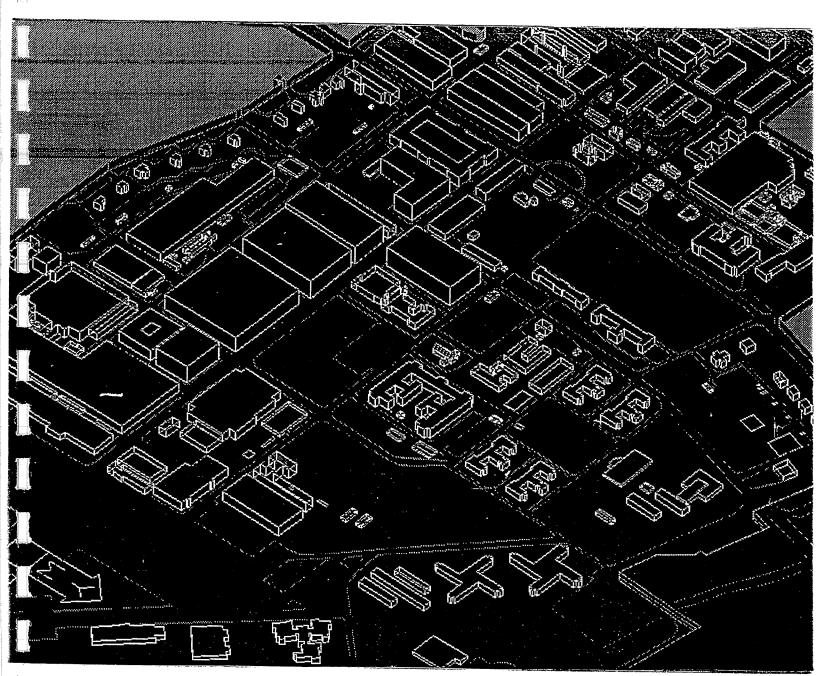
# Historic Preservation Studio The Philadelphia Naval Yard



### Phase I

Prepared By the Members of the HSPV Fall 1993 Studio

#### INTRODUCTION

Our charge for the Fall 1993 Studio was to study the role of Historic Preservation as a means and method of planning for the reuse of the Philadelphia Naval Yard on League Island. This charge was given to us as an academic exercise, relieving us from the responsibility to follow all of the rules all of the time.

In order to perform this task, the studio was organized into two phases: Phase I devoted to information gathering and Phase II focusing on analysis. During Phase I we were divided into three teams: Team A — Regional Context; Team B — Historical Development and Regulatory Environment; and Team C — Physical Typologies of Existing Buildings, Structures and Land Use. It should be noted that these teams were interdisciplinary in nature with a constituency of planners, architects, and landscape architects in addition to members of the Preservation Department.

The team structure of the studio was carried on through Phase II, although the departure of the planners, architects, and landscape architects reduced team size. An emphasis on inter-group work and analysis characterized this phase.

The nature of this studio and the production of its output has been one of continuous struggle; a struggle with how we (as preservationists) are perceived and how we perceive our role as preservationists. It would be negligent for us to allow you to believe that this struggle has been fruitless... that we have found no common ground. Because that is *not* true. Nevertheless, the results of this studio originate from this process of negotiation both between and within ourselves.

We have come to question the traditions of both ours and related disciplines. We question the rigid demarcations set up between them. We question the dogmatic distrust of one profession that the other profession knows what they are doing, or that they will do "the right thing." It is not that we deny the validity of the teachings of this tradition, but we are dismayed by their outcome.

We, as preservationists, do not want preservation planning to carry the stigma of rules and regulations that restrict, confine and suffocate the creative development of our built environment. We wish to foster a holistic approach to planning that integrates all professions. Most importantly this approach should cultivate in all a desire to know the object so that design does not merely follow the criteria and yet fail miserably as good design, but that design and change draw from an understanding of the evolution of the site.

We, as a class, have looked to Europe as a role model of a region which has centuries of the built environment to incorporate in their change and growth toward the future and yet still retains a powerful sense of continuity of place and identity without the bastardization of that built environment (although EuroDisney would qualify as a notable exception, which nevertheless was perpetrated by us, Americans). It is a great American luxury to be able to afford to tear down the past. But can we afford the consequences of this luxury? We believe that we can intervene in and change our environment, but that this intervention should reflect the character of this change and growth.

The built environment is an organism much like humans. We start out as infants, and grow through childhood and adolescence into adults, where we continue to grow physically, mentally, and emotionally. The people working on this project are not the exact replicas of who they were when they were born. Nor would most of us want to be

"frozen" in time at the age of 14. Nevertheless, each and everyone of us carry with us the breadth and wealth of our total experience from infancy to adulthood. We carry our own sense of identity which *does* change and *does* grow, and yet does not violate who we think we are. When we intervene in the built environment, we must be as true that environment in understanding where it has been and where it might go as we are true to an understanding of ourselves. This is the task we have set for ourselves and those who, like us, also share in an passion for the built environment around us.

The document which follows should be read and used in its entirety, for we believe that interventions into this site must be based on a comprehensive understanding of the site.

#### TABLE OF CONTENTS

The following table of contents represents the work of this studio in sum. The work itself can be found in two volumes: Phase I and Phase II. It is the hope of the studio members that the contents found within both of these volumes will be considered as we believe that neither can stand alone if the reader wishes to obtain an understanding of the site.

#### ☐ PHASE I:

Introduction

**Table of Contents** 

**List of Illustrations** 

#### **Executive Summary**

**Regional Context** 

Historical Development and Regulatory Environment

Physical Typologies of Existing Buildings, Structures and Land Use

#### **Regional Context**

Introduction

Natural Features

Geology Topography

Soils

Water Systems

Wildlife and Vegetation

**Toxicity** 

Natural History

Possible Archaeological Sites

Development of the Island and the City

Land Use

Circulation

Infrastructure **Transportation** 

Perceptual Studies

Perceptual Broad Street

Landmarks

Regional Context Site Maps

Proposed Conservation Plan

**Broad Street District** 

Aircraft Factory Zone

Industrial Zone

Mustin Field Open Space and Waters Edge Promenade

Viewsheds

**Buffer Zones** 

The Growth Management Process

Appendix A: National Register of Historic Places Nomination Proposal

Appendix B: Building Inventory

Appendix C: National Historic Preservation Act of 1966, as Amended

Historical Analysis Site Maps

#### Physical Typologies Refinement and Analysis

**Explanation of Typological Analysis** 

14 Building Typologies Extant at the Naval Yard

Method of Typological Analysis

Phases of Development in Relation to Type

1890-1913

1913-1921

1921-1945

1945-present

#### **Open Space Typologies**

Design Questionnaire

Position Statement

General Familiarity With the Site

Natural Systems and Interaction with the Landscape

New Design Program/Addition to Existing Structure

**New Construction** 

Views and Viewsheds

Repair/Conservation

Proposal for a Two-Stage Development Approval Process

Stage One

Stage Two

Physical Typologies Site Maps

Building Typologies Defined Administrative Industrial Residential

Physical Typologies Site Maps

**Bibliography** 

☐ PHASE II:

Introduction

**Table of Contents** 

**List of Illustrations** 

**Executive Summary** 

Regional Context Historical Development Physical Typologies Executive Summary Graphic

Executive Summary Grapme

#### Regional Context Refinement and Analysis

Water Access

Viewsheds

Statement of Purpose

Location Needs

Historical Purpose Proposed Purpose

Implementation

Development Program Questionnaire

Regional Context Site Maps

#### Historical Development Refinement and Analysis

Purpose and Intent

The Implications of the Transfer Process

The National Register Process

Evaluation of the National Register Process

Implied Zoning and Typologies
Implied Zoning
Typologies

#### Historical Development and Regulatory Environment

History of the Naval Yard's Development

Early History of League Island

The Benefits of League Island

The Battle for League Island

The Plan

Period I: 1871-1890

Period II: 1891-1913

Period III: 1914-1920

Period IV: 1921-1945

Period V: 1946-1965

Period VI: 1965-present

Administrative and Political Influences on the Naval Yard's Development, Past and Future

The Changing Nature of the Philadelphia Naval Yard's Relationship with the City of Philadelphia

1950 to Present

Regulations and Procedures Governing Transfer of Ownership

What Regulations Govern the Transfer of Ownership of Closing Military Bases?

How are These Regulations Applicable to the Philadelphia Naval Yard? Under Which Program Could the State or Local Government Acquire Surplus Property at the Naval Complex and at the Same Time Facilitate the Preservation of the Built Environment?

How Have Previous Naval Complexes Been Transferred as Excess and Surplus Property?

Historical Development Site Maps

#### Physical Typologies of Existing Buildings, Structures and Land Use

The Planning Model

Objectives

Methodology

Design Problems
Regional Context
Physical Typologies
Proposals for Design Problems: Philosophy/Methodology
Design Problems

Future Investigations
Historical Development
Existing Property Transfer Mechanism

Physical Typologies

### LIST OF ILLUSTRATIONS

#### PHASE I:

#### **Regional Context**

**ANALYSIS MAP** 

**REGIONAL TOPOGRAPHY** 

**REGIONAL WATER SYSTEMS** 

#### EARLY HISTORY OF LEAGUE ISLAND LAND FORM

League Island: 1750 League Island: 1783 League Island: 1836 League Island: 1883 League Island: 1888

#### POPULATION GROWTH I AND II

#### **REGIONAL COMPARISONS**

Residential Areas Industrial Areas Open Green Space

#### ACCESSIBILITY OF ISLAND TO REGION

City-Island Roadways City-Island Railways

**IMPLIED CONNECTIONS** 

**ACCESS TO WATER** 

**CITY EDGES** 

LANDMARKS

Orientation Significance Naval

CITY-ISLAND OVERLAY

#### **Historical Development**

HISTORIC MAPS

Navy Yard Proposal — 1867 Plan

#### **Historical Development**

#### **HISTORIC MAPS**

Navy Yard Proposal — 1867 Plan Navy Yard Map — 1883 Navy Yard Proposal — 1889 Plan Navy Yard Map — circa 1900

#### **GROWTH AND HISTORIC DEVELOPMENT MAPS**

Historic Development — 1890 Growth — 1890-1913 Historic Development — 1913 Growth — 1913-1921 Historic Development — 1921 Growth — 1921-1945 Historic Development — 1945 Growth — 1945-1965 Historic Development — 1965 Growth — 1965-present Historic Development — present

#### **Physical Typologies**

#### **BUILDING FIGUREGROUND**

#### PHILADELPHIA NAVAL BASE OPEN SPACE USE 1993

Hard Soft Wild Maintained Green Parking Recreation

### PHILADELPHIA NAVAL BASE CLOSURE AND REALIGNMENT MILESTONE MAPS 1992-1995

Remove Personal Property, Hazardous Wastes, Close Facility Excess
Caretaker Status
Transfer
NAVMEDCLINIC
Begin Inspection, Inventories, ISSA, and Services Termination

### BUILDING TYPOLOGIES (OVERLAY FOR BUILDING DEVELOPMENT)

1890-1913 1913-1921 1921-1945 1945-Present

#### **IMPLIED ZONING MAP**

#### PROPOSED CONSERVATION PLAN

#### **Physical Typologies**

#### **BUILDING TYPOLOGY #1**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #2**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #3**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #4**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #5**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #6**

Photograph and Written Description Section & Plan Site Location Map

#### PHILADELPHIA NAVAL BASE BUILDING INVENTORY POST-1995

Demolish Converted to Other Naval Use Maintained Vacant

#### **CURRENT USE**

Residential Industrial Utilities Administrative

#### **BUILDING VOLUME**

View of Western Quadrant View from I-95 Looking East View of Southeastern Quadrant View of Administrative Core

#### PHASE II:

#### **Regional Context**

**AIR TRAFFIC PATTERNS** 

LAND FILL MAP

#### **VIEWSHEDS**

Base Map Views 116A, 116B Views 117A, 117B, 117C Views 121, 122A, 122B Views 123A, 123B Panoramic View 124 Panoramic View 125 Views 126A, 126B Views 127A, 127B, 127C Views 128A, 128B Panoramic View of Mud Island

#### **Historical Analysis**

NATIONAL REGISTER PRESERVATION PLAN

**BUILDING DEVELOPMENT: 1890-Present** 

#### **BUILDING TYPOLOGY #7**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #8**

Photograph and Written Description Section & Plan

#### **BUILDING TYPOLOGY #9**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #10**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #11**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #12**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #13**

Photograph and Written Description Section & Plan Site Location Map

#### **BUILDING TYPOLOGY #14**

Photograph and Written Description Section & Plan Site Location Map

#### **OPEN SPACE TYPOLOGIES**

Residential Institutional Communal

#### **EXECUTIVE SUMMARY: PHASE I**

As mentioned in the introduction, a fact-finding mission characterized the substance of Phase I. The information contained in the Phase I Expanded Reports is intended to serve as a necessary foundation for any team intervening on the site.

#### REGIONAL CONTEXT

Investigation of the regional context focused upon the Philadelphia Naval Yard and the Yard's connection to the Philadelphia metropolitan area. Topic explored under regional context included Natural Features, Geology, Topography, Soils, Water Systems, Wildlife and Vegetation, Toxicity, Land Use, Circulation, Transportation, and Perceptual Studies.

Key information explicated in the expanded report on regional context includes understanding the site as a flat, tidal wetland environment located at the confluence of two rivers, with half of the site being located in the 100-year floodplain. The soils consist mainly of fill with subsidence plaguing some areas of the base. Studies of the development of the island and the extant circulation a shows that the Naval Yard exhibits a duality of isolation and access to numerous transportation routes. Perceptual studies exemplify the existing and potential connections to the region in terms of water access, landmarks, and implied connections.

#### HISTORICAL DEVELOPMENT AND REGULATORY ENVIRONMENT

This component of study for the Naval Yard revealed the early development plans for island, six distinct building campaigns by the Navy which usually related to war time machinations, the Navy's management of their built environment, the identification of industry as a defining characteristic of the Yard, and the impact of the creation of Mustin field. The relationship between the Navy's mission (their strong sense of purpose and hierarchical nature) and their built environment as a product of this mission was also explored. Research concerning the relationship between the Naval Yard and Philadelphia revealed the cities active role in bringing and keeping the Naval Yard at League Island and the regional economic dependence on the Yard. The mechanisms for the transfer of this property was discussed in terms of both the process itself and itself relationship to historic preservation issues.

#### PHYSICAL TYPOLOGIES OF EXISTING BUILDINGS, STRUCTURES AND LAND USE

This part of Phase I concentrated on articulating the planning model to be used by this studio and the subsequent methodology. Also defined were the building typologies extant at the Naval Yard. An inventory form was also created to facilitate future documentation of the site. The typological analysis manifest most clearly in the creation of numerous maps which explain the physicality of the site.

#### REGIONAL CONTEXT

#### INTRODUCTION

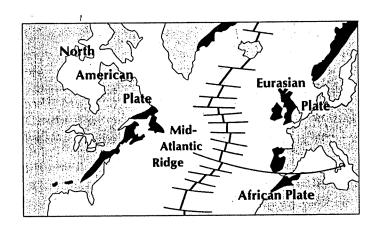
Team A investigated the regional context of the Philadelphia Naval Yard and the Yard's connection to the Philadelphia metropolitan area. After documenting the history of the natural systems, as well as the history of League Island's physical development, we were then able to discern developmental and land use patterns. We used both a regional and a local scale to analyze our findings.

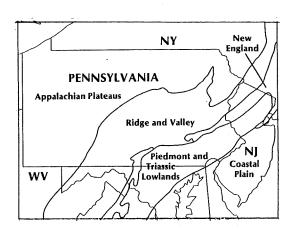
#### **NATURAL FEATURES**

The Philadelphia Naval Yard, located on League Island, sits within the distinct physiographic province of the Inner Coastal Plain. As a unique tidal wetland environment, the Naval Yard is geologically and topographically distinct from the immediately adjacent Piedmont and Triassic low lying Outer Coastal Plain.

#### **□** Geology

The land mass of Pennsylvania and surrounds was formed 570 million years ago in the Cambrian Period. (Fig. A) It is now a variety of metamorphisized, partially metamorphisized, and sedimentary formations, the southeastern most corner of which is the Coastal Plain. This area of Pennsylvania, along with most of Southern New Jersey, shares land types with that of North Africa, due to a massive collision of the two tectonic plates.

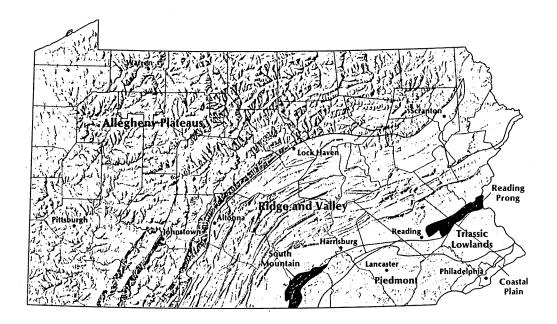


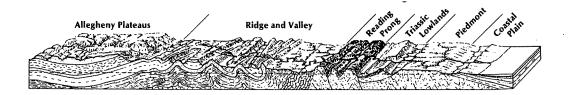


The Coastal Plain consists of eroded surface material, from the Piedmont Range and the Triassic Lowlands of the Appalachian Mountains of Central Pennsylvania. (Fig. B) It is a low belt of sedimentary rock (sandstones and shales), gravel, sand, clay, and silt, running along the coast of North America from Massachusetts to Mexico. The total thickness of these sediments ranges from 100 feet to about 240 feet.

#### □ Topography

Virtually all of the land comprising the Philadelphia Naval Yard is flat. (Fig. C, Map A-1) The total elevation change is only about four feet, the highest point being at the center of the site. The Yard is located in the middle of a vast valley, that includes parts of Philadelphia, Delaware, and Gloucester Counties, with an elevation change of only twenty feet. Beyond the valley, the slope becomes more pronounced, specifically to the northwest of the Yard.





#### **☐ Soils**

The sandy-clayey soils (Fig. D), generally associated with the Inner Coastal Plain, are no longer recognizable at the Naval Yard, due to heavy human intervention. Tremendous land reclamation and dredging, which began as early as the sixteenth century, altered the original marsh condition.

Surface materials of the area consist of fluvial and estuarine sediments which are mostly sands and gravels with some clay layers. Some of these sediments are considered aquifers as they transmit large amounts of water. The soil types have been classified as Urban Land-Howell Complex comprised of 60% Urban Land which is disturbed or man-made, 35% Howell silt Loam and 5% miscellaneous

soil types. The extensively disturbed soils were developed by placing fill composed of garbage, sand and gravel over original tidal marsh land and Howell soils.

Some areas of the base have subsidence problems which indicates poor soil engineering properties. One area most likely affected is comprised of 40 acres in the northeastern area of the base which has mixed fill over the original tidal marsh. Significant toxification of the Naval Yard soils makes the slight depth to ground water problematic for the entire region.

#### **☐** Water Systems

The Philadelphia Naval Yard is located at the confluence of the Schuylkill and Delaware Rivers. (Map A-2) The Schuylkill is formed by the different streams, that collect precipitation, in the Delaware drainage basin. The Delaware River starts in New York State, and serves as a border between Pennsylvania, New York and New Jersey. The Schuylkill River streams into the Delaware, which ends in the Delaware Bay, further south, on the Atlantic Ocean.

About half of the site is located within the 100-year floodplain. The Naval Yard and much of the coastal plain areas adjacent to the Delaware River are recharge areas of high yielding aquifiers.

#### ☐ Wildlife and Vegetation

The majority of native vegetation, characteristic of the province, has disappeared. Exotic and native invasive species have taken over.

The result is a virtual monoculture, relative to the rich wetland environment.

The National Wetlands Inventory map indicates five Palustrine Scrub-Shrub/Emergent Wetlands within Mustin Field. A Wetland classified as Riverine Tidal Flat is mapped along the Delaware River from the Seaplane Ramp to a point just north of the Ferry Slip.

There is no unique wildlife habitats in the area but the reed-grass community does provide food, cover and space for many species including morning doves, black birds, ring-necked pheasants and garter snakes. Peregrine falcons are the only confirmed special status species identified on the base.

The aquatic environment has been disturbed by municipal and industrial wastewater discharges into the Delaware and Schuylkill Rivers. The combination of high concentrations of pollutants and low dissolved oxygen results in the low diversity of aquatic life chiefly composed of sludge worms and fish which are tolerant to contaminated water.

#### ☐ Toxicity

According to the 1990 Environmental Impact Study, a program was initiated in 1983 by the Navy to identify any possible hazardous material or hazardous waste disposal sites within the confines of the Philadelphia Naval Yard. These investigations determined the following areas as hazardous:

#### **PCB Contamination Sites:**

- ⇒ Building No. 825 PCB transformer storage area, is located in the northwest part of the complex, slightly north of Girard Point and southwest of the DRMO and the fire fighting training area.
- ⇒ Substation 82 transformer oil spill location, is located in the south central part of the complex. The site consists of two large transformers in an area of about 800 square feet enclosed by a 10- to 12- foot high concrete wall.
- ⇒ Building No. 546 PCB transformer oil spill area, is located within the Controlled Industrial Area of the base near the southern edge of the complex toward the west side, to the east of Building 546. This site consists of an area extending about two feet in all directions from a seven by twenty-seven foot concrete pad.
- The vacant lot of former Building No. 599, is located near the center of the Complex at the corner of 4th Street East and Rowan Avenue.

#### **Metal Contaminants:**

- Rubble Disposal Area, is located at the eastern part of Mustin Field. This area was apparently used for the disposal of various wastes since the early 1900's.
- ⇒ Blasting Grit and Drum Disposal Area, is located in the southeastern portion of Mustin Field.
- ⇒ Girard Point Blasting Grit Disposal Area, is located north of the Reserve Basin and immediately to the east of Buildings 825, 548, and 668.

#### Petroleum Hydrocarbons:

- Reserve Basin Sediments, is located at the Reserve Basin at the western side.
- ⇒ Fuel Farm, is located on the western portion of the Complex.
- ⇒ Fire Training Area, is located north of DRMO. The site is completely paved with asphalt.
- ⇒ An Oil Spill Area, located along the southern edge of the Reserve Basin between the railroad tracks north of Building No. 592.

#### **Buried Gas Cylinders and Asbestos:**

Incinerator Landfill and Cylinder Disposal Area, is located on the west side of the Complex on Girard Point. Fifty to Sixty pallets of gas cylinders of unknown contents were buried in a trench west of the old incinerator.

#### NATURAL HISTORY

The Philadelphia Airport Master Plan of 1972 provides some background of the natural and man-made environment for the lower Philadelphia area along the Delaware known in the mid-17th century as the Tennakon-Minquas Island Marshes:

The early settlers — Swedes, Dutch and English — diked and drained part of the marsh for grazing land. Similar modification of the wetlands occurred piecemeal during the next two-and-a-half centuries. Then, more rapid and drastic changes began to take place during the nineteenth century.

Since the advent of World War I, more than 5,000 acres of tidal wetlands in the vicinity have been deeply covered with fill to construct railroads, highways, boat yards, the airport, and residential and industrial sites, and for trash disposal. By 1972, the largest tidal wetland in the Commonwealth of Pennsylvania had been reduced to approximately 200 acres... known as Tinicum Marsh (page 198).

Tinicum Island was one of the largest and highest of the islands in the marsh and one of the first continuously occupied European settlements in the colonies. The dikes were earthen constructions used as a barriers against the tidal fluctuations of the marshes and the Delaware and Schuylkill Rivers. This area was also the site of a British attack by boat in 1777. In 1788 Pennsylvania passed four acts "to govern the maintenance and extension of dikes in the area (page 200)." The marshes were used for farming and grazing until the turn of this century when the banks and dikes were either dismembered or unmaintained to the point of deterioration. Today, the tidal marshes are marginally but similarly managed in order to accommodate the rail tracks, freeways and airport — using dikes, drains, sumps, and diversions. In the 1930s the WPA (Works Progress Administration) and regional government reconstructed the dikes and sluices.

The early systems of dikes and the accompanying land uses altered the drainage and doubtlessly caused changes in the vegetation and native animal populations within the embanked tracts. These, however, were [only] modifications of the marsh ecosystem. The extensive filling operations that followed represent massive assaults on the ecosystem and have resulted in cataclysmic changes in drainage, vegetation and animal life (page 202).

The Hog Island (airport) site was still tidal in the 1890s with the first major landfilling occurring in 1914 when the Island was transformed into a shipyard during World War I. Landfill spoils were, and still are, obtained from the Delaware River. No undisturbed tidal wetlands remain. Apparently site and soil-boring data show an ancient stream valley, now called the Point Breeze Trough, just to the west of League Island — partially creating the Mud Island Ridge. Topographically the area ranges from four feet below sea level to ten to twenty feet above sea level on filled land.

#### POSSIBLE ARCHEOLOGICAL SITES

There are a number of significant historic or potential archaeological sites within the region of the Philadelphia Navy Yard. They are:

- ⇒ Point Breeze Trough
- ⇒ Hog Island Ship Yard
- □ Tennakon-Minquas Marshes both Native American and European occupations
- ⇒ Large Tinicum Island and Little Tinicum Island

- Fort Billings a 1778 American revolutionary fortification, built during the British occupation of Philadelphia to prevent their Navy from reaching the British post in the City. No extant structures.
- ⇒ Fort Mifflin

Potential for pre-historic and historic archeological resources within the Philadelphia Naval Yard have been studied previously in the 1990 Environmental Impact Study conducted by the U.S. Navy. It was stated in the study that areas where intact deposits have been capped by fill, locations with no present structures, and small undisturbed areas such as yards are the most likely sites in which to uncover any archeological resources.

Specific areas of the base that have this potential for archeological deposits include the Parade Ground immediately west of Buildings 100 and 101, the areas immediately surrounding Building 6, Quarters A, B, C, K, L, M, N and O. Other areas include the parking area north of Building 1 and the yard areas surrounding Buildings M-1 through M-7.

#### DEVELOPMENT OF THE ISLAND AND THE CITY

The maps charting population growth show the relative isolation of the Naval Yard, from residential Philadelphia, throughout the history of the city. (Fig. E) This examination was undertaken to determine how the Philadelphia Naval Yard's installation, in the nineteenth century, affected the distribution and growth of the population. As can be seen in the maps (Fig. F), the population moved southward, from central Philadelphia, towards the yard, as opposed to northward, as has been hypothesized. This may be the result of the marshy quality of the land, which could have made development difficult. The growth pattern may also reflect self-imposed isolation by the Navy.

The area in South Philadelphia, south of Moore Street and between the Schuylkill and Delaware Rivers, was traditionally called "the Neck." As late as 1925 much of the area was low marshy plain dotted with dykes, which were a holdover from early settlers. At the turn of the century Broad Street was little more than a dusty or muddy trail and served as the spine of the Neck, linking the rural taverns, road houses, truck farms, and fertilizer plants to the city.

"The Neckers in the old days were most provincial, and many of them seldom made a journey as far north as Market Street, excepting the farmers and butchers who had stalls in one or another of the market houses or curb markets of the day" (Encyclopedia 931). The name, "the Neck," was used as early as the late eighteenth century, and "seems to have been assigned to that section of Passyunk and Moyamensing which lay between the southern swamps and the city. Before 1890, the Neck was a favorite hunting ground" (Encyclopedia 931). It was also a place with its own sense of community and customs.

The 1854 Map of the Consolidation of the City shows the city wards, with Ward One covering the entire area south of South, west of Broad Street, south of Wharton, east of Broad Street, river to river. in contrast to other city wards, which are much smaller in size, this demonstrates that population was sparse in this area.

Perhaps the most distinct moment in the morphology of League Island is the point at which, between 1883 and 1886, the island's grid diverged from that of the city, in order to horizontally align with the Delaware River. It is clear, at that moment, that although the Broad Street spine remained, the island literally turned its back on the city and commenced its own internal ordering.

In 1890 development in South Philadelphia "reached to Snyder Avenue along the Delaware and Wharton Street near the Schuylkill" (Miller 3). By 1940 residential development reached south to Oregon Avenue near Broad Street and began running diagonally northwest to southeast from Gray's Ferry to Broad Street (Miller 226).

#### LAND USE

An examination of land use in the Philadelphia metropolitan area shows that the land is almost equally divided between residential (Map A-3) and non-residential use (Map A-4), with little open or green space (Map A-5). The residential areas are closely bounded by industrial or commercial zones in some sections of the city. As shown on the map, these zones serve as both a physical and a psychological barrier separating the Naval Yard from Philadelphia.

The land use maps for the Naval Yard show an equal division of residential, industrial, and open space within the base. The living and working spaces are well defined at the Naval Yard.

#### **CIRCULATION**

#### **☐** Infrastructure

The infrastructure of the Philadelphia Naval Yard defines it very nature and significance: it has always been a place for the making and remaking of United States warships. Bearing this in mind, it is clear that the drydocks, cranes, reserve basin, submarine launch, warehouses, prop shops, etc. are significant to the understanding of the Naval Yard and its place in the nation's history.

#### **☐** Transportation

The Naval Yard is connected to Philadelphia by one major road, South Broad Street. The Septa Subway System terminates at Patterson Station, at the northeast corner of Roosevelt Park, several blocks north of the Naval Yard. I-95 and several major roads, which link South Philadelphia with the airport and Tinicum, bypass the Naval Yard. The freight rails, however, both on and directly north of the Naval Yard, connect with the west and east ends of Center City. The maps of regional transportation systems show the lack of adequate connections between the Naval Yard and transportation systems within the city. (Maps A-6, A-7)

According to a representative of the Philadelphia Industrial Development Corporation, the fate of the Navy Yard is of great interest to the railroads.

Conrail's Greenwich Yard is surrounded by the Food Distribution district to the north, the Sports Complex to the west, Pier 122 to the east and the Navy Yard to the south. Rail tracks and box cars directly abut the northern border of League Island — stretching almost the entire eastern length of the island along Patrol Road.

The Greenwich Yard is relatively active, used mostly for general box car traffic, repair, and refueling. CSX (Chessie System) and CP (Canada Pacific) also use the yard through special transit rights conveyed to them through the Beltline Principle — rights given to railroads to use or create rail lines around the perimeter of Philadelphia apparently enacted well into the last century. All of the Beltline is not used, or has not been developed. Some rails have been paved over, like those running north under Baltimore Avenue.

#### PERCEPTUAL STUDIES

#### ☐ Perceptual Broad Street

The schematic sections of the site show the relationships of the scale of buildings and elements within the Naval Yard as well as comparing the scales and distance to the surrounding region. (Maps A-8, A-9)

In the area of the Naval Yard, some implied connections can be perceived across the Delaware River. Many workers at the Naval Yard commute across the Delaware River via the ferry which departs near the south tip of Broad Street. The ferry route marks what could once be considered the regional continuation of Broad Street to New Jersey. Like Broad Street, the Schuylkill has a corresponding byway directly across the Delaware River suggesting another potential connection. (Map A-10)

The Philadelphia Naval Yard occupies a unique position in Philadelphia. It is both close to the center of the city and removed from it. While Broad Street provides a strong connection from the Yard to City Hall and Center City, the nature of this connector changes along its course.

From City Hall to Oregon Avenue, Broad Street is spatially defined by its urban fabric consisting of an almost continuous string of residential and commercial buildings, which line both sides of the street. From Oregon Avenue south, the nature and scale of Broad Street changes completely. The street is no longer defined by its buildings, which occur infrequently and as objects in a field. Veteran's Stadium, the Spectrum, the Broad/Patterson Subway stop, and the I-95 overpass all occur as large, freestanding objects in a wide horizontal landscape. The Naval Yard occupies a hinterland at the edge of Philadelphia, separated from its densely settled residential and commercial center by I-95, the railroad tracks and switching yard, the stadiums, Roosevelt Park and the food distribution center. The map of non-residential areas describes this unique situation.

While Philadelphia has a relatively large perimeter of water edge, its available pedestrian access to water is essentially limited to four areas. The size of the human figure in Map A-13 is proportional to the relative linear footage of the water access. (Maps A-12, A-13)

A building figure-ground of League Island is overlaid onto downtown Philadelphia at identical scales to conceptualize the Island's size, building density, and structure orientation in comparison with Center City. (Map A-14) The same technique was used to study the size and scope of road, pedestrian, and parking networks of League Island in direct correlation with Center City. (Map A-15)

Visible evidence of more surface ground parking on League Island, than within the downtown district of the city can be seen on this map. These two maps help define the existing patterns and resources at the Naval Yard.

#### ☐ Landmarks

The landmark maps of the Philadelphia Naval Yard consist of three types: orientation, naval icons, and significant buildings.

The landmark orientation map identifies those structures and views which serve as points of reference for the Naval Yard, both on and off the base. A second map illustrates specific areas of architectural significance within the base. The third map displays all structures within the Naval Yard which are symbolic or representative of the Navy.

It is interesting to note that Philadelphia serves as a landmark for the base, but the Naval Yard does not, in any way, serve as a landmark for the city.

