazas east and west of the New York and New Jersey open approach ramps, respectively, have undergone several reconstructions and thus, maintain insufficient levels of historic integrity to be identified as contributing to this nominated property. The original Administration Buildings (located next to the exit ramps), no longer house air quality and traffic monitoring facilities, and therefore, do not contribute in an important way to this property's national significance. The 1940s New Jersey Service Building #2, which currently houses the monitoring activities, is not original to the tunnel project, and therefore, does not contribute in an important way to this property's national significance.

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collection booths were removed. In 1982-3 the original small Plaza Office Building at the New York plaza was removed.

[9]Additional minor modifications include: the realignment of the westernmost end of the south retaining wall near the New Jersey toll booths; the installation of "billboard steel framing" in the vicinity of the portals to block debris from falling onto the open-cut approach ramps; the 1980s' replacement of the tunnel's original cast concrete slab ceiling with sections of precast reinforced concrete, covered with ceramic tile; the modification of the curb drains in 1988; the replacement of the original 32" high porcelainized steel, single-rail railing along the tunnel's sidewalk with a 42" high double rail of stainless steel; the 1988 replacement of the original bronze metal finishing around the various utility openings in the tunnel walls with more durable stainless steel; the installation of a steel-wedged ceiling at the first 100 feet of each tunnel entrance which was designed to stop oversize vehicles from entering; and the replacement of the original incandescent light boxes with a continuous line of florescent lighting.

8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties: Nationally: X Statewide: ___ Locally: ___

Applicable National Register Criteria: A X B ___ C X D ___

Criteria Considerations (Exceptions): A ___ B ___ C ___ D ___ E ___ F ___ G ___

NHL Criteria: I & IV

NHL Theme(s): XIV-G TRANSPORTATION-AUTOMOBILES
XVIII-B TECHNOLOGY-TRANSPORTATION
XVIII-H TECHNOLOGY-CONSTRUCTION
XXX-D AMERICAN WAYS OF LIFE-URBAN LIFE

Areas of Significance: ENGINEERING
TRANSPORTATION

Period(s) of Significance: 1920-1927

Significant Dates: 1920
1927

Significant Person(s):

Cultural Affiliation:

Architect/Builder: Holland, Clifford (Chief Engineer)

State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.

Opened in 1927, the Holland Tunnel was the first subaqueous tunnel in the world specifically designed for the requirements of automotive traffic.[1] The most significant aspect of its design was the extensive program of clinical research conducted to determine the effects of auto emissions on tunnel motorists, and the most efficient ventilation system to eliminate the associated health and safety risks. The conclusions of this research influenced the design of every subsequent subaqueous vehicular tunnel.

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[1]The Holland Tunnel is one of three subaqueous tunnels nominated for NHL designation as part of an engineering theme study. The other two are the 1891 St. Clair River Railroad Tunnel and the 1909 Detroit River Railroad Tunnel.

History

Although the Hudson River was finally crossed by subway and railroad tunnels in the early 20th century, there were no tunnels or bridges to carry the ever-increasing vehicular traffic between the nation's largest city and the mainland. [See Photograph #12] Until the late 1920s, all automobiles, trucks, and horse-driven vehicles were carried across the Hudson by ferry. A survey conducted between 1913 and 1919 found that at least three out of four vehicles ferried between New York City and New Jersey crossed the Hudson on ferries operating in the vicinity of the proposed tunnel. While 90% of these vehicles were horse-drawn in 1913, by 1919 the rapid rise in automobile traffic reduced horse-drawn traffic on these ferries by 50%.[2]

The greatest single complaint about the river ferry service was the delays. One report indicates that when the traffic was at its worst, such as on weekends and holidays, vehicles often had to wait hours on line for their turn to board one of the ferries.[3] In addition, strong tidal currents and occasional ice or fog made this crossing very dangerous. This danger was exacerbated by the heavy maritime traffic running up and down the river. On a few occasions, ferry service was virtually eliminated, as occurred in 1919, when labor strikes by boatmen threatened to isolate the occupants of Manhattan Island from the mainland to the west.[4]

As early as 1868 charters had been granted to build bridges connecting New Jersey with Manhattan, but no feasible bridge designs were forthcoming. Another half century was to pass before plans for a crossing of any type were presented which were both technologically and economically feasible. Finally, on July 11, 1919, President Woodrow Wilson signed a Congressional resolution calling for a tunnel.[5]

By 1920 the method of driving subaqueous tunnels had been soundly established. All earlier subaqueous transportation tunnels, however, were designed for rail or for horse-drawn transportation. The provision of adequate ventilation, however, was far more critical for automotive tunnels than for railroad tunnels. While this is not to minimize the risks to train crews

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[2]"Largest American Shield Tunnel Designed to Carry Vehicular Traffic Under Hudson River," Engineering News-Record (February 19, 1920): 358-361.

[3]Frank W. Skinner, "The Holland Vehicular Tunnel Under the Hudson River," Engineering (November 11, 1927): 602.

[4]Robert G. Skerrett, "Driving With Air the Hudson Vehicular Twin Tubes," Compressed Air Magazine (August, 1920): 9741.

[5]"The Holland Tunnel and Its Ceramic Tiling," The Ceramic Age (July, 1927): 3.

and passengers of being exposed to toxic gases when a steam engine remained too long within a tunnel, the crew needed merely to keep the train moving along its guided rails until fresh air was reached at the other portal. Such rare accidents were reduced significantly early in the 20th century, when "cleaner" electric locomotives began to replace steam locomotives. A vehicular tunnel, however, carried thousands of individually operated automobiles each day. Insufficient ventilation of automobile exhausts could cause health risks to the motorists, or could temporarily impair a drivers ability to safely operate a vehicle.

Most notable among the very few pre-Holland Tunnel subaqueous tunnels designed for other than rail traffic, were two built under the Thames River in England. The 27' diameter Blackwall Tunnel was built in 1897, and the 20' diameter Rotherhithe Tunnel was built in 1908. Designed when the internal combustion engine was a rarity, neither of these tunnels required mechanical ventilation. In contrast, the Holland Tunnel was designed during the early 1920s when automobiles began to outnumber animal-driven wagons.[6]

Early in the planning phase for the Holland Tunnel, consideration was given to utilizing the trench method of construction. As pioneered on the Detroit River Railway Tunnel, this method utilized sections of preconstructed tunnel tubing which were floated into position before being sunk into a prepared trench in the river bed.[7] Despite the presence on the project's advisory board of one of the principal engineers for the Detroit tunnel, concerns about the trench method's applicability to the Hudson River led the board to select the more established shield method of excavation.[8]

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[6]The tunnel's planners indicated that by 1937 the decreasing number of animal driven vehicles could be restricted from the tunnel. Skerrett, "Driving With Air the Hudson Vehicular Twin Tubes," pp. 9742-3.

[7]See Detroit River Railroad Tunnel NHL nomination, History Division, National Park Service, Washington, D.C., 1993.

[8]The engineers were concerned about the obstructions to river commerce which the trench method's "floating plant" would have required. It was pointed out that the nature of the river traffic in Detroit is different from that of New York. Most Detroit River vessels operate under their own power and are more able to maneuver around such obstacles, whereas much of the Hudson River traffic includes the largest ocean going ships guided by tug boat. Additionally, they feared that the Hudson's river bed, known for its fluid character, would be too unstable to maintain the underground trench before the tube sections could be sunk into them. "Hudson Vehicular Tunnel at New York," Railway Review, p. 311. For a discussion on the development of the shield method of tunnel excavation, see the St. Clair River

After the trench method was ruled out, the engineers were asked to consider an unusual variation on the shield method of tunnel excavation proposed by General George Washington Goethals, the builder of the Panama Canal and one of the foremost engineers of the early 20th century. Goethals proposed a 42′ diameter tunnel, nearly one-and-a-half times the size of any previously attempted subaqueous tunnel. Yet, the most unconventional element of his plan was constructing the tunnel lining of concrete block instead of the conventional cast iron segments. Despite the respect commanded by Goethals, concern that concrete block would not seal as well as the bolted cast iron segments caused the more established tunnel lining to be selected.

The design selected for the subaqueous portion of the tunnel incorporated two cast iron tubes 29′ in diameter, each containing a 20′ wide two-lane roadway. Before construction began, however, the diameter was increased to 29.5′ to afford more efficient ventilation. The Holland Tunnel became the largest diameter subaqueous tunnel in the United States. The traffic in each tube runs one way, the two lanes in the northern tube travel from New York to New Jersey, and the two lanes in the southern tube travel eastbound. Both tubes are divided longitudinally into three areas. [See Photographs #1 & #8] The space beneath the roadway serves as a large fresh air duct and the space above the 13.5′ high roadway ceiling, serves as a large exhaust air duct.

The New York State Bridge and Tunnel Commission and the New Jersey Interstate Bridge and Tunnel Commission, which shared overall responsibility for the tunnel project, selected Clifford M. Holland as chief engineer.[9] Holland was born on March 13, 1883, in Somerset, Massachusetts. The day after graduating from Harvard University in 1906 he began a career of working with New York City's tunnel projects. During his short career he worked on 28 tunnels of every type. Holland died of angina pectoris in 1924 at the age of 41, only two days before the north tube of the Holland Tunnel was "holed through." He was succeeded by his assistant, Milton H. Freeman, until Freeman himself died from pneumonia five months later. Ole Singstad, Holland's engineer of design for the tunnel, then completed the project.[10] Before its opening, the tunnel was named for Holland, and the toll plaza on the New York side was named after Freeman.

Tunnel NHL nomination, History Division, National Park Service, Washington, D.C, 1993.

[9]The project also included a board of consulting engineers which was made up of Col. W.J. Wilgus, J.A. Bensel, William H. Burr, Edward A. Byrne and J.V. Davis. "Largest American Shield Tunnel Designed to Carry Vehicular Traffic Under Hudson River," Engineering News-Record.

[10]Skerrett, "Driving With Air the Hudson Vehicular Twin Tubes," p. 9745; "The Holland Tunnel and Its Ceramic Tiling," The Ceramic Age, p. 10.

Holland and his associates understood that their work was complicated by the fact that the design and use of an automobile tunnel introduced more independent variables than did a railroad tunnel (e.g., different sizes of vehicles, different speeds, different abilities to climb grades, and, unlike the relatively orderly train schedule, no central control over the time when vehicles would arrive en masse to travel through the tunnel). The most challenging element posed by an automotive tunnel was the problem of ventilation. Prior to the design and construction of the Holland Tunnel there was little information on the requirements of ventilation for automobiles. Early in the design process, consideration was given to eliminating the need for mechanical ventilation by utilizing some form of mechanical haulage with moving platforms, flat cars, and hauling cables. Yet these schemes were found to be too problematic and were abandoned.[11] The engineers had no alternatives--the ventilation problem would have to be solved. Proceeding in an exceedingly rational and scientific manner, the New York and New Jersey tunnel commissions set out to address this problem. Their inquiries focused on three areas of study: 1) to determine the amount and composition of exhaust gases emanating from motor vehicles; 2) to determine the degree of dilution necessary to render such gases harmless; and, 3) to determine the method and equipment needed to produce the required ventilation capability at a reasonable operating cost.

In relation to the first area of inquiry, the U.S. Bureau of Mines conducted tests at the Pittsburgh Experimental Station to determine the amount and composition of exhaust gases produced by automobiles. These tests concluded that carbon monoxide was the only "asphyxial gas" of the many gases given off in automobile exhaust.[12] After testing 101 randomly selected passenger cars and trucks of various sizes under all conditions (accelerating, idling, climbing, descending, and operating under different seasonal conditions), chemist A.C. Fieldner conclusively determined the amount and composition of their exhaust gases.[13] In relation to the second point, those tests under the direction of Dr. Yendel Henderson of Yale sought to determine the amount and rate of which carbon monoxide could be absorbed by the body

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[11]"Largest American Shield Tunnel Designed to Carry Vehicular Traffic Under Hudson River," Engineering News-Record, p. 362.

[12]On the basis of later advances in science and medicine, the tunnel staff now also monitors nitrogen dioxide, sulfur dioxide, total particulates, and airborne lead. Letter from McCullough, Port Authority of NY & NJ, to Lange, National Park Service (November 17, 1992) (History Division NHL File).

