

NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE: Maryland	
COUNTY: Baltimore City	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

1. NAME

COMMON:
Howard Street Tunnel

AND/OR HISTORIC:

2. LOCATION

STREET AND NUMBER:
Beneath Howard Street from Mt. Royal Station to Camden Station

CITY OR TOWN:
Baltimore

STATE: Maryland CODE: 24 COUNTY: Baltimore City CODE: 510

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP	STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input type="checkbox"/> Building <input type="checkbox"/> Site <input checked="" type="checkbox"/> Structure <input type="checkbox"/> Object	<input type="checkbox"/> Public <input checked="" type="checkbox"/> Private <input type="checkbox"/> Both	Public Acquisition: <input type="checkbox"/> In Process <input type="checkbox"/> Being Considered	<input checked="" type="checkbox"/> Occupied <input type="checkbox"/> Unoccupied <input type="checkbox"/> Preservation work in progress
PRESENT USE (Check One or More as Appropriate)			
<input type="checkbox"/> Agricultural <input type="checkbox"/> Commercial <input type="checkbox"/> Educational <input type="checkbox"/> Entertainment	<input type="checkbox"/> Government <input type="checkbox"/> Industrial <input type="checkbox"/> Military <input type="checkbox"/> Museum	<input type="checkbox"/> Park <input type="checkbox"/> Private Residence <input type="checkbox"/> Religious <input type="checkbox"/> Scientific	<input checked="" type="checkbox"/> Transportation <input checked="" type="checkbox"/> Other (Specify) <u>tunnel</u>

4. OWNER OF PROPERTY

OWNER'S NAME:
Baltimore & Ohio and Chesapeake & Ohio Railroad Companies

STREET AND NUMBER:
Baltimore and Charles Streets

CITY OR TOWN: Baltimore STATE: Maryland CODE: 24

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.
Baltimore City Courthouse

STREET AND NUMBER:
St. Paul and Fayette Streets

CITY OR TOWN: Baltimore STATE: Maryland CODE: 24

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:
Maryland Register of Historic Sites and Landmarks

DATE OF SURVEY: 1970 Federal State County Local

DEPOSITORY FOR SURVEY RECORDS:
Maryland Historical Trust

STREET AND NUMBER:
2525 Riva Road

CITY OR TOWN: Annapolis STATE: Maryland CODE: 24

SEE INSTRUCTIONS

STATE: Maryland
COUNTY: Baltimore City
ENTRY NUMBER:
FOR NPS USE ONLY
DATE:

7. DESCRIPTION

CONDITION	(Check One)					
	<input type="checkbox"/> Excellent	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered	<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (if known) PHYSICAL APPEARANCE

The Howard Street Tunnel provides cover for an underground rail connection beneath Howard Street in downtown Baltimore between the Mount Royal and Camden Stations of the Baltimore and Ohio Railroad. The tunnel is 7,341 feet long, 21 feet 3 inches at extreme height, 27 feet wide, and averages between 50 and 65 feet below the pavement. It is built of brick with iron-ring centerings shaped in an arch. The flooring is a flat reverse arch which provides additional strength to the walls. The tunnel has a grade of 0.8 degrees which allows the southbound trains to coast from Mount Royal Station to Camden Station.

The tunnel was constructed beneath one of Baltimore's busiest streets; through relatively soft gravel with the everpresent threat of water seepage, hidden underground streams and patches of quicksand. The City of Baltimore placed restrictions on the construction which limited the length of uncompleted tunnel sections and insisted that no uncompleted sections be contiguous. The City's fears proved groundless, for no buildings were injured by the tunnel construction. Even the street car line remained undisturbed.

The tunnel is still in use.

SEE INSTRUCTIONS

8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)

- | | | | |
|--|---------------------------------------|--|---------------------------------------|
| <input type="checkbox"/> Pre-Columbian | <input type="checkbox"/> 16th Century | <input type="checkbox"/> 18th Century | <input type="checkbox"/> 20th Century |
| <input type="checkbox"/> 15th Century | <input type="checkbox"/> 17th Century | <input checked="" type="checkbox"/> 19th Century | |

SPECIFIC DATE(S) (If Applicable and Known) 1890-1895

AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- | | | | |
|---|---|--|--|
| <input type="checkbox"/> Aboriginal | <input type="checkbox"/> Education | <input type="checkbox"/> Political | <input type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric | <input checked="" type="checkbox"/> Engineering | <input type="checkbox"/> Religion/Philosophy | <input type="checkbox"/> Other (Specify) _____ |
| <input type="checkbox"/> Historic | <input type="checkbox"/> Industry | <input type="checkbox"/> Science | _____ |
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Invention | <input type="checkbox"/> Sculpture | _____ |
| <input type="checkbox"/> Architecture | <input type="checkbox"/> Landscape Architecture | <input type="checkbox"/> Social/Humanitarian | _____ |
| <input type="checkbox"/> Art | <input type="checkbox"/> Literature | <input type="checkbox"/> Theater | _____ |
| <input type="checkbox"/> Commerce | <input type="checkbox"/> Military | <input checked="" type="checkbox"/> Transportation | _____ |
| <input type="checkbox"/> Communications | <input type="checkbox"/> Music | | _____ |
| <input type="checkbox"/> Conservation | | | _____ |

STATEMENT OF SIGNIFICANCE

The Howard Street Tunnel is a monument in the history of American engineering. The construction of a 7,341-foot tunnel through soft ground under a busy street, and the innovational use of electricity for illumination and for powering the tunnel locomotives, represent an outstanding accomplishment for its time.