#### **REGIONAL CONTEXT: SITE MAPS**

#### **ANALYSIS MAP**

#### **REGIONAL TOPOGRAPHY**

#### REGIONAL WATER SYSTEMS

#### EARLY HISTORY OF LEAGUE ISLAND LAND FORM

League Island: 1750 League Island: 1783 League Island: 1836 League Island: 1883 League Island: 1888

#### POPULATION GROWTH I AND II

#### **REGIONAL COMPARISONS**

Residential Areas Industrial Areas Open Green Space

#### ACCESSIBILITY OF ISLAND TO REGION

City-Island Roadways City-Island Railways

#### **IMPLIED CONNECTIONS**

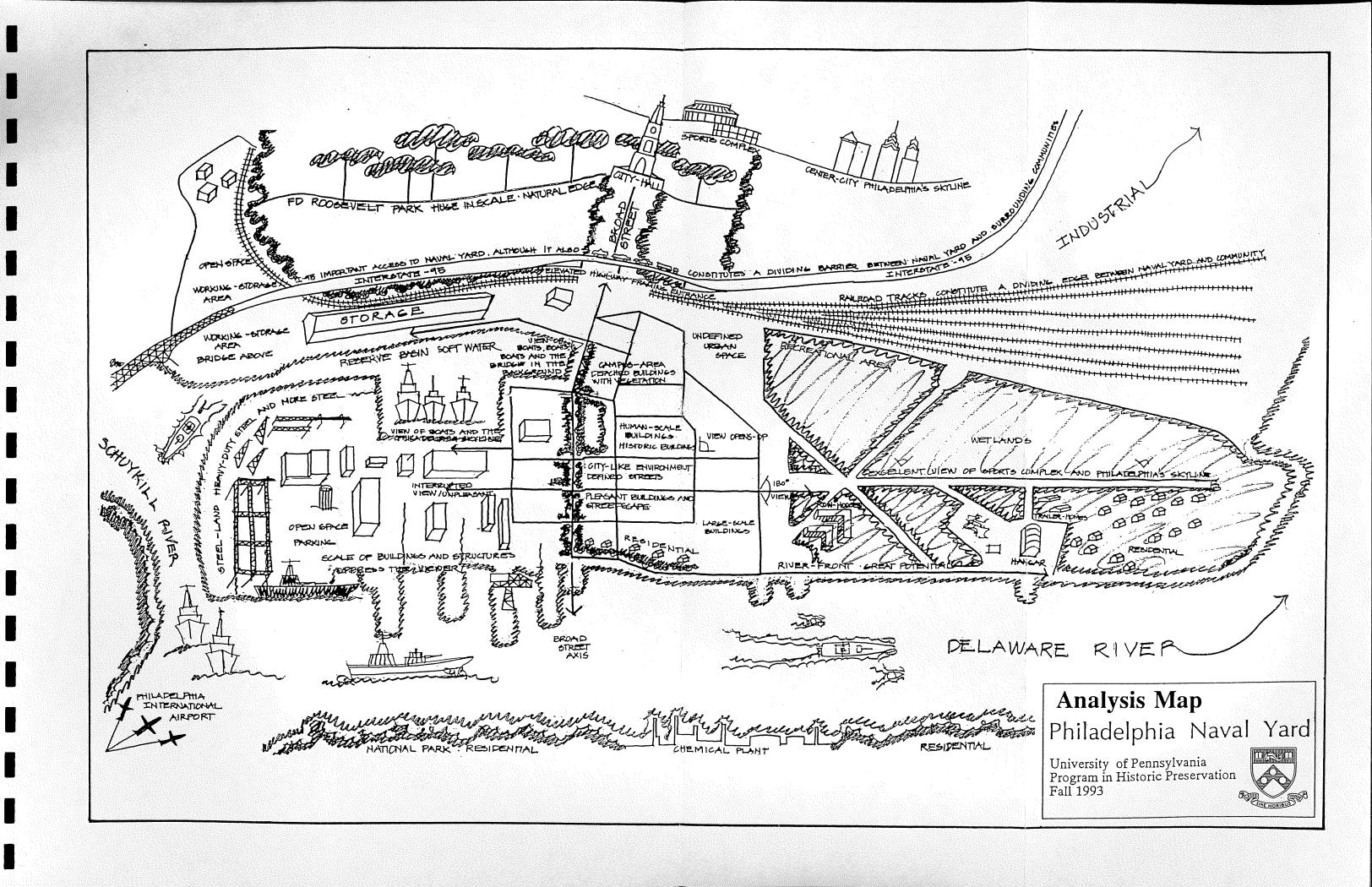
**ACCESS TO WATER** 

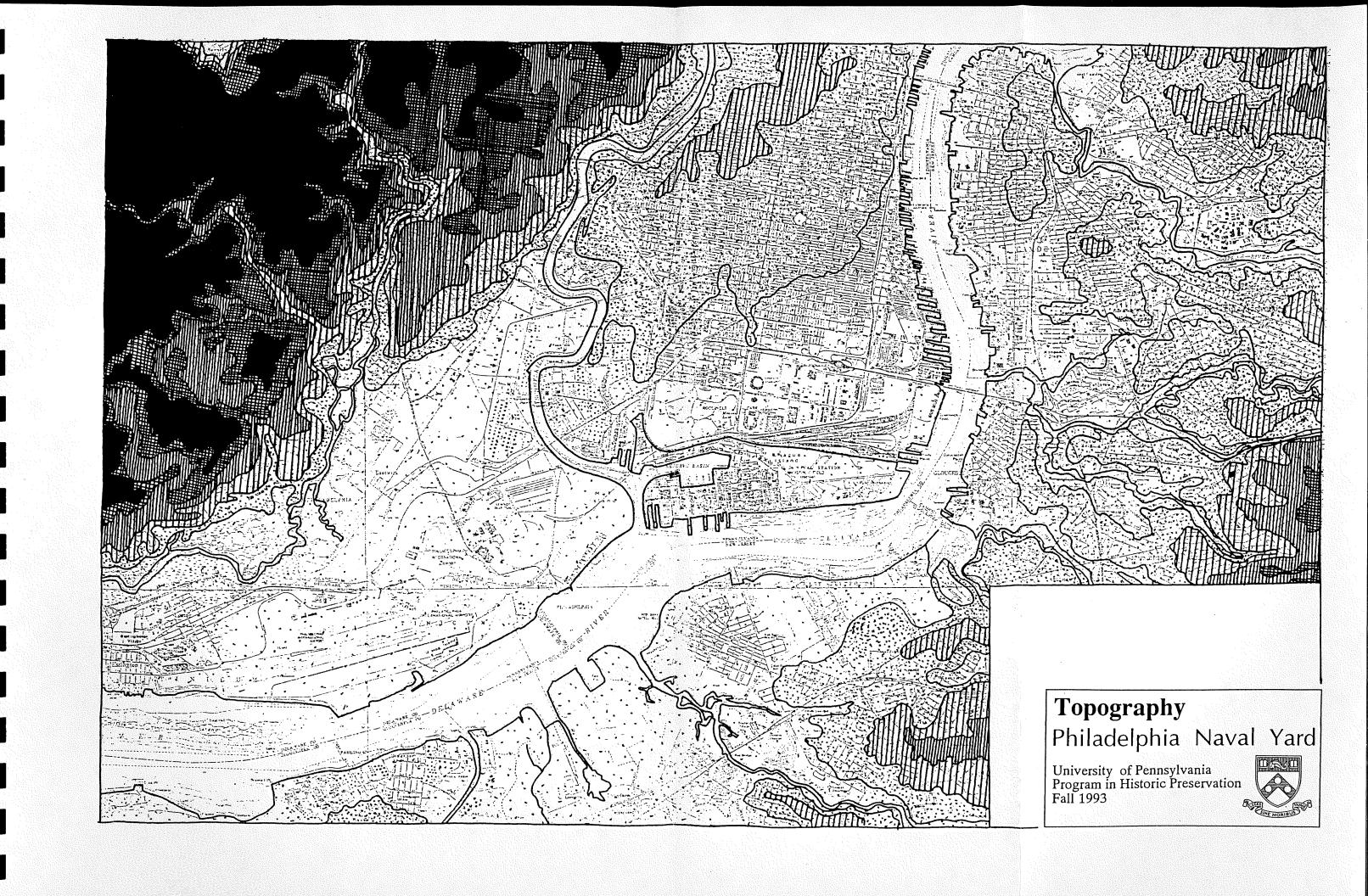
**CITY EDGES** 

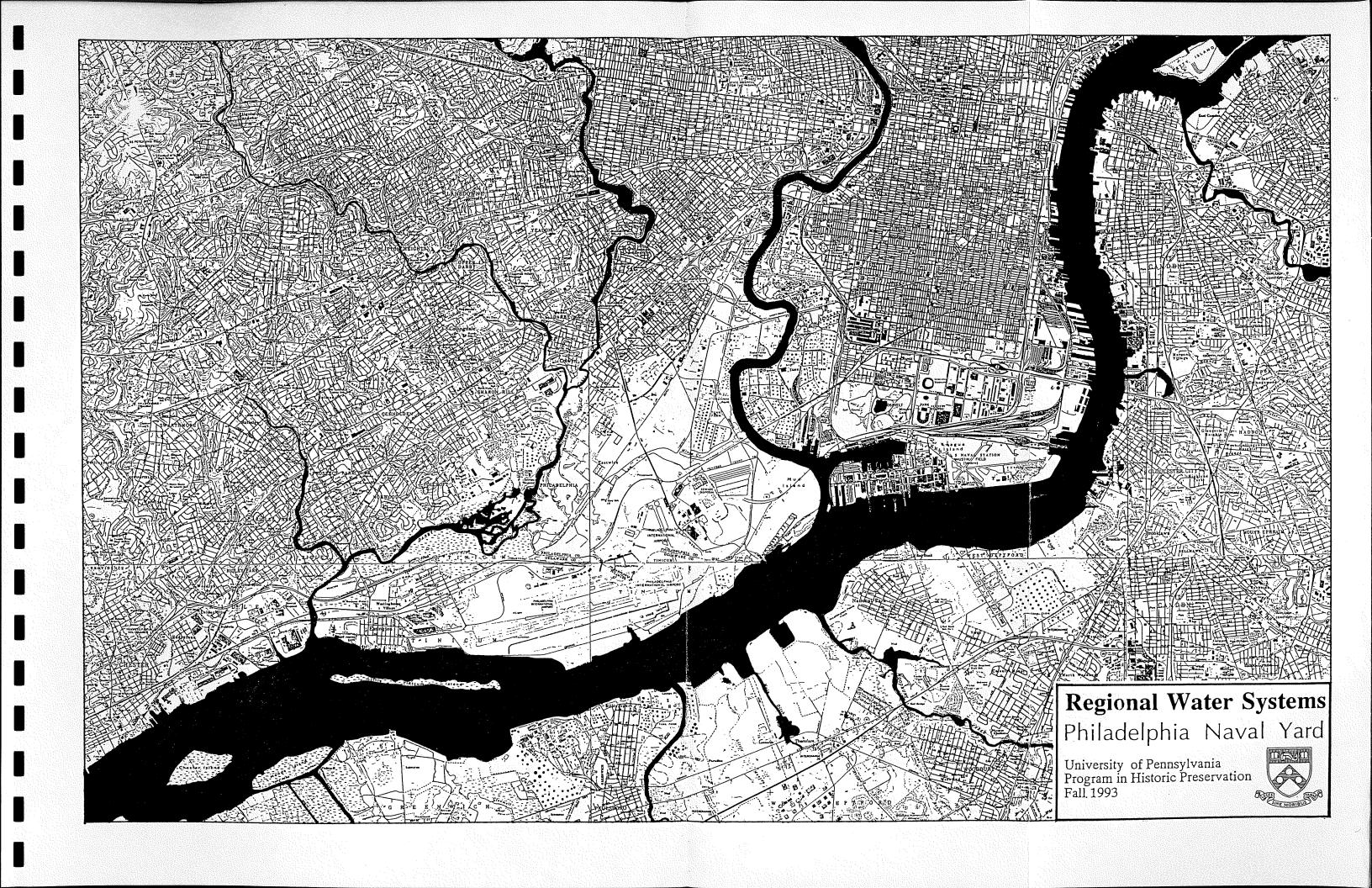
#### **LANDMARKS**

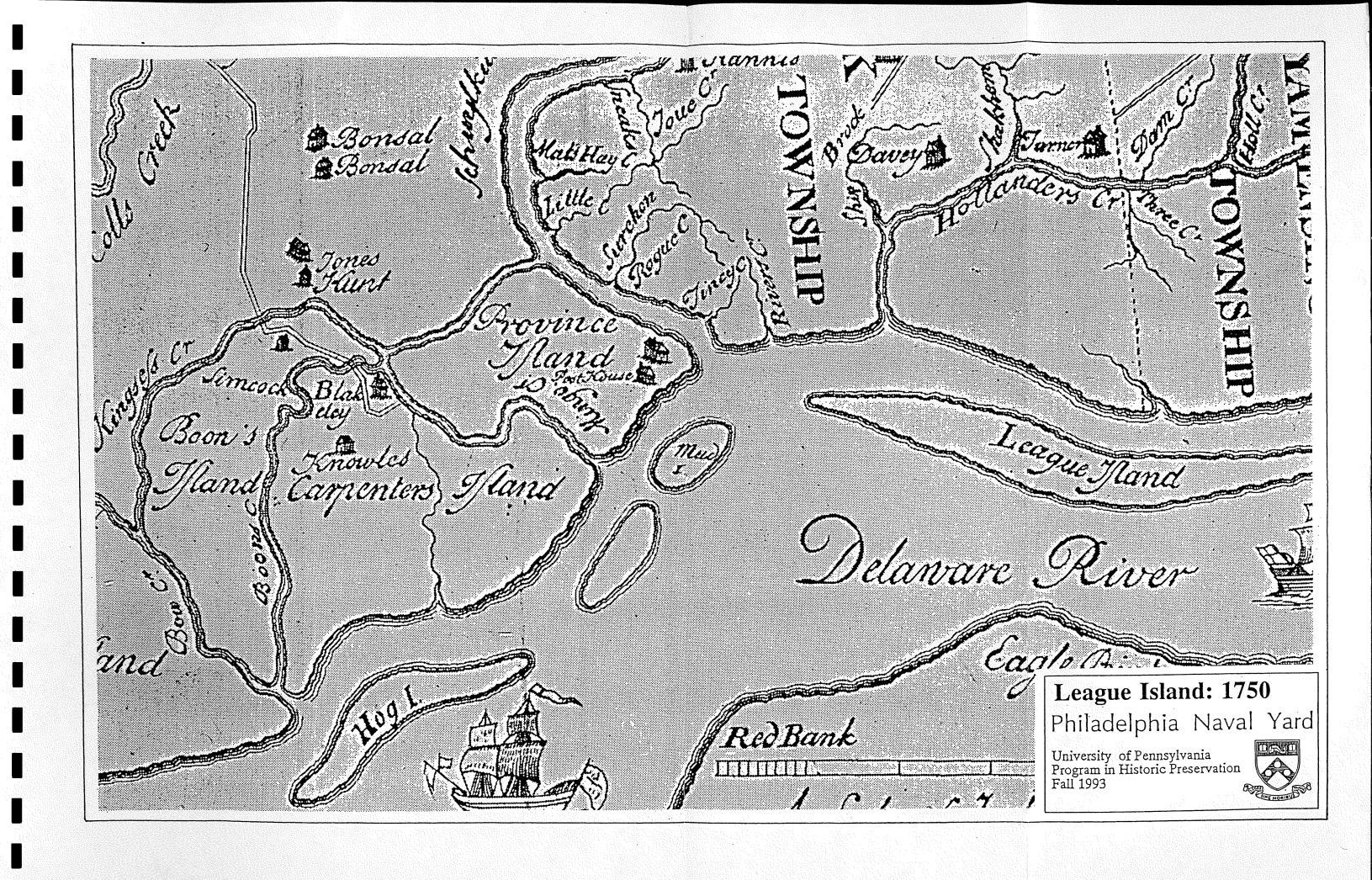
Orientation Significance Naval

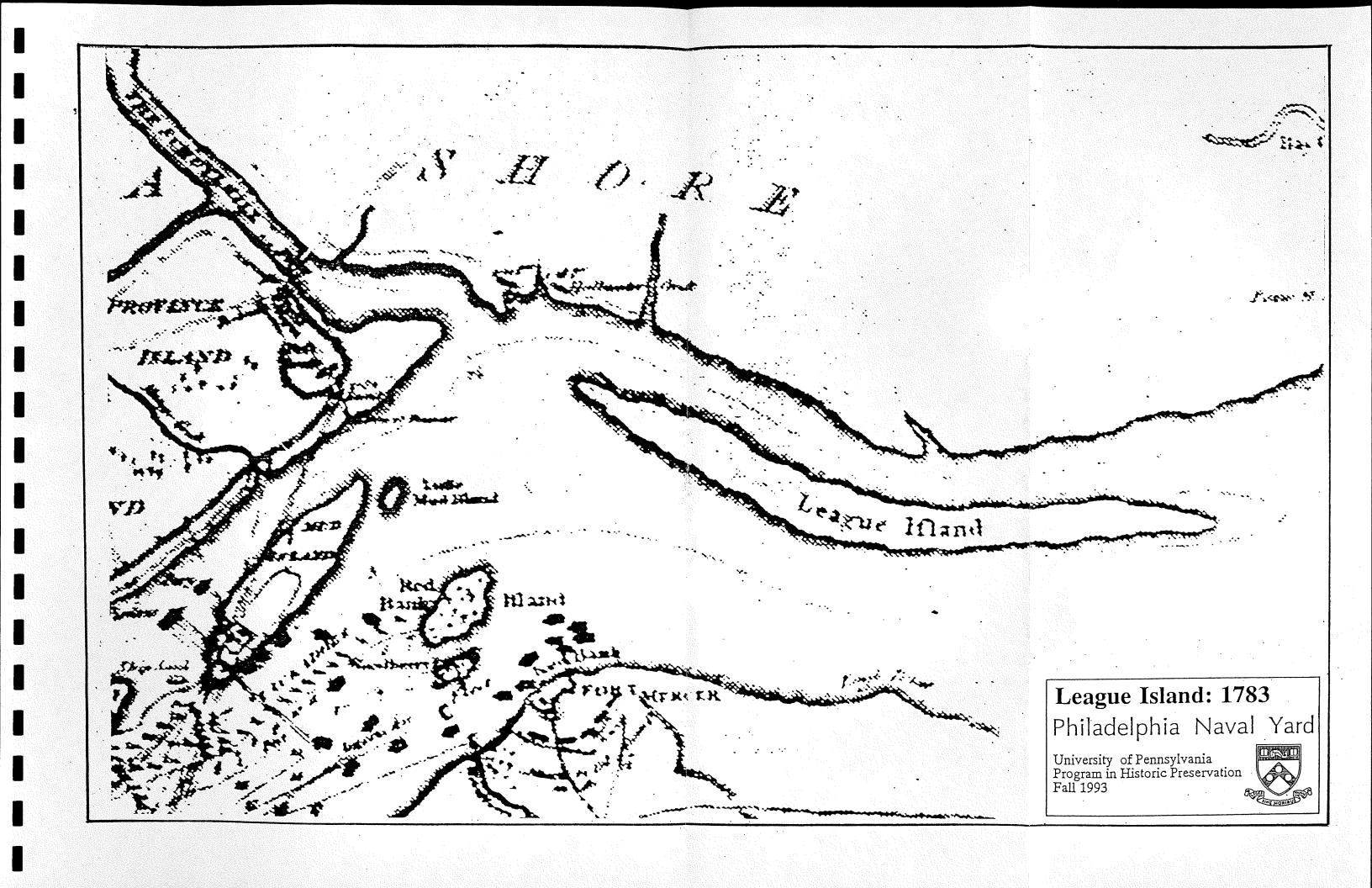
#### CITY-ISLAND OVERLAY

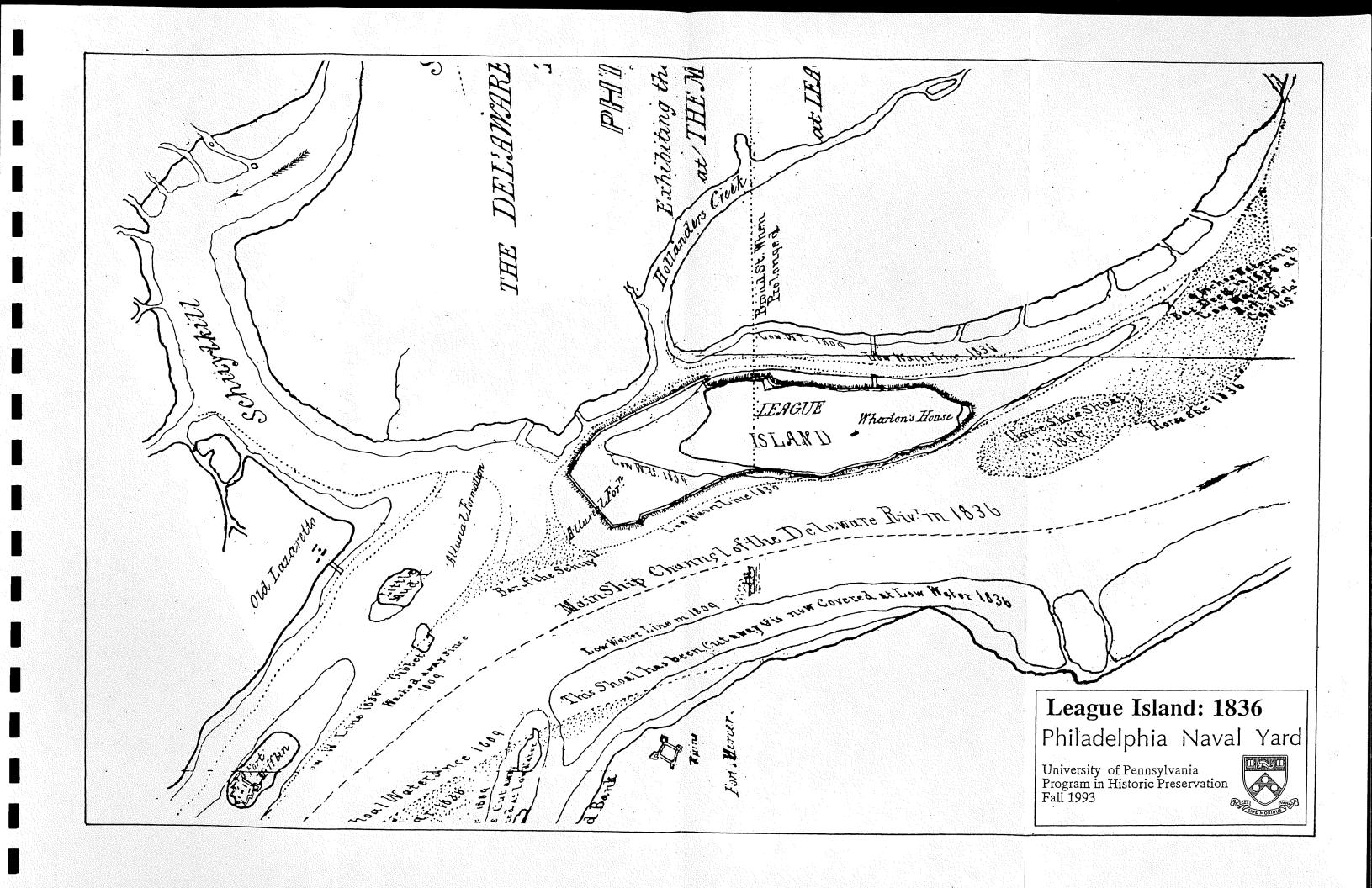


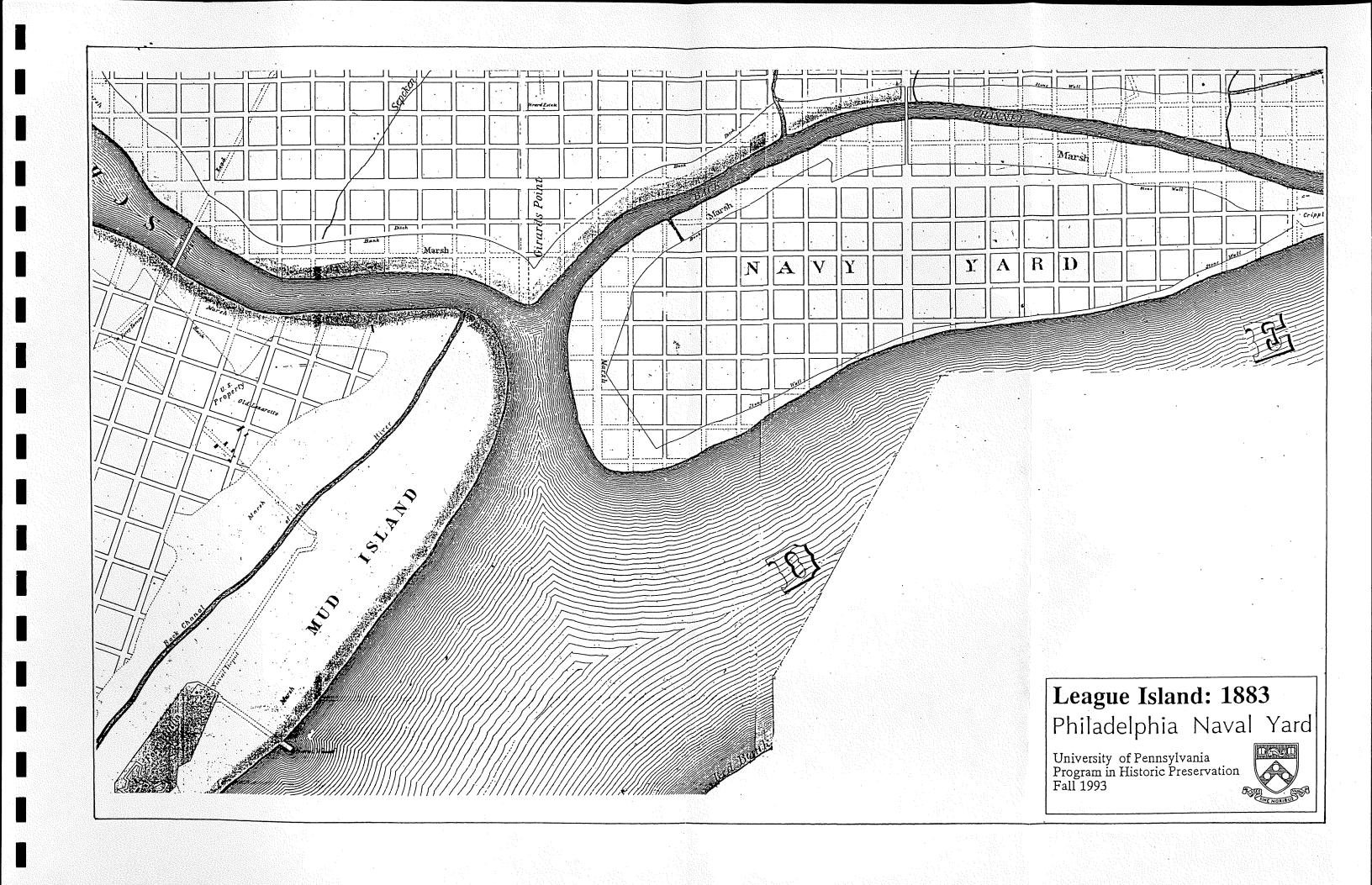


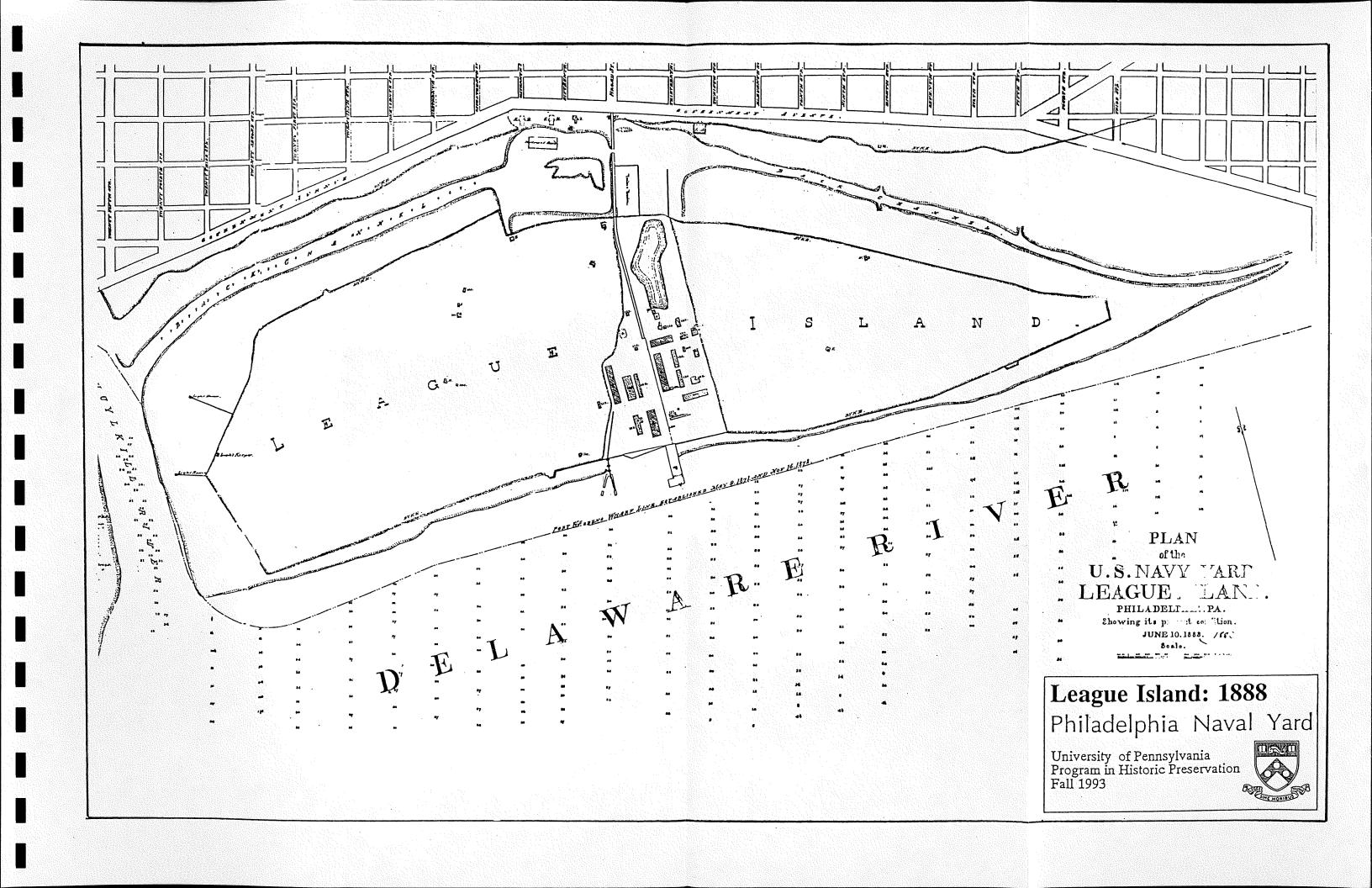


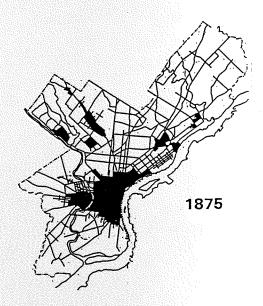




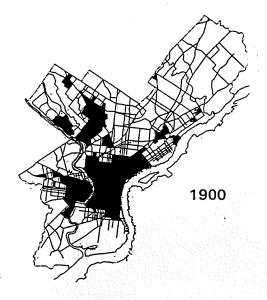


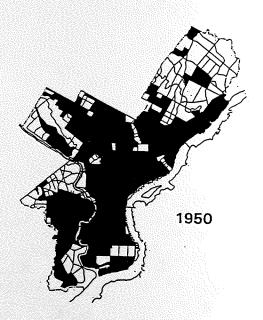


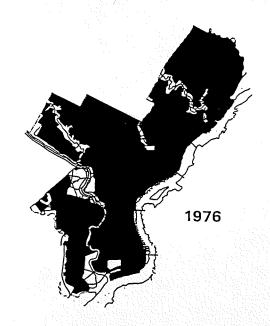




and the second of the





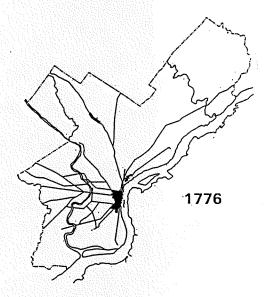


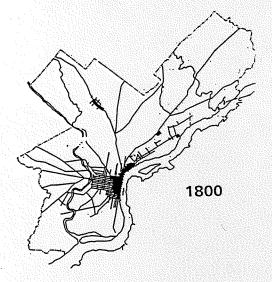
## **Population Growth**

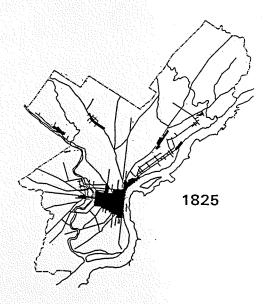
Philadelphia Naval Yard

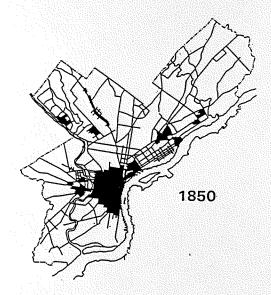
University of Pennsylvania Program in Historic Preservation Fall 1993