[13]"Tests Fix Vehicle Tunnel Ventilation Policies," Engineering News-Record (April 7, 1921): 602.

without harmful effect.[14] Humans and animals (horses and dogs) were tested in small airtight chambers where measured amounts of carbon monoxide were admitted. At intervals blood samples were taken from the subjects to determine the effects of the varied amounts of carbon monoxide in their bodies. Dr. Henderson found that a one-hour exposure to 4 parts per 10,000 of carbon monoxide was acceptable. With 6 parts per 10,000, the chance of headache increased, and with 8 parts per 10,000 discomfort was more serious.[15] Prior to these tests, it was estimated that the maximum safe exposure to carbon monoxide was 3 parts per 10,000. While Dr. Henderson's findings seemed to represent a savings in operating the ventilation system and a broader margin of safety, Dr. Fieldner's tests at Pittsburgh, however, offset some of this advantage after reporting that motor vehicles produce more carbon monoxide than was originally assumed.[16]

The third element of this preliminary research sought to establish the most efficient means to provide the required ventilation. The customary way to artificially ventilate a tunnel was to place high volume fans at the portals to draw air in at one end and have it forced out the other. When possible, vertical air shafts were also incorporated to discharge tainted air to the surface. Several factors made these methods of ventilation impractical for a tunnel such as this. The length (more than a mile) of this tunnel would have placed traffic in the center of the tunnel exceedingly far from the source of fresh air at the portals. Even if sufficient quantities of fresh air could be blown in from the portals, the required velocity of the air would introduce a hinderance to the operation of vehicles. Additionally, any smoke produced by car fires would be carried through the tunnel, expanding the area of the hazard. Fortunately, experiments conducted by the Public Service Corporation of New Jersey in 1916 had pointed to a new method of ventilation. These experiments utilized an automobile in a test chamber. Test results indicated that the most effective way to ventilate automobile exhaust from a tunnel was to duct fresh air beneath the roadway where it would rise up with the hot gases generated by the automobiles and exit through an exhaust chamber above the roadway.

To follow up on these findings, research was conducted through the Bureau of Mines with the University of Illinois' engineering

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[14]The symptoms associated with carbon monoxide poisoning include headache, nausea, weakness of the limbs, and unconsciousness.

[15]Skerrett, "Driving With Air the Hudson Vehicular Twin Tubes," p. 9747; Robert G. Skerrett, "Research Reveals How to Ventilate the Hudson Tunnel," Compressed Air Magazine (April 1922): 103.

[16]Robert G. Skerrett, "Research Settles the Problem of Tunnel Ventilation," Scientific American (March 1922): 169.

experiment station at Urbana. The purpose of these tests was to determine the most efficient way to move air through concrete ducts, and the best shape and size of the inlet and exhaust ports and the exhaust stacks. Under Professor A.C. Willard, a 300' long timber and concrete structure was built to represent a half-scale model of the air duct to be built beneath the roadway. These important experiments yielded information which reversed previously held theoretical assumptions about the mechanical movement of air.[17]

To test these conclusions against genuine ventilation requirements, a final series of tests was conducted at an experimental coal mine in Bruceton, Pennsylvania. By adding two curved sections to connect two parallel coal tunnels, an oval "speedway" was created 130' below ground. This oval course was fashioned into a large-scale model of the proposed Holland Tunnel ventilation configuration, with a fresh air duct beneath the roadway area and an exhaust duct above. Gauges and other apparatus in the test vehicles and elsewhere in the test track sampled the air quality and flow.[18]

In addition to designing a state of the art ventilation system, more routine design and operation elements were studied. Some of these issues were resolved in consultation with an advisory transportation committee made up of twelve representatives of automobile manufacturers and other transportation interests. After analyzing existing and future traffic requirements, the advisory committee made recommendations on the required clearance and width of traffic lanes, speed restrictions, procedures for dealing with fires and removing disabled vehicles, and lane markings and signal devices.[19]

Having painstakingly concluded the planning phase, the tunnel's commissioners were confident that the tunnel would not only operate safely and efficiently, but would yield enough in toll revenue to reimburse the entire construction cost after a dozen years. These estimates also projected that after 20 years, the tunnel would realize a surplus for the two states of more than $66,000,000.[20]

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[17]Ibid.; "Studies and Methods Adopted for Ventilating the Holland Vehicular Tunnels," Engineering News-Record (June 9, 1927): 936.

[18]Skerrett, "Research Settles the Problem of Tunnel Ventilation," p. 169; Skerrett, "Research Reveals How to Ventilate the Hudson Tunnel," p. 106.

[19]"Traffic Policies for Vehicular Tunnels Endorsed," Engineering News-Record (February 17, 1921): 293.

[20]For example, in 1991 $9,600,000 net income was generated from tolls. Letter from McCullough to Lange. "A Highway Under the Hudson," Engineering News-Record (February 19, 1920): 356.

On March 28, 1922, the firm of Booth & Flinn, Ltd., of New York City, was awarded the principle contract for the construction of the subaqueous portion of the tunnel.[21] Ground was broken on October 12, 1920, and the north and south tubes were holed through almost four years to the day later. The final cost of the tunnel was $48,000,000.[22] Each tube was expected to have a daily capacity of 46,000 vehicles.[23] However, on opening day, November 12, 1927, 52,285 vehicles passed through what many described as the eighth wonder of the world. Even still, the tunnel's ventilation system proved more capable than expected, and the carbon monoxide level remained below 1.6 parts per 10,000, far lower than the permissible level of 4 parts per 10,000.[24]

More than six decades later, the projected peak hourly traffic of 1800 automobiles in a single two-lane tube, frequently exceeds 3000. Today the tunnel serves a total of 20,000,000 motorists a year.[25] Nevertheless, the aging ventilation system not only continues to perform its job, but does so by meeting significantly more stringent air quality standards, reducing the threshold of carbon monoxide from 4 parts per 10,000, to 1.25 parts per 10,000.

The significance of the Holland Tunnel and its ventilation system were recognized in 1984 when it received the distinction of being designated a National Engineering Landmark by both the American Society of Civil Engineers and the American Society of Mechanical Engineers.

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[21]"Specification Details of Hudson River Vehicular Tunnel," Engineering News-Record (April 6, 1922): 574.

[22]One account reports that the project was accomplished at the cost of the lives of 13 workers, plus the two chief engineers. Ernest A. McKay, "Tunneling to New York," Invention & Technology (Fall 1988): 31.

[23]Sidney Mornington, "Great Vehicular Tunnel Under the Hudson Opened for Service," Compressed Air Magazine (November 1927): 2232. Daily one-way capacity is currently 64,800, and average daily one-way traffic is 40,000. Letter from McCullough Lange.

[24]Frank W. Skinner, "The Holland Vehicular Tunnel Under the Hudson River," Engineering (November 25, 1927): 667; "The Future of Vehicular Tunnels," Engineering News-Record (December 27, 1928): 940; Ernest A. McKay, "Tunneling to New York," p. 31.

[25]Holland Tunnel Civil Engineering Landmark Nomination, American Society of Civil Engineers, Washington, D.C., p. 8.

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"Vehicular Tunnel Under Hudson River Paved With Granite." Engineering News-Record (October 29, 1925): 726-7.

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Previous documentation on file (NPS):
___ Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
___ Previously Listed in the National Register.
___ Previously Determined Eligible by the National Register.
___ Designated a National Historic Landmark.
___ Recorded by Historic American Buildings Survey: #_____
_X_ Recorded by Historic American Engineering Record: #NY-161

Primary Location of Additional Data:
___ State Historic Preservation Office
___ Other State Agency
___ Federal Agency
___ Local Government
___ University
_X_ Other (Specify Repository): Library of Congress

10. GEOGRAPHICAL DATA

Acreage of Property: Approximately 28 Acres

UTM References:

	Zone	Northing	Easting		Zone	Northing	Easting
A	18	4508640	584040	**B**	18	4508220	584150
C	18	4508880	582870	**D**	18	4509200	582800

Verbal Boundary Description:

The boundary of the nominated property is delineated by the polygon whose vertices are marked by the above listed UTM reference points on the Jersey City Quadrangle USGS map. Due to the highly developed land use of this urban area, an additional clarification of the boundary is required. With the exception of the above ground ventilation buildings, all surface streets and standing structures beneath which the underground portion of this resource passes, are not considered contributing to the Holland Tunnel's national significance.

Boundary Justification:

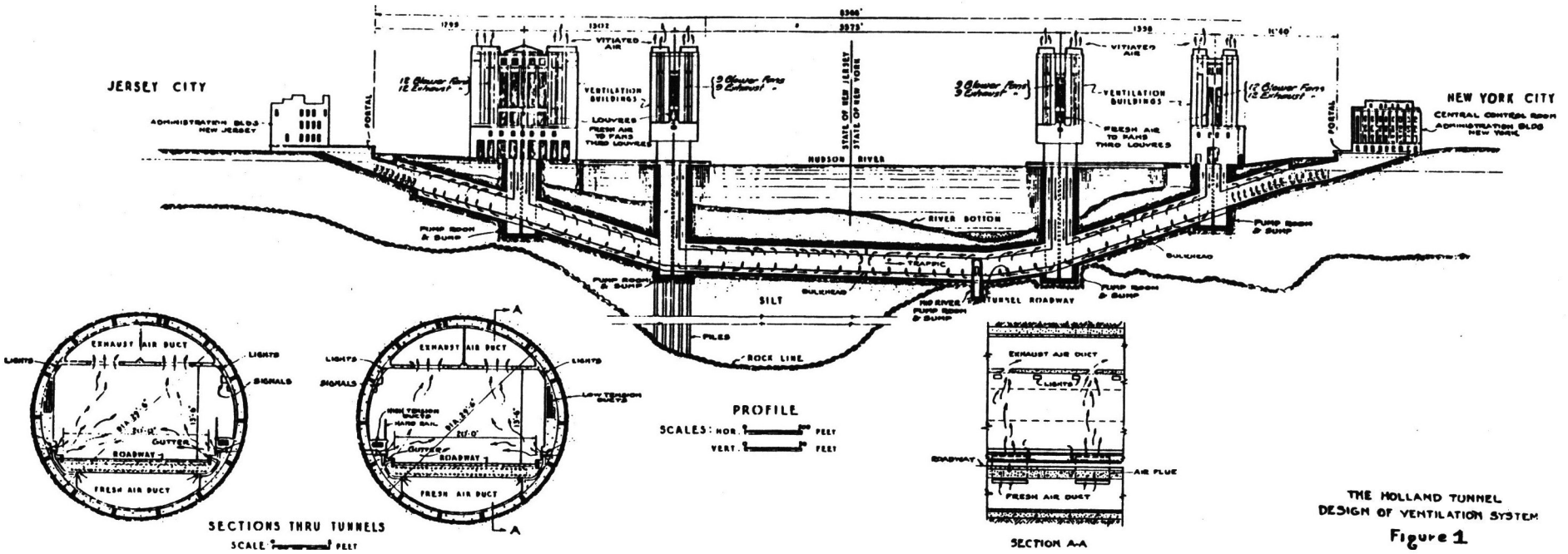
The boundary includes the four large ventilation buildings and the below grade roadways and features of the tunnel's two tubes (as distinguished at its extreme ends by the approach ramp retaining walls) [See Figure #1]. This boundary excludes those auxiliary features which, due to the relocation of ventilation monitoring equipment, no longer maintain their nationally significant association with the tunnel (the administration and maintenance buildings), and those features which no longer possess high levels of historic integrity (the toll plazas).