The Baltimore Belt Railroad, chartered in 1888, built the Howard Street Tunnel. The seven-mile-long railroad connected the main branch of the Baltimore and Ohio Railroad that extends westward with its Philadelphia branch. Previously, trains had taken a circuitous route around Baltimore, which included ferrying all trains across the Patapsco River. Two decades earlier, the Pennsylvania Railroad had constructed tracks directly through Baltimore. In order for the B & O to remain competitive with the Pennsylvania company, the Baltimore Belt Railroad was built. The growth of the city eliminated the possibility of an above-ground track, necessitating the construction of a tunnel.

Samuel Raw was the Chief Engineer of the tunnel. A native of Pennsylvania, he previously had worked on the New York tunnel extension of the Pennsylvania Railroad and on the Hell Gate Bridge of the New York Connecting Railroad.

Construction of the tunnel began in 1890. On May 1, 1895, the first passenger train passed through it.

The power for the locomotives moving the trains through the tunnel was provided by electricity--a novel idea in the 1890's as electricity was then only beginning to be used by railroads. The General Electric Company designed electric locomotives especially for the Howard Street Tunnel, and an electric power station was built on the Camden Station yard to power them. The electricity that provided the illumination for the tunnel was another innovative achievement.

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

"The Baltimore Belt Railroad." Engineering News. XXVI (December 12, 1891), 557-559; (December 19, 1891), 585-587.

"The Baltimore and Ohio Railroad Tunnel at Baltimore." Scientific American Supplement. Vol. XL (August 10, 1895), 16346-16348.

Hungerford, Edward. The Story of the Baltimore and Ohio Railroad. 2 vols. New York: G. Putnam's Sons, 1928.

10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY				O R	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES				
CORNER	LATITUDE				LONGITUDE				
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	39°	18'	17"	76°	37'	15"			
NE	39°	18'	17"	76°	37'	13.5"			
SE	39°	17'	07"	76°	37'	9.5"			
SW	39°	17'	07"	76°	37'	11"			

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: three

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES:

STATE:	CODE	COUNTY	CODE

11. FORM PREPARED BY

NAME AND TITLE:
Nancy Miller, Historian

ORGANIZATION: Maryland Historical Trust DATE: Aug. 17, 1972

STREET AND NUMBER:
2525 Riva Road

CITY OR TOWN: Annapolis STATE: Maryland 21401 CODE: 24

12. STATE LIAISON OFFICER CERTIFICATION	NATIONAL REGISTER VERIFICATION
<p>As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:</p> <p>National <input type="checkbox"/> State <input checked="" type="checkbox"/> Local <input type="checkbox"/></p> <p>Name: <u>Orlando Ridout IV</u></p> <p>Title: <u>State Liaison Officer for Maryland</u></p> <p>Date: <u>August 21, 1972</u></p>	<p>I hereby certify that this property is included in the National Register.</p> <p><u>Chief, Office of Archeology and Historic Preservation</u></p> <p>Date: _____</p> <p>ATTEST:</p> <p>_____ Keeper of The National Register</p> <p>Date: _____</p>

SEE INSTRUCTIONS

NATIONAL REGISTER OF HISTORIC PLACES
PROPERTY MAP FORM

(Type all entries - attach to or enclose with map)

STATE	Maryland	
COUNTY	Baltimore City	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

SEE INSTRUCTIONS

1. NAME			
COMMON: Howard Street Tunnel			
AND/OR HISTORIC:			
2. LOCATION			
STREET AND NUMBER: Beneath Howard Street from Mt. Royal Station to Camden Station			
CITY OR TOWN: Baltimore			
STATE: Maryland	CODE: 24	COUNTY: Baltimore City	CODE: 510
3. MAP REFERENCE			
SOURCE: USGS 7.5 minute map; Baltimore East quadrangle			
SCALE: 1: 24 000			
DATE: photorevised 1966			
4. REQUIREMENTS			
TO BE INCLUDED ON ALL MAPS			
1. Property boundaries where required.			
2. North arrow.			
3. Latitude and longitude reference.			