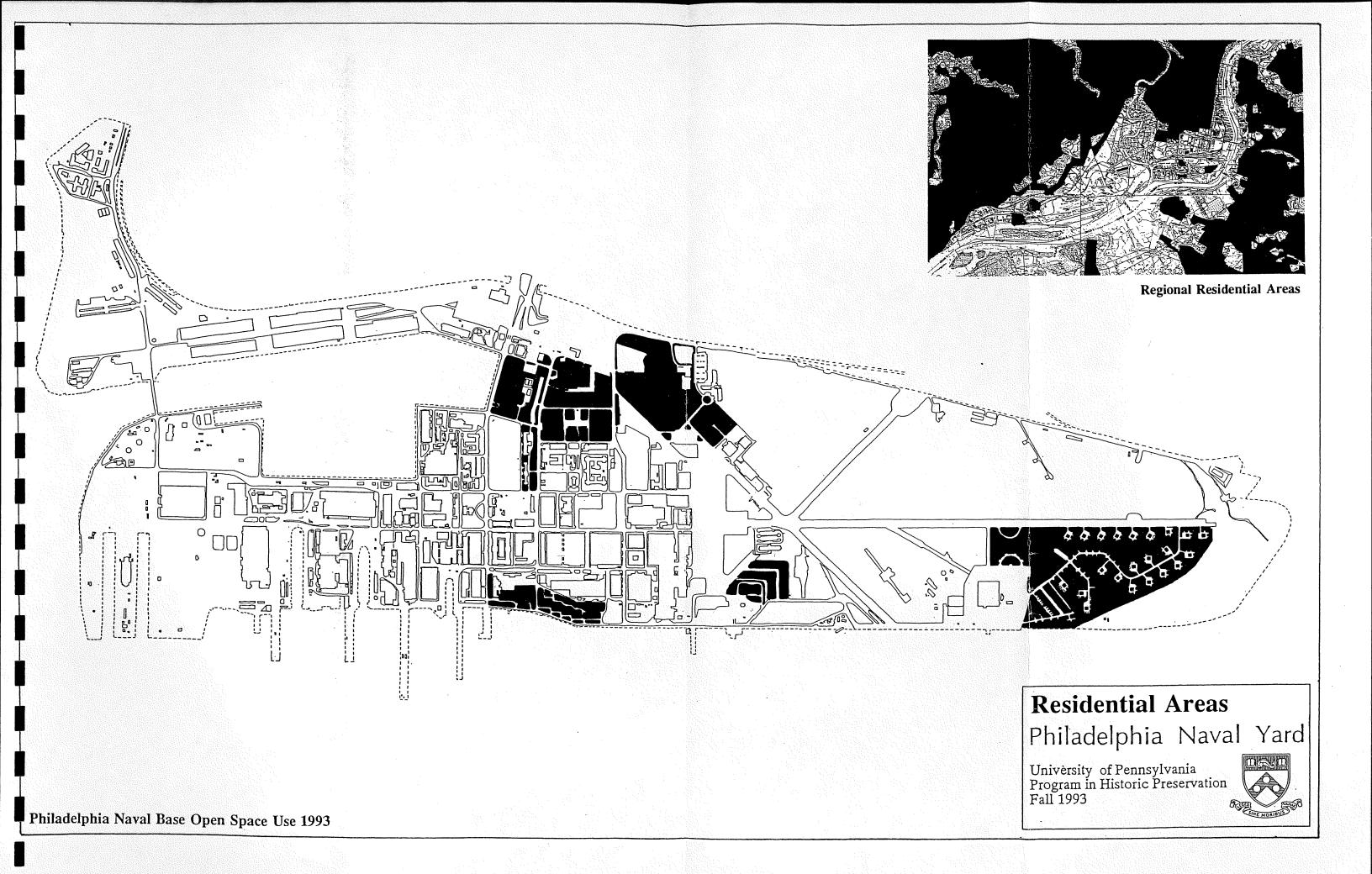


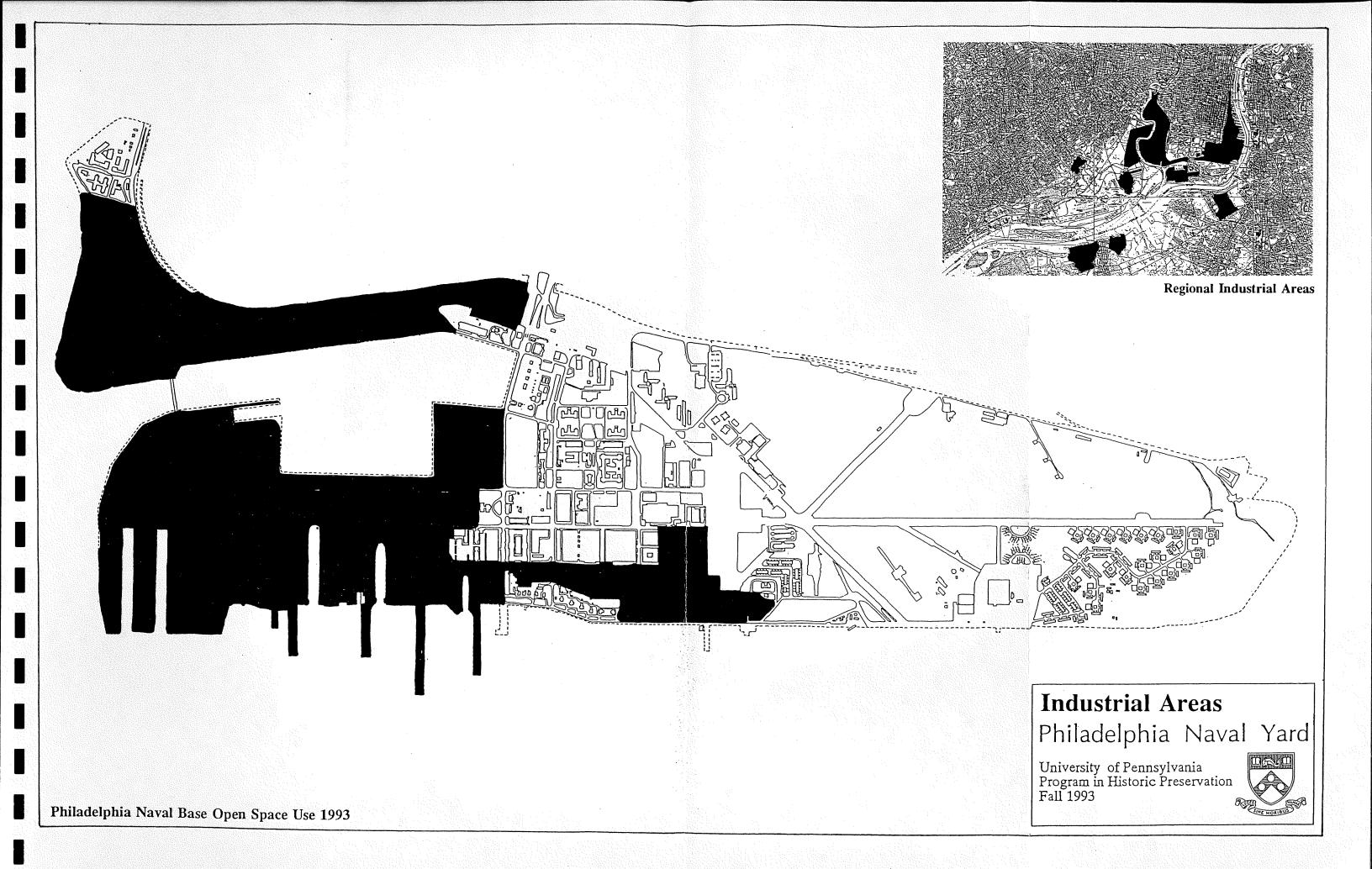
### **Population Growth**

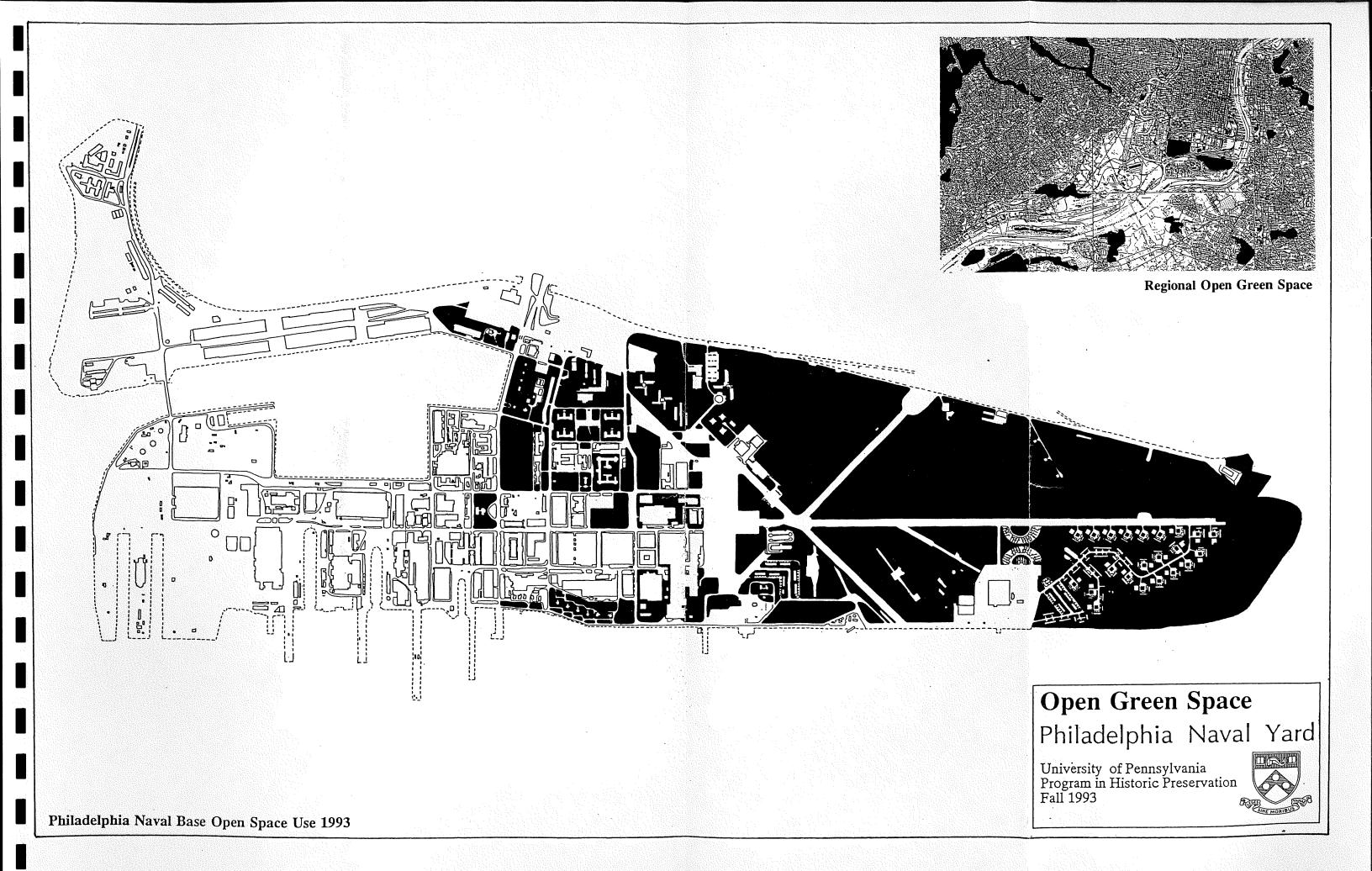
Philadelphia Naval Yard

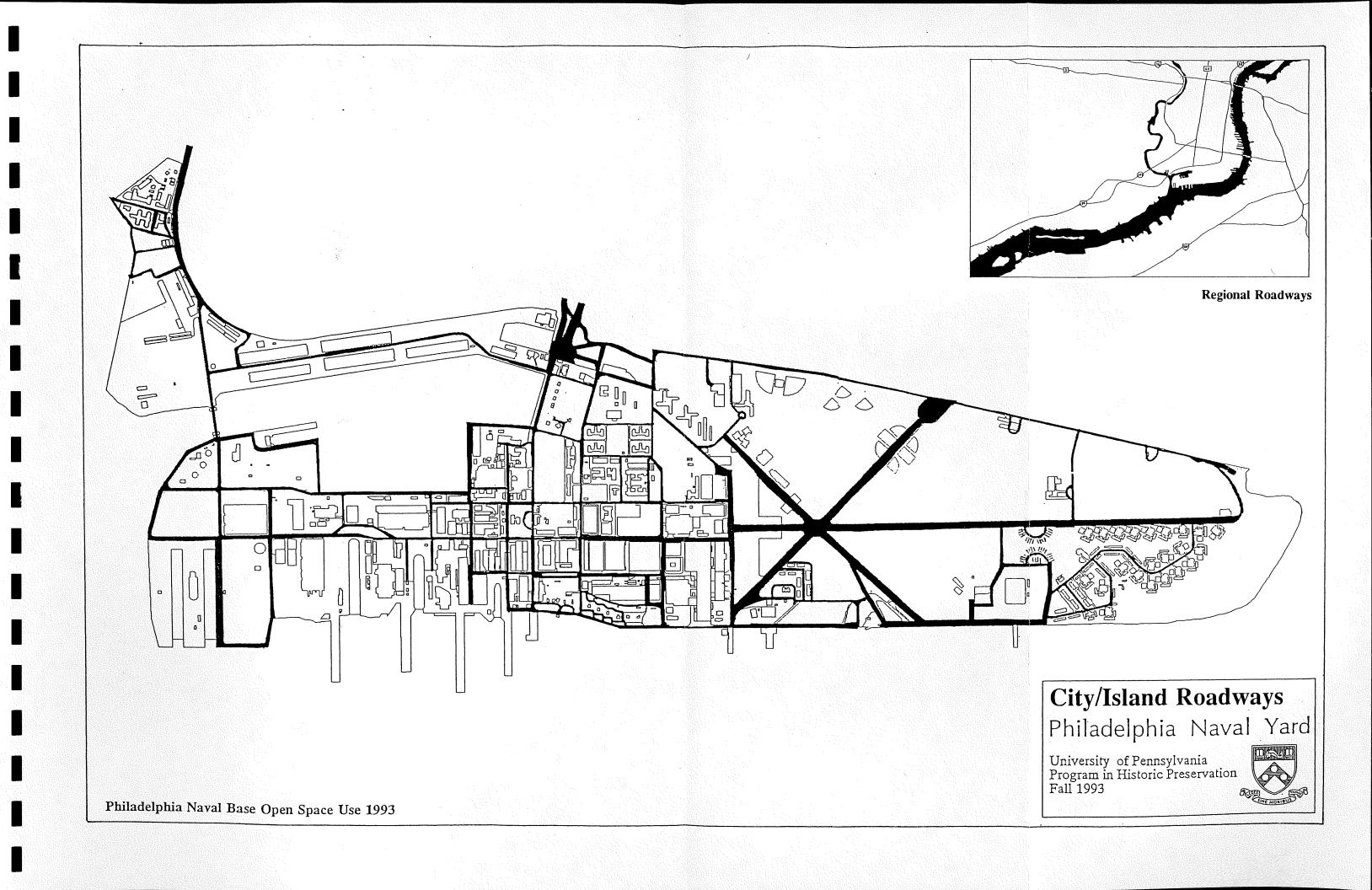
University of Pennsylvania Program in Historic Preservation Fall 1993

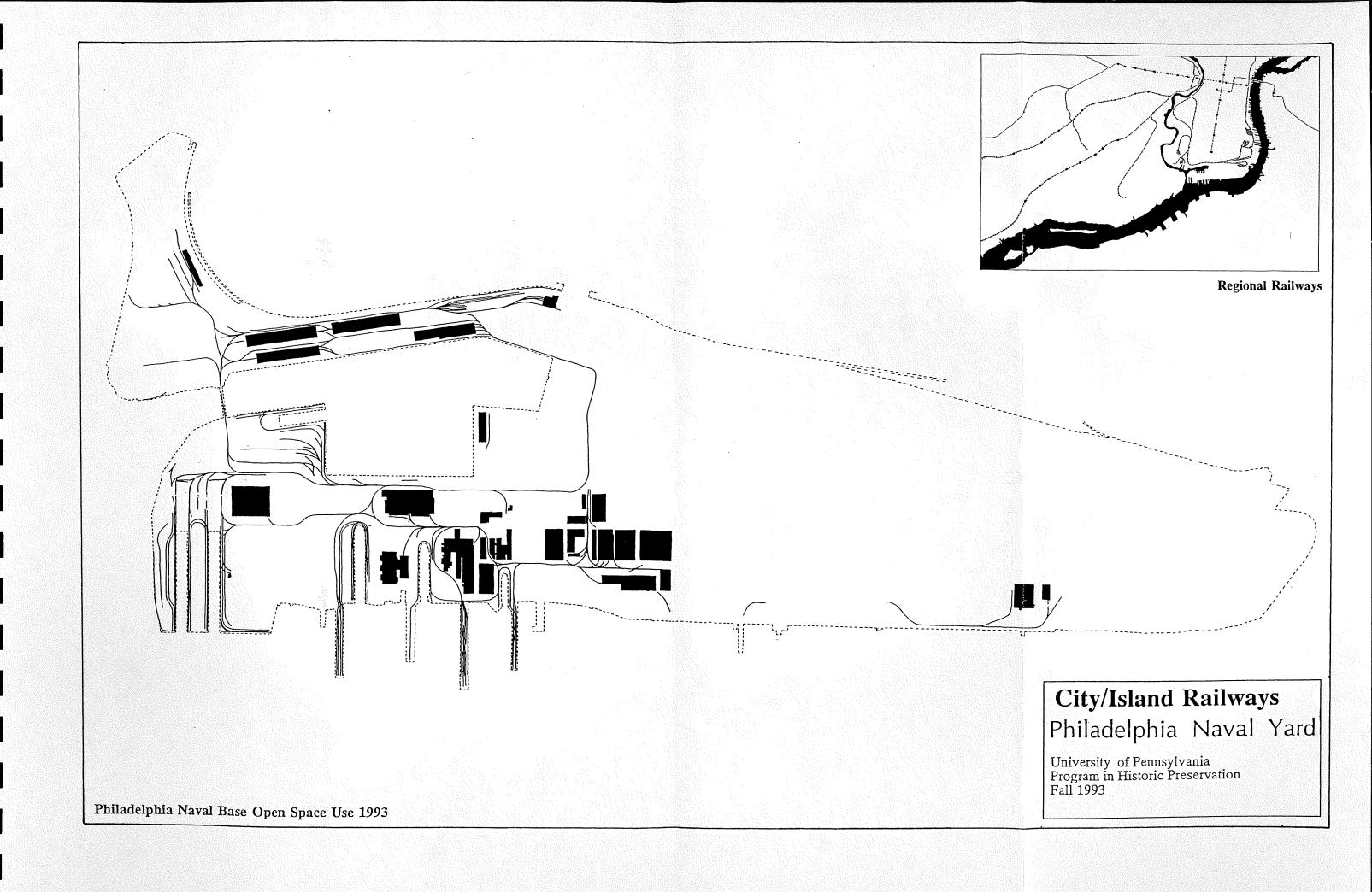


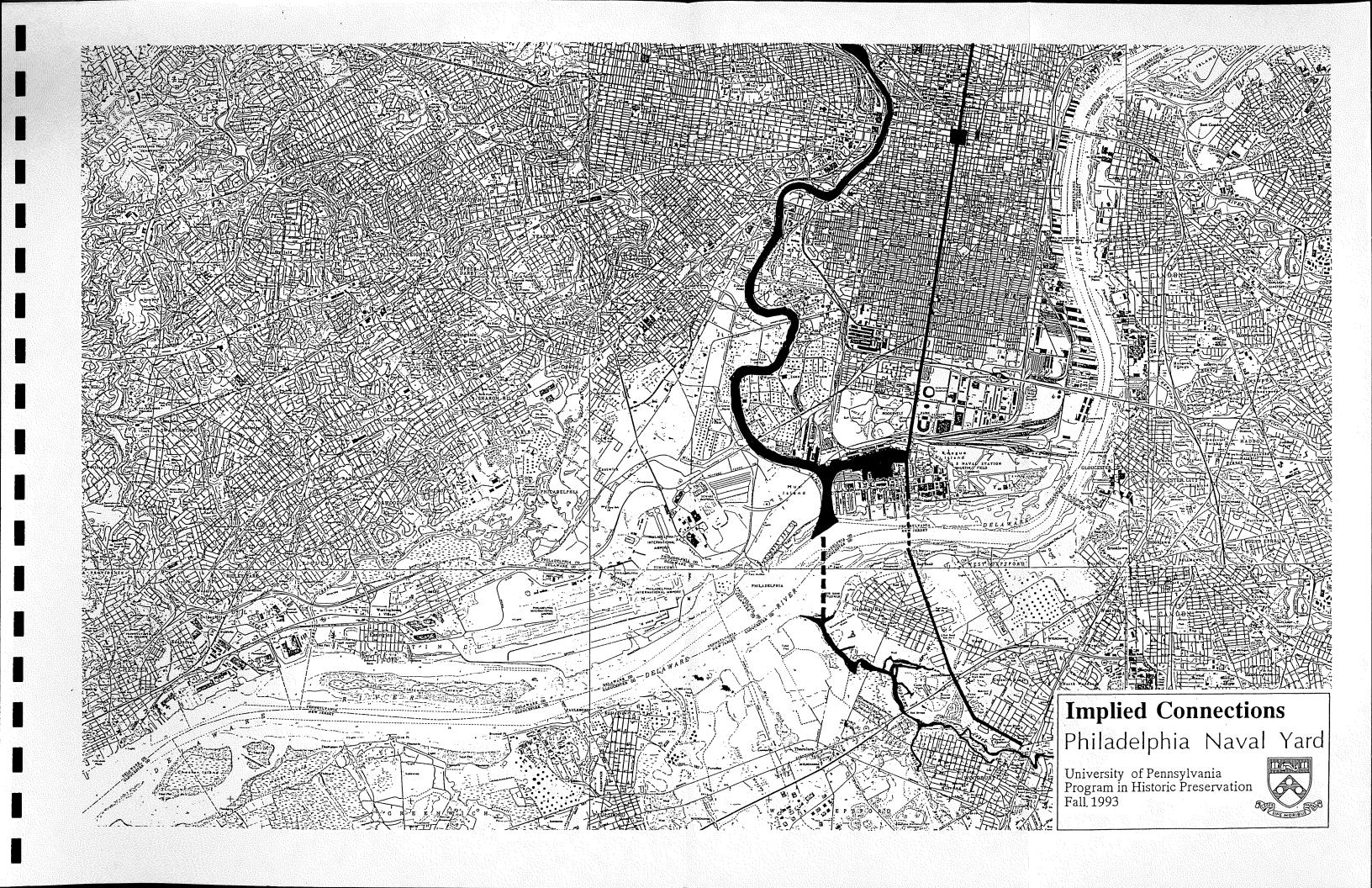


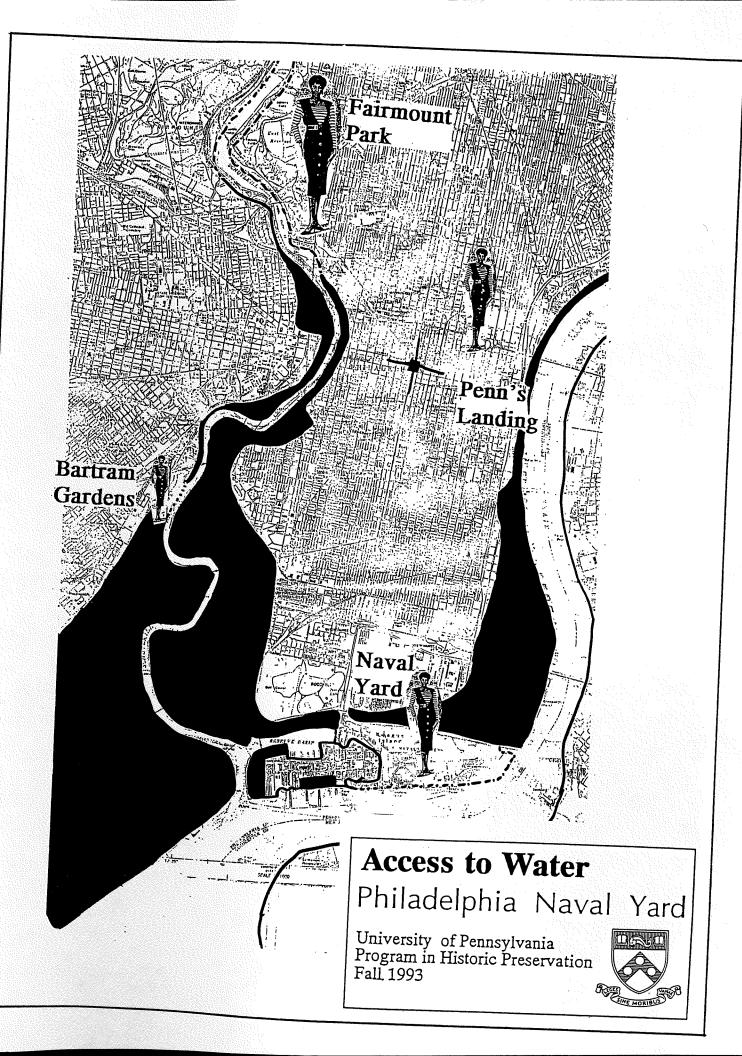


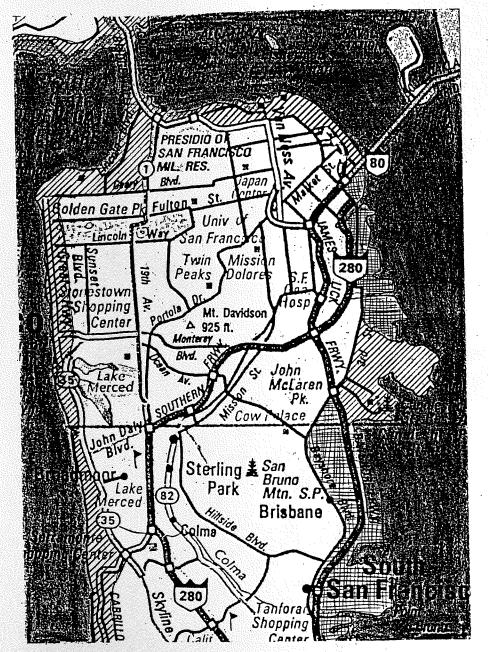




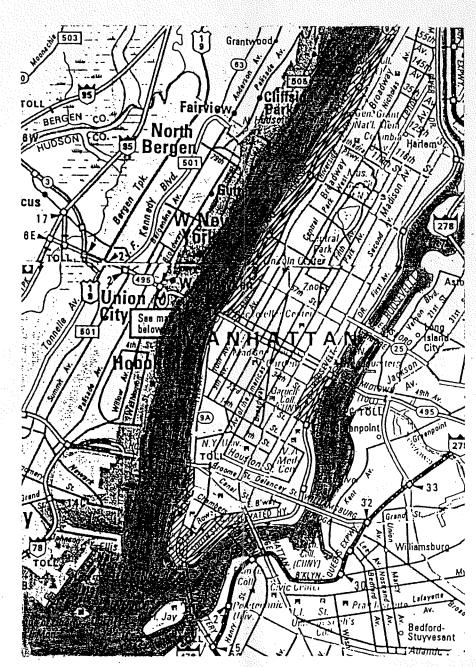






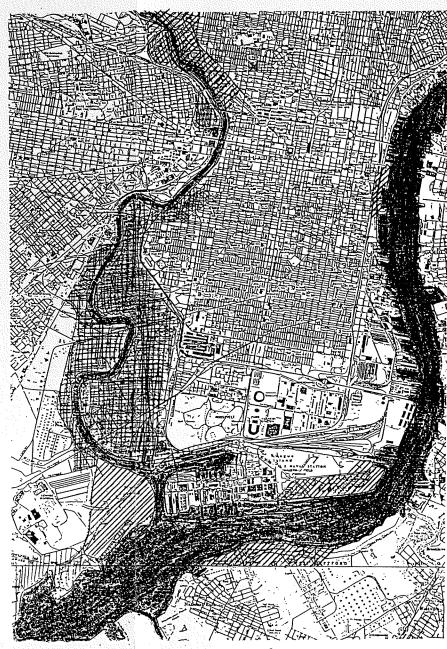


San Francisco



Manhattan





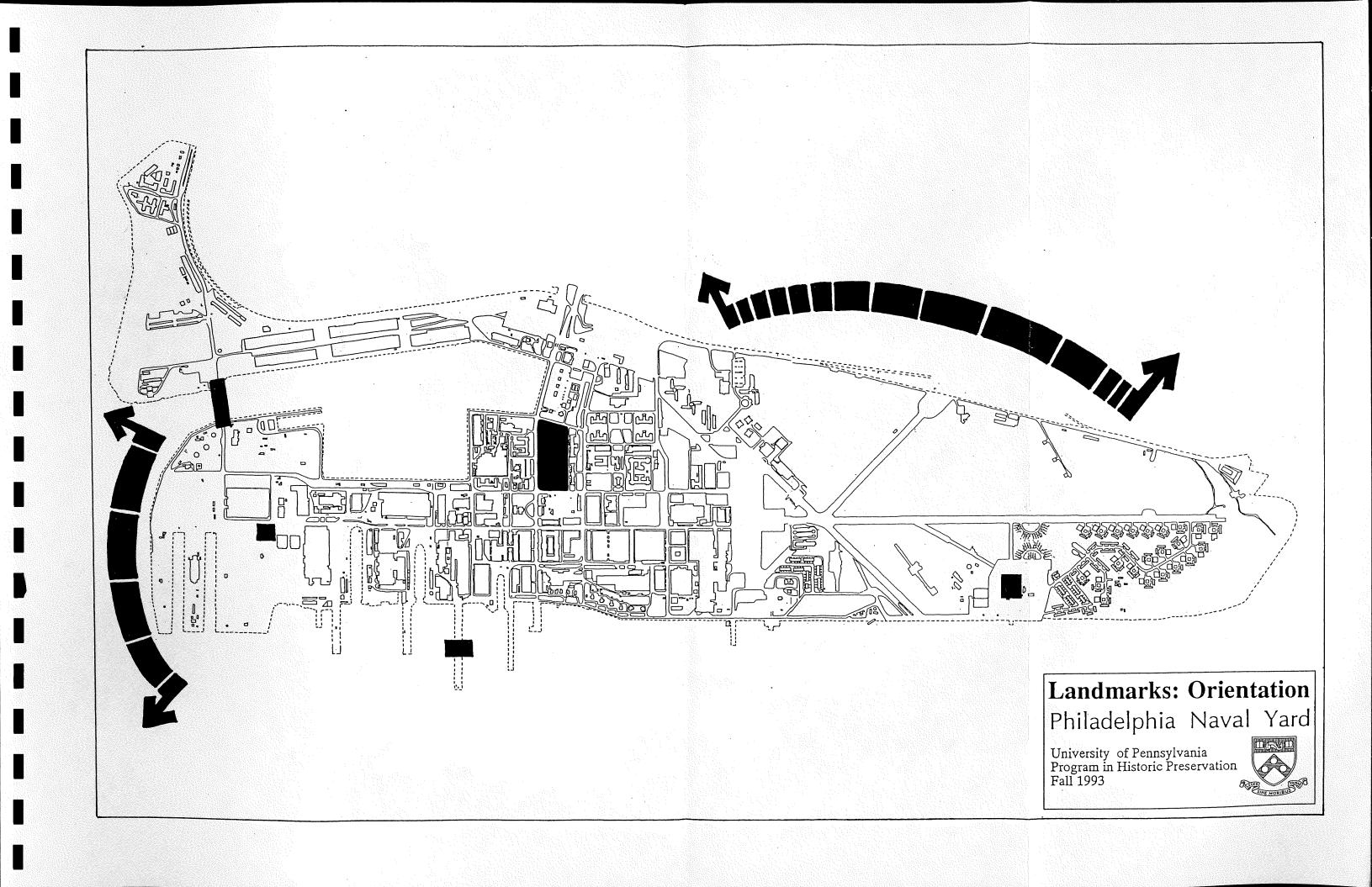
Philadelphia

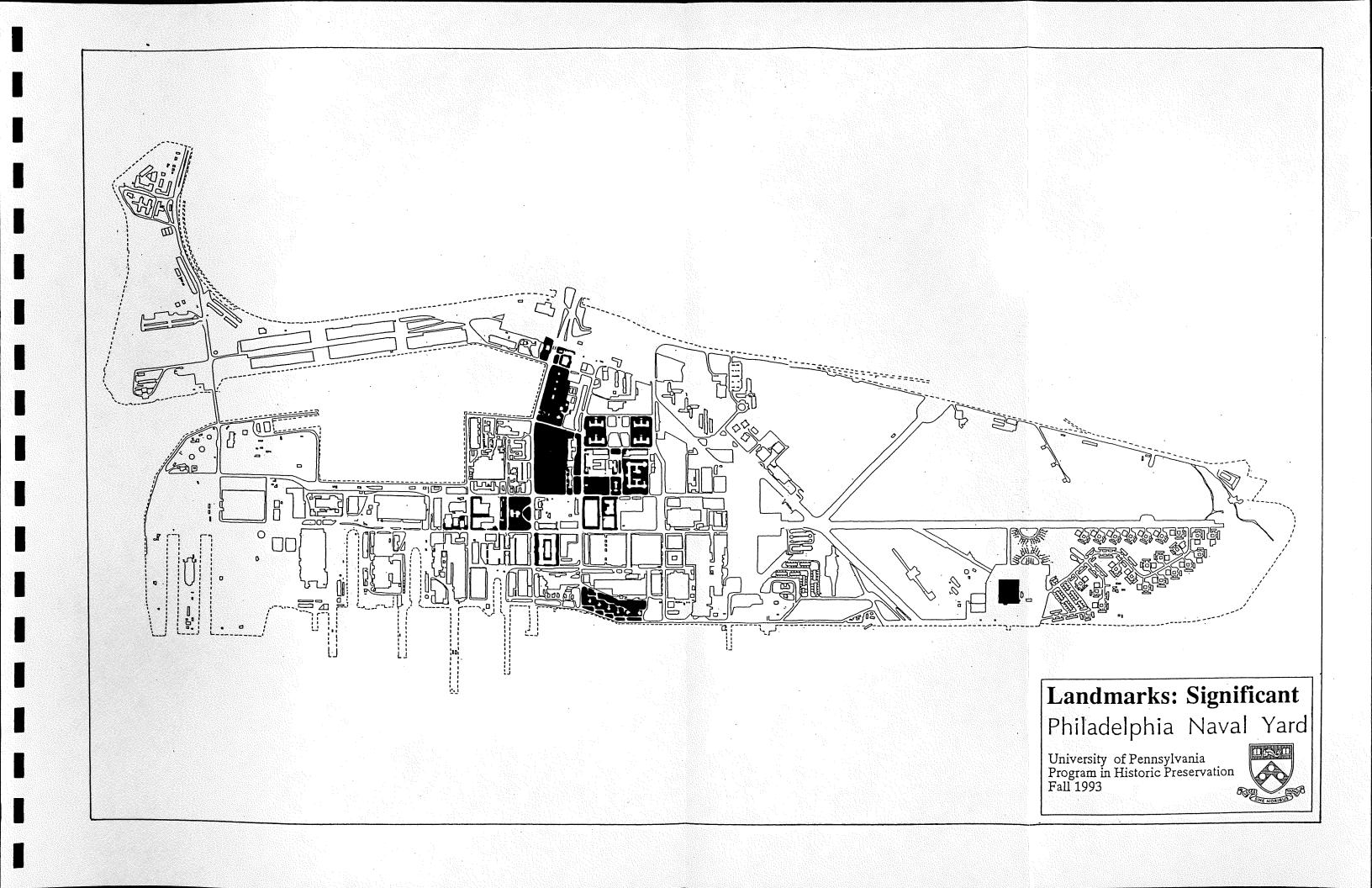
# City Edges Comparison

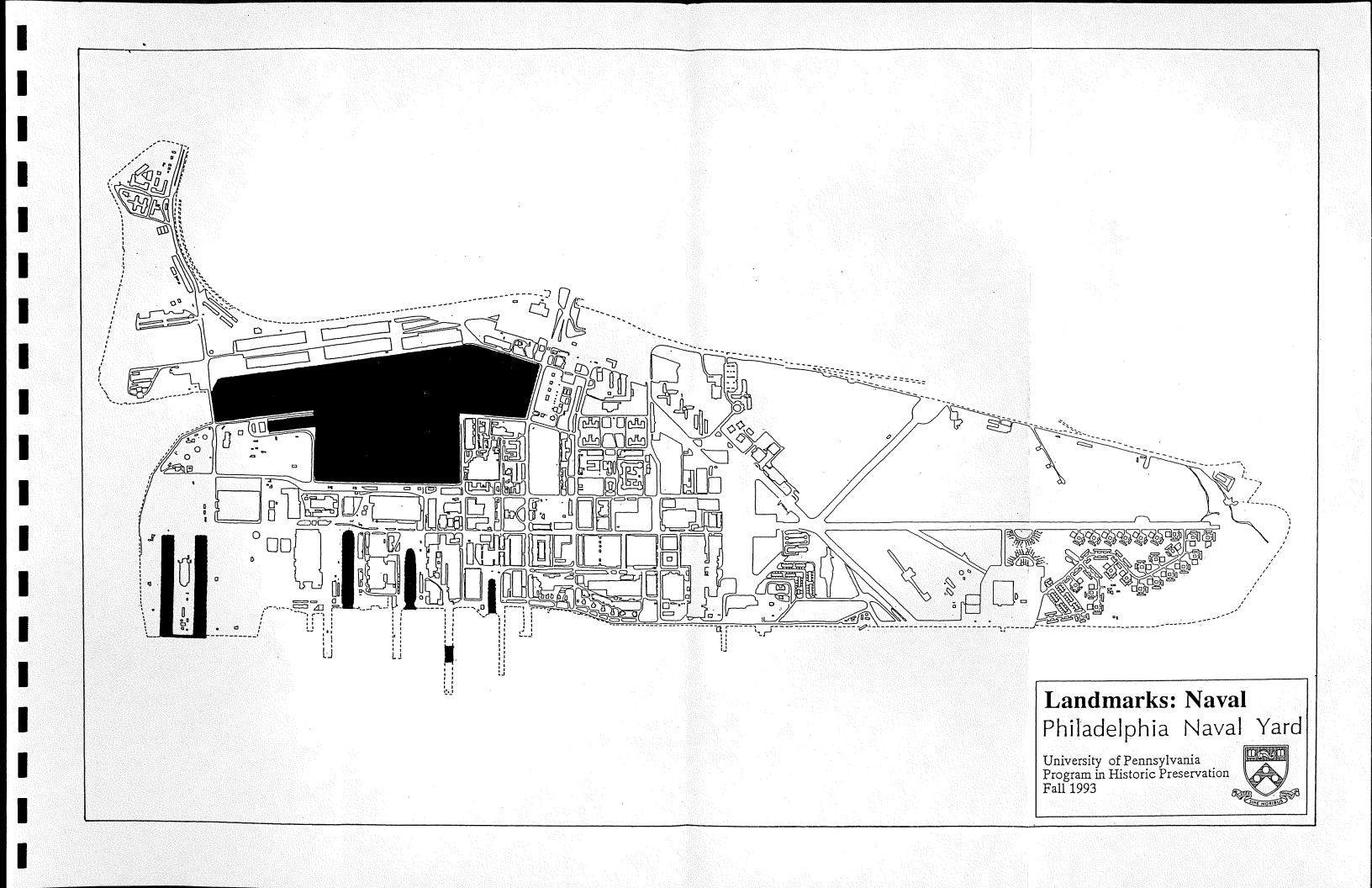
Philadelphia Naval Yard

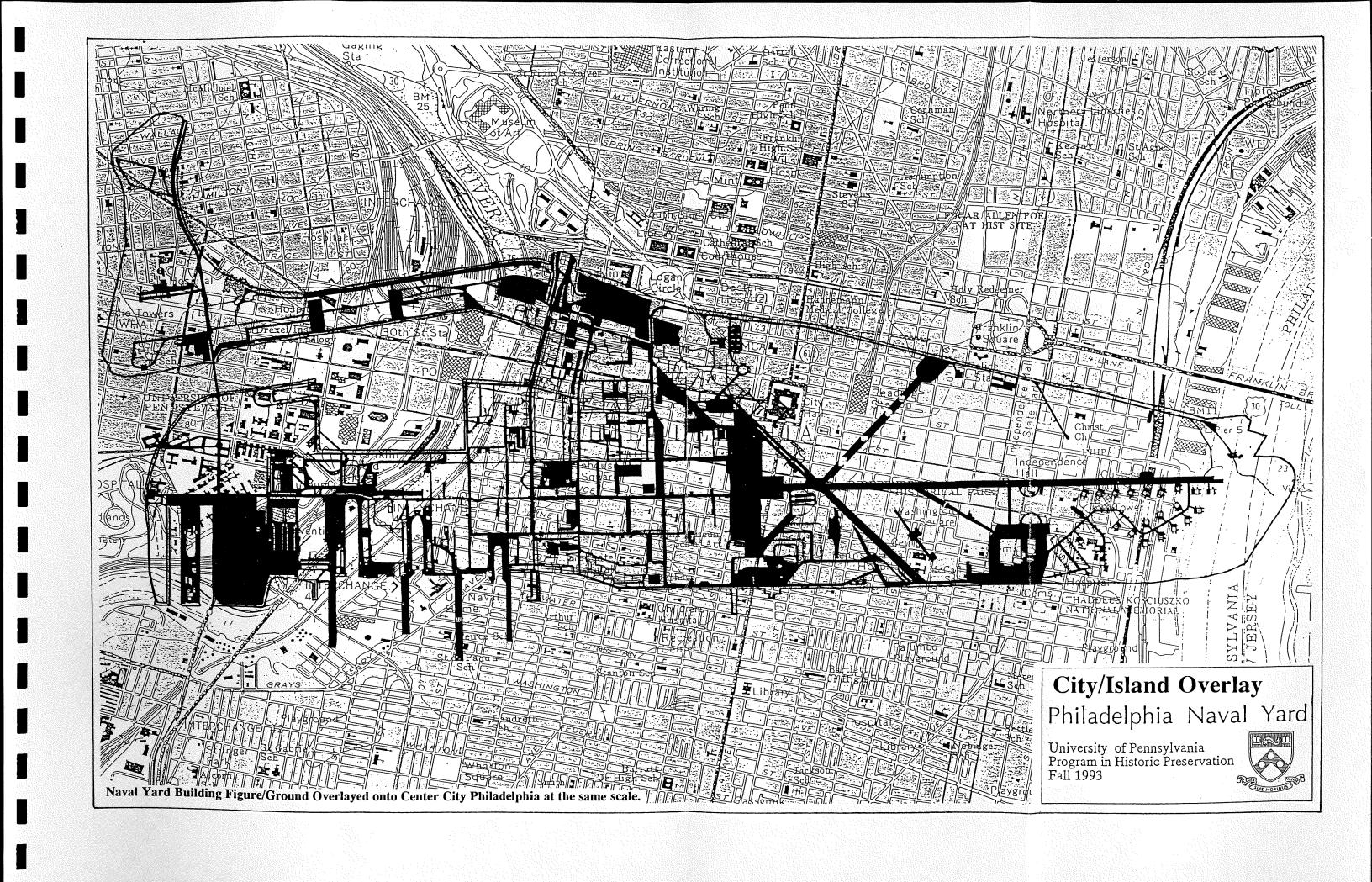
University of Pennsylvania Program in Historic Preservation Fall 1993











### HISTORICAL DEVELOPMENT AND REGULATORY ENVIRONMENT

#### HISTORY OF THE NAVAL YARD'S DEVELOPMENT

Naval presence in Philadelphia dates to the Revolutionary War era. Philadelphia was among the largest colonial shipbuilding centers and supplied the Revolutionary forces with naval vessels even prior the establishment of an official U.S. Navy. After the Revolutionary War, Joshua Humphreys, America's leading Naval Architect, and a Philadelphian, proposed the establishment of a U.S. Navy and in 1794 Congress passed an act commissioning six vessels and appointed Humphreys as Naval Constructor. At this time all shipbuilding contracts were handled at private shipyards and Humphreys distributed the ship contracts among the six largest shipbuilding communities. In 1798 Humphreys' again appeared before Congress to present guidelines for establishing U.S. owned naval yards that would be responsible for storing materials, shipbuilding and repairs. In 1801 Congress approved the purchase of six yards, Philadelphia among them. The Philadelphia Yard was assembled through the purchase of several lots of land in Philadelphia's Southwark District along Front Street in Old City. Perhaps, not coincidentally, included in the area purchased was the existing Joshua Humphreys owned shipyard.