11. FORM PREPARED BY

Name/Title: Robie S. Lange / Historian Org.: History Division, NPS

Street: P.O. Box 37127 City/Town: Washington State: DC

ZIP: 20013-3127 Telephone: 202-343-0350 Date: March, 1993



THE HOLLAND TUNNEL
DESIGN OF VENTILATION SYSTEM
Figure 1

SHADED AREA INDICATES
NHL BOUNDARY

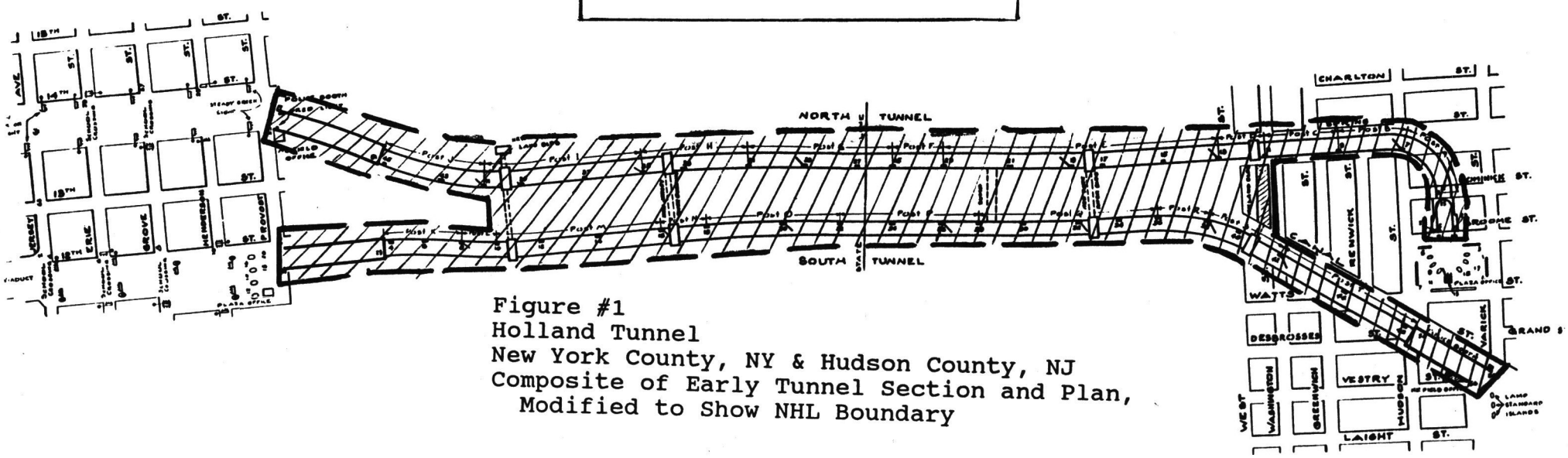


Figure #1
Holland Tunnel
New York County, NY & Hudson County, NJ
Composite of Early Tunnel Section and Plan,
Modified to Show NHL Boundary

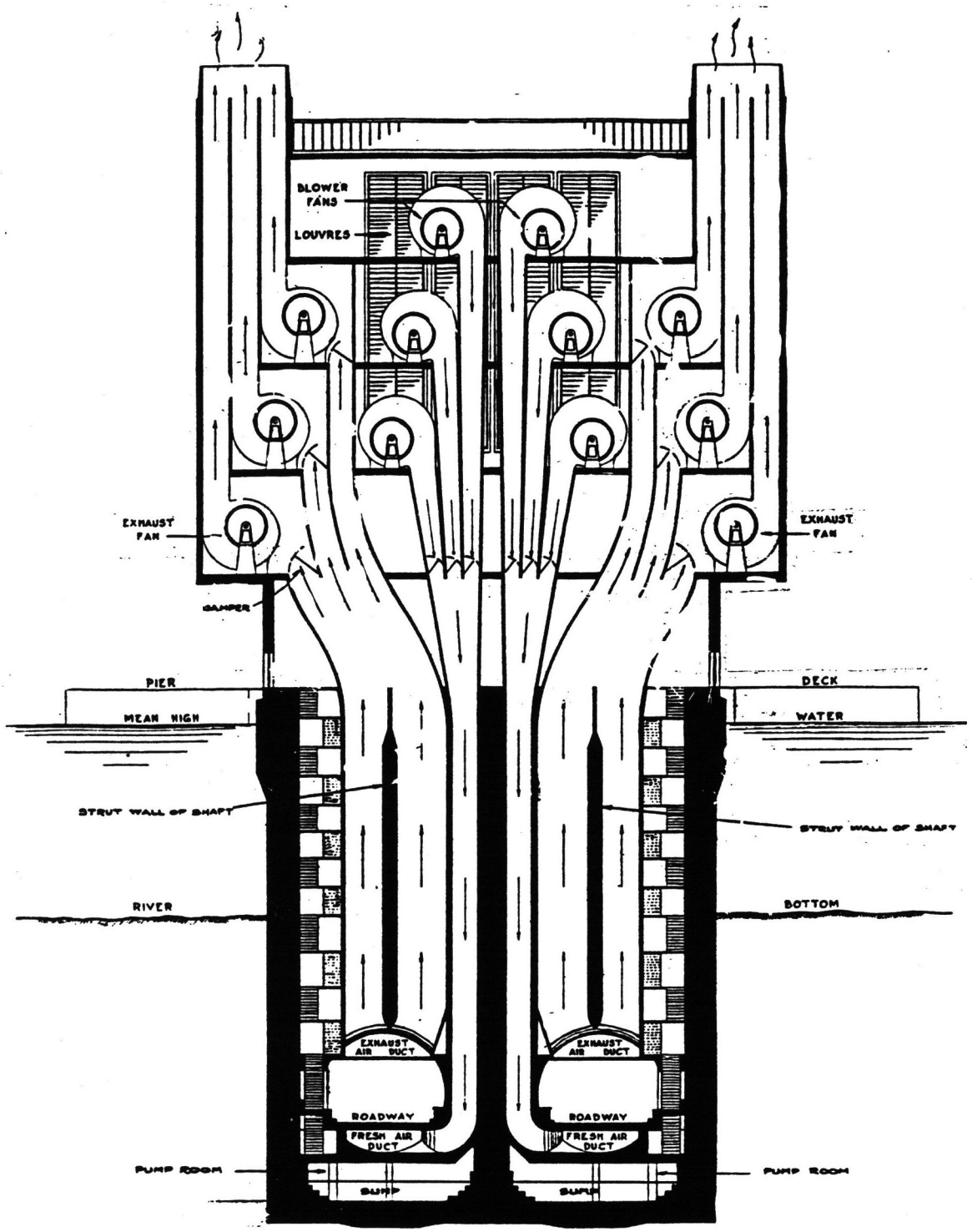
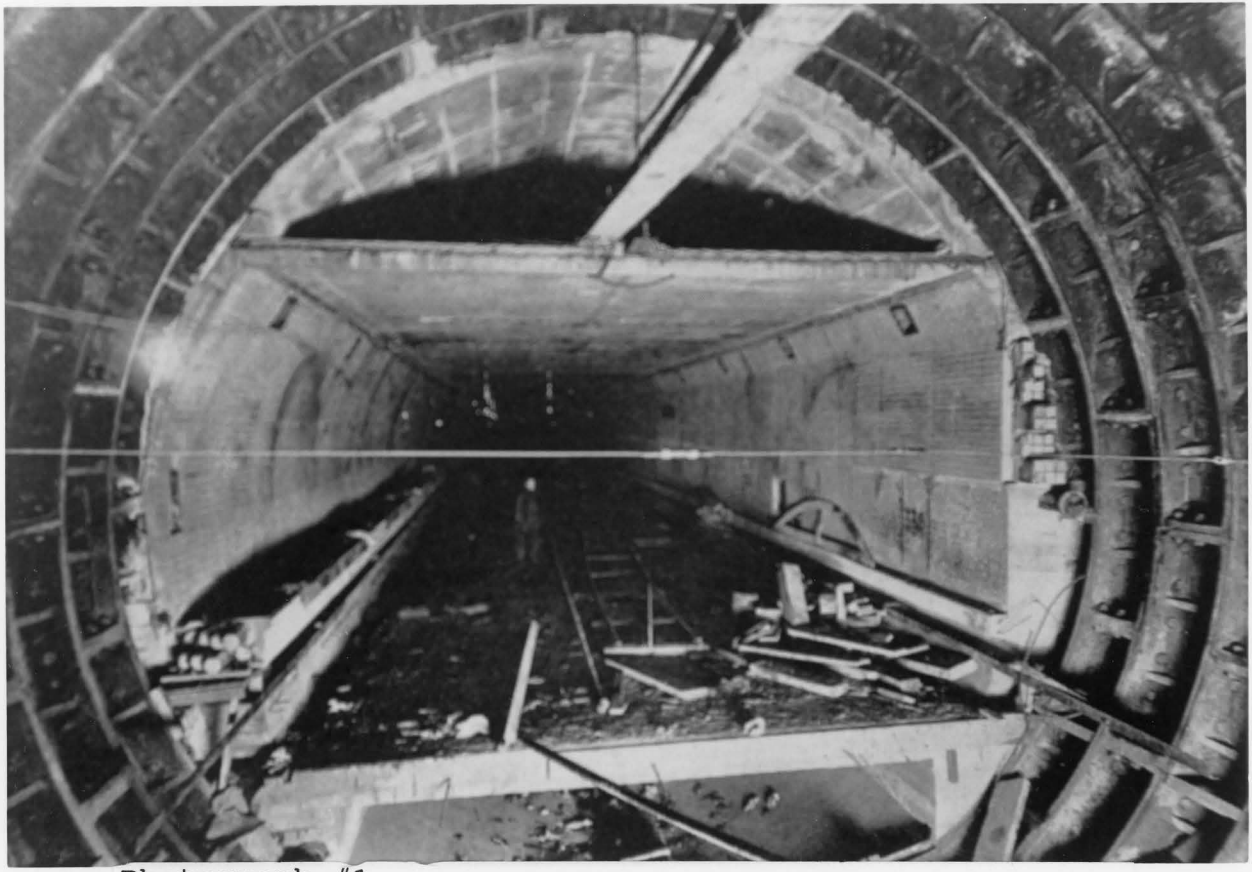


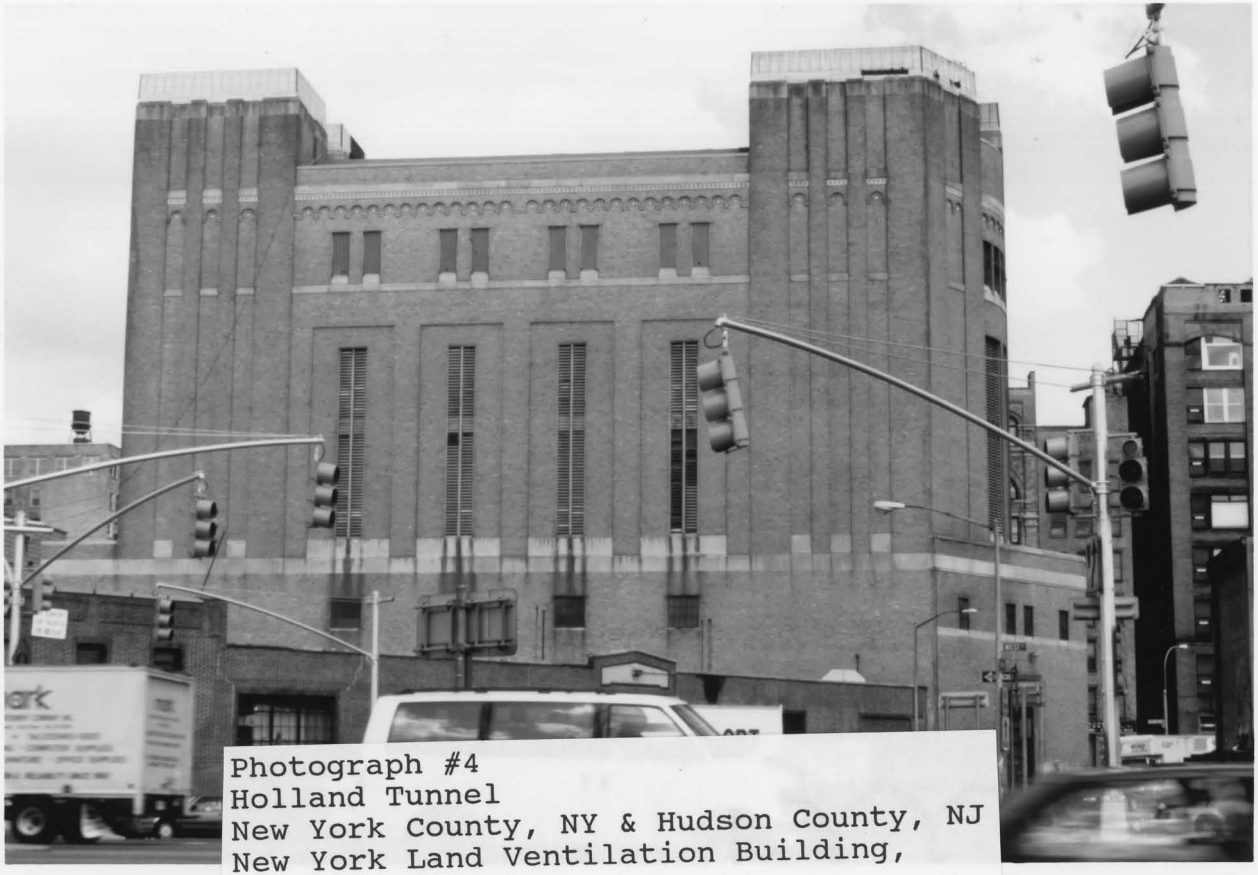
Figure #2
Holland Tunnel
New York County, NY & Hudson County, NJ
Section: Typical River Ventilation Building
Heating, Piping and Air Conditioning, October 1930