BALTIMORE EAST QUADRANGLE
USGS 7.5 minute map
Scale: 1: 24 000
Photorevised 1966

B-79

lat. $39^{\circ} 18' 17''$
long. $76^{\circ} 37' 15''$

lat. $39^{\circ} 17' 07''$
long. $76^{\circ} 37' 11''$



NATIONAL REGISTER OF HISTORIC PLACES

PROPERTY PHOTOGRAPH FORM

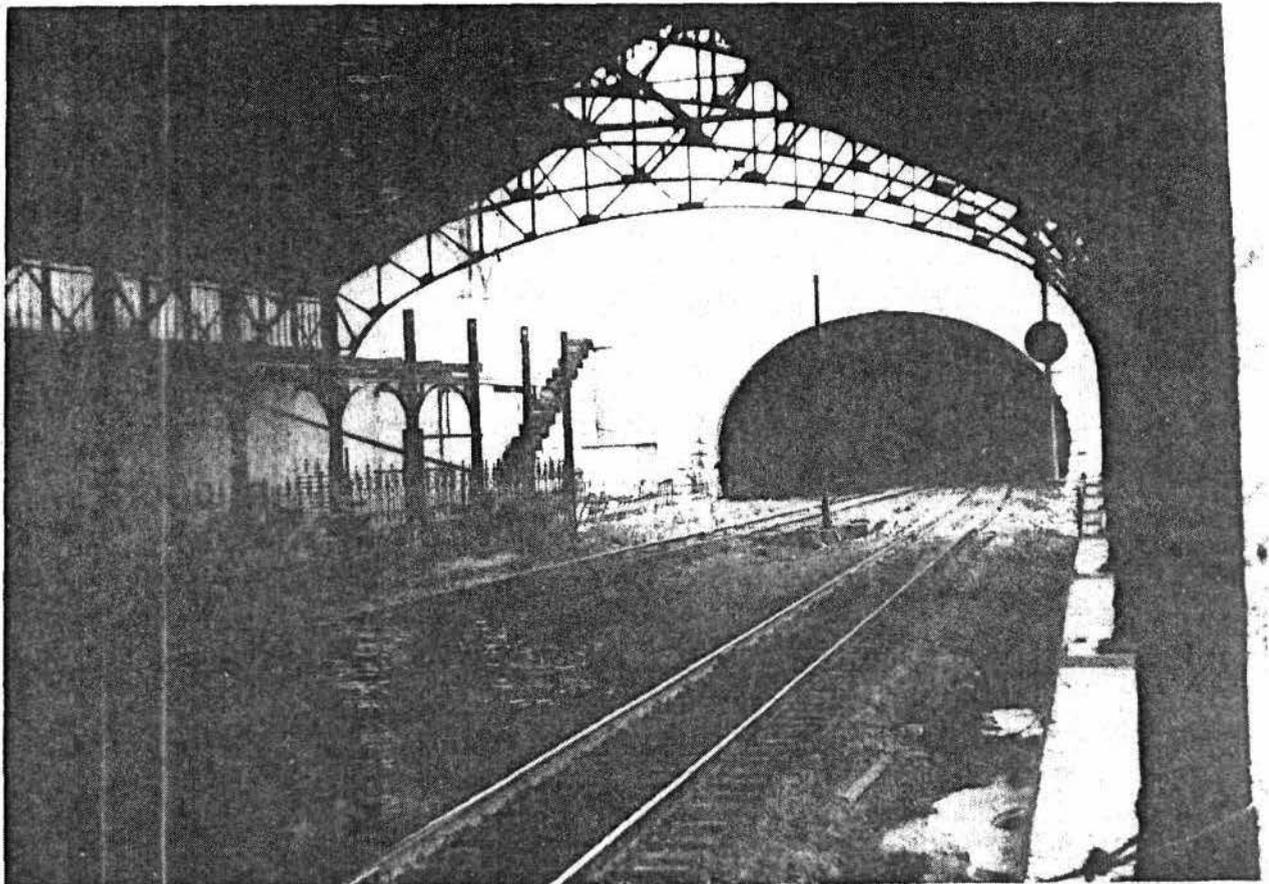
(Type all entries - attach to or enclose with photograph)

STATE Maryland	
COUNTY Baltimore City	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

SEE INSTRUCTIONS

1. NAME			
COMMON: Howard Tunnel			
AND/OR HISTORIC:			
2. LOCATION			
STREET AND NUMBER: Beneath Howard Street from Mt. Royal Station to Camden Station			
CITY OR TOWN: Baltimore			
STATE: Maryland	CODE 24	COUNTY: Baltimore City	CODE 510
3. PHOTO REFERENCE			
PHOTO CREDIT: Mark Adams			
DATE OF PHOTO: 1969			
NEGATIVE FILED AT: City Hall, Baltimore, Maryland 21202 Commission for Historical & Architectural Preservation, 402			
4. IDENTIFICATION			
DESCRIBE VIEW, DIRECTION, ETC. north entrance to the tunnel			

GPO 9-71-737



UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

MAG#0400792619 B-79

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DATE ENTERED

**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

SEE INSTRUCTIONS IN HOW TO COMPLETE NATIONAL REGISTER FORMS
TYPE ALL ENTRIES -- COMPLETE APPLICABLE SECTIONS

1 NAME

HISTORIC Baltimore Belt (Baltimore and Ohio) Railroad

AND/OR COMMON

Howard Street Tunnel and Power House (Belt Railroad, Baltimore)