From it's inception governmental and naval officials were uncertain whether the site of the Philadelphia Navy Yard was wisely chosen. The Southwark area was located close to the burgeoning city, the initial land purchase was small and the suggestion of conflict of interest on Humphreys' part tainted the Yards reputation from the start. Purchased in February of 1801 by then Naval Secretary Benjamin Stoddert, the Navy Yard in Philadelphia was established between changing Presidential administrations. As early as May 1801 a review board recommended the purchase be canceled, but because it was felt that cancellation would embarrass the incoming Jefferson Administration it was allowed to stand. However the generally anti-Navy Jeffersonians relegated the unwanted yard to backwater status.

It was not until the War of 1812 that the tiny Yard began to expand its base of operations and capital improvements were begun. This pattern of relatively fallow periods often lasting a decade or more followed by a brief frenzy of development is typical of development at the Navy yard even to the present. Additionally, the Navy established early in their history the policy of contracting privately owned shipyards for the construction of their vessels. Since the Navy 's mission is essentially naval warfare it should not be surprising that the period immediately following a war brings about a period of retrenchment.

The advent of the war between the states in 1861 provided the impetus for a frenzy of new ship construction. This phenomenal increase in production and work force quickly began to tax the confines of the Front Street facility. Yard Commandant Francis DuPont the commandant in Philadelphia in 1861 noted, "we have so much to do [here] - and having been sort of a one horse place before, we have but few of those appliances and facilities which pertain to a first class naval station". Additionally the Navy had been under pressure for sometime from the encroaching City of Philadelphia. There was a

<sup>&</sup>lt;sup>1</sup>Paolc Coletta, ed. *United States Navy and Marine Corps Bases, Domestic.* (Westport: Greenwood Press, 1985) 476.

general agreement among city leaders that the land owned by the Philadelphia Yard was valuable property which could perhaps be better utilized. While the Navy presence and the contracts provided to local shipbuilders and mechanics, the employment provided to local workers and the government dollars that eventually flowed into local coffers were welcomed in the growing City of Philadelphia, the location of the Yard which claimed 20 acres of developable downtown real estate was not.

It is difficult to say exactly where the initial impetus for relocating the Navy Yard first occurred. It may have originated with the Navy who clearly was suffering from generally cramped conditions at the Yard, which was exacerbated by the loss of the southern yards to the newly established confederacy. It may have originated in Philadelphia itself, where the eminent city fathers may have discussed how to free up the much desired Southwark location. In either case, in early 1862 Secretary of the Navy, Gideon Welles had broached the topic of the creation of a new Navy yard to be located somewhere on the eastern seaboard. The were a number of factors driving this desire on Welles' part, not the least of which was a radical change in naval architecture.

The construction and design of naval vessels had been drastically altered by technological advancement. Wood and sails were giving way to iron and steam. This decision to utilize a new type of fighting ship was cemented during the Civil War with the successes achieved by the ironclad vessels. Suddenly a new set of consideration were upon the Navy, the new iron and ironclad ships were prone to corrosion damage from extended storage in a salt water environment. In addition, long arms technology had improved so that it was now possible to fire munitions several miles with accuracy. It was important to find a location for the new east coast shipyard that would allow for fresh water storage and a protected harbor. A Philadelphian, Professor Alexander Dallas Bache, who was related to Benjamin Franklin as well as former Treasury Secretary Alexander Dallas and Vice President George Mifflin Dallas, brought to Welles' attention a small island located at the southern edge of Philadelphia, 3 miles from the center of the city, in the Delaware River, known as League Island.

#### EARLY HISTORY OF LEAGUE ISLAND

League Island first appears on Lindstrom's map of 1654 and was originally granted to the Land Company of London. Its strategic location was noted as early as 1699 when it was surveyed with the intention of building a fort there for defense purposes. For some reason the fort was not built, and in 1709 the land was sold to Thomas Fairman and the land was used for farming. There is little if any evidence of how this land was parceled, or whether Fairman or his descendants improved the land. As far as can be ascertained the then 235 acres tract was used for farming until at least the turn of the nineteenth century. In 1835 Charles Wharton purchased League Island for 60,000 dollars with a loan obtained from the Pennsylvania Company. Although his exact intentions are unknown, it is clear that Wharton planned to improve the property. A letter sent from Wharton to Richard Delafield, Captain of the U.S. Engineers indicates that Wharton felt the value of the property could be raised if a "causeway to connect League Island with the main land at or about the present termination of Broad Street"2 were constructed. Wharton seems to have successfully built the causeway but he died before he could develop further. The Pennsylvania Company foreclosed on Wharton's mortgage in 1842. Apparently the island had been protected by a large earthen dike which had fallen into disrepair. Sections of land were being washed away with each storm, in addition, muskrats had bored holes in

<sup>&</sup>lt;sup>2</sup>Charles Wharton, Jr. Letters and Documents in an Application to Connect League Island with the Mainland. (Harrisburg, 1837)

the existing dike which causing minor flooding. The Pennsylvania Company repaired and extended the dike and some acreage was reclaimed from the river. These small improvements made, the property was rented to W.P. Hughes who was to occupy the land as a tenant until the property was eventually sold to the Navy.

#### THE BENEFITS OF LEAGUE ISLAND

The driving force behind the decision to locate the new naval shipyard at League Island at the Federal level was Gideon Welles, the Secretary of the Navy. It is important to have some sense of what factors were bearing on Welles' thinking to fully evaluate the decisions he made and to understand the tremendous changes which impelled him to act. The development of the steam engine, the discovery and mining of coal and the development of iron vessels had completely altered the conditions of strategic thinking. The introduction of ships with self contained power would forever alter traditional perceptions of distance and conceptions of time. Transoceanic travel was sure and swift for steam powered vessels and the Secretary of the Navy of the United States had to begin to think in global terms. It was conceivable that attack by an enemy in Europe could be swift and silent.

Welles wrote, in a letter to Congress in 1862, "Those governments which are striving for naval supremacy are sparing no expense to strengthen themselves by building iron vessels... No nation can have an advantage over us, if we avail ourselves of our means and opportunities... It is a duty, as well as a necessity, that we make these United States a great naval power". Welles perceived that League Island was the best potential location for a shipbuilding facility which would allow the Navy to accomplish this goal. This decision was not taken lightly, there were a number of concerns which needed to be answered and extensive analysis of League Island was undertaken. To Welles' mind League Island offered strong topographical advantages. It was strategically located 80 miles upriver from open ocean and protected from enemy attack. There were extant forts located down river which could warn of and defend against enemy attack. It possessed a freshwater basin which was an imperative for storage of iron vessels. There was an existing rail system which could deliver necessary coal, iron and other materiel requisite for shipbuilding. This delivery of materiel could be accomplished from inland sources rendering the facility essentially impervious to naval blockade. League Island was located near an industrial city which had in place large-scale manufacturing and a pool of skilled artisans, craftsmen and mechanics. It was far enough from the city center and the then developed neighborhoods to be protected from threats of domestic violence. This became a concern after the Southwark Riots of 1844 which took place at the gates of the then existing city located yard. And finally, the city fathers were offering the land free of charge to the Navy. This "munificent gift" as Welles would refer to it would allow the Navy to sell the existing city located yard and finance development of the new yard at virtually no cost.

Given all these stated advantages, however, there were certain aspects to the topography at League Island which caused uncertainty and consternation within the Navy leadership. The surface of the 600 acre tract was nearly three feet below the high water mark. It had been dependent on dikes and retaining walls to protect it from flooding throughout its history. The top layer of soil was alluvial deposit and the underlying soils ability to carry the weight of large structures was uncertain. Marshes which had formed around and near the island presented potential health threats.

The internal opposition to League Island was strong. Welles commissioned engineering studies from within the Navy community and the strategy for developing League Island was created. The land use recommendations which Naval engineers delivered expose how

planning, analysis and thoughtful cost accounting pointed the way turning what was at first glance a detriment to an advantage. Navy engineers realized that for League Island to be a feasible site, the surface of the island would have to be raised a minimum of three feet. They also realized that dredging of the existing back channel was necessary to provide a protected place for storage of vessels away from the potential harm brought by the currents and traffic of the main channel. The dredge from the creation of the basin could be applied to the surface of the existing island which would raise the overall surface of the island almost 4 feet and save the Navy the expense of carting away the dredge. They performed a series of test borings around the island and determined that a bed of diluvial gravel existed at an average depth of 37 feet beneath the surface which they determined was sufficient to sustain piles upon which foundations could be constructed. The Navy engineers further determined that any cost incurred in driving piles would be offset by the cost savings realized in the ease of excavation of the alluvial soil when creating dry docks and shipways. In this sense, the Navy was able to take a property of marginal land value and turn it into a planning coup.

#### THE BATTLE FOR LEAGUE ISLAND

Given the thoughtfulness and economy of the Navy's pre-development plan for League Island and the willingness of Philadelphia to give the government the land it is almost impossible to imagine how anyone could oppose such a plan, unless of course that "anyone" was politician. There is a tendency to assume that there was a time in the United States when the government was populated by men of principle and that the considerations of the national good rose above the more mundane local concerns. We assume that lobbyists and self interest are modern creations which, if we could only rid ourselves of them, we would be able to return to the golden days when the government was peopled by altruistic leaders. One only need read the history of the establishment of a Naval Yard at League Island to realize the folly in this sort of thinking.

Once Gideon Welles had notified Congress that there was a need to establish a new Navy yard on the east coast and that he was considering League Island in Philadelphia, it was only a short time before a number of Congressman offered counter proposals of locations which would far better suit the Navy 's need. All of which, oddly enough, were located within the districts of the Congressmen who proposed them. Soon proposals were tendered to located the base at a number of locales, New London, Connecticut or Narragansett Bay in Rhode Island chief among them. The potential sites were eventually narrowed down to New London and Philadelphia. A pamphlet war, a nineteenth century sort of public lobbying effort, ensued in which each community touted the advantages of their locale and the detriment of the others'. Each city had allies within the naval community who were willing to publicly support the efficacy of one site and raise objections to the other. New London, not to be outdone by Philadelphia, offered their site to the Navy at no cost.

Welles never wavered on his decision to locate the new facility at League Island. In 1866 Welles ordered the ironclad fleet, inactive since the end of the Civil War, to be stored at the back channel of League Island. This decision effectively ended all discussion and in 1868 the United States accepted title to the approximately 900 acres of land and water of League Island from the City of Philadelphia at a cost of one dollar. It had cost the city 415,000 which was in actuality 900,000 with interest. The exact condition of League Island at the time that the Navy took title is difficult to ascertain. People who were against the selection of League Island characterized the island as "low marshy ground" ostensibly unfit for heavy structures and a "mosquito infested swamp". Those in favor of League Island characterized it as " farmland with grass meadows... oak trees of 13 feet in circumference, and at least 100 years old growing there". These descriptions are so

variant that one might have thought they were speaking of two different places. Nevertheless, the process of transforming this island of uncertain value into the "finest and most extensive dockyard in the world" commenced.

#### THE PLAN

In a report to the Secretary of the Navy in 1864, Chief Engineer J.W. King expressed his concerns about the lack of planning at navy yards. "Location being decided upon, the second subject for consideration is the plan....such an important subject, in the shape of construction, has never yet been presented for the consideration of the department. Our present Navy yards have become what they are by gradual process of accretion... The total expenditure has been large but the results comparatively small."

King's comments suggest that the Navy had learned from past experience and determined the needs to develop an effective plan prior to development of the new facility. It is not known whether he referred directly to the potential development of League Island but it is certain that the tenets of city planning were applied to League Island. An 1867 map shows a preliminary orthogonal plan superimposed on the surface of League Island. It is not known whether this map reflected the conception of an early plan for naval development or whether it was merely to illustrate how the island could be laid out. In either case, in 1871 Civil Engineer Prindle set up a temporary residence on the Island to oversee dredging and filling operations which had been determined to be necessary before development of the Island could proceed.

By late 1872 a board of civil engineers led by W.P.S. Sanger was charged with creating a plan for the development of League Island. Their report, which was completed in 1874, set forth their recommendations for the development of "the finest and most extensive dockyard in the world". Their plan proposed that League Island be enlarged to 624 acres, the back channel be dredged leaving 60 acres of firm land to the north. They perceived an orthogonal layout of streets and were willing to alter existing patterns to achieve their aim. "Broad Street should be continued across the island at a slight angle...in order to facilitate the symmetrical layout of the streets in blocks and rectangles." Since Broad Street was to be the dominant axis and entry it was to be 125 feet wide, the first street nearest to the Delaware would be 80 feet wide and all other streets would be 75 feet wide. Blocks would be 400 feet north and south by 230 feet east and west. Workshops and storehouses were to be block-long affairs and quadrangular buildings which would occupy complete blocks would have open space at the center to facilitate receiving of materials. Arrangements were made for vessel construction and repair and rail tracks were to be laid to allow for freight access to these areas. A deep repair basin with four stone docks was projected. Machine shops and appurtenant structures were to be located on one side of the basin. An additional basin would be created which connected to the river where construction and outfitting of ships could occur. The final recommendation of this development plan suggested the Navy carefully evaluate the value of the Front Street facility and offer it for sale. In 1875, the Front Street Navy Yard was sold to the Pennsylvania Railroad Company for one million dollars.

Whether all the decisions made for the development of League Island were based on the Navy 's past experience with shipbuilding is uncertain and given the time constraints of this report could not be adequately researched. The Navy 's decision to employ an orthogonal plan, however, was not out of keeping with the typical approach to nineteenth century city planning in the United States. In a sense there was nothing earth shaking about the Navy 's decision to employ a grid plan. The grid has been the mark of the founded city since ancient times. It produces an efficient circulation system and during the nineteenth century most American cities developed on the basis of a grid or cluster of

them. Additionally, city planners in such diverse cities as New York, Philadelphia, San Francisco and Savannah had all laid out their cities orthogonally, often altering the grid so that streets would run parallel and perpendicular to the water front. What is more key, perhaps, is the fact that the Navy had taken King's earlier critique to heart and had begun to apply planning precepts to base development. Questions also exist concerning the lay out of the physical plant itself. Did the Navy base it's decision on past experience or did it look to existing models. It is certain that the Delaware River, which has since been dubbed "America's Clyde", possessed a wealth of successful private sector ship building manufacturing examples within a 10 mile radius of the city, most notably the Cramp Shipyard in Kensington and their neighbor the Neafie and Levy Shipyard. The Cramp facility was fulfilling naval shipbuilding contracts as early as 1862 and census reports of the decade 1870-80 indicate that Cramp along with neighboring producers led the country in the production of iron vessels and had shifted the locus of U.S. shipbuilding from New York to Philadelphia. The Cramp Shipyard received the hull contract for the Navy 's first ironclad battleship, the New Ironside, and the construction of this vessel led the Cramp Shipyard to develop and innovate technology which positioned the Cramp Shipyard as the pre-eminent iron shipyard in the country. It is unlikely that the Navy would not take advantage of what could be learned at the Cramp Yard and apply that knowledge to their new facility. The availability of the services and expertise which Cramp and other local shipbuilders could offer also helps to explain the casual pace with which the Navy approached the creation of their new facility.

#### **PERIOD I: 1871-1890**

The first permanent structure to be erected at the Navy yard was Quarters A. This building, erected in 1874, served as an office and residence for the civil engineer who was overseeing the development of the Yard. The first permanent industrial structures were built on the blocks located near Broad and Porter. These buildings were constructed by Navy personnel after the superstructures had been erected by contracted employees. The layout and function of these building reflected the 1874 plan. Architecturally they are not unlike other industrial structures of the time. Built primarily of brick, with granite detailing above windows and doors and mansard roofs they are typical of factory buildings found in many areas of the country at the time. This early development focused primarily on the construction of shops and warehouse and included the Yards and Docks, Mold Loft, Boiler and Engine House, Iron Plating Shops and the like. The foundation was laid for and administration building but there were not sufficient funds with which to build it. There were approximately 15 - 18 temporary structures erected during this time period. Most of these buildings were destroyed and some of them were swallowed up by larger structures which came later. The Navy was, at this time, if nothing else, frugal. There are numerous accounts of one building being dismantled and rebuilt as another. These early years also show that the Navy was not averse to raising buildings up and moving them when it suited their purpose. The period from 1880 to 1890 marks a fallow period in the development of the Naval Yard and it was during this era that the base was first considered a target for closure by the government. In 1882, then Secretary of the Navy, William Chandler, felt that the maintenance of 7 shipyards in peacetime was an extravagance and ordered the bases closed. For unknown reasons this order was rescinded but the presumption was that the pressure brought to bear by local Congressional representatives and interested local officials swayed the opinion of those in Washington, thus setting up a pattern which was utilized time and again throughout the bases history.

#### PERMANENT BUILDINGS FROM PERIOD I

Quarters A	<ul> <li>Civil Engineers House</li> </ul>	1874
Building 1	- Yards and Docks Building	1875
Building 2	- Boiler and Engine House	1875
Building 4	- Steam Manufacture	1875
Building 3	- Iron Plating Building	1877
Building 7	- Mold Loft	1877

#### PERIOD II: 1891-1913

In 1889 a Naval Review Board was convened to study future development of the Yard. The plan devised by this board became the development plan of record and was ostensibly followed until the beginning of the first World War. This plan of 1889 does not appear to be significantly different from the 1874 plan. It still maintains an orthogonal lay-out and the differences are primarily systems related. The plan recommended a layout for the Yard with locations of new structures including dry docks, piers, sea walls, storehouses, shop buildings, etc. They also recommended a plan for the Reserve Basin and laid out the development for the marine reservation. This plan would pave the way for the next developmental period of the base which would include much of the infrastructure and utility development.

Wars, as one might expect, were the major impetus for base development. What is intriguing about this however is the military's reactive approach. What one might normally expect is that the military seeing the potential for war approaching would begin to prepare and this would trigger development, while this is true of later periods of development the early era seemed to reflect a more reactive approach. The 115 day long Spanish American War of 1898 was to provide the impetus for a frenzy of development whose period of greatest activity occurred during the years 1903 to 1905.

Even at this time there has yet to be a ship built at the Navy Yard. Most of the construction at the base was be carried out by contractors. One major development of this period was the construction of a timber dry dock completed in 1891. This dock would be updated over the next 10 years to include rail tracks and hoist cranes. It was also during this time period that electrification came to League Island. In 1895 electrical generators were installed in Building 1 and power was distributed via overhead transmission lines. In 1896 the first water system was begun and it was completed in 1898. Artesian wells were dug, these wells would feed a steel holding tank and water distributed throughout the base via mains. This system would be updated and altered throughout the bases history. Other infrastructure systems begun during this era were sewer, streets and sidewalks, trolley and piers and sea-walls.

With infrastructure construction completed the Yard was finally able to support further development. The Marine Corps and Reserve station was established at League Island and this trigger further building along Broad Street near the entrance to the Yard as well to the east of Broad Street. The areas behind the Marine barracks and administration buildings were earmarked for drill fields and training areas. Additionally a parade ground was established in front of the Marine Administration Building. The Administration Building at the Yard was completed in 1901 although the foundations for this building were laid during the first phase of development. Another significant development of the same period was the construction of the fuel oil testing plant at Building 47 in 1911. This facility was the forerunner of the modern Naval Boiler and Turbine Laboratory which was a significant influence in the development of propulsion systems. The research and

development facility marks an early ingress on the part of the Navy in Philadelphia to establish facilities to develop and test systems which could then be contracted out to private sector contractors. Indeed the relationship between the Navy and private contractors long pre-dates President Eisenhower's warnings about a military industrial complex at the close of the 1950's.

#### PERMANENT BUILDINGS FROM PERIOD II

Building 10	Electrical Workshop and Storehouse	1903
Building 11	Block and Cooper Shops	1903
Building 12	Plate Bending Shop	1905
Building 14	Angle Smithery	1903
Building 15	Smithery	1903
Building 17	Foundry	1905
Building 18	Machine Boiler and Copper Shops	1905
Building 19	Pattern Shops	1905
Building 47	Oil Burning Test Plant	1911

#### PERIOD III: 1914-1920

The approach of the first World War signal another era of expansion and development. Unlike the Spanish-American War, which was a mere blip on the seismic scale of war, the entry into the First World War brought with it a governmental commitment to develop the Yard as a "ship repair yard and the primary shipbuilding yard". Developments triggered by this mission included a new drydock with a 350 ton crane, one of the largest in the world, at pier 4; shipways 2 and 3; and new shop facilities which when completed in 1919 were considered to be the most completed equipped buildings of this type in existence. In addition, the base proper was piled with stores and materiel dedicated to the war effort. Photographs taken at that time reveal all available space covered with lumber and steel and all manner of equipment meant to be shipped to Europe or utilized for production at Philadelphia. Yard employment increased from 2500 in 1916 to 12,000 by the end of the war in 1919. By 1920 the base had expanded to include 549 buildings. In some ways however, these building counts are often misleading. The Navy typically accounted for every structure and each was given a number and a name. Closer analysis of inventory lists reveals that locker rooms in which the workers could change, roofed pole buildings at bus stops and coverings over water mains were all counted at buildings. Additionally, during periods of intense activity such as preparation for war, the Navy would erect storage structures to house material which were razed the moment they were no longer necessary. Indeed, within the Navy's record-keeping system is a distinct differentiation between permanent and semi-permanent structures.

It should be noted that the Philadelphia Yard for all the Navy 's ostensible commitment and rhetoric to the contrary was not a major shipbuilding facility during World War I. It was not until 1915, almost a half century from its relocation to League Island that a naval vessel was finally built in the Philadelphia Naval Shipyard. Throughout the course of World War I the Philadelphia Naval Shipyard was to contribute 7 ships to the war effort. By comparison the Cramp Shipyard accounted for 55 ships during the war years and accounted for 25 percent of the naval tonnage produced, there is little doubt about who was the pre-eminent naval shipbuilder.

Once again a new technological development serves as a catalyst to change the Navy 's thinking about warfare and which will alter development at League Island; the airplane. In 1917 the Navy decided to locate its fledgling aeronautic division in Philadelphia. This decision to locate the burgeoning military aircraft industry in Philadelphia was to have

profound effect on the development of League Island. Intriguingly, the reasons cited for locating the aircraft factory at Philadelphia were essentially the same as those that caused the Navy to choose League Island in the first place. "Ample supply of local labor, availability of local material, considerable unused acreage and proximity to the river" were all cited as factors which swayed the Navy 's decision. This aircraft facility was the first of it's kind in the United States and the decision of the Navy to employ aircraft for defense was to have profound repercussions that would impact developing technologies. One of the areas this new development would have heavy impact is in ship design. Ideas this new "weapon" inspired would introduce a whole new class of fighting ship; the aircraft carrier and it would, as we will see, effectively control the development of the eastern half of League Island. The eastern half of the Island had yet to be developed and so the aircraft factory was located at what was at that time the extreme eastern edge of the Yards development, the corner at Fourth Street East and Porter Avenue. From 1918 to 1920 the aircraft factory was to add 10 additional buildings to this area of the Island.

#### PERMANENT BUILDINGS FROM PERIOD III

Building 16	Heavy Machine Shop	1919
Building 20	Foundry	1919
Building 57	Structural Steel Shop and Smithery	1919
Building 59	Aircraft Assembly Plant.	1918
Building 65	Locker House 1	1919
Building 68	Galvanizing Plant	1919
Building 73	Ordinance Storage	1919
Building 74	Boat Shop	1919
Building 77	Assembly Shop, Plant #2	1918
Building 121	Pattern Shop	1920

#### **PERIOD IV: 1921-1945**

The post World War I era would prove to be an one of major change for the shipyard. During this period administrative changes would occur which would alter the organization of the Yard from a military facility to a more industrial one. The technological changes which had occurred in the first quarter of the twentieth century would necessitate a rethinking of administrative philosophy for the Navy. Industrial production philosophy had changed. Henry Ford and the production line techniques that his manufacture utilized pointed the way toward greater industrial efficiency. Concomitantly the industrial design of factories had also changed based on the pioneering work of Peter Behrens, Walter Gropius and Albert Kahn. The multi-tiered factory of the late nineteenth century had given rise to the single-tiered shed, often of enormous proportions. Shipbuilding, itself, was moving toward an assembly line approach where components built by a multitude of suppliers were assembled under the Navy 's watchful eye. Recognizing that this new approach to production required a new approach to management, the Navy began to reorganize the management structure of the shipyard. General order No. 53 centralized all industrial activity under an officer known as the Industrial Manager. This position was equal to the Captain of the Yard, the officer who oversaw military activity. It was an organizational recognition that industrial considerations had achieved parity with military ones at these shipyard facilities.

Despite these administrative changes, the end of the first World War ushered in a period of uncertainty for the shipyard. The United States met with other world powers at the Washington Conference of 1921. In an attempt to slow the arms race after the devastating "War to end all Wars" the U.S., Britain, France, Italy, and Japan signed the Naval Armaments Treaty. This treaty called for a 10 year naval holiday during which no capitol

ships were to be built. This treaty was to have profound effect on the development of the Navy yard and indeed the shipbuilding industry in general. By 1927 the powerful Cramp Shipyard with its dependence on Navy contracts was put out of business, an early lesson to the limits and wisdom of dependence on military expansion and government contracts. The early twenties saw no appropriations for yard development. Employment of civilian personnel decreased at a rate of at least 1000 per year and by 1925 was at a low of 4000 workers. The Yards shipbuilding mission was effectively placed on hold and the bulk of projects were geared to repair and modernization of existing warships, a program not unlike the current function of the Yard. In fact, the function of this yard in virtually every era of its development, with the exception of the 5 year period of World War II, was primarily geared to outfitting, repair and refurbishment.

Further reinforcement of the cyclical nature of history is evidenced in the following quote from Secretary of the Navy, Josephus Daniels. "The Navy is demobilizing rapidly and it is incumbent upon us... because of the insistent demand of Congress for radical reduction of expenses, that every possible item of expenditure be omitted."

The Sesquicentennial celebration of 1926 served as an impetus to "spruce the Yard up" for a visiting public. This marked the first time in yard history that the local citizenry would view the Yard. New gatehouses and a perimeter fence provided security and roads were paved to ease access around the facility. The Naval Aircraft Factory continued to expand during this period. In 1921 the Navy engine laboratory of the Bureau of Aeronautics was transferred from Washington to Philadelphia and the Yard became the major focus in the Navy's development of an air arm. By 1922 Admiral Moffett, the director of naval aviation, established the path for aeronautical development at Philadelphia. "It is not the policy of the department to go into production of aircraft at the Naval Aircraft Factory." The Philadelphia facility was to become a research and development and testing facility; an experimental station. In 1926 Mustin field was dedicated along with two large hangars, this placement of an airfield would effectively halt any eastward expansion of the Navy yard for the next 45 years.

One additional function that the Yard took on during this era was the scrapping of decommissioned ships and during the peak years of this program 33 destroyers and 9 submarines were scrapped. By 1937 so many ships were being decommissioned that it was becoming difficult to find space in which to moor them. Additionally, by this time the Delaware River had become so polluted with industrial waste that corrosion damage to moored ships had become more severe than the effects of salt water mooring. Awareness of the threat of war in Europe and the unpredictability of Hitler's Germany led the Navy department to begin to prepare for potential war and the concomitant need to bring the Philadelphia facility up to production speed.

Evaluation of the current facility coupled with changes in ship architecture necessitated another period of building frenzy in 1938. Increasing complexity and size of warship design required greater space for assembly. This fact compounded with the "two ocean Navy" goal required to carry on warfare in the European and Pacific Theaters would drive the greatest expansion of Navy Yard facilities to date. The initial expansion include an extension to the existing machine shop and new construction on structural assembly and pipe and copper shops. Existing shipways #2 and #3 were expanded and by June construction of the world's largest drydock the 1092 foot drydock #4 was begun. By 1941 the new drydock was already over utilized and construction began on a twin drydock was begun. Power plants were improved, a multitude of hoisting cranes were added and an enormous four-lane lift bridge was constructed over the reserve basin.

During it's peak operation during World War II the Yard employed 45,000 workers. Space was so dear on the Island that a 300 acre tract at the Northwest corner of the reserve basin was purchased for the storage of lumber and individual contracts were established with private warehouses around the Philadelphia area. By 1945 the Philadelphia Navy Yard boasted 50 miles of railroads, 17 miles of sewer pipe and 44 miles of electrical circuit. It had become an industrial city and it also marked the pinnacle of development of the Yard. The changes over the next 50 years would be minor and would not, for the most part, change the footprint of the Yard.

#### **PERIOD V: 1946-1965**

Victory parades and floating ticker-tape soon gave way to the inevitable post war reassessment of mission and cyclical manufacturing decline that seemed to accompany each of the major development eras at the shipyard. The reserve basin was packed with decommissioned warships awaiting sale to some allied country or the scrap heap. The early cold war era was one of what is currently known as downsizing. The two decades following World War II brought renewed consideration of the necessity of the shipyard and the years 1955 and 1964 marked periods where the Yard had to "fight" to survive. In many ways this era marks the beginning of the end for the Philadelphia Naval Shipyard.

#### **PERIOD VI: 1965-PRESENT**

The closing of Mustin Field in 1963 opened the way for development of the east end of the Island at some point in the early 1970's a small on base housing village was created at the eastern end of the island. The mission of the base was uncertain and there was little substantial development during this era. The Vietnam Conflict triggered a short period of refurbishing and outfitting of ships but by the mid 70's this was over and the Yards primary function was to maintain the mothballed fleet. Bureaucratic wrangling during the mid 70's embroiled the Philadelphia Naval Yard in a political battle which was fought in the newspaper, on the airwayes and in Congress. The issue was whether Philadelphia or the Norfolk Navy Yard would receive the contract for updating the Navy 's carrier fleet. For those who do not believe in the cyclical nature of history a comparison between the battle over this political football and the pamphlet war which occurred at the inception of the Yard should convert them. The outcome and method to achieve the desired goals echo the earlier time. Philadelphia politicians employed a high priced lobbying group and the city of Philadelphia offered concessions and made promises to receive the SLEP contract. This is the current function of the Philadelphia Naval Yard, the Yard should fulfill this contract by 1996 and the Yard is scheduled to revert to city ownership. Local politicians have proposed plans for the re-use of this facility and several groups have been contracted to create redevelopment plans. The outcome and the plans are, to date, uncertain. The Philadelphia Naval Shipyards facility at League Islands destiny is now, at its end, as it was at it's beginning, uncertain. Perhaps the City of Philadelphia and the civilian employees of the Navy Yard can take heart at this recent statistic quoted in Harpers Index; In U.S. communities where military bases have been closed since 1961 there have been 5 jobs created for every 3 jobs lost. Unfortunately the statistic doesn't suggest how long they must wait and what manner of work will be created.

### ADMINISTRATIVE AND POLITICAL INFLUENCES ON THE NAVAL YARD'S DEVELOPMENT, PAST AND FUTURE

Military building construction between 1790 and 1860 was tied to specific permanent installations and was built to ensure the availability of military personnel. The earliest military quarters appeared at defensive fortifications, naval shipyards, armament factories, educational facilities and frontier outposts. The quarters required were small in

number, and construction expenses had to be justified to the U.S. Congress as part of the installation mission.

From 1861 to 1900, the period the Philadelphia Naval Yard at League Island was founded, the Army was expanding to defend the western portions of America. To do so quickly and economically, the Army's Quartermaster Corps developed standardized plans for the different types of buildings that could be constructed anywhere a post was established. There is no evidence for this approach by the Navy, although builders in all areas of the military did adapt designs to suit regional building materials and sometimes, architectural ornamentation was applied to basic standardized design to reflect nationally popular architectural styles.

Funding for all branches of the military was increased by the 1890s. The Spanish-American War, the opening of the Panama Canal and America's growing involvement in world affairs led to a reworking of the Army and the Navy. Major building projects for facilities and housing were undertaken; the military initiated beautification projects at many existing facilities. Construction was more elaborate and architecturally sophisticated and in some cases, professional architects were employed to design individual installations or specific buildings.

The Army stopped using civilian architects during the 1890s. Throughout the twentieth century the Navy and Marine Corps continued to use civilian architects under contract through the Bureau of Yards and Docks to develop house designs allowing for designs which reflect the regional architectural traditions.

The Navy is a sea-based service and historically accomplished its mission of protecting the United States' interests with ship-based personnel. Clearly the Navy is an organized and process-oriented arm of the government; ship construction and maintenance were primary concerns and onshore naval installations were designed as ship building or dry dock facilities. Small numbers of housing units were constructed for senior personnel whose presence ensured efficient operation and management of the shipyard. The majority of other naval personnel were quartered aboard ships. Because enlisted men were traditionally discouraged from marrying, large numbers of naval family quarters were not constructed until after 1945.

Needless to say, the Navy has a strong view of its purpose and a hierarchy of goals and leadership. A yard is under the control of a Commandant and there are representatives who have charge of the industrial activities called Heads of Departments. The Department of Yards and Docks would be represented by the Civil Engineer in charge of engineering work. Navy decisions for building construction or demolition is based on a hierarchy of objectives. For example, if there was a need to tear down a building to get a truck through then it was done or if a building constructed in 1888 was not big enough for a new purpose then it was torn down or altered as the Navy saw fit.

The question of how the Philadelphia Naval Base will be administered in the future is of major importance in the development of a plan for the reuse of the base. Unlike the Charlestown Navy Yard, in which the Navy completely evacuated, there still will be Naval presence at League Island for the near future. Many administrative questions arise including shared and separate properties and utilities, security, and effects of continued industrial naval activity (i.e. noise, air and water pollution).

# THE CHANGING NATURE OF THE PHILADELPHIA NAVAL YARD'S RELATIONSHIP WITH THE CITY OF PHILADELPHIA

From its inception the Naval Yard of Philadelphia was never intended to be isolated from the city proper. The Yard's original location in Philadelphia was guided by the city's role as the largest colonial shipbuilding center as well as the need for access to skilled workers. However, as the City grew, the pressure of the expanding immigrant neighborhoods exploded into a violent riot in 1844 just outside of the Navy Yard gates.<sup>3</sup> From this incident a need for some sense of isolation was born.

When the 1862 search for a national yard was undertaken, the Navy sought a location that would provide security and isolation as well as having access to resources. In addresses to Congress the Navy repeatedly mentioned their need to be in the vicinity of a "large city where skilled craftsman can be obtained without difficulty and where facilities, markets and tenements are many." Their consideration of League Island just south of Philadelphia was noted in these arguments as having the largest population of brass and iron workers of any other city, as well as the benefit of the isolation an island would afford.

For its part, the city of Philadelphia played an active role in bringing and keeping the naval yard to League Island. While the Navy was making its decisions, Philadelphia, like other competing cities, was producing pamphlets and pressure groups to lobby for the right to house the Naval Yard. It was felt that a "large Navy yard would bring many industrial plants to the city, enhance real estate values, boost tax assessments, increase the cities deep water dockage, and provided employment for hundreds of its citizens." The Board of Trade Pamphlet for 1862 contended that "An insular position like League Island, with only a simple causeway to the mainland assures without any expenditure safety for the government property from any outbreak or riot that might arise. " In the end, Philadelphia showed its desires by purchasing League Island from the Pennsylvania Company for some 300,000 dollars, 900,000 with interest and gifting it to the Navy for one dollar.