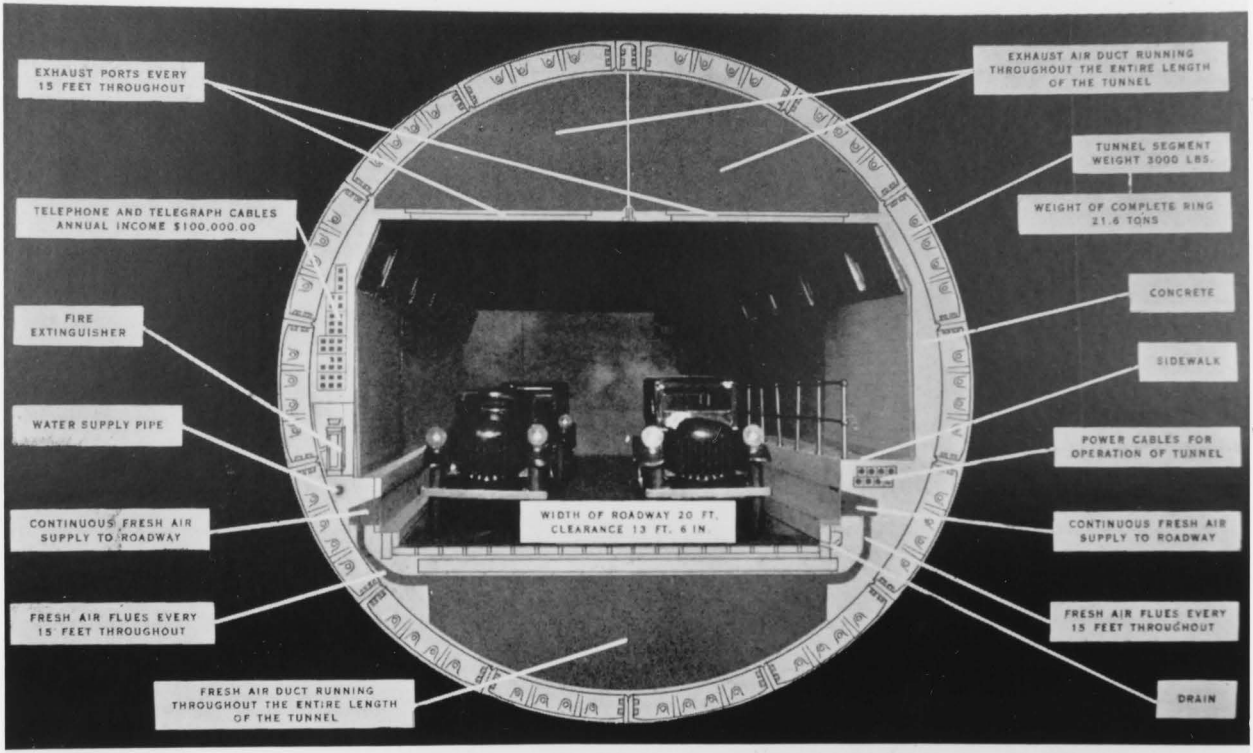
Photograph #1
Holland Tunnel
New York County, NY & Hudson County, NJ
Concrete Construction Within Cast Iron Tunnel Lining
Gray's, The Eighth Wonder, 1927

Photograph #2
Holland Tunnel
New York County, NY & Hudson County, NJ
New York Portal, ca. 1976
PATH Photo Collection, #7673-76

Photograph #3
Holland Tunnel
New York County, NY & Hudson County, NJ
Aerial View From Above NJ Toll Plaza, ca. 1976
PATH Photo Collection

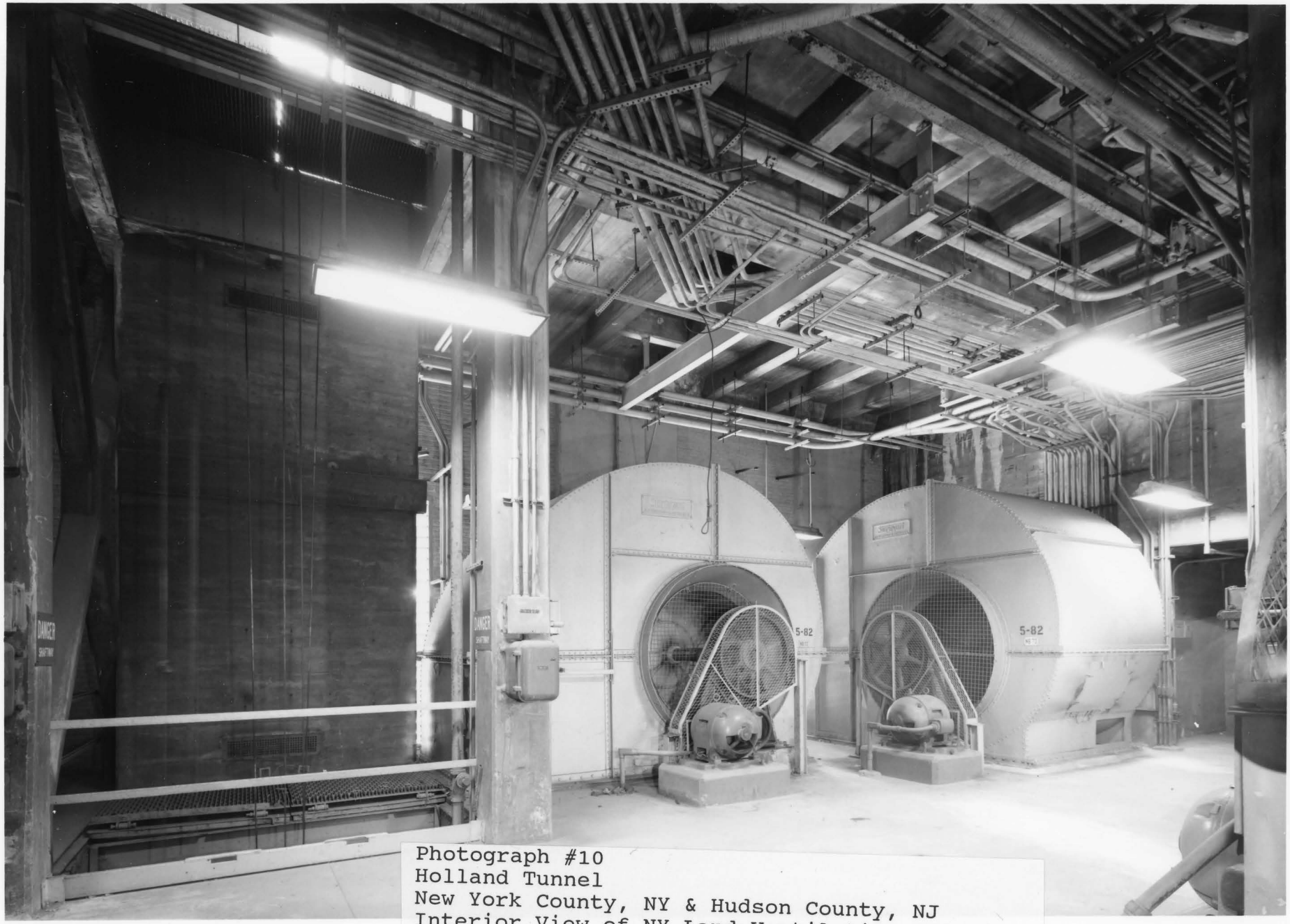


Photograph #4
Holland Tunnel
New York County, NY & Hudson County, NJ
New York Land Ventilation Building,
Looking East
Robie Lange, 1992



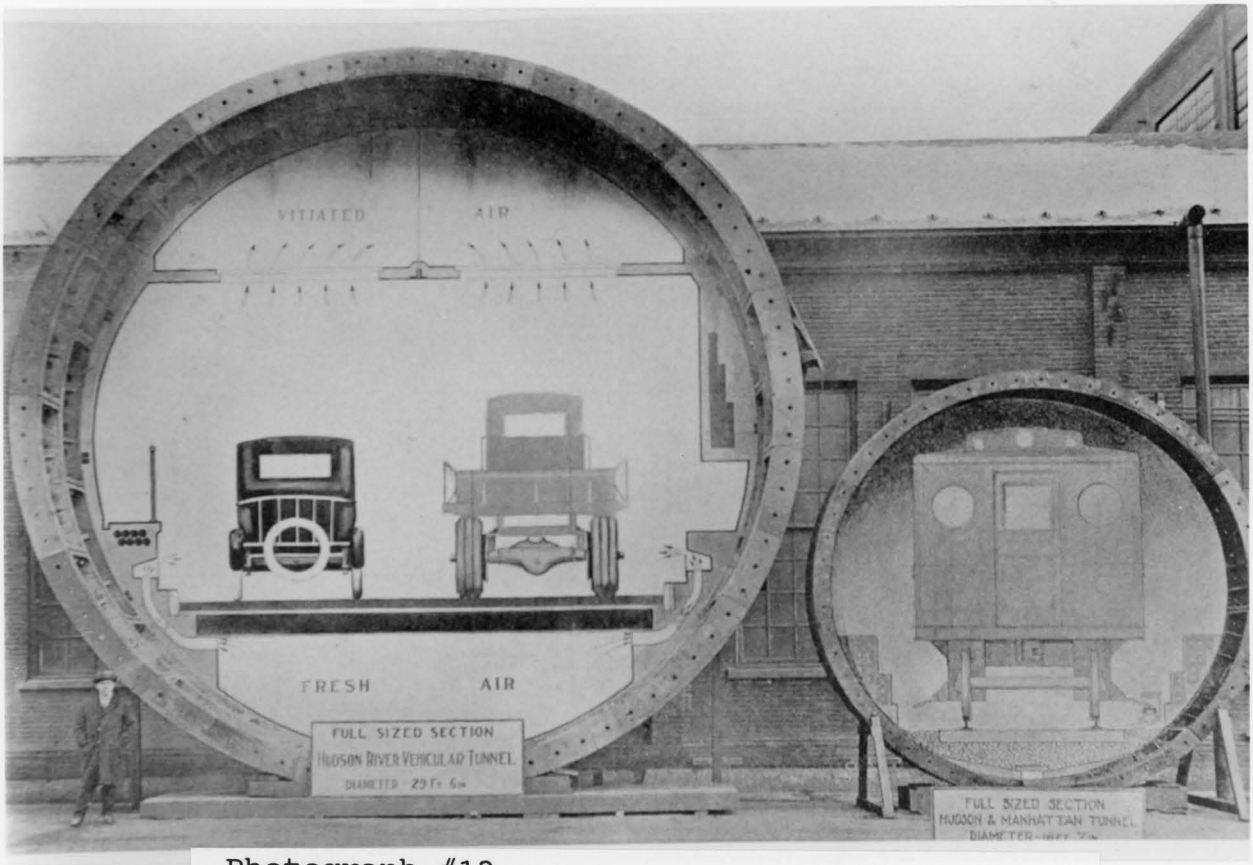
MODEL OF THE HOLLAND TUNNEL SHOWING MANY OF THE HIDDEN DETAILS

Photograph #7
Holland Tunnel
New York County, NY & Hudson County, NJ
New Jersey River Ventilation Building,
Looking South
PATH Photo Collection, #1142, ca.1950



Photograph #10
Holland Tunnel
New York County, NY & Hudson County, NJ
Interior View of NY Land Ventilation Building,
Showing Two Intake Fans
Jet Lowe, HAER No. NY-161-7, 1985

Photograph #11
Holland Tunnel
New York County, NY & Hudson County, NJ
New York Toll Plaza, Original Design
PATH Photo Collection, #0875, ca. 1930



Photograph #12
Holland Tunnel
New York County, NY & Hudson County, NJ
Comparing Tunnel Linings: The Holland Tunnel
and the Hudson & Manhattan Railroad Tunnel
Gray's, The Eighth Wonder, 1927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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JERSEY CITY QUADRANGLE
NEW JERSEY—NEW YORK
7.5 MINUTE SERIES (TOPOGRAPHIC)

HOLLAND TUNNEL
New York City, New York County, NY &
Jersey City, Hudson County, NJ
UTM References:
A: 18 4508640 584040
B: 18 4508220 584150
C: 18 4508880 582870
D: 18 4509200 582800

Mapped, edited, and published by the Geological Survey
Revised in cooperation with New York Department of Transportation

Control by USGS, NOS/NOAA, USCE, New Jersey Geodetic Survey, and City of New York Board of Estimate and Apportionment

Planimetry by photogrammetric methods and from NOS charts T-5111, T-5277, T-5332, T-5450, T-5453, T-5454, T-5460, T-5461, T-5466, T-5468, T-5469, and T-5470

Topography by photogrammetric methods from aerial photographs taken 1954 and planetable surveys 1955. Revised from aerial photographs taken 1966. Field checked 1967

Selected hydrographic data compiled from NOS charts 285, 287, 541, and 745 (1966). This information is not intended for navigational purposes

Polyconic projection. 10,000-foot grid ticks based on New Jersey coordinate system, and New York coordinate system, Long Island zone. 1000-meter Universal Transverse Mercator grid ticks, zone 18, shown in blue. 1927 North American Datum. To place on the predicted North American Datum 1983 move the projection lines 6 meters south and 35 meters west as shown by dashed corner ticks

There may be private inholdings within the boundaries of the National or State reservations shown on this map

SCALE 1:24 000

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
DEPTH CURVES AND SOUNDINGS IN FEET—DATUM IS MEAN LOW WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE MEAN RANGE OF TIDE IS APPROXIMATELY 4.4 FEET IN UPPER BAY AND 4.8 FEET IN NEWARK BAY

UTM GRID AND 1981 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY
DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

ROAD CLASSIFICATION
Primary highway, all weather, hard surface
Secondary highway, all weather, hard surface
Light-duty road, all weather, improved surface
Unimproved road, fair or dry weather
Interstate Route · U. S. Route · State Route

QUADRANGLE LOCATION

Revisions shown in purple compiled from aerial photographs taken 1976 and other sources. This information not field checked. Map edited 1981

Purple tint indicates extension of urban areas

JERSEY CITY, N. J.—N. Y.
N4037.5—W7400/7.5

1967
PHOTOREVISED 1981
DMA 6165 II NE—SERIES V822

INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1982

R. Lange 4/16/92

H34(418)

APR 16 1992

Mr. Richard R. Kelly
Director
Interstate Transportation Department
New York Port Authority
One World Trade Center, 62-W
New York, New York 10048

Dear Mr. Kelly:

I am pleased to inform you that the National Park Service is studying the Holland Tunnel for potential designation as a National Historic Landmark (NHL). If we conclude that a NHL nomination should be prepared, the property's owner will be given an opportunity to express their views on the proposed nomination.