2 LOCATION

STREET & NUMBER Tunnel beneath Howard Street from Mt. Royal Station to Camden Station - Power House - Bet. Montgomery and Henrietta west side of Howard

CITY, TOWN Baltimore VICINITY OF Baltimore CONGRESSIONAL DISTRICT Seventh

STATE Maryland CODE 24 COUNTY Baltimore City CODE 510

3 CLASSIFICATION

CATEGORY	OWNERSHIP	STATUS	PRESENT USE
<input type="checkbox"/> DISTRICT	<input type="checkbox"/> PUBLIC	<input checked="" type="checkbox"/> OCCUPIED	<input type="checkbox"/> AGRICULTURE <input type="checkbox"/> MUSEUM
<input checked="" type="checkbox"/> BUILDING(S)	<input checked="" type="checkbox"/> PRIVATE	<input checked="" type="checkbox"/> UNOCCUPIED	<input type="checkbox"/> COMMERCIAL <input type="checkbox"/> PARK
<input checked="" type="checkbox"/> STRUCTURE	<input type="checkbox"/> BOTH	<input type="checkbox"/> WORK IN PROGRESS	<input type="checkbox"/> EDUCATIONAL <input type="checkbox"/> PRIVATE RESIDENCE
<input type="checkbox"/> SITE	PUBLIC ACQUISITION	ACCESSIBLE	<input type="checkbox"/> ENTERTAINMENT <input type="checkbox"/> RELIGIOUS
<input type="checkbox"/> OBJECT	<input type="checkbox"/> IN PROCESS	<input type="checkbox"/> YES: RESTRICTED	<input type="checkbox"/> GOVERNMENT <input type="checkbox"/> SCIENTIFIC
	<input type="checkbox"/> BEING CONSIDERED	<input type="checkbox"/> YES: UNRESTRICTED	<input type="checkbox"/> INDUSTRIAL <input checked="" type="checkbox"/> TRANSPORTATION
		<input checked="" type="checkbox"/> NO	<input type="checkbox"/> MILITARY <input checked="" type="checkbox"/> OTHER: Tunnel

4 OWNER OF PROPERTY

NAME Baltimore & Ohio and Chesapeake & Ohio Railroad Companies

STREET & NUMBER Baltimore and Charles Streets

CITY, TOWN Baltimore VICINITY OF Baltimore STATE Maryland

5 LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC. Baltimore City Courthouse

STREET & NUMBER Calvert and Lexington Streets

CITY, TOWN Baltimore STATE Maryland

6 REPRESENTATION IN EXISTING SURVEYS

TITLE Maryland Register of Historic Sites and Landmarks

DATE 1970 FEDERAL STATE COUNTY LOCAL

DEPOSITORY FOR SURVEY RECORDS Maryland Historical Trust

CITY, TOWN Annapolis Maryland 21401

9 MAJOR BIBLIOGRAPHICAL REFERENCES

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"The Baltimore Belt Railroad ." Engineering News. XXVI (December 12, 1891), 557-559; (December 19, 1891), 585-587.

"The Baltimore and Ohio Railroad Tunnel at Baltimore." Scientific American Supplement. Vol. XL (August 10, 1895), 16346-16348.

See continuation sheet #4

10 GEOGRAPHICAL DATA

ACREAGE OF NOMINATED PROPERTY 5.5 acres

UTM REFERENCES

A	1,8	3,60	4,50	43	5,19	70	B	18	36,0	48,0	4,3	87	90,0
	ZONE	EASTING		NORTHING				ZONE	EASTING		NORTHING		
C	1,8	3,60	0,70	43	8,	7,80	D	18	36,0	09,0	4,3	51	97,0
	ZONE	EASTING		NORTHING				ZONE	EASTING		NORTHING		

VERBAL BOUNDARY DESCRIPTION

Two non-continuous structures, the Howard Street Tunnel and the Belt Railroad powerhouse form the site; the boundaries of the site are the physical dimensions of these two structures.

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE

Nancy Miller, Historian/revised Steven Levy Nov. 1976

ORGANIZATION

Maryland Historical Trust

DATE

Aug. 17, 1972

STREET & NUMBER

21 State Circle

TELEPHONE

301-269-2212

CITY OR TOWN

Annapolis

STATE

Maryland 21401

12 STATE HISTORIC PRESERVATION OFFICER CERTIFICATION

THE EVALUATED SIGNIFICANCE OF THIS PROPERTY WITHIN THE STATE IS:

NATIONAL

STATE

LOCAL

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service.