The physical development of this site is in part a product of trying to keep a balance between the isolation and security of the base on the one hand, and its accessibility to the resources of the city on the other. Its initial connection was a simple causeway extended from Broad Street, but as soon as the Navy began to develop League Island they reoriented the causeway slightly off axis from the city, creating an internal grid system that was related to but not integral to the Philadelphia System. A map from the turn of the century shows the modules of development to be based on a grid system of blocks rather than the Philadelphia lot system.

From the first it was recognized that other lines of connection between the city and base were necessary to bring in supplies and employees. In the 1862 discussions on annexing the site, the Navy planned to take measures to make League Island more accessible to the city proper. The extension of the horse railroads and steam tug access were considered, as

<sup>&</sup>lt;sup>3</sup> Paolo E. Coletta, ed., *United States Navy and Marine Corps Bases, Domestic*, (Westport: Greenwood Press, 1985), p.478.

<sup>&</sup>lt;sup>4</sup> By a New England Man, Advantages of League Island, (Philadelphia: Sherman and Co., Printers, 1966).

<sup>&</sup>lt;sup>5</sup> Unkown author, History of the Philadelphia Navy Yard, p. 23.

<sup>&</sup>lt;sup>6</sup> Coletta, p. 481.

was the possibility of expanded housing on the island for workers. In 1899 the Pennsylvania Railroad Company connected the main track to the Yard. This remained the main system of transportation until 1907 when a trolley car and line was introduced to the base. This in turn was replaced by two omnibuses in 1917. By 1920 Philadelphia Rapid Transit Company had incorporated the Navy Yard into its Trolley Loop with a terminal at Rowan and Broad.

With the Sesquicentennial celebrations of 1926, the balance between isolation and accessibility was tested. Government funding encouraged the Navy Yard to open to the public, but not before streets were paved, gate houses were replaced, and a security fence was installed around the perimeter. During the war-time expansion between 1937 and 1941 a four lane lift bridge spanned the basin improving access to the Yard by the labor force entering from the west. During this period all available space was utilized and the physical plant taxed to its capacity. By 1935, the hospital was moved to the mainland. During the Korean War and Vietnam Conflict the development of the site was limited by the Naval Yard's inability to support or construct nuclear powered vessels. The site also suffered from the encroaching growth of Philadelphia; "housing projects, industrial parks, and a huge sports complex...surged to the very edge of the Navy Yard."

The Navy itself had no love of the site described in its early years as a "swampy, mosquito-infested pesthole." A visiting naval surgeon noted "the turbid sewage polluted waters of the Delaware." In 1891, an officer made a plea to the Secretary of the Navy that he not be assigned to League Island, noting that it was "generally unhealthy, and, for many reasons, one of the most undesirable duties on shore to which an officer could be ordered." 9

Imminent closure was a recurrent theme throughout the history of the Naval Yard. In 1882, the first of a series of many orders to close the Base, was rescinded because of pressure from local Congressional representatives and interested local officials. The City and Base became interdependent over the years.

The City's employment level was directly related the employment needs of the Naval Base. During World War I employment at the Base ranged from 2,500 to 12,000 local citizens. The Navy took special measures at the end of the war to provide job security for those employees who left to fight, but the Depression years created a mass exodus of workers into private industries which offered higher wages.

During World War II, employment ranged between 4,000 and 47,000 civilians. The Navy's need for personnel was so great, that in 1937 the Navy instituted a program to train young inexperienced Philadelphians for work at the shipyard. By 1941, the Navy was canvassing local schools to attract trainees. Some 80,000 youths passed through this program before the end of the war. With the end of the war however, personnel was immediately reduced from 40,000 to 12,000 workers and once again rumors of disestablishment flew.

#### 1950 TO THE PRESENT

The social relationship between the city of Philadelphia and its surrounding communities with the Philadelphia Naval Yard has been one of continuous struggle given the region's

<sup>&</sup>lt;sup>7</sup> Coletta, p. 484.

<sup>&</sup>lt;sup>8</sup> Coletta, p. 487.

<sup>&</sup>lt;sup>9</sup>Coletta p. 482.

dependence on the Yard. The threat of cutback or potential closure hung like the sword over region's collective head. Philadelphia's base has been repeatedly slotted for closure for what have often appeared to be arbitrary reasons. Despite excellent performance records and citations for "highest productivity for lowest cost" of all U.S. Naval Bases, Philadelphia's position remained tenuous at best. Although in 1993 people believe that the base faces closure or at best extensive staff and mission reduction, a suit is being heard in the Supreme Court questioning the method the Federal Government uses to determine which bases are selected for closure. Perhaps this too will prove to be yet another turn in the cycle of threat and redemption that this base has survived since its inception.

The civilian workers, who have been the majority of Naval Yard employees, have consistently voiced the importance of the quality of employment at the Yard. With the growth of the service-oriented economic sector and the progressive loss of higher-paying industrial jobs in the last three decades, Naval Yard employees have expressed their legitimate fears at the prospect of the Yard's closure and the grim likelihood of finding comparable employment. The bleak but convincing conviction developed amongst the workforce that there would be no place for the specifically trained Yard workers to go once their work was terminated.

Yet an admirable spirit of hope and pride is also part of this stormy Yard history. Workers have seen the tides change often without visible effect on morale, and remained consistently productive relative to other bases. At times fear of closure actually inspired productivity, as evidenced during the early 1960's. Clearly the stress of the job uncertainty combined with the responsibility of family was no light matter for yard employees. A certain amount of resentment could and still can be seen among yard workers, feeling that they are taken advantage of by the larger workings of government. This sentiment drives what is seen as a last ditch effort to save the Yard in the present lawsuit.

Concerns for the Yard's future have resulted a plethora of suggestions for alternate use. While a wide variety of options have amassed, one theme is clear: the necessity of industry, and quality employment for those being displaced by the Yard's closure.

By the late 1960's the Naval Yard, like much of America observed a change in the attitudes of the workers during that time. The generally uncritical and usually compliant workforce began to express uncertainty and consternation in regards to the Navy 's role in the Vietnam conflict. With the arrival of the battleship *New Jersey* in 1968 Navy Yard workers were urged to express their support in opposition to Vietnam antiwar groups. Conspicuously enthusiastic and patriotic newspaper articles reflect some of the discontent felt regarding the war.

Questions surfaced in the late 1970's concerning the Navy 's operating methods in its eight shipyards, including Philadelphia. A report done for Congress suggested that naval shipyards were poorly managed, among other problems. A specifically striking criticism claimed that the Navy could not tell if Yard employees were producing on par with workers in private industry since the Navy lacked any working standards of its own. This resulted in a new assessment of the Naval Yards and the actual status of their production and quality of work in comparison to that of the private sector. This aggravated issues and arguments concerning base closure.

In the late 1970's the availability of work and surfacing issues of competence and rising costs increased competition for work among bases and resulted in a media spectacle. Fighting erupted between the bases in Philadelphia and Virginia for the refurbishing

contract for the aircraft carrier Saratoga. After politicians won the battle, Philadelphia's Yard completed the \$526 million overhaul. The Saratoga had recurrent problems. The Navy Yard faced the embarrassing accusations of shoddy workmanship and was condemned and scorned in newspaper editorials. This created additional obstacles for the continually shaky future of the shipyard. Fortunately, in what was seen by some as blatant political maneuvering, Philadelphia was exonerated and received the contract to restore the carrier Forrestal. By the early 1980s, the Yard was able to redeem itself and became the most cost-efficient Navy yard in the country.

With the mid-eighties came more threatening prospects of base closure and workers and the City rallied for survival. Questions regarding the use and position of naval yards in an increasingly changing world were examined, along with proposals for alternate uses for bases. With the Department of Defense's announcement in 1990 of the Philadelphia Yard's forthcoming closure, 800 yard workers picketed at the Philadelphia Civic Center. While the visible demonstration of concerned workers was significantly more dramatic than in the past, sentiment among workers was not; a 12-year veteran of the Yard asked the reasonable question "So what else is new?" 10

In 1991 about 500 Naval Yard workers lobbied at the Capitol in another effort to rescue the Yard. Workers expressed repeated frustration at the reasoning that slated their base for closure despite its 1989 designation of "most-efficient" yard. In September 1991 more yard workers gathered for the arrival of President Bush at the Bellevue Hotel to protest further. This gathering erupted in a raucous demonstration with additional protesters including ACT UP, trade unionists and abortion-rights groups.

As the likelihood of closure grew so did plans for the Yard's future. Of primary concern is the necessity to consider the re-employment of the highly trained and highly skilled shipyard workers. They fear their replacement employment will be low-paying service sector jobs of the "McDonald's-type." Suggestions for redevelopment of the Yard have ranged from creating factories, offshore windmills or ships for waste recovery and power generating. Another option proposed by Senator Arlen Specter is an industrial park for twenty-first century technology. The only certainty is that something productive must be done with the Yard. It must not be left without a purpose.

### REGULATIONS AND PROCEDURES GOVERNING TRANSFER OF OWNERSHIP

☐ What regulations govern the transfer of ownership of closing military bases?

The Federal Property and Administrative Services Act of 1949 and the 1988 Base Closure Bill (Public Law 100-526, Section 204) are the two pieces of legislation governing the transfer of ownership of closing military bases to the city and/or private sector. The difference between these two regulations is slight. The former has applied to all Federal real estate disposal since 1949, while the latter just changes the agency responsible for acting as the "realtor" for disposing of military installations from the General Services Administration to the Secretary of Defense.

The Federal Property and Administrative Services Act of 1949 authorizes the General Services Administration (GSA) to dispose of unneeded Federal real property. This

<sup>&</sup>lt;sup>10</sup>"Shipyard workers concerned, skeptical," *Philadelphia Inquirer*, 1990.

<sup>&</sup>lt;sup>11</sup>"Save Shipyard or Save Jobs," South Philly Review, Thursday 22 August 1991.

property receives two classifications: excess and surplus. Excess real property is property transferred from one Federal agency that no longer needs it to another Federal agency which does. Surplus property is any excess property that is no longer needed by any Federal agency. State and local municipalities can acquire surplus property (often as no cost) for a variety of purposes: park and recreation, education, historic monuments, health and human services, public airports, wildlife conservation, and public highways. If the surplus property is not transferred to state or local governments under these programs, then it becomes available to the general public. Since the Reagan administration, the GSA has been under a mandate to obtain the highest profit possible for the sale of Federal property, preferably the full market value (see § 101-47.301-1).

#### Conditions required for disposal:

- Real estate must be excess to a Federal agency's (in this case military) requirements.
- ⇒ Real estate must be surplus to Federal needs.
- ⇒ The applicability of transfer of the real estate under the McKinney Act for use by the homeless must be determined.
- ⇒ Potential conveyance to state and local governments either by public benefit conveyance or negotiation may occur.
- ⇒ Sale to the general public through auction, sealed bids, negotiation, or broker may occur.

The 1988 Base Closure Bill requires adherence to the following procedure for the transfer of ownership of closing military installations:

- 1. The General Services Administration shall delegate to the Secretary of Defense:
  - a. The authority to utilize excess property.
  - b. The authority to dispose of surplus property.
  - c. The authority to determine availability of excess or surplus property for wildlife conservation purposes.
- 2. The Secretary of Defense must comply all regulations governing excess and surplus property under the Federal Property and Administrative Services Act of 1949.
  - a. The Secretary of Defense has no authority to prescribe general policies and methods to utilize excess property or dispose of surplus property.
- 3. The Secretary of Defense will redelegate these authorities to the secretaries of the military departments.
- 4. The secretaries of the military departments must:
  - a. Consult with state and local governments on potential use of the property
  - b. Provide community assistance planning.
- 5. Funds from the sale must be deposited into the Base Closure Account.

#### ☐ How are these regulations applicable to the Philadelphia Naval Yard?

The Philadelphia Naval Complex has three land property owners. The Philadelphia Naval Ship Yard (PSNY) owns land on the west side of League Island including the industrial areas and land under water encompassing 348 acres. The Philadelphia Naval Base (NAVBASE) owns the rest of League Island which encompasses 1,105 acres to include the Reserve Basin and land under water. The third land owner (which will not be considered for study by the HSPV Studio) is the Naval Medical Clinic (NAVMEDCLINIC) which owns the hospital compound, totaling almost 49 acres. Delegation for disposal of this property falls to the Secretary of the Navy.

According to the *Proposed Base Realignment and Closure Implementation Plan for the Philadelphia Naval Complex, July 1992*, the transfer will transpire under a three-part planning process that includes the community's plan for the reuse of the property, the Navy 's preparation of an Environmental Impact Statement (EIS), and the issuing of a Record of Decision (ROD) by the Navy. The Department of Defense (DOD) Office of Economic Adjustment (OEA) is charged with assisting the Philadelphia community in developing a reuse plan. The EIS must also identify potential reuses. And finally the ROD will document the disposal decisions and specify environmental mitigation necessary based the reuse decisions selected.

As of the July 1992, only one Federal agency has expressed a need for property. The Defense Personnel Support Center (DPSC), which falls under the command of the Defense Logistics Agency (DLA) wishes to acquire the NAVBASE senior officer housing, the Defense Reutilization Marketing Office (DRMO), and the Marine Parade Ground. Although DLA cannot hold Class I (land) property, it is working through the Army chain of command to secure these particular properties. Disposition of the property as excess property was pending in the summer of 1992.

☐ Under which program could the state or local governments acquire surplus property at the Naval Complex and at the same time facilitate the preservation of the built environment?

Surplus Federal property that is eligible for or on the national Register of Historic Places may be conveyed to state and local governments at no cost for historic monument purposes (Federal Property and Administrative Services Act of 1949, section 203(K) (3)). State and local governments must apply for historic monument designation by submitting use, architectural, and financial plans. These applications are reviewed by the National Park Service which considers the suitability of the property as a historic monument and the compatibility of the proposed use. The National Park Service also reviews any plans for rehabilitation and restoration of the property. After conveyance, the National Park Service becomes the agency responsible for ensuring that the applicant complies with the terms and conditions of the conveyance.

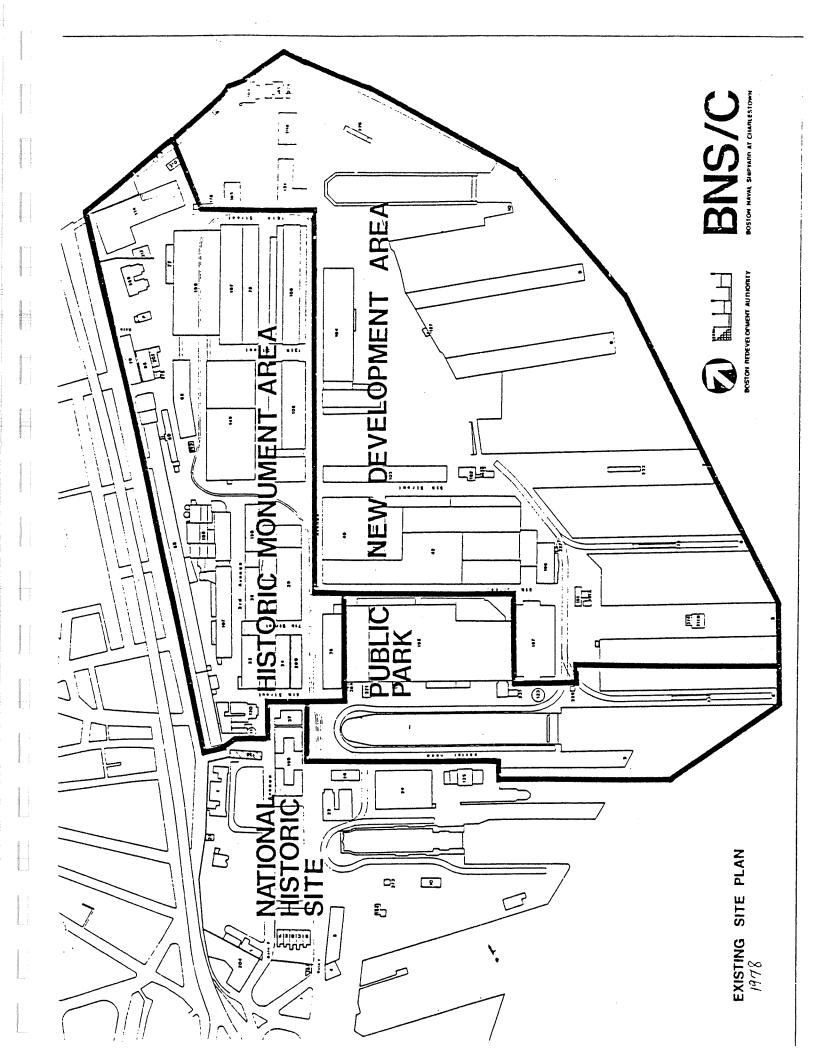
Transferring military base properties under this program is amicable to preservation planning purposes for the following reasons:

- ⇒ The conveyance occurs at no cost.
- Restoration is not required. The use plan, however, must be reasonably specific (i.e. elaborating beyond the intention to "preserve the building"), and rehabilitation must meet the Secretary of the Interior's Standards for Rehabilitation.

- Unlike other programs which must continue their use in perpetuity or else the property reverts back to the government (e.g. land transferred under the education program must be used for education in perpetuity, land transferred under park and recreation program must be used for park and recreation purposes in perpetuity), property transferred under the Historic Monuments program need not only be used as a monument but can also be used for other purposes. In addition, these other purposes are allowed to change over time.
- Adaptive reuse is permissible. The use plan may include lease of the property for rehabilitation by a private developer or lease of portions of the property to specific tenants.
- Excess income (income in excess of maintenance and operational costs) may be earned on the property, but it must be placed into a local fund for historic preservation purposes.

# ☐ How have previous Naval complexes been transferred as excess and surplus property?

The Charlestown Naval Yard in Boston, Massachusetts was transferred in the late 1970s as both excess and surplus property. The map on the following page illustrates under which programs the Naval Yard transfer occurred. The National Park Service obtained the excess property for use as a National Historical Park. The rest of the Naval Yard (to the east of the National Historical Park) was transferred as surplus property. Two of the parcels were transferred to Boston under the Historic Monument program (the parcel to the north) and the Park and Recreation program (the parcel immediately east of the National Historical Park). The remaining parcel (the southeast portion of the Naval Yard) was sold to the general public to the Boston Redevelopment Authority which purchased it for approximately one and a half million dollars.



### HISTORICAL DEVELOPMENT: SITE MAPS

#### HISTORIC MAPS

Navy Yard Proposal — 1867 Plan Navy Yard Map — 1883 Navy Yard Proposal — 1889 Plan Navy Yard Map — circa 1900

### GROWTH AND HISTORIC DEVELOPMENT MAPS

Historic Development — 1890

Growth — 1890-1913

Historic Development — 1913

Growth — 1913-1921

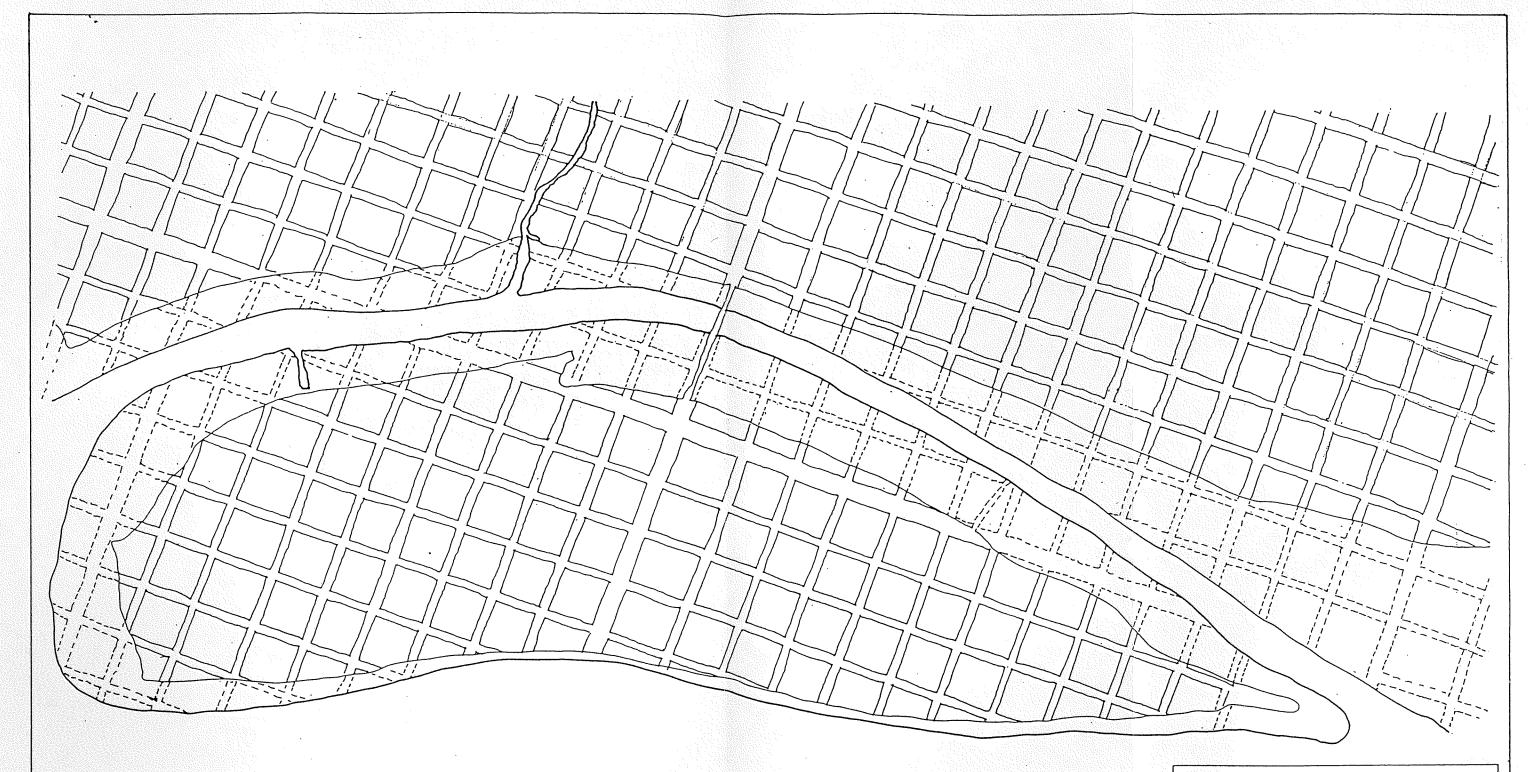
Historic Development — 1921

Growth — 1921-1945

Historic Development — 1945

Growth — 1945-1965 Historic Development — 1965

Growth — 1965-present Historic Development — present

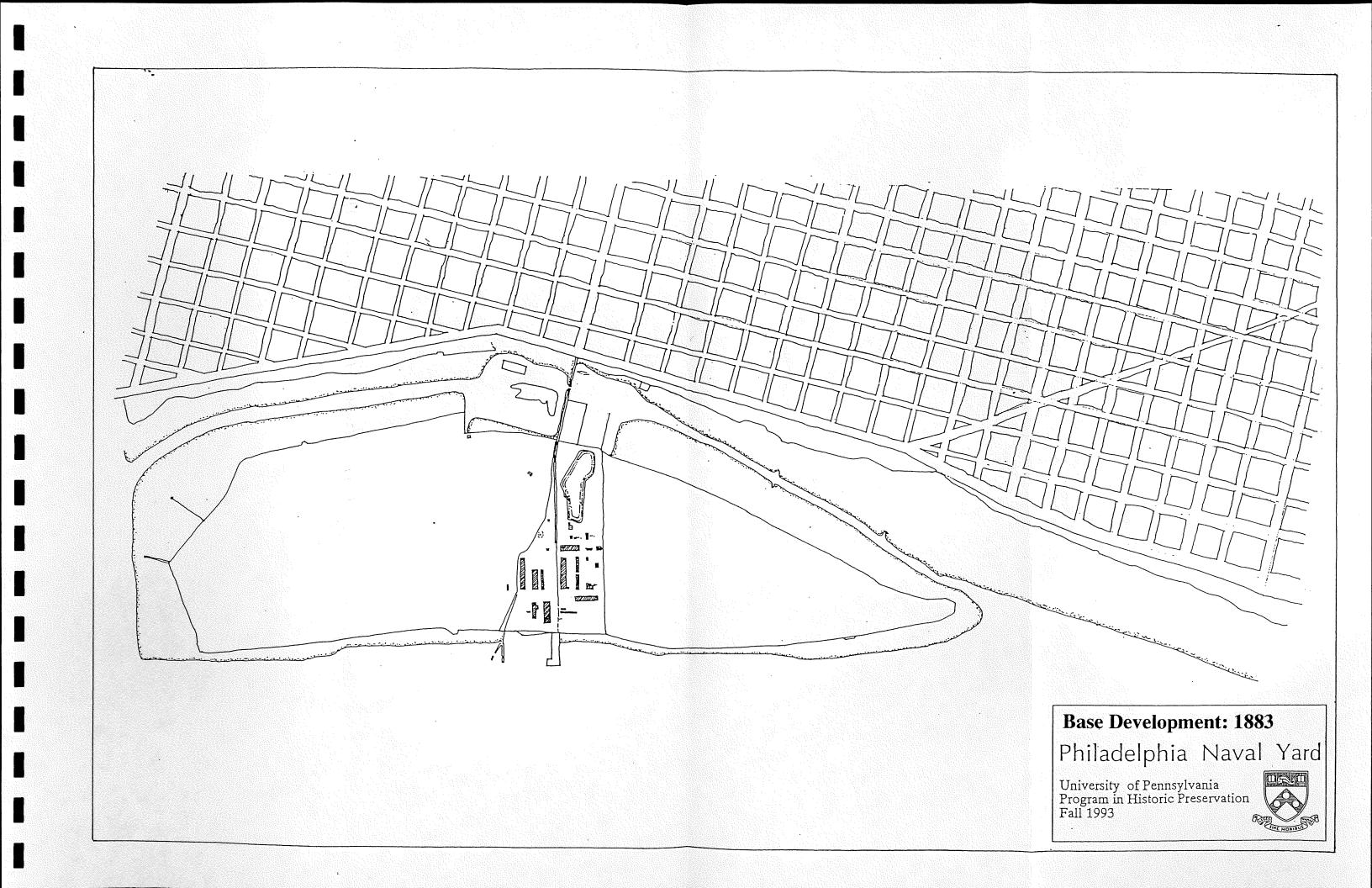


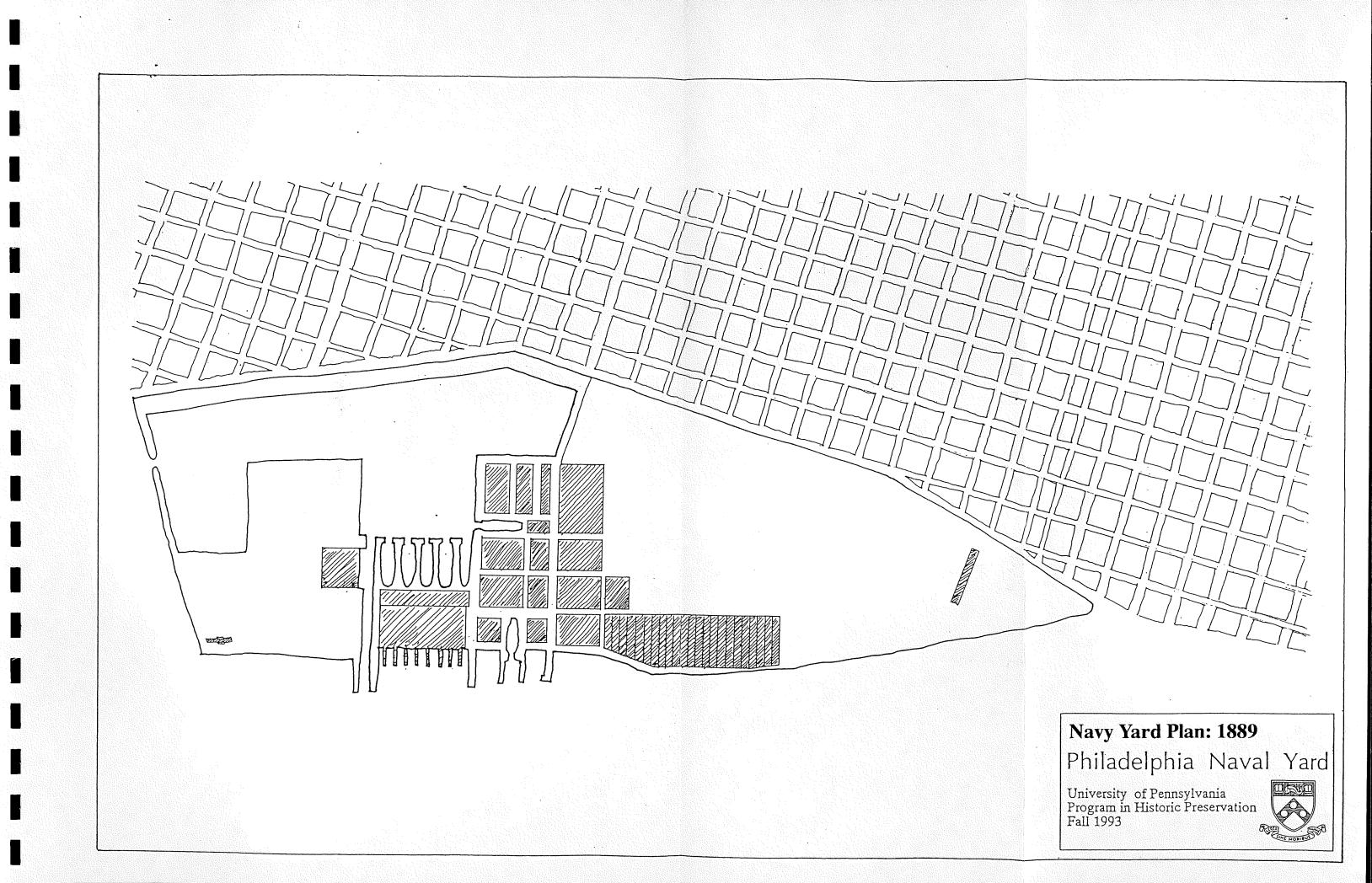
# Philadelphia Grid: 1867

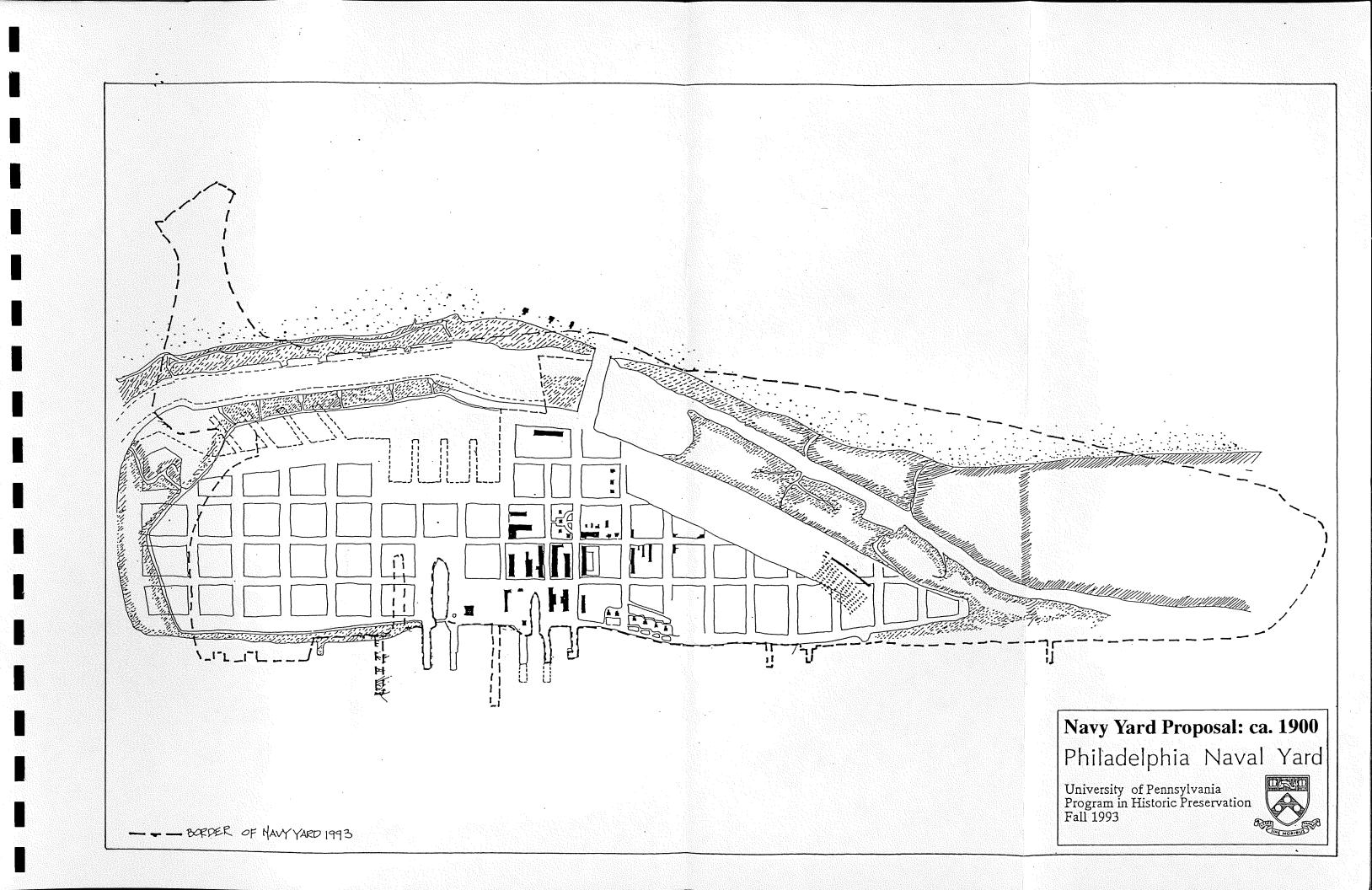
Philadelphia Naval Yard

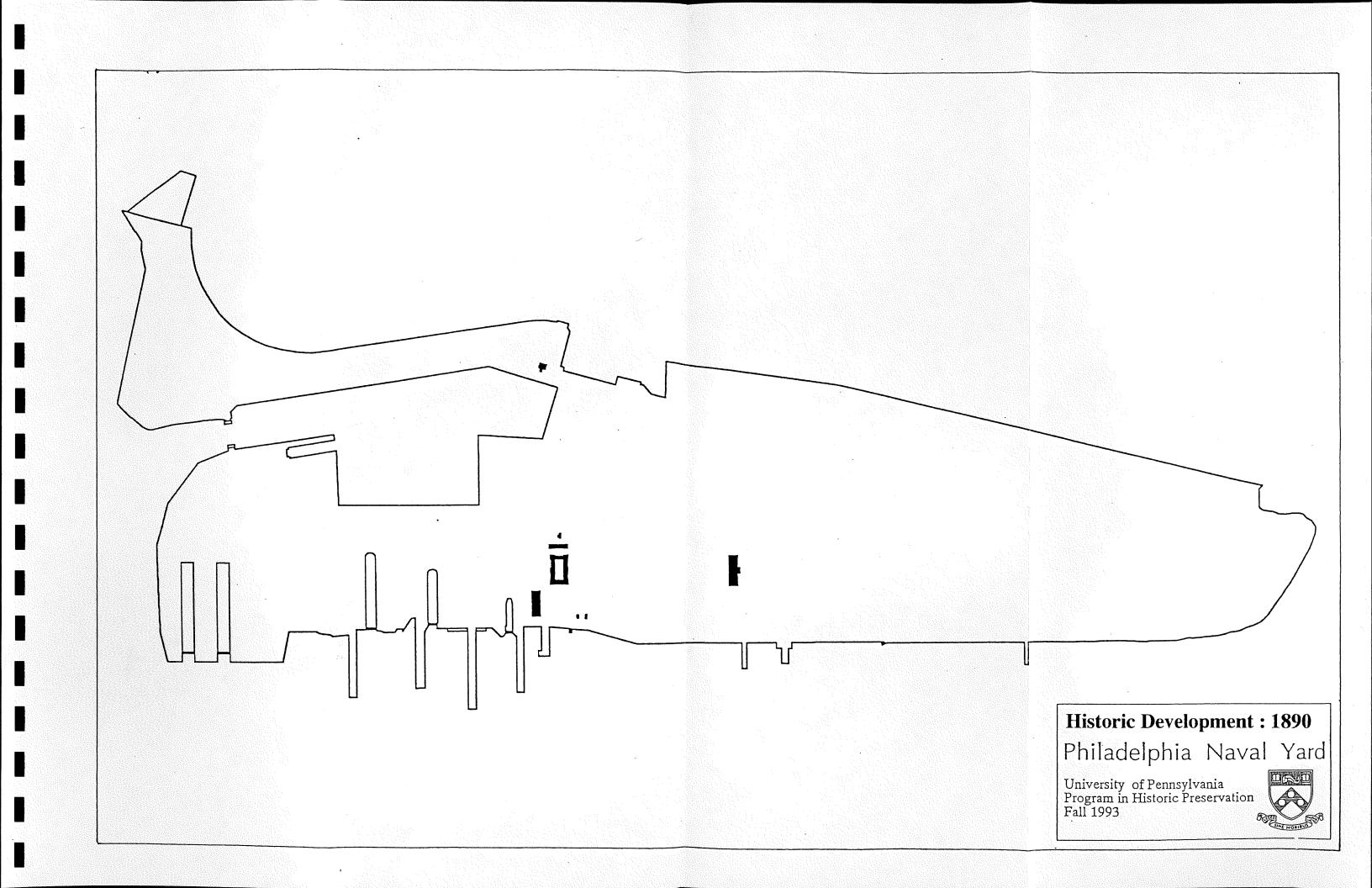
University of Pennsylvania Program in Historic Preservation Fall 1993