The Holland Tunnel has come under consideration as part of a NHL theme study of historic tunnels being conducted by my staff. A preliminary investigation suggests that the Holland Tunnel possesses national significance for its development of a ventilation system for long vehicular subaqueous tunnels.

As is often the case with active historic structures, the issue of the Holland Tunnel's Landmark designation rests heavily on the survival of its historic integrity. Understanding that the Holland Tunnel has received various modifications over the years, I request your permission to have one of my staff historian's examine the tunnel to assess the degree to which it maintains its historic integrity. This examination would focus primarily on the ventilation system, with additional consideration given to the approach plazas, the portals, the tunnel interior, and the tunnel conduit itself. Any materials your office maintains relating to major modifications could minimize the time necessary to visually examine the tunnel. Since many have failed to appreciate the importance to our Nation's heritage of engineering structures such as the Holland Tunnel, I hope you will support our efforts by looking favorably upon this request.

If you require additional information, or wish to have someone contact the staff historian responsible for this project, please contact Mr. Robie Lange at 202-343-8151, or at this address.

Sincerely,

Edwin C. Bearss

Edwin C. Bearss
Chief Historian

cc: Mr. David Phranour
Interstate Transportation Department
New York Port Authority
One World Trade Center, 54-E
New York, NY 10048

NY

bcc: 001; 400; 400 Bowers; 418 Levy; 418 Lange; 418 Holland Tunnel NHL Pending
RSLange:mg:4/16/92 Lange's disk 3, hollandt.ltr

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, N.Y. 10048

Interstate Transportation
Richard R. Kelly
Director
(212) 466-7664
(201) 622-6600 x7664

Mr. Edwin C. Bearss
Chief Historian
United States Department of the Interior
National Park Service
P.O. Box 37127
Washington, D.C. 20013-7127

August 6, 1992

RE: H34(418)

Dear Mr. Bearss:

Recently Mr. Robie Lange visited our offices for the purposes of obtaining additional information on the Holland Tunnel Ventilation System for the National Historic Landmark theme study of historic tunnels conducted by the National Park Service. It is my understanding that the Holland Tunnel, including its ventilation appurtenances, is potentially eligible to receive National Historic Landmark designation. Mr. Lange indicated that based upon further study and analysis, NPS will determine whether the Holland Tunnel is worthy of such designation.

We advised Mr. Lange that the Port Authority has recently embarked upon a study to determine the degree of renovation of the ventilation structures necessary to assure continued viability of the Holland Tunnel's ventilation system. Depending on the results of that study, expected to be completed in the first quarter of 1993, it may be necessary to make such extensive modifications to the structures that their historic integrity may be compromised. In such case, the Port Authority could not, I believe, proceed in good faith with the potential designation. However, if the work proposed by the study does not indicate the necessity of such extensive renovations, we would continue to consider the designation. Mr. Lange indicated that he did not expect his study to be completed until after the first of the year, thus the timing for the Port Authority's decision on designation would appear to work within your calendar for nominations.

We will be pleased to share our plans for renovation of the ventilation structures with you as they become more definite. In addition, we will be most happy to provide NPS with assistance as required to complete the study.

Sincerely,

Richard R. Kelly
Director
Interstate Transportation Department

OCT 28 1992

H34(418)

Ms. Sandra G. McCullough
Manager, Environmental Services
Interstate Transportation Department
The Port Authority of NY & NJ
One Path Plaza
Jersey City, N.J. 07306

Dear Sandy:

Again I wish to express my appreciation to you and your colleagues for the invaluable assistance given toward my National Historic Landmark (NHL) project.

As we discussed earlier, I hope to have a strong draft NHL nomination available for your review around the end of the year. While preparing a rough first draft I have identified a few points which I hoped you or your colleagues might help me to resolve. Any information on the points addressed on the enclosed pages would be most appreciated. If any of the items seem unclear, please do not hesitate to call me at my new telephone number: 202-343-0350.

Thank you for all your help.

Sincerely,

s/ R.S Lange

Robie S. Lange
History Division

Enclosures

cc: 001 RF 400 RF 400 Bowers
418 Lange 418 Holland Tunnel Proposed NHL
FNP:RSLange:wa:10/28/92
Lange disk A:Hollardt.que

H34(418)

NOV 30 1992

Ms. Sandra G. McCullough
Manager, Environmental Services
Interstate Transportation Department
The Port Authority of NY & NJ
One Path Plaza
Jersey City, N.J. 07306

Dear Sandy:

Thank you for the thorough information you provided in your letter of November 17, 1992. I have incorporated it into the latest draft of the Holland Tunnel National Historic Landmark (NHL) nomination (enclosed). Any clarifications or corrections you and your colleagues offer would be welcomed. I hope to start finalizing this nomination at the end of January. If everything goes well, it will be presented for consideration at next summer's National Park System Advisory Board Meeting. I would also be interested in learning how the proposal to update the tunnel's ventilation system is progressing.

Finally, I enclose a xerox copy of a drawing "The Holland Tunnel Viewed From New York" which I found in an old file. If I can find out where to get a clearer copy I would like to use it in the nomination. Have you seen this image before, and do you know where I can find it?

Thank you again for your assistance. I hope you have a happy holiday season.

Sincerely,

s/ R.S. Lange

Robie S. Lange
History Division

Enclosures

cc: 001; 400; 418 Lange; 418 Levy; 418 Holland Tunnel Proposed NHL

RSLange:mg:11/25/92
Lange's disk 5, holland2.ltr

JHC
ECB
5/12/93
RTBower
5/10/93

MAY 11 1993

H3415(418)

Honorable Daniel Patrick Moynihan
United States Senate
Washington, DC 20510

Dear Senator Moynihan:

We are pleased to inform you that the National Park Service has completed the study of the property identified on the enclosed sheet for the purpose of nominating it for possible designation as a National Historic Landmark. We enclose a copy of the study report. The National Park System Advisory Board will consider the nomination during its next meeting, at the time and place indicated on the enclosure. The Board will make its recommendation to the Secretary of the Interior based upon the criteria of the National Historic Landmarks Program.

You have 60 days to submit your views in writing, if you so desire. After the 60-day period, we will submit the nomination and your comments to the National Park System Advisory Board's History Areas Committee, which will then inform the full Advisory Board of the Committee's recommendations at the Board's meeting. The Secretary of the Interior will then be informed of the Board's recommendations for his final action.

To assist you in considering this matter, we have enclosed a copy of the regulations governing the National Historic Landmarks Program. They describe the criteria for designation (Sec. 65.4), the effects of designation (Sec. 65.2), and specify how you may comment on a proposed designation (Sec. 65.5(d)(4-5)). Should you wish to comment, please send your comments to Mr. Edwin C. Bearss, Chief Historian, National Park Service, History Division (418), P.O. Box 37127, Washington, DC 20013-7127.

Sincerely,

/Sgd/Jerry L. Rogers

Jerry L. Rogers
Associate Director,
Cultural Resources

Enclosures

PROPERTY STUDIED FOR NATIONAL HISTORIC LANDMARK DESIGNATION

HOLLAND TUNNEL

MANHATTAN, NEW YORK, and JERSEY CITY, NEW JERSEY

In commenting on the possible designation of the property identified above, you may find guidance in Section 65.5(d)(4) of the enclosed regulations.

The History Areas Committee of the Secretary of the Interior's National Park System Advisory Board will evaluate this property at a meeting to be held on Tuesday, July 13, 1993, at 9:00 a.m. in Conference Room 7000-B of the Main Interior Building at 1849 C Street, NW, Washington, DC. The History Areas Committee evaluates the studies of historic properties being nominated for National Historic Landmark designation in order to advise the full National Park System Advisory Board at their meeting on Wednesday, August 11, 1993, at approximately 9:00 a.m., at Mesa Verde National Park in Colorado, and will recommend to the full Board those properties that the Committee finds meet the criteria of the National Historic Landmarks Program.

Should you wish to obtain information about these meetings, or about the National Historic Landmarks Program, please contact Senior Historian Benjamin Levy at the National Park Service, History Division (418), P.O. Box 37127, Washington, DC 20013-7127; or by telephone at (202) 343-8164.

If you have questions concerning the study, which was prepared by Historian Robie S. Lange of the History Division, you may contact Mr. Lange at the History Division address given above, or by telephone at (202) 343-0350.

SIMILAR LETTERS SENT TO:

NEW YORK
Honorable Daniel Patrick Moynihan
United States Senate
Washington, DC 20510

Honorable Alfonse D'Amato
United States Senate
Washington, DC 20510

Honorable Jerrold Nadler
House of Representatives
Washington, DC 20515

NEW JERSEY
Honorable Bill Bradley
United States Senate
Washington, DC 20510

Honorable Frank R. Lautenberg
United States Senate
Washington, DC 20510

Honorable Robert Menendez
House of Representatives
Washington, DC 20515

cc: 4000 (MARO) B. Bolger
1600 (NARO) R. McIntosh
001 RF
190 CL
400 RF
418 HOLLAND TUNNEL (NHL Pending)

PHenry:mg:4/14/93
NOTICE LETTERS:SUMMER 1993:HOLL-D.LTR

JHC
to
ECB
5/12/93

H3415(418)

MAY 13 1993

Mr. Richard R. Kelly, Director
Interstate Transportation Department
Port Authority of New York & New Jersey
One World Trade Center, 62-W
New York, New York 10048

Dear Mr. Kelly:

We are pleased to inform you that the National Park Service has completed the study of the property identified on the enclosed sheet for the purpose of nominating it for possible designation as a National Historic Landmark. We enclose a copy of the study report. The National Park System Advisory Board will consider the nomination during its next meeting, at the time and place indicated on the enclosure. The Board will make its recommendation to the Secretary of the Interior based upon the criteria of the National Historic Landmarks Program.

You have 60 days to submit your views in writing, if you so desire. After the 60-day period, we will submit the nomination and your comments to the National Park System Advisory Board's History Areas Committee, which will then inform the full Advisory Board of the Committee's recommendations at the Board's meeting. The Secretary of the Interior will then be informed of the Board's recommendations for his final action.

To assist you in considering this matter, we have enclosed a copy of the regulations governing the National Historic Landmarks Program. They describe the criteria for designation (Sec. 65.4), the effects of designation (Sec. 65.2), and specify how you may comment on a proposed designation (Sec. 65.5(d)(4-5)). Should you wish to comment, please send your comments to me, at the National Park Service, History Division (418), P.O. Box 37127, Washington, DC 20013-7127.

Sincerely,

/s/ James H. Charleton

Edwin C. Bearss
Chief Historian

Enclosures

PROPERTY STUDIED FOR NATIONAL HISTORIC LANDMARK DESIGNATION

HOLLAND TUNNEL

MANHATTAN, NEW YORK, and JERSEY CITY, NEW JERSEY

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Should you wish to obtain information about these meetings, or about the National Historic Landmarks Program, please contact Senior Historian Benjamin Levy at the National Park Service, History Division (418), P.O. Box 37127, Washington, DC 20013-7127; or by telephone at (202) 343-8164.