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

TITLE

DATE

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

DATE

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION

ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER

7 DESCRIPTION

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CONDITION		CHECK ONE	CHECK ONE
<input type="checkbox"/> EXCELLENT	<input checked="" type="checkbox"/> DETERIORATED	Powerhouse	<input type="checkbox"/> UNALTERED <input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> GOOD Tunnel	<input type="checkbox"/> RUINS		<input checked="" type="checkbox"/> ORIGINAL SITE
<input type="checkbox"/> FAIR	<input type="checkbox"/> UNEXPOSED	<input type="checkbox"/> ALTERED	<input type="checkbox"/> MOVED DATE _____

DESCRIBE THE PRESENT AND ORIGINAL (IF KNOWN) PHYSICAL APPEARANCE

The Howard Street Tunnel provides for an underground rail connection beneath Howard Street between the Mount Royal and Camden Stations of the Baltimore and Ohio Railroad. The tunnel measures 7,341 feet in length and 21 feet in height and 29 feet in width, and is placed between 50 and 65 feet below grade. Fifty-nine hundred feet of the side walls are constructed of brick; the remainder of the side walls and the portals are built of cut stone. Iron rings shaped to conform to the tunnel arch were used as centerings in the construction of the structure. The roof is shaped in an inverted arch and the flooring is a flat reverse arch providing additional strength to the side walls. Originally housing a double track, the tunnel now contains a single track, built at an 0.8% upgrade from Camden Station, and is still in use today.

Located adjacent to the line near South Howard between Montgomery and Henrietta Streets, the Belt Railroad Powerhouse originally housed the generators which powered the General Electric locomotives used to tow northbound trains through the tunnel. The powerhouse was originally fitted with five E.P. Allis 500 KW engine-generators plus several lighting dynamos.

The Powerhouse is an exceptionally tall, one-story L-shaped brick building with a slate gable roof. There are pent roofs extending the length of the north and south gable ends. The building is 21 bays from north to south. The bulk of the structure is two bays wide, except for the southern end which is three bays wide. This section originally housed the generator's boilers. The north west corner of the building appears to have been truncated. The building has a simple brick cornice and a stepped brick watertable. The windows and doorways have brick relieving arches. Each bay is enclosed by a set of brick piers on either side. Above, they are enclosed by corbelling.

In 1914, the building ceased to be used as a powerhouse. It was then converted into a car and locomotive shop. Since circa 1971, the building has stood vacant. The interior space is unpartitioned, and is open to the steel roof trussing. The floor is covered with wooden planking and contains a work pit.

The north end of the building, especially the roof and trussing has been damaged by fire. The doors, most of the windows and the north end of the roof are open to the elements. There is a modern, one-story, rectangular cinder block addition built onto the western side of the building. It is six bays long, one bay wide and flat roofed.¹

PERIOD	AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input type="checkbox"/> SCIENCE
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE
<input type="checkbox"/> 1600-1699	<input type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER
<input checked="" type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input checked="" type="checkbox"/> TRANSPORTATION
<input type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)
		<input type="checkbox"/> INVENTION		

SPECIFIC DATES

BUILDER/ARCHITECT

STATEMENT OF SIGNIFICANCE

The Howard Street Tunnel is a monument in the history of American engineering. The construction of a 7,341-foot tunnel through soft ground under a busy street, and the innovational use of electricity for illumination and for powering the tunnel locomotives, represent an outstanding accomplishment for its time.¹

"When the Baltimore & Ohio's Philadelphia Branch from Baltimore to Philadelphia (and by affiliated lines to Jersey City) was completed in 1886, there was no rail connection between it and the railroad's main lines from the south and west terminating at Camden Station, Baltimore. All freight and passenger business through Baltimore was carried by ferry across the harbor between Locust Point and Canton, with enormous inconvenience and delay.

To connect these two elements of its system, the B & O constructed the Baltimore Belt Railroad, extending about eight miles from Bay View Junction (Orangeville) in north east Baltimore, along the (then) northern edge of the city to Camden Station downtown. The project included eight minor tunnels carrying the double-track line under principal thoroughfares, and the Howard Street Tunnel. This, the last completed, was a major work -- among the longest soft-ground tunnels in the U.S. at the time. It extended from Mount Royal Station, the railroad's new uptown depot and part of the scheme, south to Camden Station."²

"The growth of the city had eliminated the possibility of an above ground track, necessitating the building of a tunnel. Constructed in soft ground using the 'German Method' with small side drifts, a top drift, and then opened up to full bore, no shield or compressed air was used. The tunnel, the largest of 176 tunnels on the Chessie system (Baltimore & Ohio, Chesapeake & Ohio, Western Maryland) was worked from the ends and several intermediate shafts. In the course of the work the Baltimore City College at Centre Street was undermined, and completely rebuilt by the contractor."³

See continuation sheet #2

UNITED STATES DEPARTMENT OF THE INTERIOR
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**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

Howard Street Tunnel and Power House
Baltimore
Maryland

CONTINUATION SHEET

ITEM NUMBER

7 PAGE 1

Description (continued)

¹Material for description taken from "Some Industrial Archaeology of the Monumental city and Environs" (Society for Industrial Archaeology, Robert Vogel, Editor, 1975) and National Register for Historic Places Nomination June 2, 1973, for the Howard Street Tunnel, by Nancy Miller, Historian for the Maryland Historical Trust.