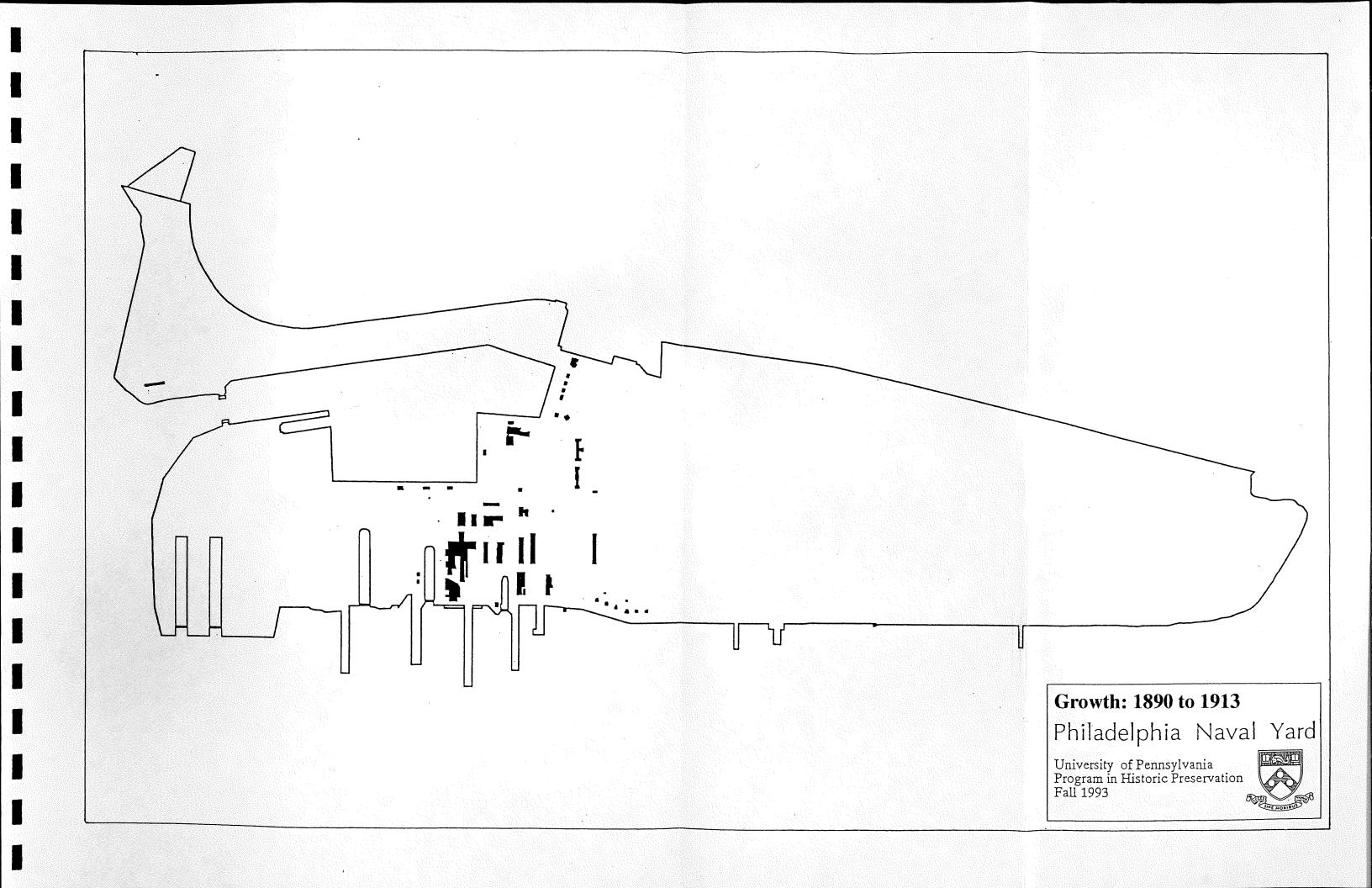


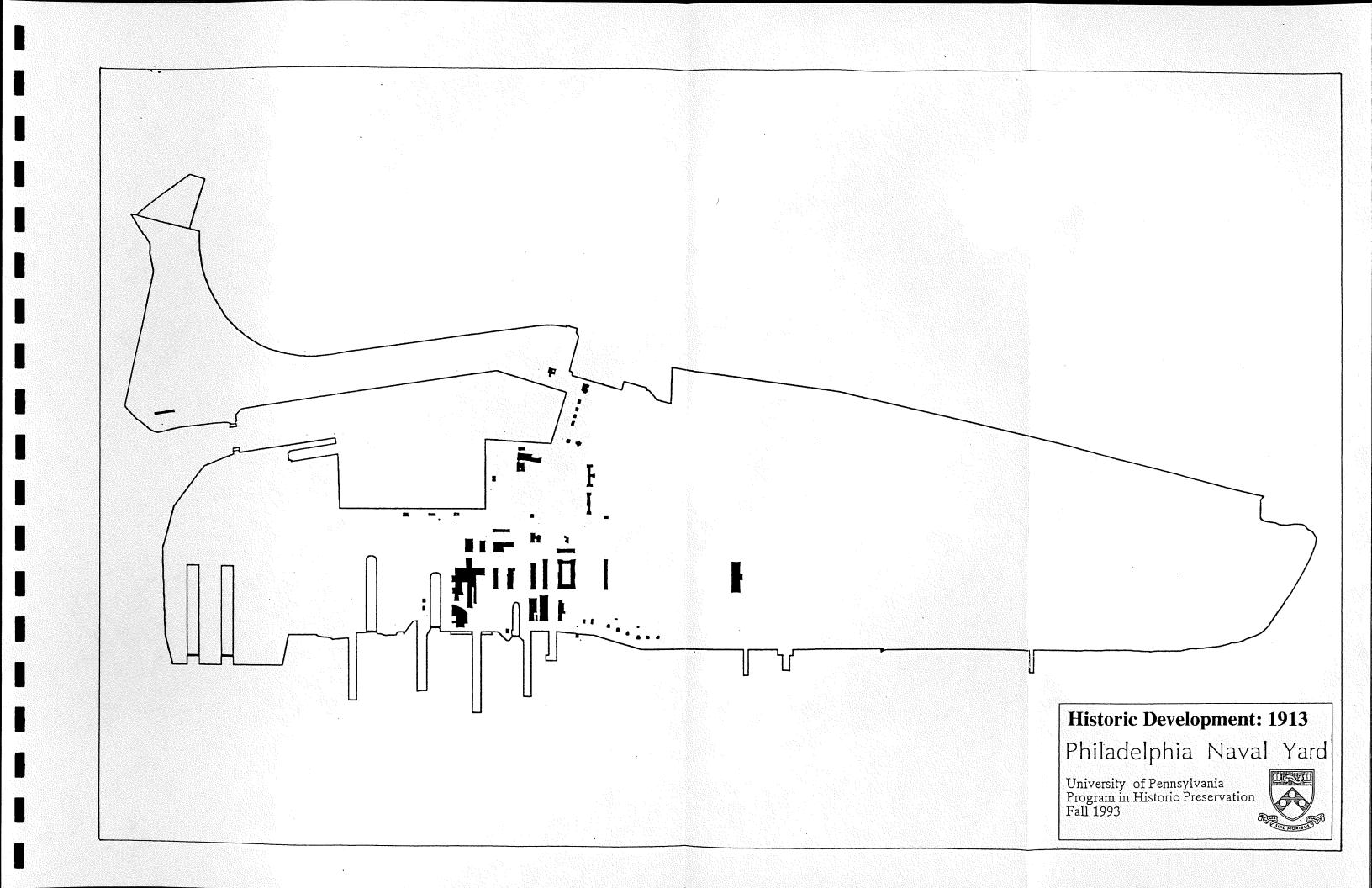


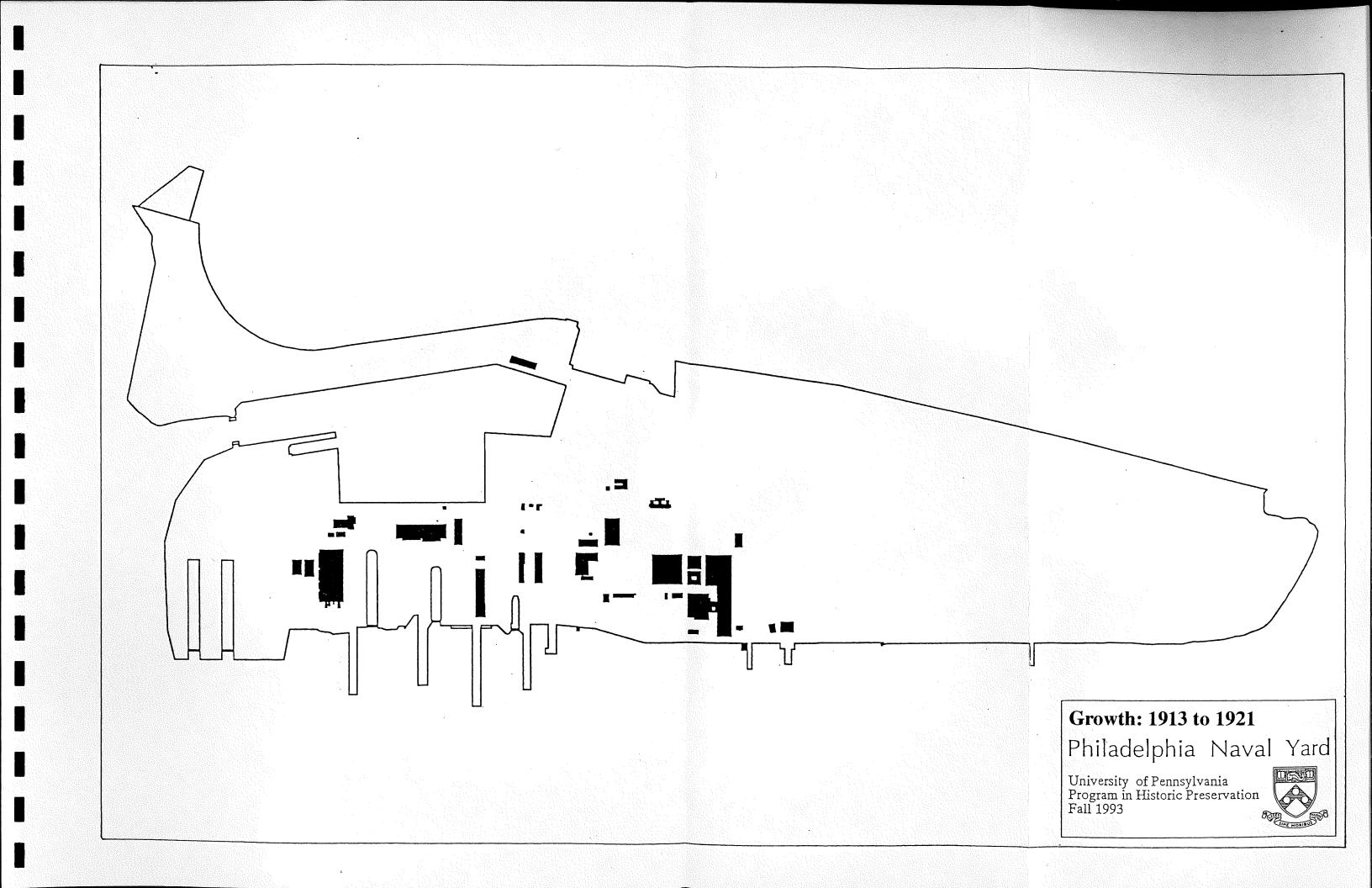


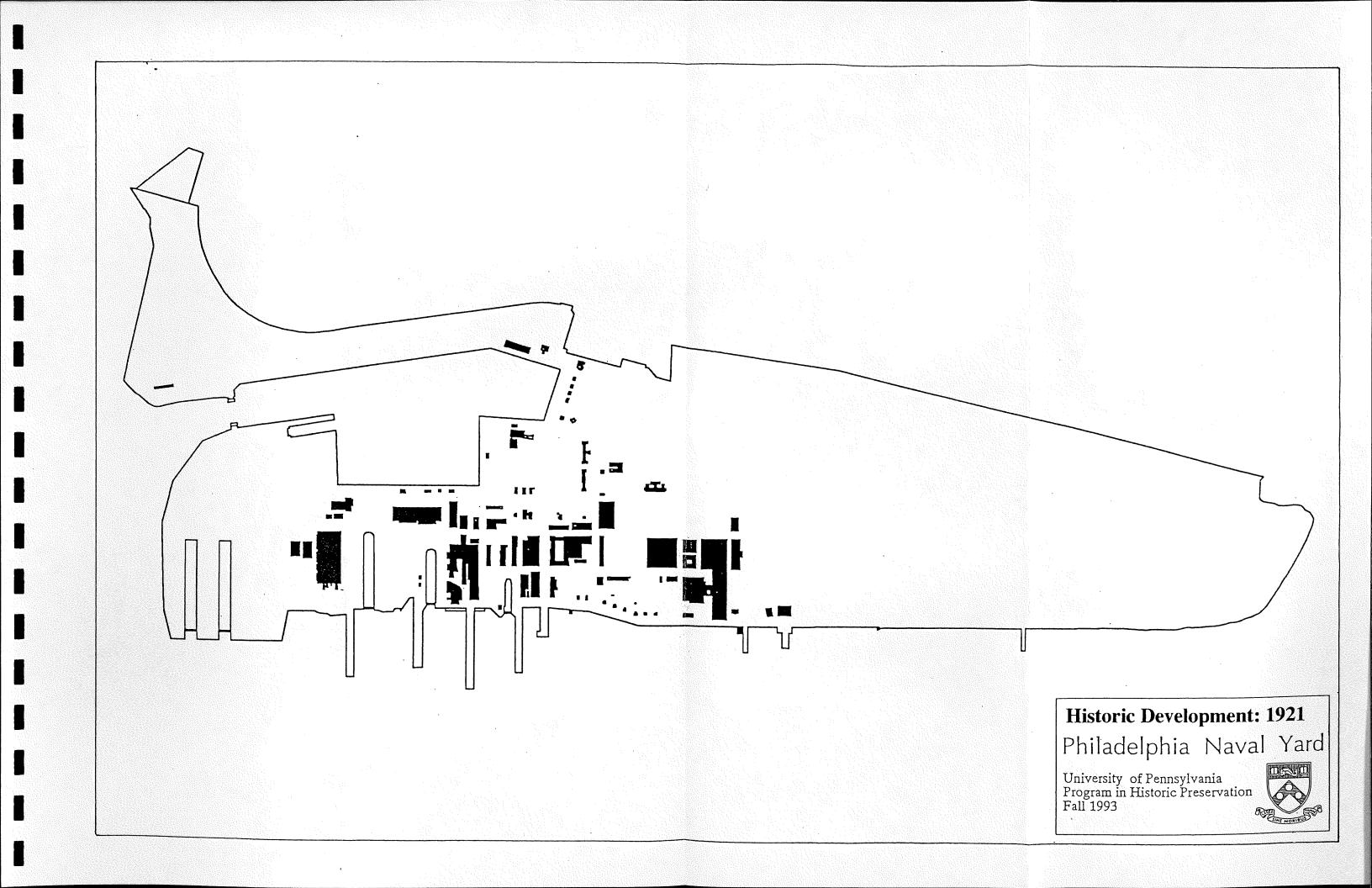


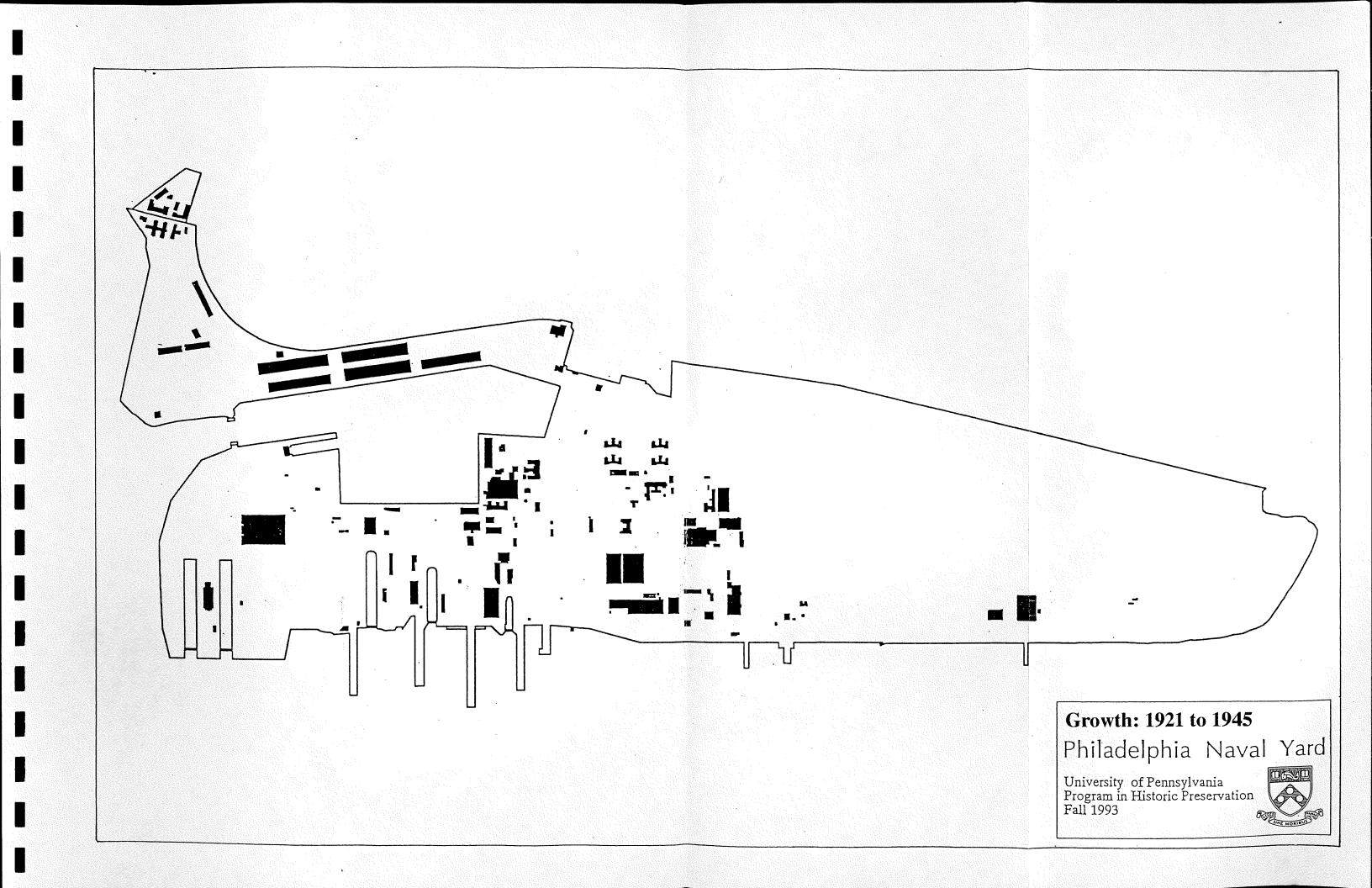


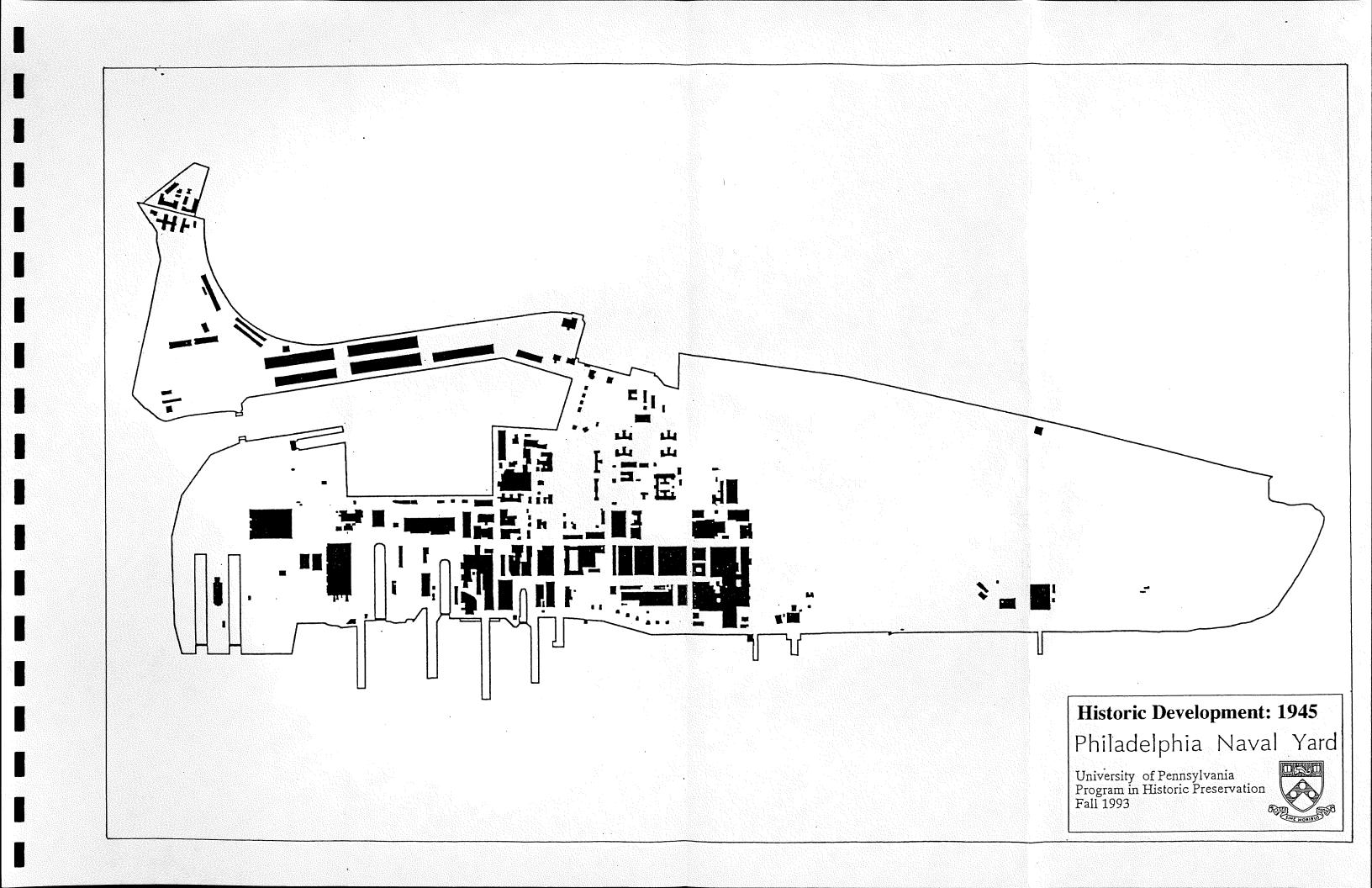


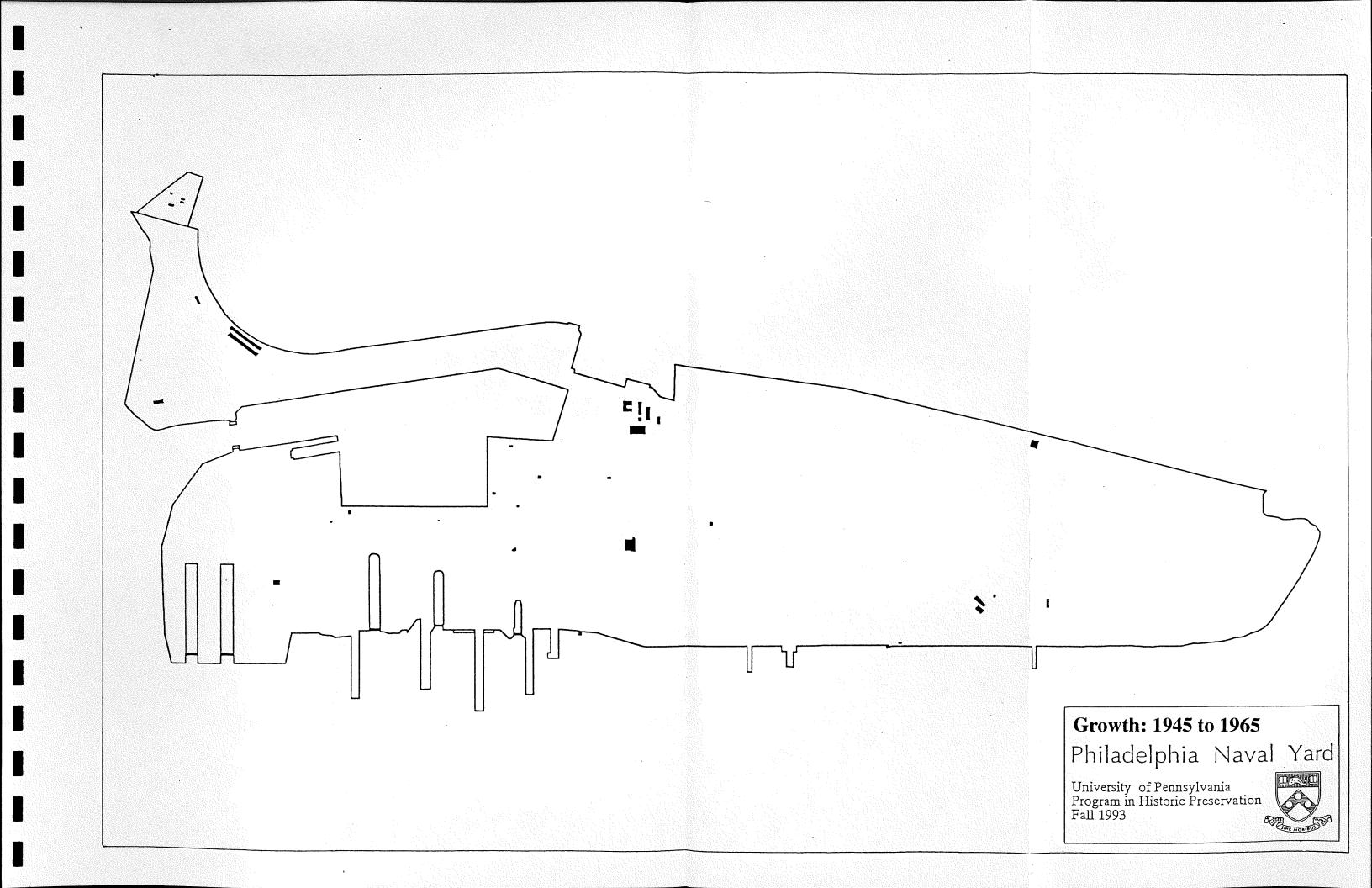


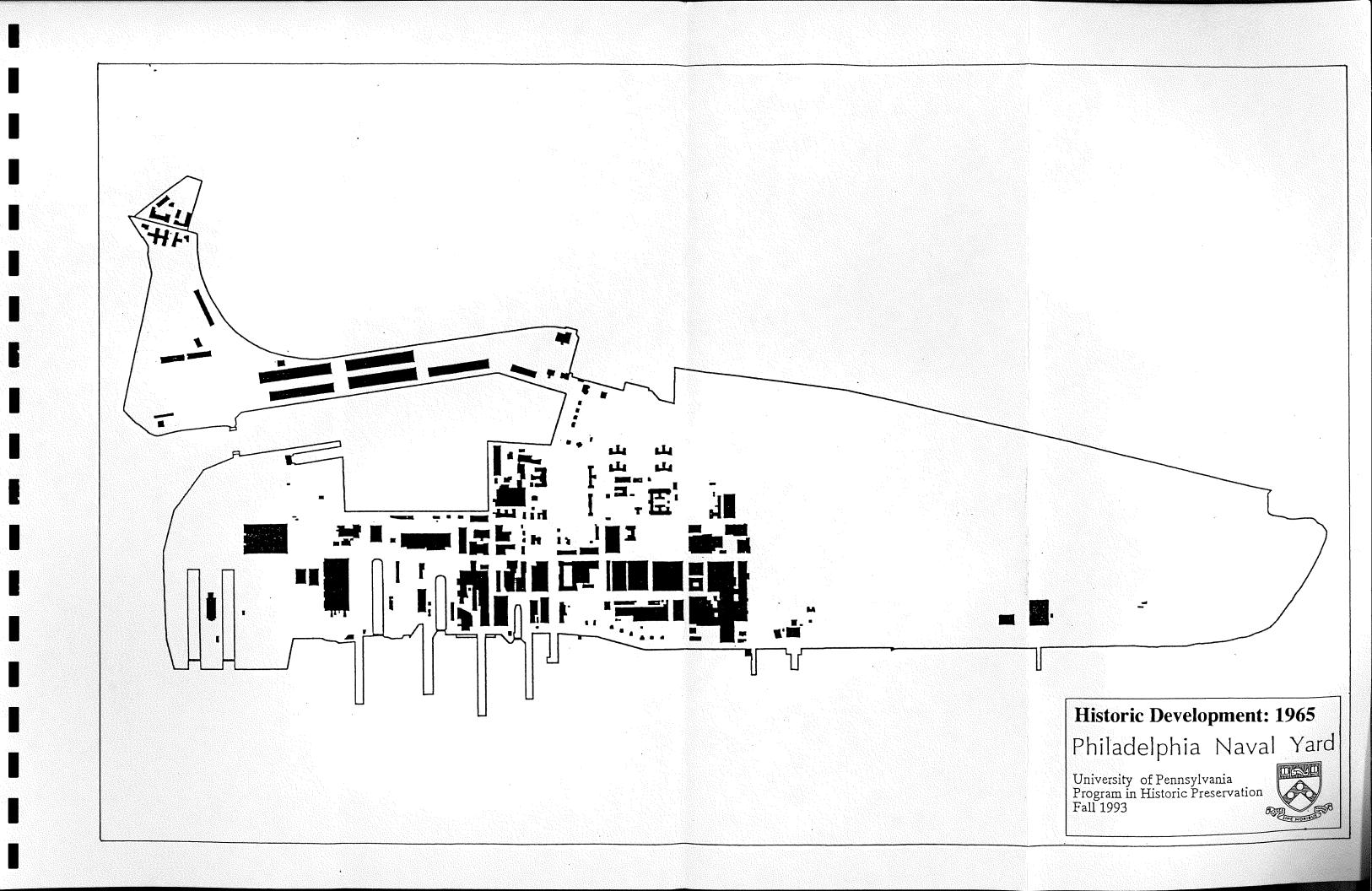


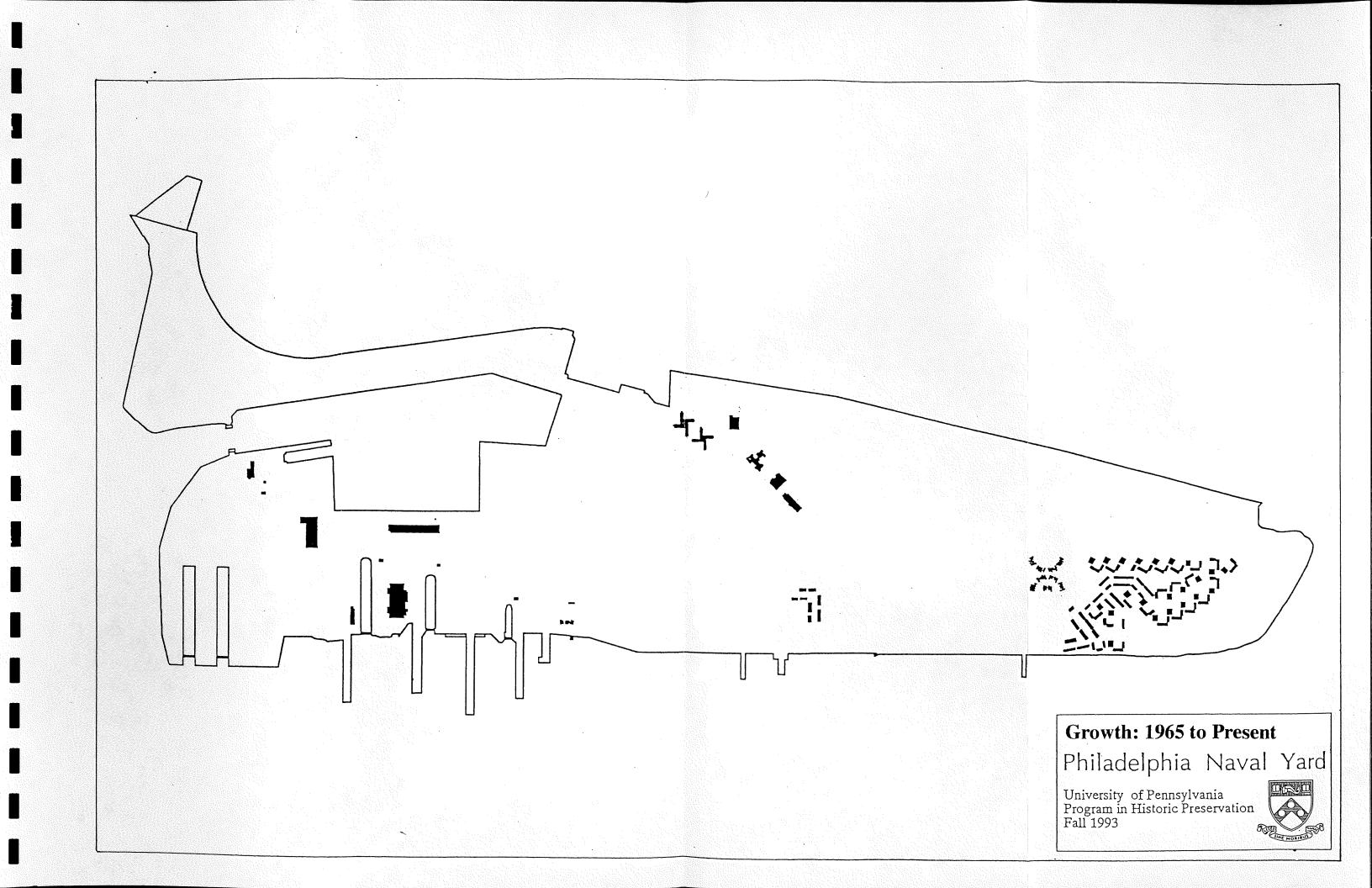


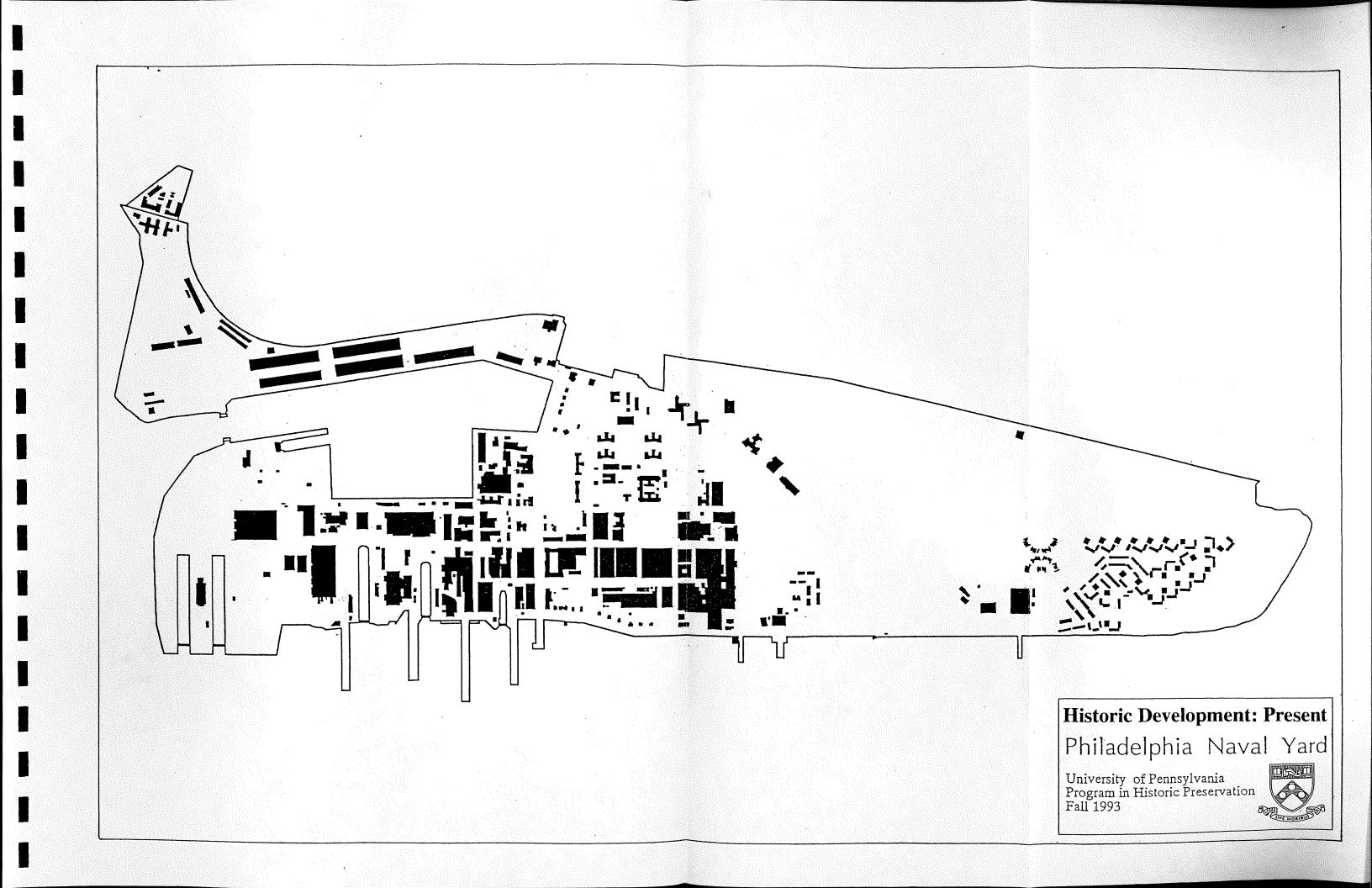












### PHYSICAL TYPOLOGIES OF EXISTING BUILDINGS, STRUCTURES AND LAND USE

#### THE PLANNING MODEL

The Planning Model offers an integrative approach to planning in which all buildings are considered part of the available resources and therefore valuable until proven otherwise. The model's goal is to create a plan that matches resources to community needs, providing for change at a pace that does not create social or economic imbalances. The specific methodology applied involves the typological and morphological analysis of the area/site to facilitate the "reading of the site." The overall reading is designed to address specific questions such as:

Where is the site flexible with respect to change? Where is it inflexible? What are the limits of transformability?