If you have questions concerning the study, which was prepared by Historian Robie S. Lange of the History Division, you may contact Mr. Lange at the History Division address given above, or by telephone at (202) 343-0350.

SIMILAR LETTERS SENT TO:

OWN: Mr. Richard R. Kelly, Director
Interstate Transportation Department
Port Authority of New York & New Jersey
One World Trade Center, 62-W
New York, New York 10048

HEO: NEW YORK
Honorable David Dinkins
Mayor of the City of New York
Office of the Mayor
City Hall
New York, New York 10007

NEW JERSEY
Honorable Brent Schundlar
Mayor of Jersey City
280 Grove Street
Jersey City, New Jersey 07302

SHPO: NEW YORK
Mr. Orin Lehman, Commissioner
Office of Parks, Recreation
and Historic Preservation
Agency Building #1
Empire State Plaza
Albany, New York 12238

NEW JERSEY
Mr. Scott A. Weiner, Commissioner
Department of Environmental Protection
CN-402, 401 East State Street
Trenton, New Jersey 08625

cc: Ms. Sandra G. McCollough
Manager, Enviromental Services
Interstate Transportation Department
The Port Authority of New York & New Jersey
One PATH Plaza
Jersey City, New Jersey 07306

bcc: 4000 (MARO) B. Bolger
1600 (NARO) R. McIntosh
001 RF
400 RF
418 Lange
418 HOLLAND TUNNEL (NHL Pending)

PHenry:mg:4/14/93
NOTICE LETTERS:SUMMER 1993:HOLL-B.LTR

SHPO

OFFICE OF PARKS, RECREATION · HISTORIC PRESERVATION
NEW YORK STATE

Orin Lehman
Commissioner

New York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189 518-237-8643

May 26, 1993

Mr. Edwin C. Bearss
Chief Historian
United States Department of the Interior
National Park Service, History Division (418)
P.O. Box 37127
Washington, D.C. 20013-7127

JUN 1

Re: **Holland Tunnel**
New York, New York

Dear Mr. Bearss:

Thank you for providing the opportunity to comment on the proposed designation of the Holland Tunnel as a National Historic Landmark. The New York State Office of Parks, Recreation and Historic Preservation has completed a detailed review of the National Register of Historic Places Registration Form for the Holland Tunnel.

Based upon this evaluation, I fully support your findings and concur with your recommendation to nominate the Holland Tunnel as a National Historic Landmark. This engineering wonder has had a major impact on New York City and New Jersey since its opening in 1927 and it continues to provide a vital transportation link through the New York metropolitan area.

If you should require any additional information, please do not hesitate to contact Peter Shaver, Historic Preservation Program Assistant, at 518-237-8643, ext. 264.

Sincerely,

Julia S. Stokes
Deputy Commissioner for
Historic Preservation

pds:JSS

SHPO

JUN 7 1993

State of New Jersey
Department of Environmental Protection and Energy
Division of Parks and Forestry
Historic Preservation Office
CN 404
Trenton, NJ 08625-0404
Tel.# 609-292-2023
Fax# 609-292-8115

Scott A. Weiner
Commissioner

Nancy Zerbe
Administrator

HPO-E93-176
June 2, 1993

Mr. Edwin C. Bearss, Chief Historian
National Park Service
History Division (418)
P.O. Box 37127
Washington, DC 20013-7127

Dear Mr. Bearss:

The New Jersey Historic Preservation Office enthusiastically supports the National Park Service's National Historic Landmark proposal for the Holland Tunnel, Jersey City, Hudson County, New Jersey and Manhattan, New York.

The Holland Tunnel, opened to automobile traffic in 1927, was the world's first major underwater vehicular tunnel. Ventilation technology introduced in the Holland Tunnel became the prototype for later tunnels. Clearly, the Holland Tunnel possesses national significance in the history of transportation and engineering.

If an overall engineering theme study was completed in the preparation of this application, we would like to request a copy be sent to our office.

Sincerely,

Nancy L. Zerbe

Nancy L. Zerbe
Administrator

NLZ\krt
c:\wdata\E93-176

cc: NYSHPO

R. Levy 6/9/93
Bleay 6/10/93

H30(418)
JUN 10

Ms. Nancy L. Zerbe
Administrator
Historic Preservation Office
Department of Environmental
Protection and Energy
CN 404
Trenton, NJ 08625-0404

Dear Ms. Zerbe:

Thank you for your June 2, 1993, letter of support for the National Historic Landmark (NHL) nomination of the Holland Tunnel. We are waiting to learn whether the owner, the Port Authority of New York and New Jersey, will support the NHL nomination.

As you requested, I enclose a copy of the brief overview statement prepared as part of the historic tunnel theme study. As of this date, only the St. Clair River Tunnel has been designated an NHL (copy enclosed). The other subaqueous tunnels selected for nomination, the Detroit River Railroad Tunnel and the Holland Tunnel, will be evaluated by the National Park System Advisory Board this summer. The hard rock tunnels will be nominated early next year.

Thank you again for your support in this matter.

Sincerely,
Edwin C. Bearss

Edwin C. Bearss
Chief Historian

Enclosures

cc: 001 RF 400RF 400 Bowers
418 Levy w/c incoming
418 Lange
418 Holland Tunnel (NHL Pending)

FNP:RLange:wa:06/09/93
RL disk #6 NJTunnel.ltr

I/P

COMMITTEE ON THE HISTORY AND HERITAGE
OF AMERICAN CIVIL ENGINEERING

Address reply to:

Alan Prasuhn
Chairman, Civil Engineering
Lawrence Technological University
21000 West Ten Mile Road
Southfield, MI 48075

June 28, 1993

Mr. Edwin C. Bearss
Chief Historian
National Park Service
P.O. Box 37127
Washington, DC 20013-7127

Dear Mr. Bearss:

Thank you very much for the recent mailing including the well-prepared Holland Tunnel and Detroit River Railroad Tunnel NHL nominations, as well as the final St. Clair Tunnel write-up and the short paper on historic tunnels. Needless to say, I found all of the material most interesting. Two weeks ago, I had the opportunity to examine the St. Clair Tunnel from portal to portal.

I have reviewed both the Holland Tunnel and Detroit River Railroad Tunnel nominations and speaking for the ASCE Committee on History and Heritage, I strongly endorse both nominations. CHHACE does not meet until August at which time we will discuss them further, but I am confident of the full committee backing.

The Holland Tunnel was, of course, previously designated by ASCE as a National Historic Civil Engineering Landmark, but I am particularly interested in the Detroit River Railroad Tunnel. I was not aware that it was constructed by the trench and tube method. The 1910 date makes this tunnel extremely significant (to my mind more so than the previously ASCE-designated Detroit-Windsor [highway] tunnel. Consequently, I have passed a copy of your nomination on to the local history and heritage committee for their consideration as a National or International Historic Civil Engineering Landmark.

Once again, thank you for giving us the opportunity to review your nominations.

Sincerely,

Alan Prasuhn
Chairman, CHHACE

JUN 30 1993

AMERICAN SOCIETY OF CIVIL ENGINEERS
345 East 47th Street
New York, New York 10017-2398 (212) 705-7496

OWN

THE PORT AUTHORITY OF NY & NJ

One World Trade Center
New York, N.Y. 10048

Interstate Transportation
Richard R. Kelly
Director
(212) 435-7664
(201) 961-6000 x7664

July 2, 1993

Mr. Edwin C. Bearrs
Chief Historian
United States Department of the Interior
National Park Service, History Division (418)
P.O. Box 37127
Washington, D.C. 20013-7127

RE: Designation of the Holland Tunnel as a National Historic Landmark (H3415(418))

Dear Mr. Bearrs:

As the owner and operator of the Holland Tunnel, the Port Authority of New York and New Jersey is honored by its nomination as a National Historic Landmark. It is a matter of some pride to us that the Holland Tunnel has been recognized by the National Park Service for its historical significance to the nation and we support its nomination.

In addition to being a structure of national historic significance, the Holland Tunnel is a functioning and vital transportation link between New York and New Jersey. The Tunnel is used annually by approximately 32 million vehicles. As such, the Port Authority's first commitment must be to assuring the Tunnel's safety, reliability and integrity. To that end, we consistently perform maintenance on the Tunnel's operating systems, and undertake major rehabilitation programs on the structure when conditions so necessitate.

One such program currently planned is the rehabilitation of the ventilation buildings which will include in-kind replacement of damaged portions of the exterior brick facade, louvers, windows, doors, evase stack caps, roof and interior repairs to structural elements (columns, slabs, girders, etc.). Rehabilitation will also include the replacement of the supply and exhaust fans along with motor control systems, lighting and power sources. New communications equipment, security systems and an elevator will also be provided. Nevertheless, we will strive to minimize potential adverse effects on the historic integrity of the Tunnel while we plan and execute programs to maintain the vitality of this important transportation facility.

On behalf of the Port Authority, I look forward to learning whether the Holland Tunnel has been designated as a National Historic Landmark by the Secretary of the Interior.

Sincerely yours,

Richard R. Kelly
Director
Interstate Transportation Department

C: Hon. David Dinkins
Mayor of the City of New York
Office of the Mayor
City Hall
New York, New York 10007

Hon. Brent Schundlar
Mayor of Jersey City
280 Grove Street
Jersey City, New Jersey 07302

Mr. Orin Lehman, Commissioner
New York State Office of Parks,
Recreation and Historic Preservation
Agency Building #1
Empire State Plaza
Albany, New York 12238

Mr. Scott A. Weiner, Commissioner
New Jersey Department of Environmental
Protection and Energy
CN 402
401 East State Street
Trenton, New Jersey 08625

Mr. Robie Lange
Historian
National Park Service, History Division (418)
P.O. Box 37127
Washington, D.C. 20013-7127

For Release: _____ Anita Clevenger 202/208-7394

INTERIOR SECRETARY DESIGNATES 20 NATIONAL HISTORIC LANDMARKS
DE-DESIGNATES ONE; INCREASES BOUNDARY FOR ANOTHER

Secretary of the Interior Bruce Babbitt today announced the designation of 20 historic properties in 11 states and Puerto Rico as National Historic Landmarks. The states are California, Connecticut, Indiana, Iowa, Maryland, New Jersey, New York, Pennsylvania, Texas, Vermont and Wisconsin.

"We are pleased to designate these new National Historic Landmarks that reflect studies of such themes as women's history, maritime, and engineering," said Secretary Babbitt. "These landmarks exemplify the splendid preservation work being done by concerned citizens and state and local governments."

Landmarks are identified by theme and special studies prepared or overseen by National Park Service historians and archeologists. It is the Federal Government's official recognition of the national importance of historic properties.

The landmarks designated today include:

The Holland Tunnel, linking Manhattan, New York, and Jersey City, New Jersey. Until the late 1920s, there were no tunnels or bridges to carry the ever-increasing vehicular traffic between the Nation's largest city and New Jersey; all automobiles, trucks, and horse-drawn vehicles were carried across the Hudson River by ferry. The Holland Tunnel, opened in 1927, was the first underwater tunnel in the world specifically designed for the requirements of automobile traffic. Its design was based on an extensive research program conducted to determine the effects of auto emissions on tunnel motorists, and the most efficient method of ventilation to eliminate the associated health and safety risks. Virtually all underwater automobile tunnels base their ventilation systems on these findings.

Steam Tug Baltimore, Baltimore, Maryland. Baltimore, the oldest operating steam tugboat in the United States, was built by Skinner Shipbuilding of Baltimore in 1906. The tug spent its entire career in and around Baltimore, moving barges and workboats, breaking ice and carrying city and harbor commissioners and other VIPs for harbor inspection tours. The hull is constructed of rivetted iron, and the deckhouse is built of wood. A single "scotch" boiler provides steam for the compound reciprocating engine. The tug is maintained as an operating floating exhibit by the Baltimore Museum of Industry, Inc., near the dock area where she tied up during her working life.

-over-

In addition to designating [redacted] new landmarks, Secretary Babbitt also announced the "de-designation" of the Samuel Elmore Cannery in Astoria, Oregon, because it no longer retains its historic integrity. The longest continuously operated salmon cannery in the United States, the Elmore Cannery was the center of salmon canning for Oregon and much of the Pacific Northwest. After its closing in 1980, the owner and city of Astoria were unable to find a new use for the cannery because the costs of rehabilitation were prohibitive. The property was in a very deteriorated condition,and early in 1990, the northwest corner of the building and its support pilings collapsed. The cannery was destroyed by fire on January 26, 1993. When the fire struck the owner was in the process of dismantling the building before demolishing it.