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**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

Howard Street Tunnel and Power House
Baltimore
Maryland

CONTINUATION SHEET

ITEM NUMBER 8

PAGE 2

Statement of Significance (continued)

"The tunnel was constructed beneath one of Baltimore's busiest streets; through relatively soft gravel with the everpresent threat of water seepage, hidden underground streams and patches of quicksand. The City of Baltimore placed restrictions on the construction which limited the length of uncompleted tunnel sections and insisted that no uncompleted sections be contiguous. The city's fears proved groundless, for no buildings were injured by the tunnel construction. Even the street car line remained undisturbed."⁴

"Significantly, it was decided to employ electric traction on the 'Belt Line', imperative because the Howard Street tunnel's length and the commercial area above it made it impossible to ventilate. Worse, the entire line, including the tunnel, was on an 0.8% upgrade from Camden Station; had steam locomotives been used, they would have been working heavily and smokily on northbound trains.

This was the world's first application of electric traction in mainline railroad service. Northbound trains were towed, their locomotives dead, by heavy General Electric locomotives,⁵ designed by the Company especially for the Howard Street Tunnel. Five E.P. Allis 500 KW engine-generators housed in a powerhouse erected for that purpose powered the locomotives. Southbound trains were able to coast down to Camden. Several dynamos also located in the powerhouse provided illumination for the tunnel another innovative achievement."⁵

"Samuel Rea was the Chief Engineer of the tunnel. A native of Pennsylvania, he previously had worked on the New York tunnel extension of the Pennsylvania Railroad and on the Hell Gate Bridge of the New York Connecting Railroad.

Construction of the tunnel began in 1890. On May 1, 1895, the first passenger train passed through it."⁶

See continuation sheet #3

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NATIONAL PARK SERVICE

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**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

Howard Street Tunnel and Power House
Baltimore
Maryland

CONTINUATION SHEET

ITEM NUMBER 8

PAGE 3

Statement of Significance (continued)

¹National Register for Historical Places Nomination for the Howard Street Tunnel June 2, 1973, Nancy Miller, Historian, Maryland Historical Trust.

²"Some Industrial Archaeology of the Monumental City and Environs" (Society for Industrial Archaeology, Robert Vogel, Editor, 1975)

³Ibid

⁴Miller

⁵Vogel

⁶Miller

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**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