The individual building is the first level of analysis and, in the process of typologically categorizing individual buildings, a general awareness of the "Specialized" Buildings vs. the "General Building Stock" should naturally occur.

The second level of analysis involves morphological analysis of the site as a whole. This component has been handled in the studio report on the historical and morphological development of the Naval Yard.

#### **OBJECTIVES**

To Understand the site — both its development (morphology) and its current state (structural fabric) — in terms of individual elements, and recognition of areas of similarity. This is not an historical survey of changes over time so much as a "taking-stock" of what is currently present, notation of the physical characteristics that contribute to the area's cohesiveness, and how the fabric of individual structures contributes to the existence of areas of homogeneity (areas with a defined character.)

To Create Representative Information about the site based on maps and typological classifications that will permit newcomers to understand the site with only limited investment of time or research.

To Plan For Future Detail Gathering that we are unable to undertake in such a limited time frame by developing an inventory form for the use of future researchers — the information we'd like to have, organized in the way we think it can be most useful for others.

To Identify Levels of Transformability of Areas Across the Site — necessitating the identification of areas that have a cohesive nature based on specific character defining features; followed by identification of how susceptible to loss of character these areas are in the event of changes.

#### METHODOLOGY

- ⇒ Organize thoughts based on initial impressions of the site
- Research and develop inventory form based on proven examples
- ⇒ Discuss and evaluate possible representations of homogeneity
   Open Space Land Use Axonometric Representation
   Post-1995 Status Building Typologies
- Recognize limits based on inaccessibility, both to the site and building interiors
- Design around the limits, to develop a system for typological identification (i.e., we can't get in to see internal spatial arrangement so we'll judge as best we can based on fenestration patterns, entry and chimney positions, glimpses through to interior, aerial photos, cladding materials, roof form, etc.)
- ⇒ Divide and Conquer two teams to site with one looking at individual building typologies and the other attempting to identify larger areas of definable, like character
- Sketch individual representative structures both in elevation and in presumed plan based on external observations
- Classify individual structures in a typological system, addressing specific characteristics to include Use, Size/Density, Materials, Age, Setback, Relationship to Landscape

#### **BUILDING TYPOLOGIES DEFINED**

#### **☐** Administrative

- Type A. Pedimented roof with cupola; twelve over twelve multi-paned windows; presumed central corridor plan; presumed steel frame; brick/stone cladding
- Type B. Mansard roof; twelve over twelve multi-paned windows; dormers; chimneys on exterior; presumed open plan (transformed from central court); presumed steel frame; brick/stone cladding.
- Type C. Flat roof; multi-paned windows; presumed central corridor plan; presumed steel frame; stone infill/cladding; tripartite horizontal banding.
- Type D. Flat roof; banded casement windows; presumed open plan; presumed steel frame; brick cladding.

#### **□** Industrial

- Type A. Flat roof; banded casement windows; concrete frame structure with brick/glass infill; presumed open plan.
- Type B. Sloped roof with deep eaves; twelve over twelve multi-paned windows; presumed steel frame with brick cladding; presumed open plan.
- Type C. Sloped roof; banded and clerestory windows; presumed steel frame with base and corner columns clad in brick and a corrugated metal infill; presumed open plan.
- Type D. Arched roof; banded windows; presumed steel frame with corrugated metal cladding; presumed open plan
- Type E. Flat roof; banded windows; presumed steel frame with corrugated metal cladding; presumed open plan.

#### **☐** Residential

- Type A. Pitched roof, asphalt shingles; sliding windows; exterior cladding made of wood or aluminum, painted green or cream; integrated parking at street level.
- Type B. Decorative asphalt shingles, presumed flat roof; double hung windows, false shutters; brick cladding; garage at basement level; presumed typical row house plan.
- Type C. Flat roof; double hung windows; prefabricated exterior walls, painted cream; presumed central corridor plan.
- Type D. Hipped roof; white wood clapboard siding; central chimney denotes presumed central fireplace.
- Type E. Mobile Homes standardized, production form.
- Type F. Pitched roof with asphalt shingles; exterior wood and/or metal clapboard cladding, painted white; presumed central corridor plan.