Secretary Babbitt also announced a boundary enlargement of Los Adaes in Natchitoches Parish, Louisiana. West of present-day Natchitoches, Los Adaes encompasses the 18th-century archeological remains of Nuestra Senora del Pilar Presidio, San Miguel de Los Adaes Mission, and the associated Spanish and Native American communities. The Presidio, or fort, and mission of Los Adaes were founded in 1721 by Marques de Aguayo, as a buffer to French colonial expansion into the southern plains. From 1721 until 1774, Los Adaes held the largest contingent of Spanish military among the entire northern line of forts of New Spain. It also served as the capital of the Province of Texas and the residence of its Governor. When Spain acquired the Louisiana Territory from the French at the end of the French and Indian War (1763), the reason for maintaining a presidio at Los Adaes was ended. In 1774, the presidio, mission, and capital of Texas were relocated to San Antonio and the fortress was burned. Los Adaes is the only presidio and provincial capital complex not impacted by urban expansion. In 1986, the Los Adaes Presidio was designated a National Historic Landmark. Since that time, archeological investigations have defined the mission area, necessitating a boundary expansion.

The Historic Sites Act of 1935 authorized the Secretary of the Interior to recognize historic places judged to have exceptional value to the nation. Once the Secretary designates a National Historical Landmark, its owner is invited to apply for landmark recognition. This takes the form of a certificate signed by the Secretary and a bronze plaque attesting to the significance of the property. The owner agrees to observe simple preservation precepts with respect to the property and receives technical advice and assistance from preservation experts if needed.

-NPS-

(The attached list describes the other 18 new designated National Historic Landmarks.)

NATIONAL HISTORIC LANDMARKS

WOMEN'S HISTORY THEME STUDY

MARIE WEBSTER HOUSE
MARION, INDIANA

Marie Webster (1859-1956), leading advocate of quilting and a revolutionary in the production of quilts, lived in this gambrel-roofed, two-story frame house from 1902 to 1942. Webster's quilts represent the shift from traditional patterns to designs inspired by the Arts and Crafts movement. Her book, Quilts: Their Story and How to Make Them, was the first history of the field and the first book to demonstrate quilt making. Webster also made quilt patterns available through publication in popular women's magazines and by the formation of a company to sell the quilt patterns and quilt kits. She transformed the craft from a tradition passed down from generation to generation to a widely accessible process.

PHILADELPHIA SCHOOL OF DESIGN FOR WOMEN
PHILADELPHIA, PENNSYLVANIA

Built about 1853 and once the townhouse of the noted American Shakespearean actor Edwin Forrest, the school occupied this building from 1880 to 1959 under various mergers, most notably the Moore College of Art. This school was the first school of industrial design for women in the United States and was led by many nationally prominent art educators producing innovative and important graduates. The school was important in opening a field of artistic occupation for women as an alternative to domestic and factory work. Additionally, it filled a need for American industrial designers to create innovative and original patterns for wall papers, textiles, lithographs, and engravings, thus freeing the United States from dependence on reproductions of European designs.

ELMSHAVEN (Ellen White House)
ST. HELENA, CALIFORNIA

This two-story, late Victorian house was the home, from 1900 to 1915, of Ellen Gould White, a co-founder and leader of the Seventh-day Adventist Church. It was at Elmshaven that her career reached its culmination as she continued to write books, to play an active leadership role in the development of sanitariums across the United States, and to participate, from 1901 to 1909, in the reorganization of the Seventh-day Adventist Church. Elmshaven exemplified and manifested many of the prime tenants of Ellen White's life including vegetarianism, healthy eating, hydropathy, clean air, and the virtues of country living.

RACE STREET FRIENDS MEETINGHOUSE
PHILADELPHIA, PENNSYLVANIA

Built in 1856, the Race Street Meetinghouse served as the site of the Hicksite Yearly Meeting from 1857 until 1955. Because Quakers permitted the greatest role for women in church affairs among the major religious denominations in the nineteenth century, Quaker women were encouraged to take leadership roles in abolitionist, women's rights, and peace movements. Some of the women leaders in these movements associated with the Meetinghouse included abolitionist and women's activist Lucretia Mott, suffrage leader Alice Paul, and peace activist Hannanh Clothier Hull. Quaker women also expanded their politically active role to include many other social reforms of the late nineteenth and early twentieth centuries such as temperance, exploitation of black workers, white slavery, anti-lynching crusades, and the education of children, freed blacks, and Native Americans.

NEW CENTURY GUILD
PHILADELPHIA, PENNSYLVANIA

The New Century Guild, founded in 1882, was one of the earliest, largest, and most successful of the many organizations created in the nineteenth century as more and more women entered the work force. The Guild has been at this location continuously from 1906 until the present. Organizations such as this were unique in that they directly addressed employment-related problems. While representative of this large movement nationwide, the New Century Guild also brought together a whole range of comprehensive services which most other clubs only offered in part. These included a working women's newspaper, a research section that collected statistics on working women to use in shaping proposals for protective labor legislation, evening classes for pleasure and for professional development, a large library, a restaurant that offered noonday meals to working women for a modest price, an assembly hall, guest rooms for members, and a health insurance plan. The Guild combined interests in working conditions, education, social programs, and a place for young business and professional women to gather and socialize.

MARITIME THEME STUDY

L.A DUNTON
MYSTIC, CONNECTICUT

The wooden, two-masted fishing schooner L.A. DUNTON is the last surviving example of the most common round-bow type of fishing vessel that fished out of New England ports in the first quarter of the twentieth century. Constructed in 1922, DUNTON is one of two remaining schooners built at the A.D. Story yard, in Essex, Massachusetts, which launched about 400 fishing schooners between 1875 and 1930. Designed by Thomas F. McManus, the most famous and influential fishing schooner designer of his era, Dunton reflects most of the design features he introduced to improve the safety and performance of New England fishing schooners. Representing the end of sail-powered vessels using hook-and-line methods, L.A. Dunton is an essential element in the 350-year history of the New England fishing industry.

GEOLOGY THEME STUDY

PULPIT ROCKS
HUNTINGDON, PENNSYLVANIA

This site is a prime example of the findings of the First Geological Survey of Pennsylvania, and enables a student of geology to understand the impact of that survey upon the study of important aspects of the geology of much of the eastern United States. An agreement reached in 1836 among the geologists conducting The First Geological Survey of Pennsylvania clearly confirming the succession of sedimentary rocks was important not only for the study of geology in Pennsylvania, but it set the framework for all future geologic work in the Appalachian Mountains and for stratigraphy throughout the eastern United States.

THOMAS A. GREENE MEMORIAL MUSEUM
MILWAUKEE, WISCONSIN

The Thomas A. Greene Memorial Museum at the University of Wisconsin-Milwaukee houses an outstanding example of an amateur naturalist collection or "cabinet," very few of which survive intact. In addition to a comprehensive collection of minerals from around the world, from 1878 to 1894 Greene assembled an unparalleled collection of fossils from the classic ancient reefs of the Milwaukee-Chicago area, stimulating further research on these structures by eminent geologists of the day and providing abundant material for additional future paleontological research. This is not just one of the very rare surviving nineteenth century amateur naturalist's collections, but it is also one of the most important from its time period because of its comprehensiveness, accompanying documentation, irreplaceable nature, as well as its use in scientific research by prominent geologists. The museum building was constructed in 1913 with a donation from Greene's heirs specifically to house his collection when it was donated to Milwaukee-Downer College.

UNIVERSITY OF WISCONSIN SCIENCE HALL
MADISON, WISCONSIN

Science Hall is significant for its association, from 1888-1918, with Charles R. Van Hise, nationally prominent geologist. With his mentor, Roland Irving, Van Hise became the first in the nation to apply microscopic lithology to an extensive study of crystalline rocks, and to use those results in the formulation of geologic principles. His emphasis on the quantitative application of physical and chemical laws to geological problems was one of his greatest contributions to the science of geology. Van Hise's influential 1904 monograph, A Treatise on Metamorphism, moved geology out of the science of classification and into formulating principles. He also taught the first course in the nation in structural and metamorphic geology in 1903, and he championed the conservation of natural resources.

SOLDIER'S HOME REEF
MILWAUKEE, WISCONSIN

Soldiers' Home Reef played a key role in the first recognition of fossil reefs in North America, a major geological concept, and it was associated with the careers of several nationally significant nineteenth and early twentieth century geologists. This rock mound in the Menomonee River valley at Milwaukee was discovered by Increase A. Lapham, Wisconsin's first scientist, in the 1830s and remains intact until this day.

OTHER STUDIES

ROMA HISTORIC DISTRICT
ROMA, STARR COUNTY, TEXAS

The only intact U.S. community that survives from the colonization efforts of Jose de Escandon along the Rio Grande in the mid-1700s, the Roma Historic District's architecture outstandingly represents the evolution of a key Hispanic town in the border region. Its buildings form a virtual "living catalog" of the different building technologies used along the lower Rio Grande in the 19th century. The brickwork of a number of residences and commercial structures in the district that were designed by Henrique Portscheller is strikingly elegant, featuring rounded corners and finely carved classical motifs.

UNIVERSITY OF WISCONSIN ARMORY AND GYMNASIUM
MADISON, WISCONSIN

This Romanesque Revival building, completed in 1894 to house physical education and military training programs, was the setting of the 1904 "Gymnasium Convention" that marked the definitive victory of Governor Robert LaFollette and his Progressive Republican reformers over their opponents in the party and the State. The Progressives made Wisconsin's State government, and the University that nurtured it, national models for reform at all levels in the early decades of the 20th century. Still owned and used by the University for recreational purposes, this building is well preserved.

NAULAKHA (Rudyard Kipling House)
DUMMERSTON, VERMONT

Rudyard Kipling, the first English language author to win the Nobel Prize for literature (1907), had this house and outbuildings built for his American bride. Despite their brief residence in the house (1893-1896), Kipling wrote several of his best known books, including The Jungle Book and Captains Courageous.

HISTORIC CONTACT THEME STUDY

FORT ORANGE ARCHEOLOGICAL SITE
ALBANY, NEW YORK

Established by the Dutch West India Company in 1624, taken over by the English in 1664, briefly reconquered by the Dutch in 1673, and operated by English authorities until 1676, Fort Orange was the most important center for diplomacy and trade between Indian people and European colonists in the Northeast during the first three quarters of the 17th-century. Archeological resources excavated from the site represent the largest and most comprehensive known assemblage of Dutch colonial material culture in North America.

SCHUYLER FLATTS ARCHEOLOGICAL DISTRICT
TOWN OF COLONIE, NEW YORK

Archeological deposits preserved within the Schuyler Flatts Archeological District document economic, political, and social relations between Mahican, Mohawk, Dutch, and English people at a critically important strategic locale on the colonial North Atlantic frontier. Located astride the key Hudson-Champlain communication route near the mouth of the Mohawk River, Schuyler Flatts was the location of a major trade entrepot, diplomatic center, and military staging area operated from 1643 to 1666 by principal Dutch merchant-diplomat Arent van Curler and by English frontier-diplomats belonging to the Schuyler family after 1672.

MOHAWK UPPER CASTLE HISTORIC DISTRICT
DANUBE TOWNSHIP, NEW YORK

Archeological resources and standing structures preserved at this locale represent the only known physical evidence of Canajoharie, the most important Mohawk community in the western half of Kanienke, their name for their Mohawk Valley homeland, during the 18th-century. Stone foundations, midden deposits, and a woodenframed Dutch barn at the Brant family homestead (ca. 1754-1778) chronicle the domestic life of the most influential Mohawk family of the era. Built for the Mohawk community by the Anglican church in 1769, the wooden-framed Indian Castle Chapel is the only surviving example of the several Christian mission churches erected in Kanienke during the 17th- and 18th-centuries.

INDIVIDUAL ARCHEOLOGICAL STUDIES

JULIEN DUBUQUE'S MINES
DUBUQUE, IOWA

Julien Dubuque's Mines are the extraordinarily well-preserved remains of a vital lead mining region that began about 1788. Lead was nationally critical for munitions as well as in the manufacture of pipes, printing type, and building materials. The district is a rich historical landscape in which Indian people were energetic partners with Euro-Americans in a minerals exploitation economy, social conditions essential to the frontier mining district were developed, and the expansionary political aspirations of the Early National Period were bolstered by one of the most productive lead mining areas in the world. It contains evidence of nearly 80 years of mining technology and associated settlement, including both placer and hard rock features. Such integrity is rare in mining regions because the use of later, more efficient mining methods typically has obliterated evidence of early activity. The district is nationally significant for these major events and for what can be yet learned about cultural contact, mining technology, and frontier life.