Howard Street Tunnel and Power House
Baltimore,
Maryland

CONTINUATION SHEET

ITEM NUMBER 9

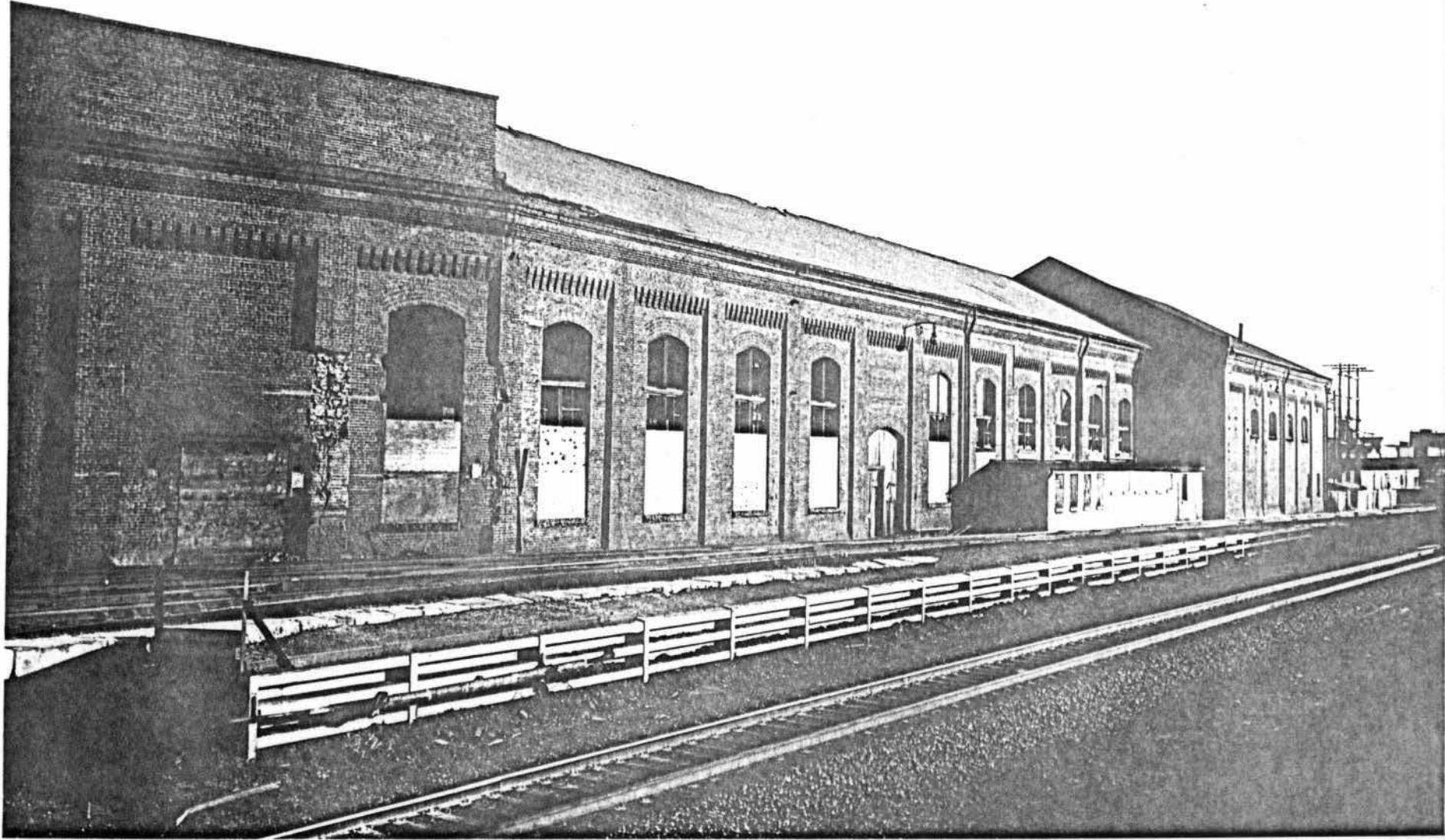
PAGE 4

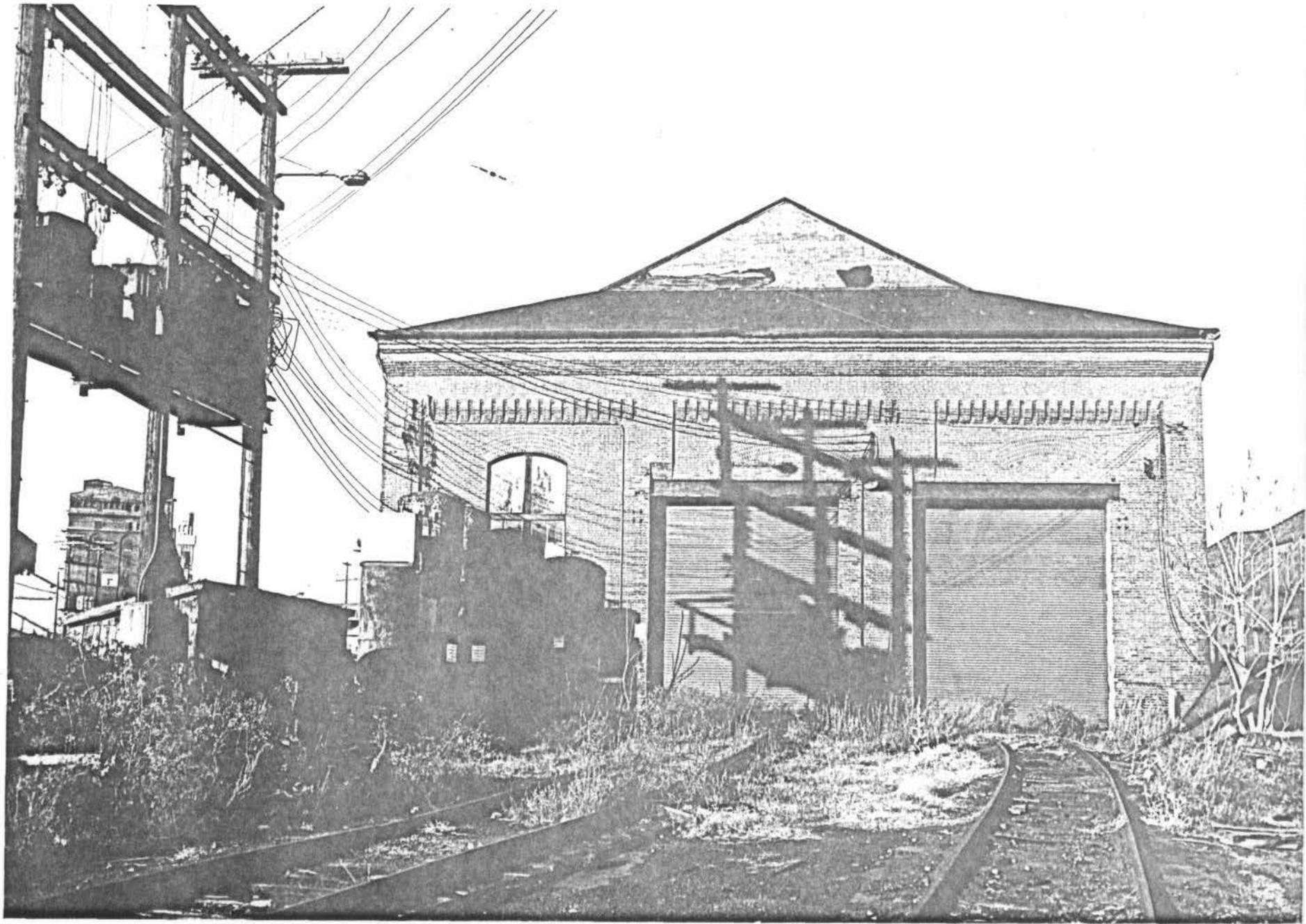
MAJOR BIBLIOGRAPHICAL REFERENCES (continued)

Hungerford, Edward. The Story of the Baltimore and Ohio Railroad. 2 vols. New York: G. Putnam's Sons, 1928.