CAGUANA SITE
ÚTUADO, PUERTO RICO

First excavated in 1915, this site consists of the remains of ten rectangularly shaped earthen and stone-lined ball courts, or bateys, and the remains of a circular caney, or chieftain's house. The ball courts radiate into a central square-shaped earthen and stone-lined areyto, or dancing area. Subsequent excavations (1938, 1949) suggest that the site is a late prehistoric and early contact ceremonial center, possibly the center for the main Taino cacique, or chieftain, whom the Spanish encountered in the first decades of the sixteenth century. Early 16th-century Spanish accounts make note of the importance of the ball game, called batey, among the native Taino peoples of Puerto Rico and the West Indies. Initially described as a recreational activity, it is now realized the batey served an important ceremonial function: decisions regarding issues of warfare, alliances, or disputes were resolved by caciques on the basis of the outcome of a ball game. The Caguana Site is recognized as the largest late prehistoric to contact, ceremonial complex in Puerto Rico and the West Indies. The site is also significant for having defined the Capá Phase (A.D. 1200-1500).

United States Department of the Interior

NATIONAL PARK SERVICE
P.O. Box 37127
Washington, D.C. 20013-7127

IN REPLY REFER TO:

MEMORANDUM

To: Secretary SEP 8 1993

Through: for George T. Frampton, Jr.
Assistant Secretary for Fish and Wildlife and Parks SEP 16 1993

From: for Roger G. Kennedy
Director, National Park Service OCT 28 199

Subject: Designation of Twenty Properties as National Historic Landmarks and One National Historic Landmark Property Boundary Increase: Request for Secretarial Action

At a meeting on August 11, 1993, the National Park System Advisory Board recommended designation of the following 20 properties as National Historic Landmarks:

WOMEN'S HISTORY THEME STUDY

1. **MARIE WEBSTER HOUSE,** MARION, INDIANA
2. **PHILADELPHIA SCHOOL OF DESIGN FOR WOMEN,** PHILADELPHIA, PENNSYLVANIA
3. **ELMSHAVEN (Ellen White House),** ST. HELENA, CALIFORNIA
4. **RACE STREET MEETINGHOUSE,** PHILADELPHIA, PENNSYLVANIA
5. **NEW CENTURY GUILD,** PHILADELPHIA, PENNSYLVANIA

MARITIME PROPERTIES

6. ***L.A. DUNTON,*** MYSTIC, CONNECTICUT
7. **TUG *BALTIMORE,*** BALTIMORE, MARYLAND

GEOLOGY THEME STUDY

8. **PULPIT ROCKS,** HUNTINGDON, PENNSYLVANIA
9. **THOMAS A. GREENE MEMORIAL MUSEUM,** MILWAUKEE, WISCONSIN
10. **UNIVERSITY OF WISCONSIN SCIENCE HALL,** MADISON, WISCONSIN
11. **SOLDIER'S HOME REEF,** MILWAUKEE, WISCONSIN

INDIVIDUAL PROPERTIES

12. **ROMA HISTORIC DISTRICT,** ROMA, TEXAS
13. **UNIVERSITY OF WISCONSIN ARMORY & GYMNASIUM,** MADISON, WISCONSIN
14. **NAULAKHA (Rudyard Kipling House),** DUMMERSTON, VERMONT

PREPARED BY: George Mendez G./*TELEPHONE*: 202/343-8165

ENGINEERING

15. **HOLLAND TUNNEL,** LOWER MANHATTAN, NEW YORK, and JERSEY CITY, NEW JERSEY

HISTORIC CONTACT THEME STUDY

16. **FORT ORANGE ARCHEOLOGICAL SITE,** ALBANY, NEW YORK
17. **SCHUYLER FLATTS ARCHEOLOGICAL DISTRICT,** TOWN OF COLONIE, NEW YORK
18. **MOHAWK UPPER CASTLE ARCHEOLOGICAL DISTRICT,** DANUBE TOWNSHIP, NEW YORK

INDIVIDUAL ARCHEOLOGICAL NOMINATIONS

19. **JULIEN DUBUQUE'S MINES,** DUBUQUE, IOWA
20. **CAGUANA SITE,** UTUADO, PUERTO RICO

In accordance with National Historic Landmarks Program regulations, the Board reviewed the studies nominating these properties for Landmark status and found that the properties meet National Historic Landmarks Program criteria. The Board, therefore, voted to recommend that they be designated as National Historic Landmarks.

At the same August 11, 1993, meeting, the National Park System Advisory Board also recommended the boundary increase for the following National Historic Landmark:

BOUNDARY ENLARGEMENT

1. **LOS ADAES NATIONAL HISTORIC LANDMARK,** NATCHITOCHES PARISH, LOUISIANA

I recommend that you approve the Board's recommendations and designate as National Historic Landmarks the 20 properties listed above, and approve the boundary increase for the National Historic Landmark listed above.

APPROVE: _____ DISAPPROVE: _____

DATE: NOV 4 1993 DATE: _____

ATTACHMENT

H34(418)

NOV 19 1993

Ms. Diane Kaylor
American Society of Mechanical Engineers
345 East 47th Street
New York, NY 10017

Dear Ms. Kaylor:

I am pleased to inform you that one of the American Society of Mechanical Engineers' (ASME) landmarks, the Holland Tunnel, was designated a National Historic Landmark (NHL) by the Secretary of the Interior on November 4, 1993. This is the second ASME mechanical engineering landmark which has been so designated as part of my NHL theme study of historic engineering properties (N.S. Savannah was the first). A copy of the Holland Tunnel NHL nomination is enclosed for your files. If you have any questions about this matter you may write me at the above address, or call me at 202-343-0350.

Thank you for continuing to keep me informed of new ASME landmark designations.

Sincerely,

Signed

Robie S. Lange
History Division

Enclosure

cc: 001
400
418 Levy
418 Lange
418 HOLLAND TUNNEL (NHL PENDING)

FNP:RSLange:mg:11/18/93
RSLange's disk 2, ASMENHL.LTR

12/03/93

H3417(418)

DEC 9 1993

Mr. Richard R. Kelly, Director
Interstate Transportation Department
Port Authority of New York & New Jersey
One World Trade Center, 62-W
New York, New York 10048

Dear Mr. Kelly:

I am pleased to inform you that the **HOLLAND TUNNEL**, connecting Lower Manhattan, New York, and Jersey City, New Jersey, has been found to possess national significance in the history of the United States. As a result, the Secretary of the Interior has designated it a National Historic Landmark on November 4, 1993.

The purpose of landmark designation is to identify and recognize nationally significant sites and to encourage their owners to preserve them. Landmarks are chosen after careful study by the National Park Service. They are evaluated by the National Park System Advisory Board and designated by the Secretary of the Interior in accordance with the Historic Sites Act of 1935 and the National Historic Preservation Act of 1966.

Designation as a National Historic Landmark automatically places a property in the National Register of Historic Places, if it is not already so listed, and extends to it the safeguards and benefits provided by the National Historic Preservation Act of 1966 and other Federal laws protecting historic properties.

You are eligible to receive a bronze plaque to commemorate the designation of this property. Copies of the plaque application form are enclosed. Please complete the form in triplicate and return two copies to the National Historic Landmarks Coordinator identified on the form. You may retain the third copy for your records.

Unless you specify otherwise, the plaque will bear the name of the property as it appears above. The plaque has a standard text, except for the name of the property (a maximum of two lines) and the year of designation. If you have questions about the plaque, such as the precise text to appear, please contact the National Historic Landmarks Coordinator identified on the form.

The National Park Service will be pleased to assist you if you wish to arrange a ceremony for the presentation of the plaque. Such a ceremony should be scheduled a minimum of several months after notice of designation to provide time to cast the plaque and to arrange the participation of appropriate officials in the ceremony.

We are pleased to include the HOLLAND TUNNEL on the roll of National Historic Landmarks as a significant representative of our Nation's heritage.

Sincerely,

/s/ James H. Charleton
Edwin C. Bearss
Chief Historian

Enclosures

SIMILAR LETTERS SENT TO:

OWN: Mr. Richard R. Kelly, Director
Interstate Transportation Department
Port Authority of New York & New Jersey
One World Trade Center, 62-W
New York, New York 10048

HEO: NEW YORK
Honorable David Dinkins
Mayor of the City of New York
Office of the Mayor
City Hall
New York, New York 10007

NEW JERSEY
Honorable Brent Schundlar
Mayor of Jersey City
280 Grove Street
Jersey City, New Jersey 07302

SHPO: Mr. Albert Caccese, SHPO
Acting Commissioner, Parks,
Recreation & Historic Preservation
Agency Building #1, Empire State Plaza
Albany, New York 12238

Mr. Scott A. Weiner, SHPO
Commissioner
Department of Environmental Protection
CN-402, 401 East State Street
Trenton, New Jersey 08625

cc: Ms. Sandra G. McCollough
Manager, Enviromental Services
Interstate Transportation Department
The Port Authority of New York & New Jersey
One PATH Plaza
Jersey City, New Jersey 07306

bcc: 4000 (MARO) B. Bolger
1600 (NARO) R. McIntosh
001 RF
400 RF
418 Lange
418 HOLLAND TUNNEL (NHL)

FNP:PHenry:mg:11/26/93
CHANGO MANOSO RCD #2\93-SUM\NL3\HOLL-B.LTR

12/03/93

RSBowen
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for 408
Branch 12/13
Cleared 12/14

RTBowen
12/14
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H3417(418)

Honorable Daniel Patrick Moynihan
United States Senate
Washington, DC 20510

DEC 14 1993

Dear Senator Moynihan:

I am pleased to inform you that **HOLLAND TUNNEL** in Lower Manhattan, New York, and Jersey City, New Jersey, has been found to possess national significance in the history of the United States. As a result, the Secretary of the Interior has designated it a National Historic Landmark on November 4, 1993.

The purpose of landmark designation is to identify and recognize nationally significant sites and to encourage their owners to preserve them. Landmarks are chosen after careful study by the National Park Service. They are evaluated by the National Park System Advisory Board and designated by the Secretary of the Interior in accordance with the Historic Sites Act of 1935 and the National Historic Preservation Act of 1966.

Designation as a National Historic Landmark automatically places a property in the National Register of Historic Places, if it is not already so listed, and extends to it the safeguards and benefits provided by the National Historic Preservation Act of 1966 and other Federal laws protecting historic properties.

The owner of a Landmark, upon application, will be awarded a bronze plaque. We are notifying the owner of the property's designation and providing the appropriate application forms.

We are pleased to include HOLLAND TUNNEL on the roll of National Historic Landmarks as a significant representative of our Nation's heritage.

Sincerely,

Roger G. Kennedy

Roger G. Kennedy
Director

SIMILAR LETTERS SENT TO:

NEW YORK

Honorable Daniel Patrick Moynihan
United States Senate
Washington, DC 20510

Honorable Alfonse D'Amato
United States Senate
Washington, DC 20510

Honorable Jerrold Nadler
House of Representatives
Washington, DC 20515

NEW JERSEY

Honorable Bill Bradley
United States Senate
Washington, DC 20510

Honorable Frank R. Lautenberg
United States Senate
Washington, DC 20510

Honorable Robert Menendez
House of Representatives
Washington, DC 20515

cc: 4000 (MARO) B. Bolger
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418 HOLLAND TUNNEL (NHL)

FNP:PHenry:mg:11/26/93
CHANGO MANOSO RCD #2\93-SUM\NL3\HOLL-D.LTR

Ms. Mary Lynn Brand
National Park Service (NPS)/Mid-Atlantic Regional Office
U.S. Custom House, Room 251
2nd & Chestnut Street
Philadelphia, Pennsylvania 19106

Telephone: 215/597-5823

Dear Ms. Brand:

As the owner(s) of The Holland Tunnel

located in Jersey City / New York City (City) Hudson (County) New Jersey / New York (State)

(I, We) hereby make application for a bronze plaque identifying the property as a National Historic Landmark.

1. Fully conscious of the high responsibility to the Nation that goes with the ownership and care of a property classified as having national significance and worthy of National Historic Landmark status, (I, we) agree to preserve, so far as practicable and to the best of (my, our) ability, the historical values of the site that satisfy the criteria for national significance.

2. (I, We) agree to permit periodic inspection of the property by a representative of the National Park Service for the purpose of monitoring its integrity and the nature and degree of any threats thereto.

3. (I, We) agree that, should the Landmark designation ever be revoked in accordance with the procedures outlined in the National Historic Landmarks regulations, the bronze plaque will be surrendered upon request to the National Park Service.

4. (I, We) further agree to affix the plaque for public view and in an appropriate manner.

Sincerely,

Owner's Signature

1/11/94
Date

same as above
Name of Contact Person, if not Owner

The Port Authority of New York & New Jersey, One World Trade Center - 64S
Mailing Address (if P.O. Box, also include street address for shipping purposes)

New York, New York 10048
City/State/Zip Code

212-435-7664
Telephone Number

Original to WASO/HIST. DIV. (PH) 3/31/94 MRB, MARO