"Some Industrial Archaeology of the Monumental City and Environs" (Society for Industrial Archaeology) Robert Vogel, Editor, 1975.

"National Register for Historic Places Nomination for the Howard Street Tunnel," June 2, 1973, Nancy Miller, Historian, Maryland Historical Trust.







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Baltimore Belt Railroad

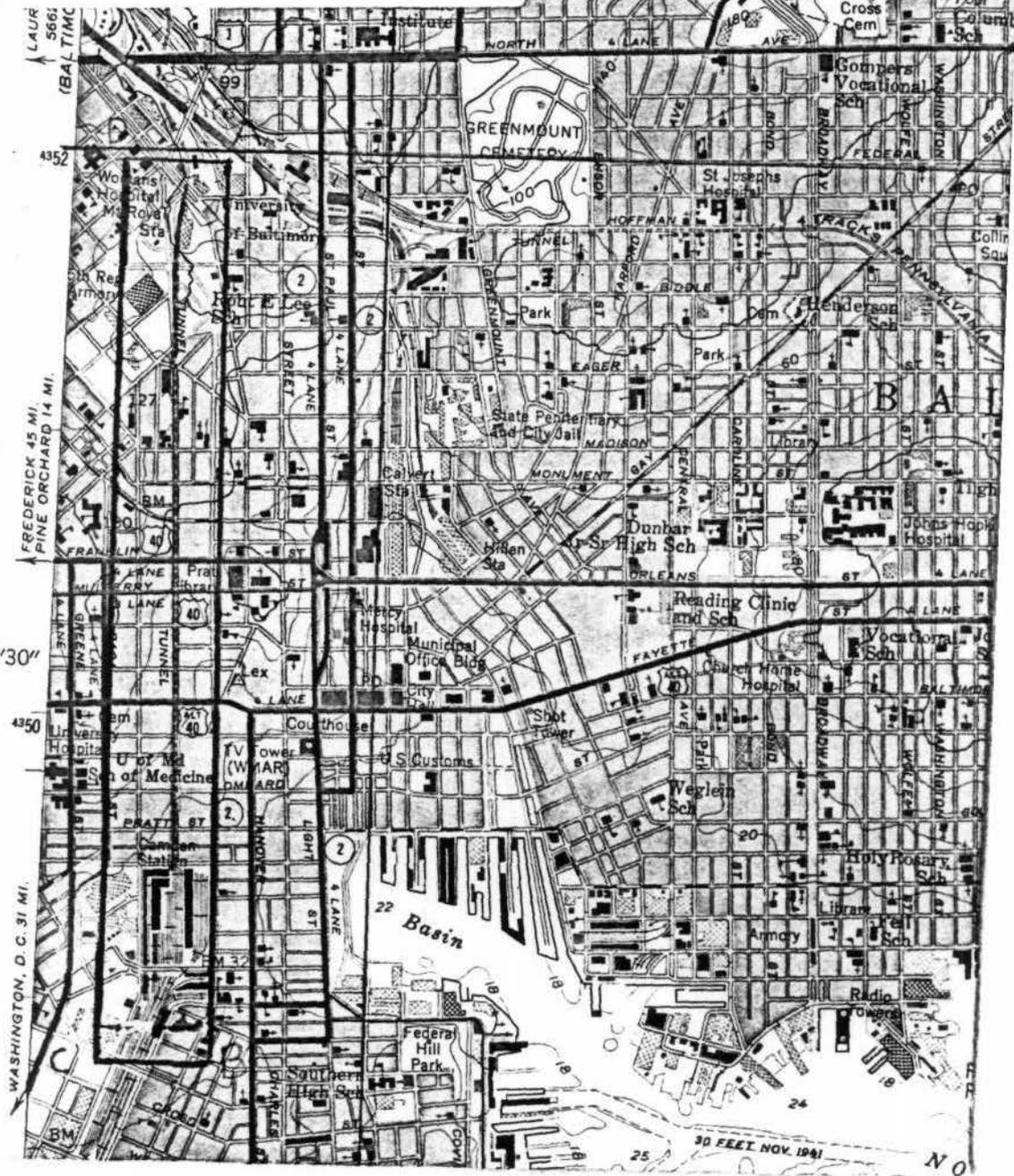
U.S.G.S. 7.5' Baltimore East

1:2000 UTM A 18 360450 4351970

E 18 360480 4387900

C 18 360070 438780

D 18 360090 4351970



17'30"

WASHINGTON, D. C. 31 MI.

FREDERICK 45 MI
PINE ORCHARD 14 MI.

30 FEET NOV. 1941