#### PHYSICAL TYPOLOGIES: SITE MAPS

### **BUILDING FIGUREGROUND**

#### PHILADELPHIA NAVAL BASE OPEN SPACE USE 1993

Hard

Soft

Wild

Maintained Green

**Parking** 

Recreation

## PHILADELPHIA NAVAL BASE CLOSURE AND REALIGNMENT MILESTONE MAPS 1992-1995

Remove Personal Property, Hazardous Wastes, Close Facility

**Excess** 

Caretaker Status

Transfer

**NAVMEDCLINIC** 

Begin Inspection, Inventories, ISSA, and Services Termination

#### PHILADELPHIA NAVAL BASE BUILDING INVENTORY POST-1995

Demolish

Converted to Other Naval Use

Maintained

Vacant

#### **CURRENT USE**

Residential

Industrial

Utilities

Administrative

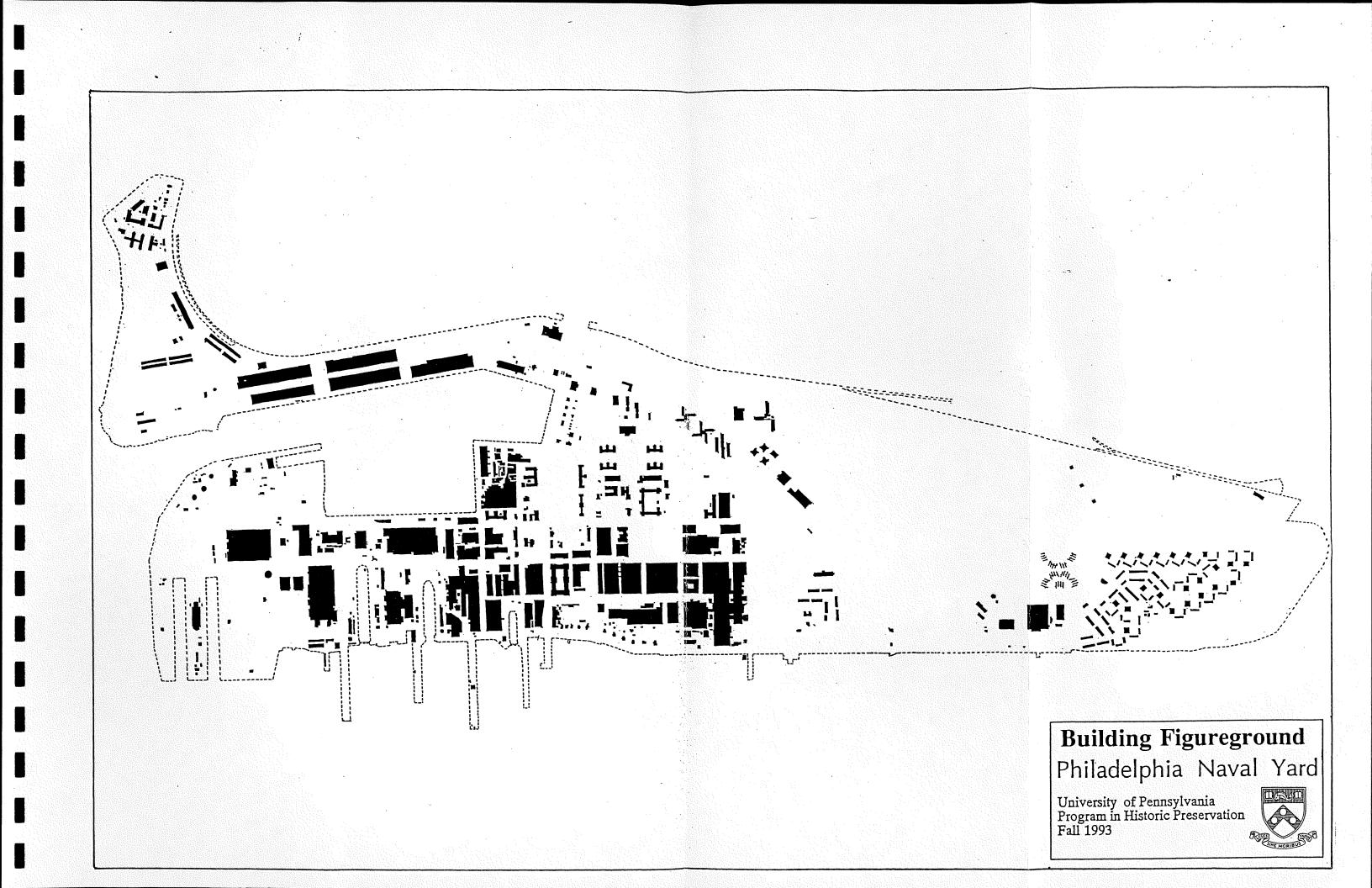
#### **BUILDING VOLUME**

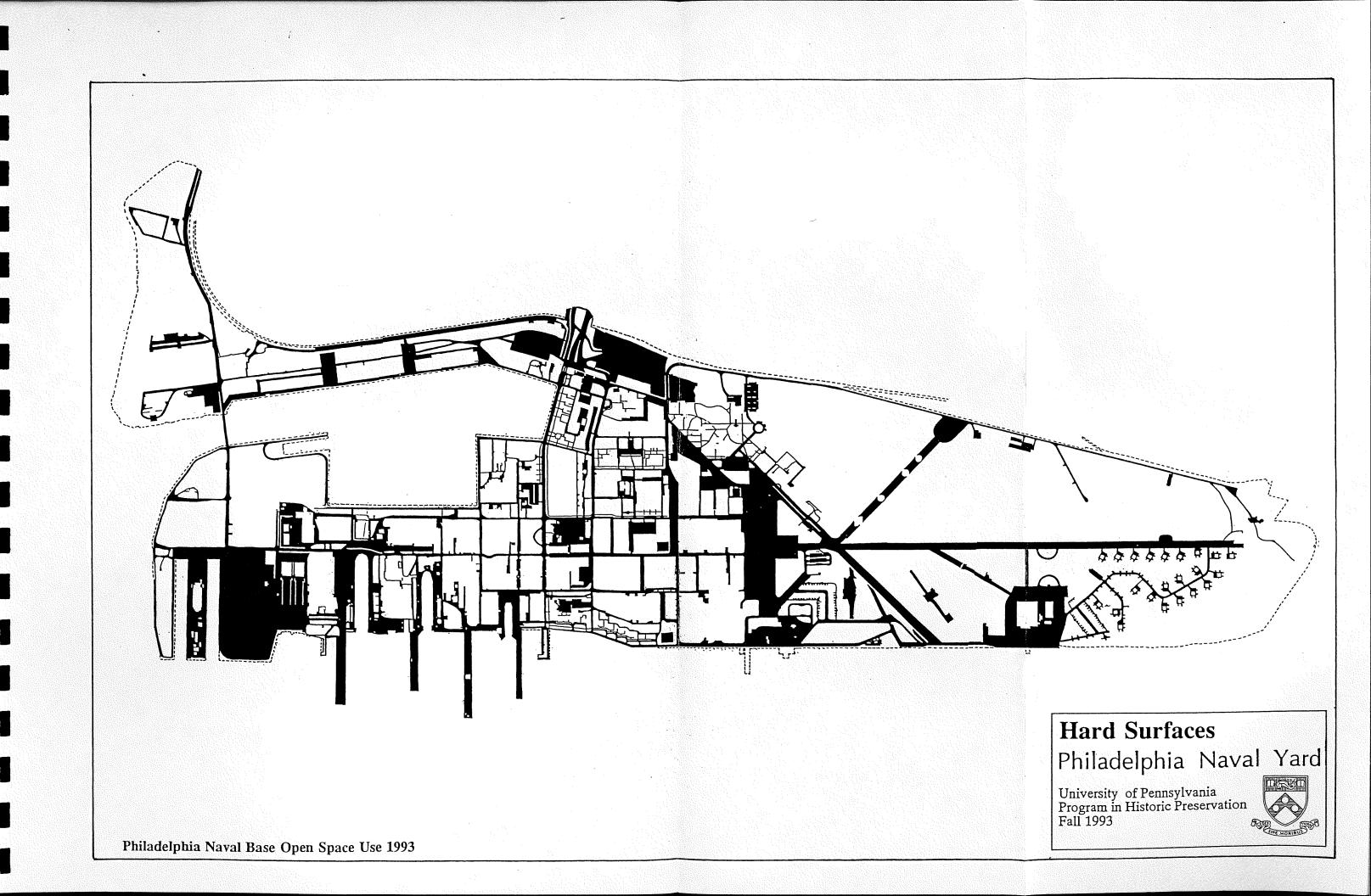
View of Western Quadrant

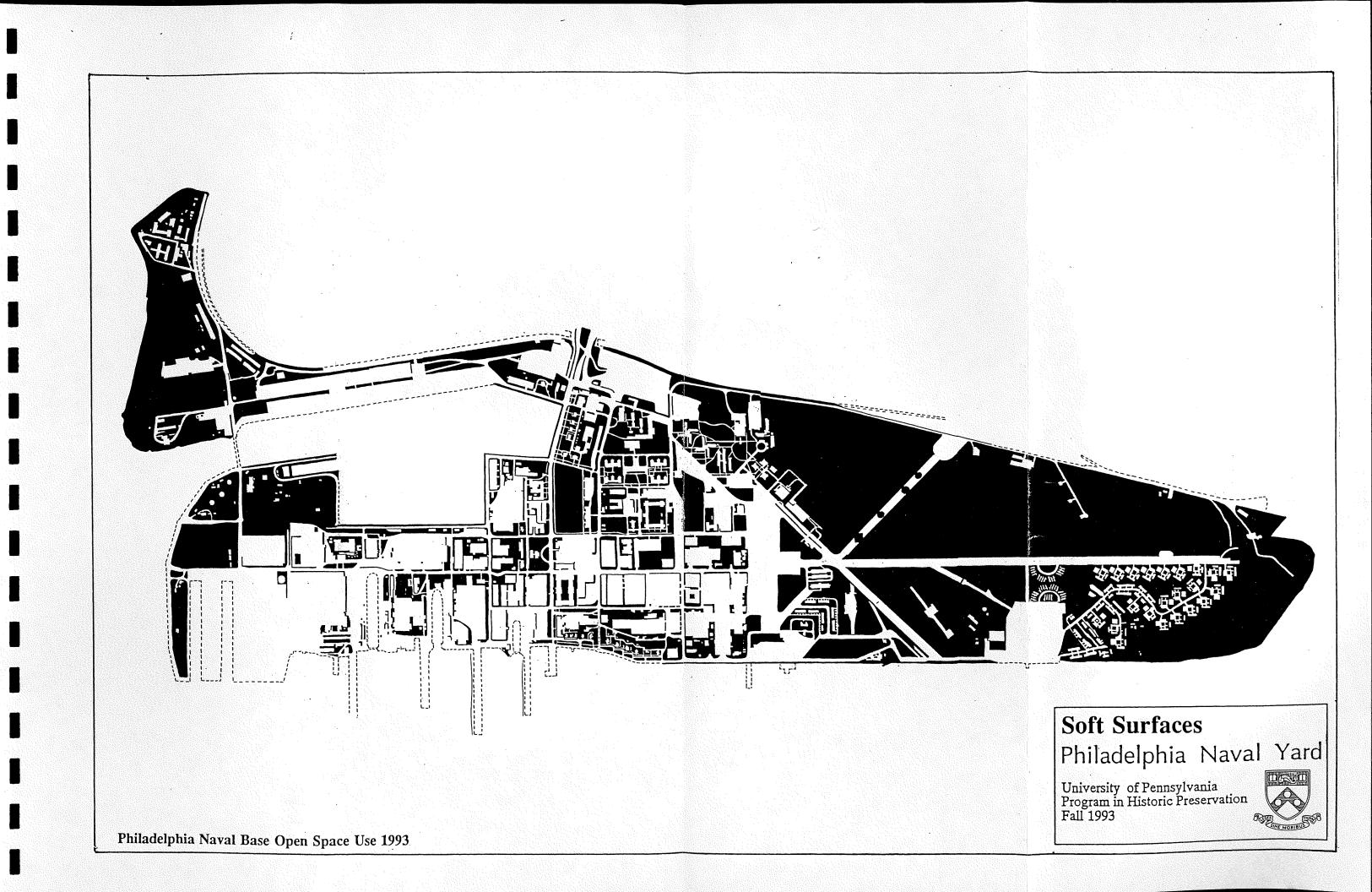
View from I-95 Looking East

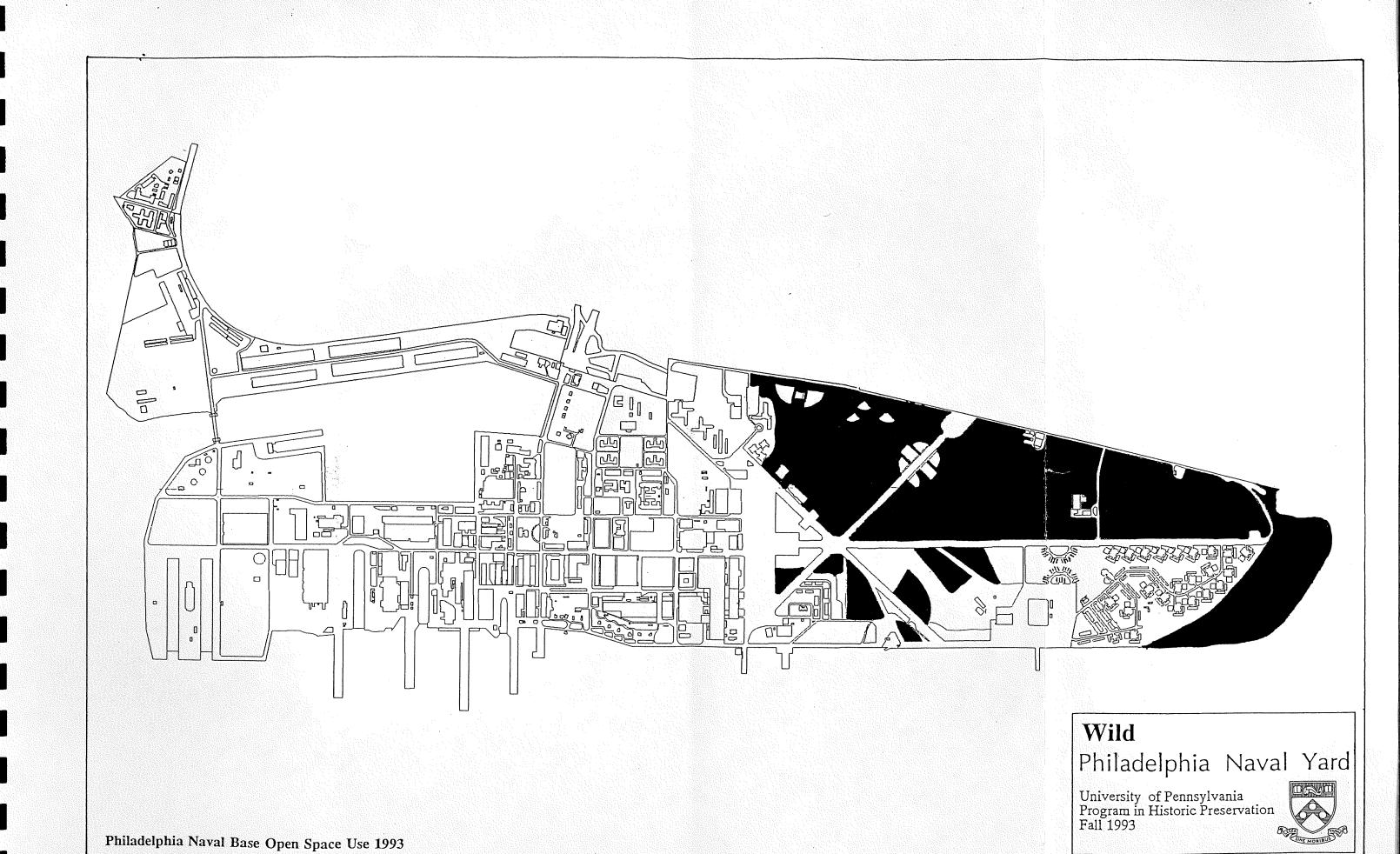
View of Southeastern Quadrant

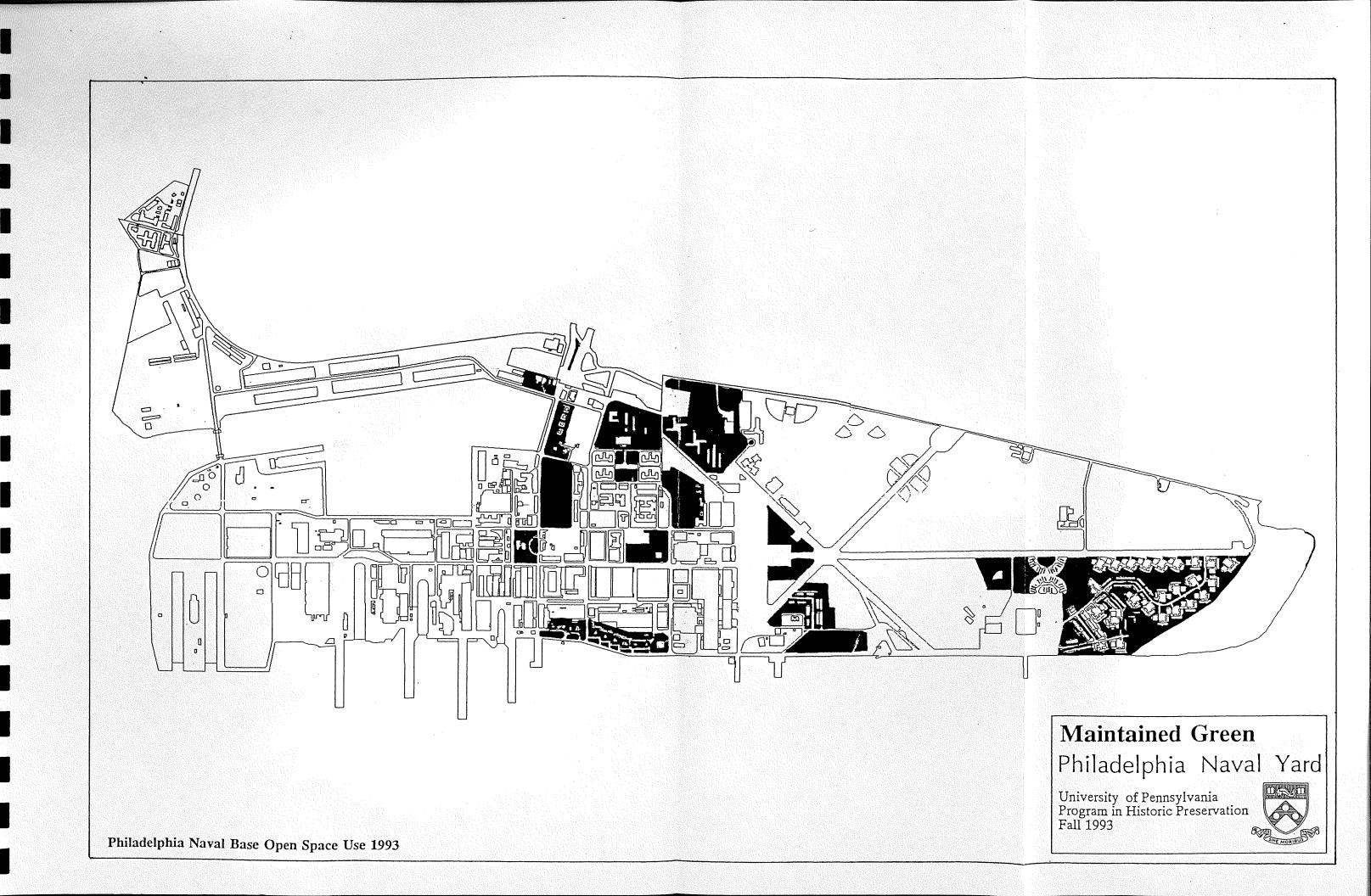
View of Administrative Core

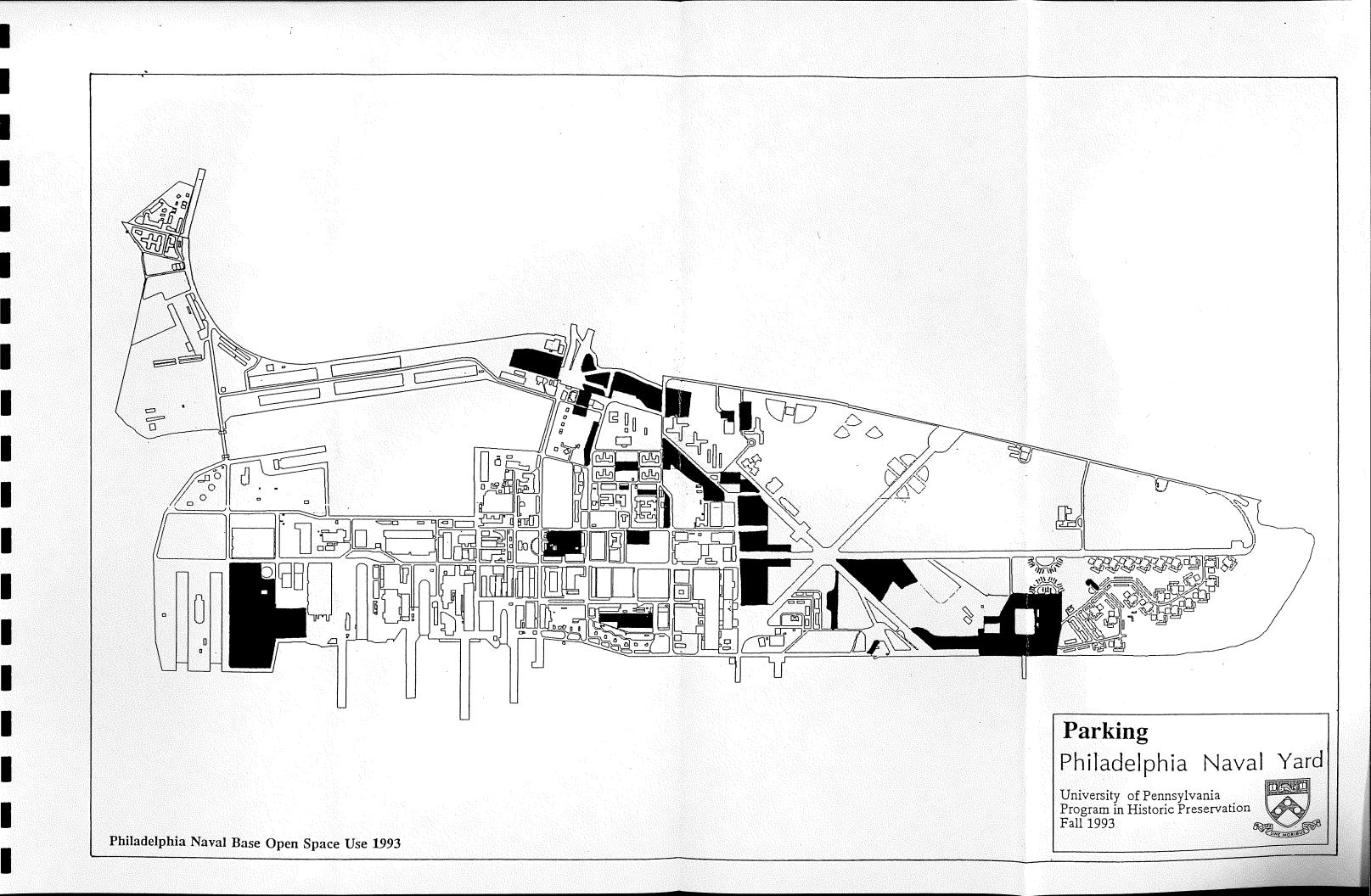


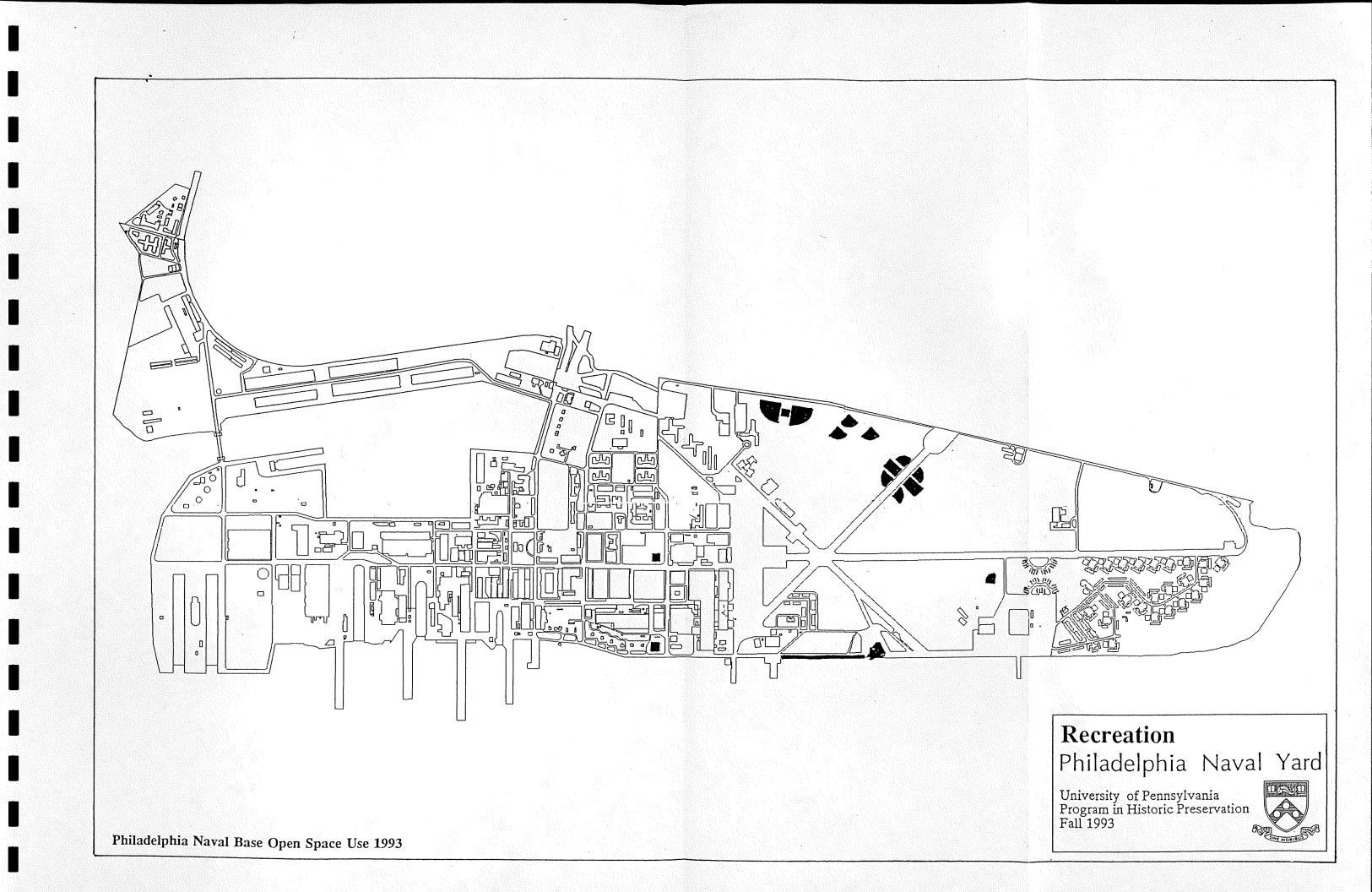


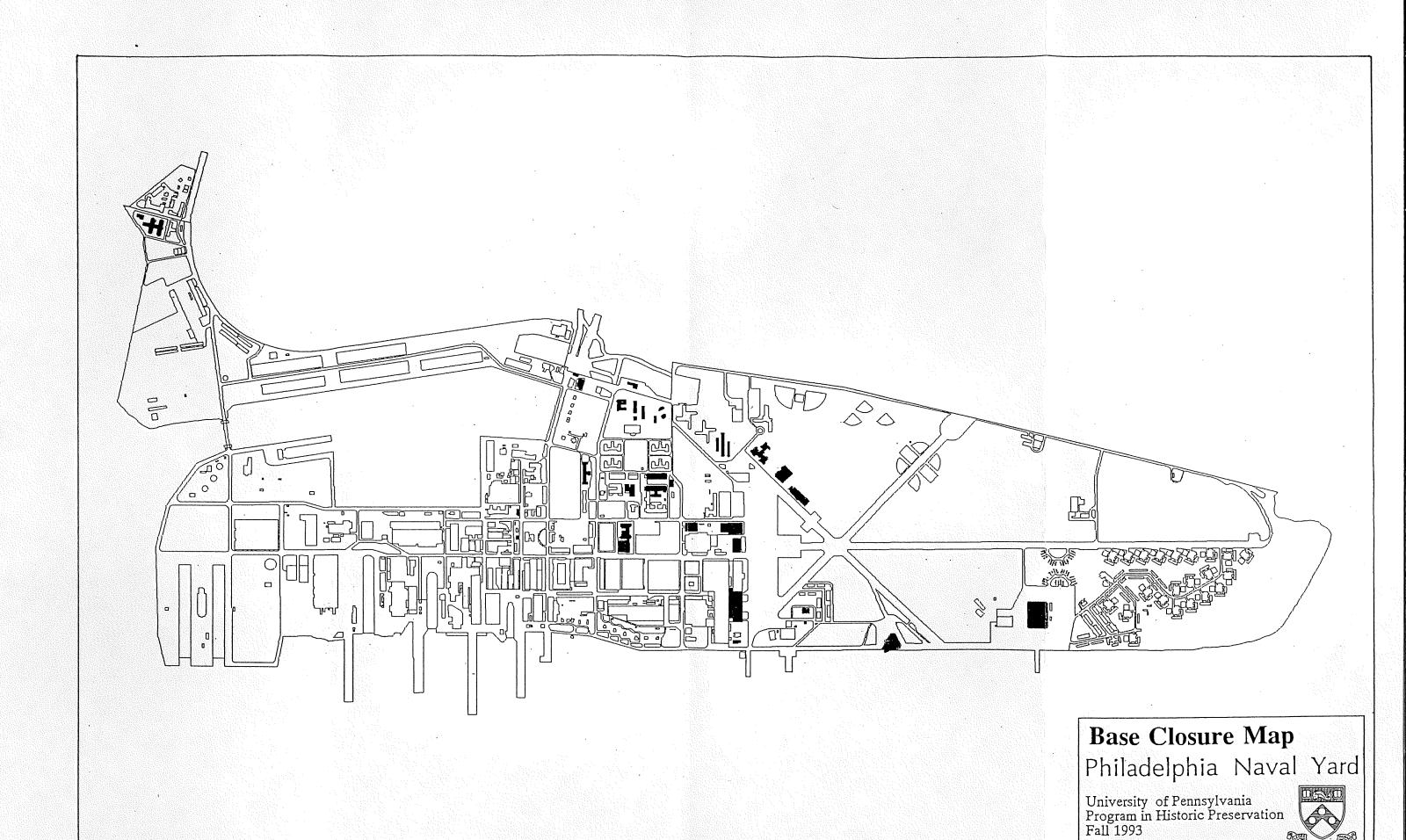




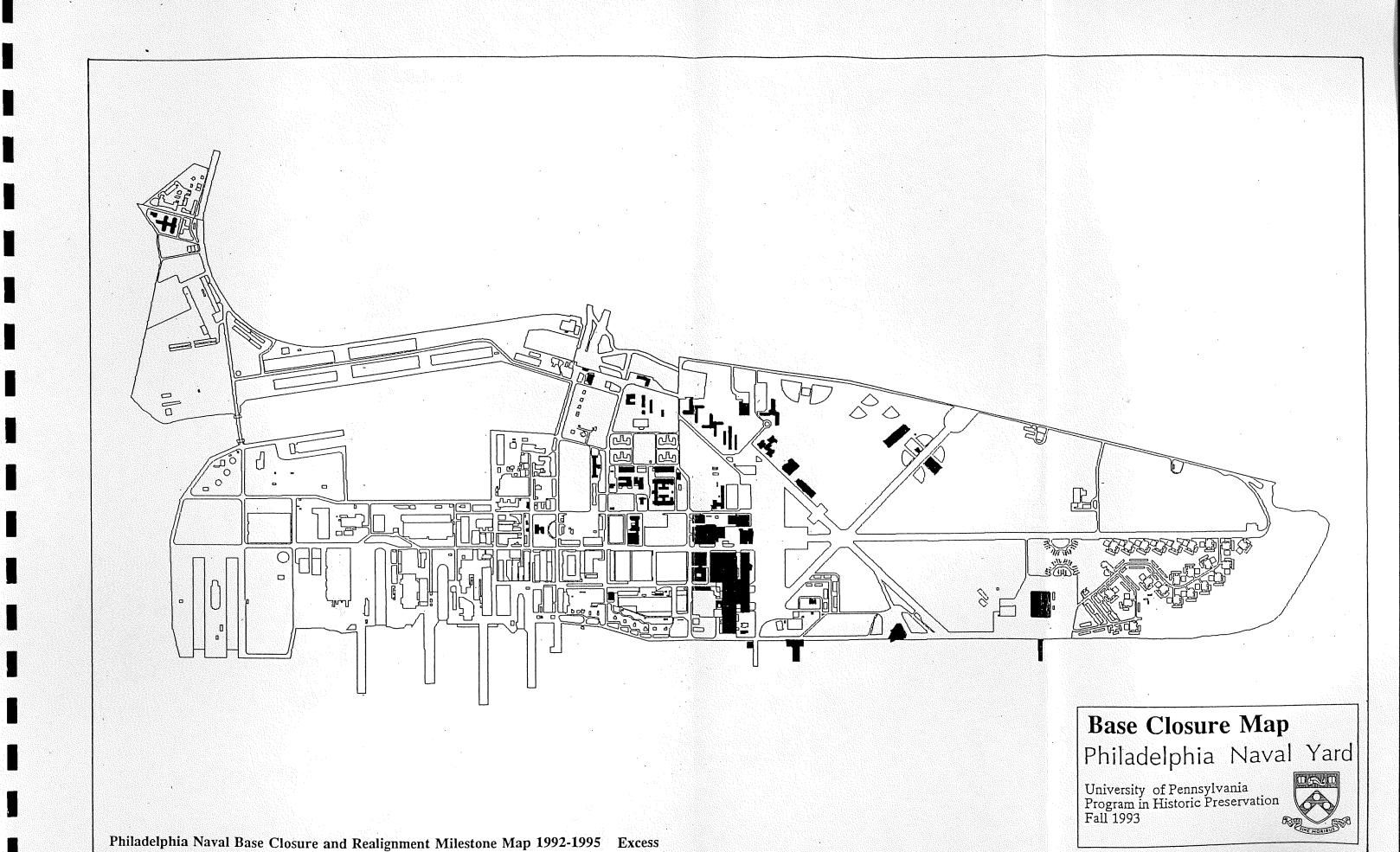


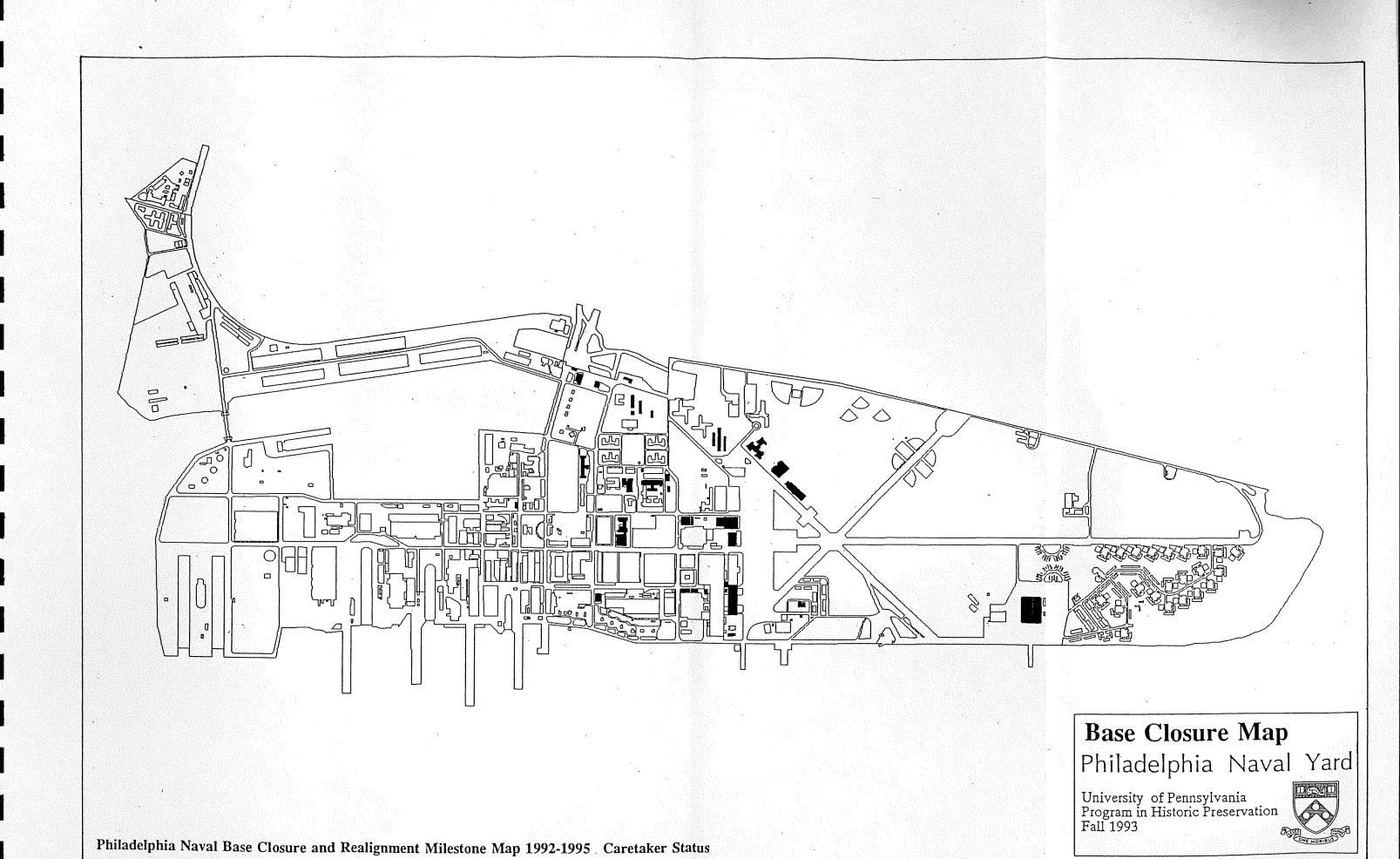


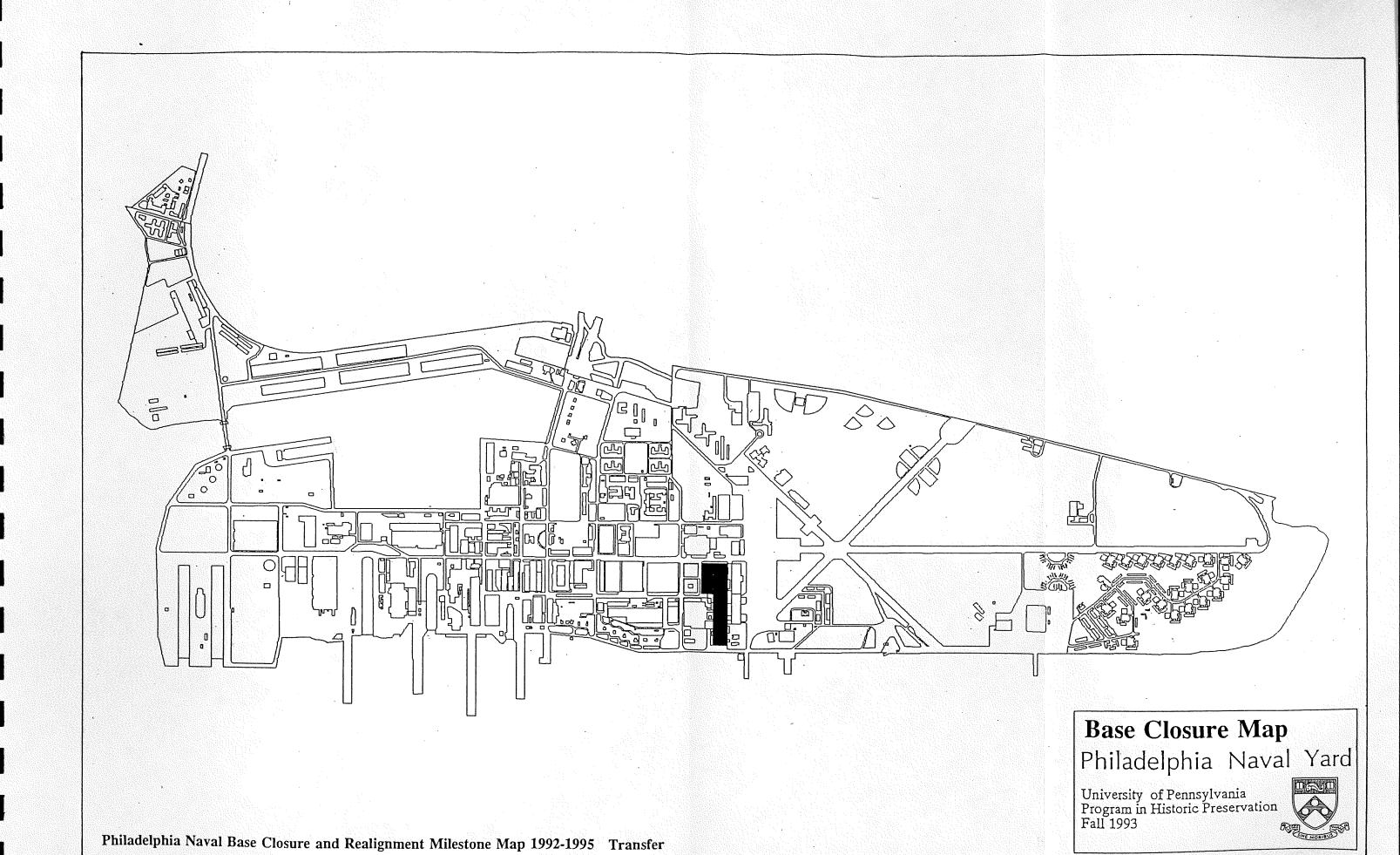


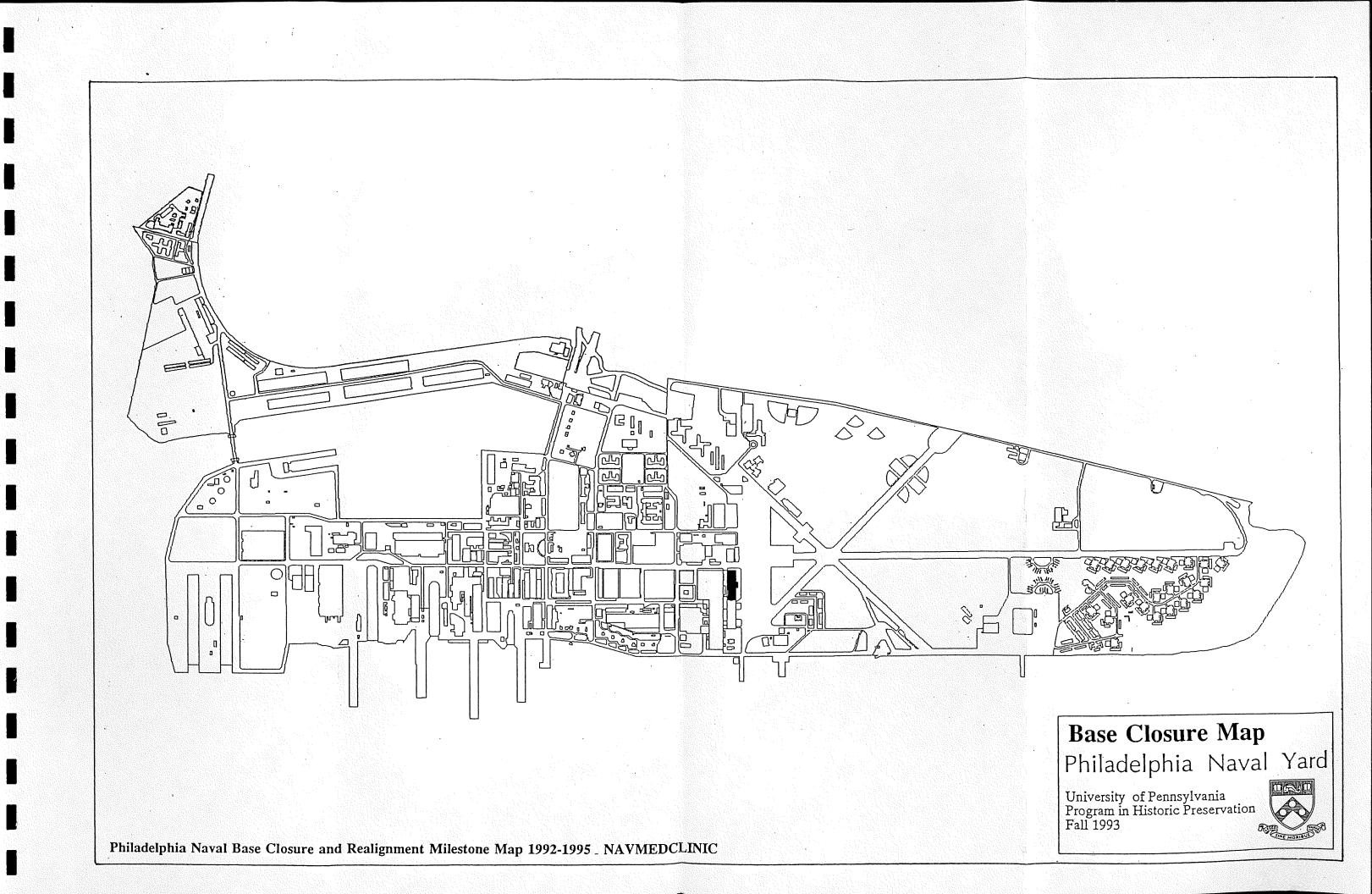


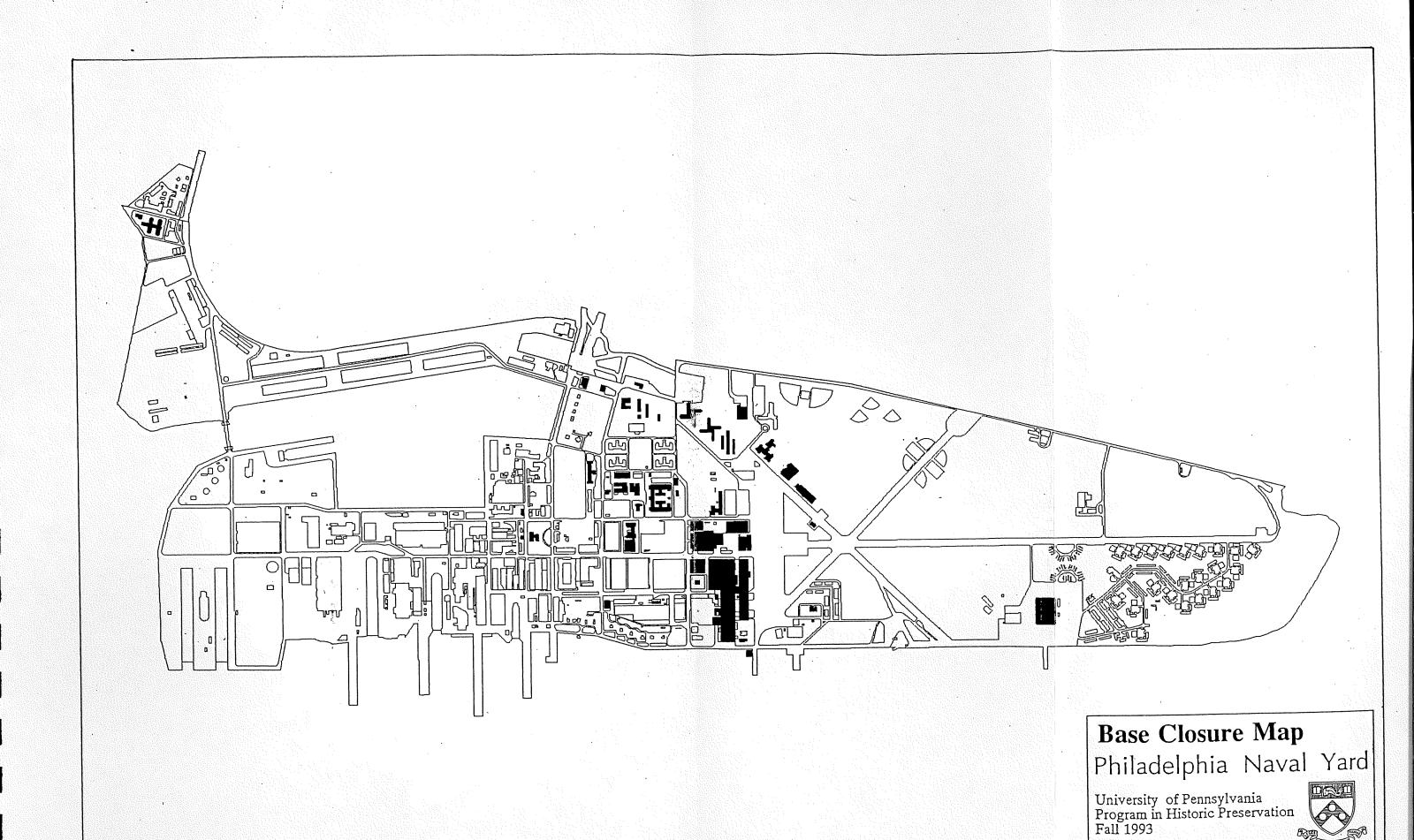
Philadelphia Naval Base Closure and Realignment Milestone Map 1992-1995 Remove Personal Property, Hazardous Wastes, Close Facility



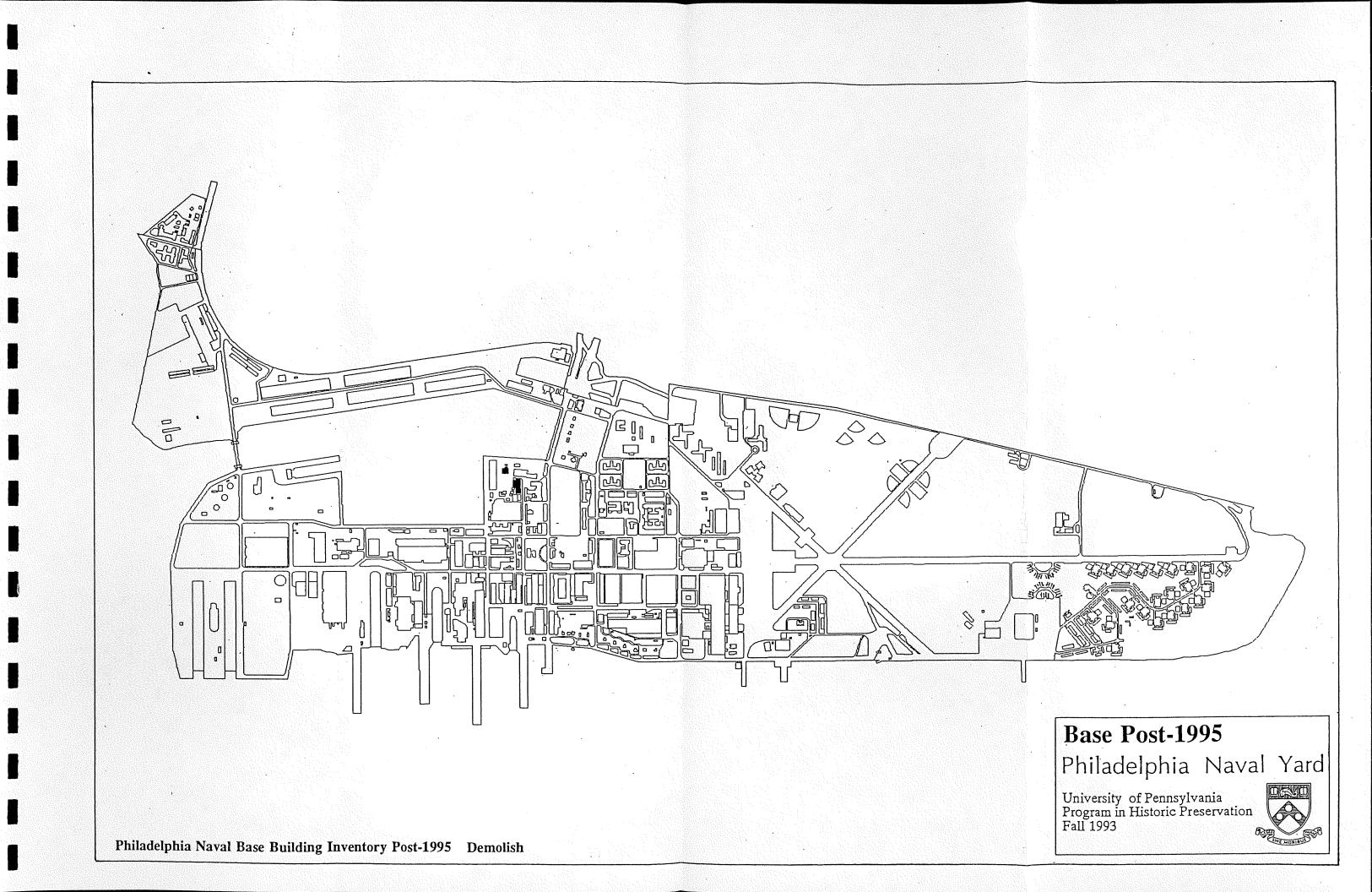


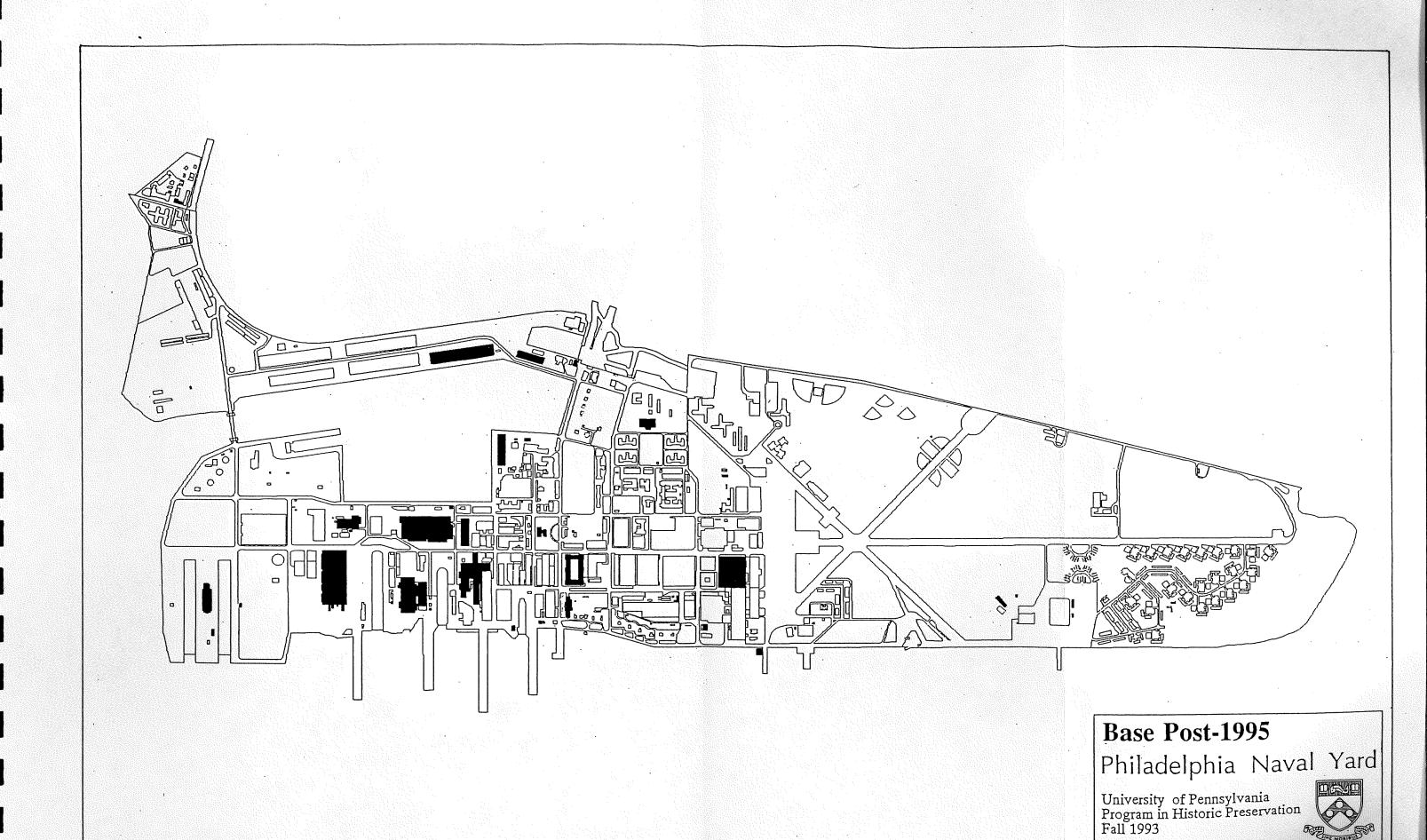




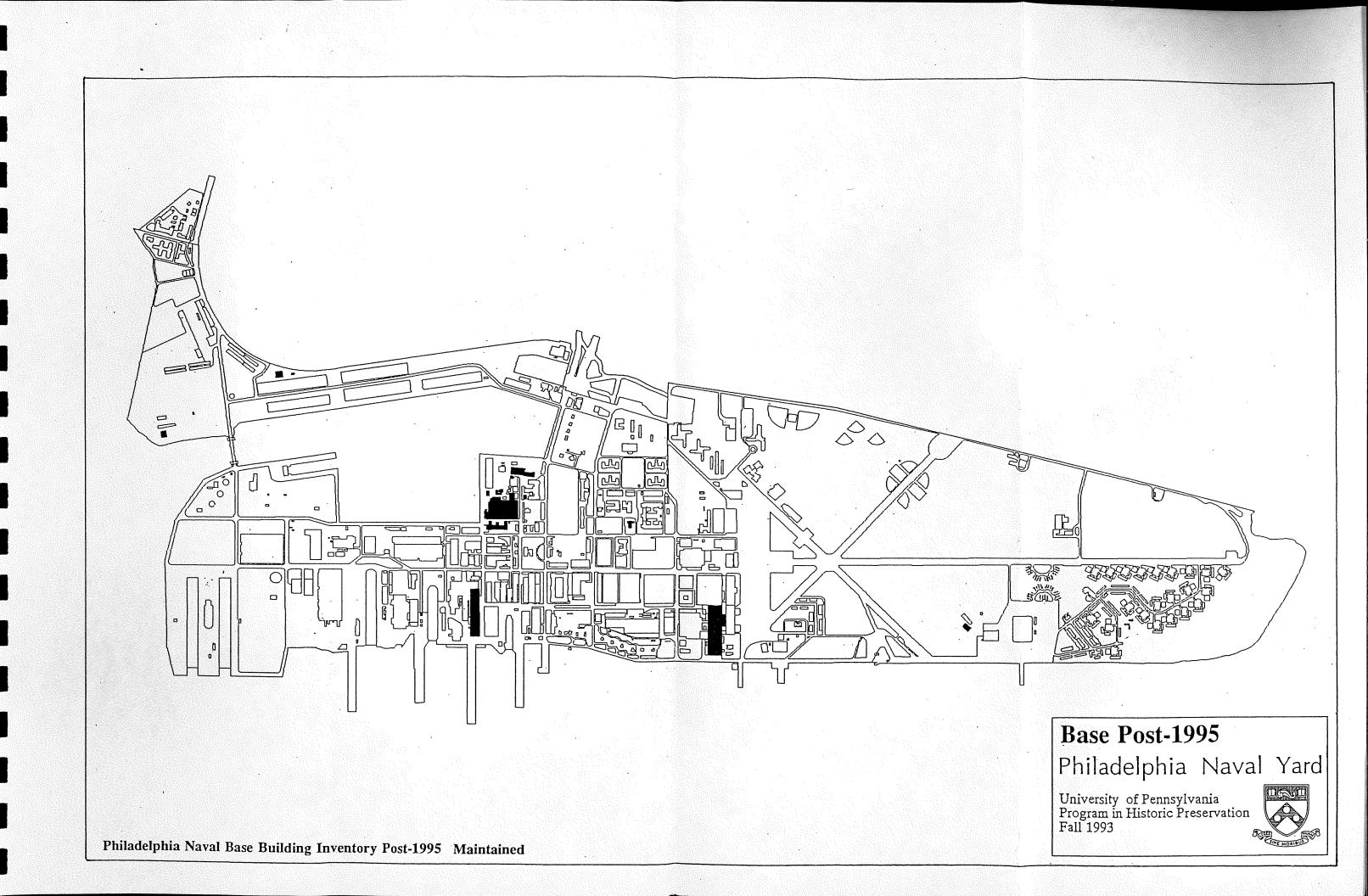


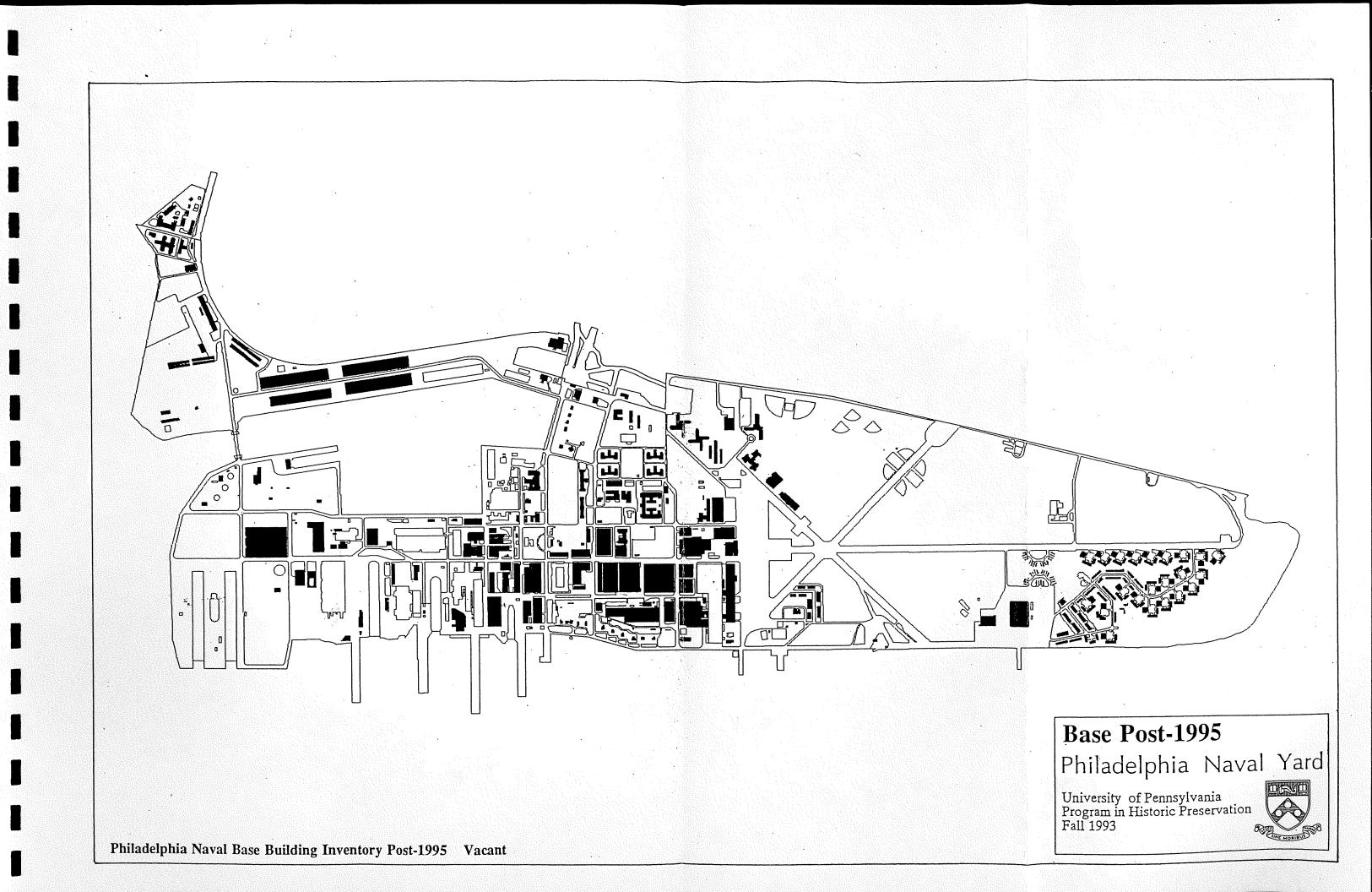
Philadelphia Naval Base Closure and Realignment Milestone Map 1992-1995 Begin Inspection, Inventories, ISSA and Services Termination

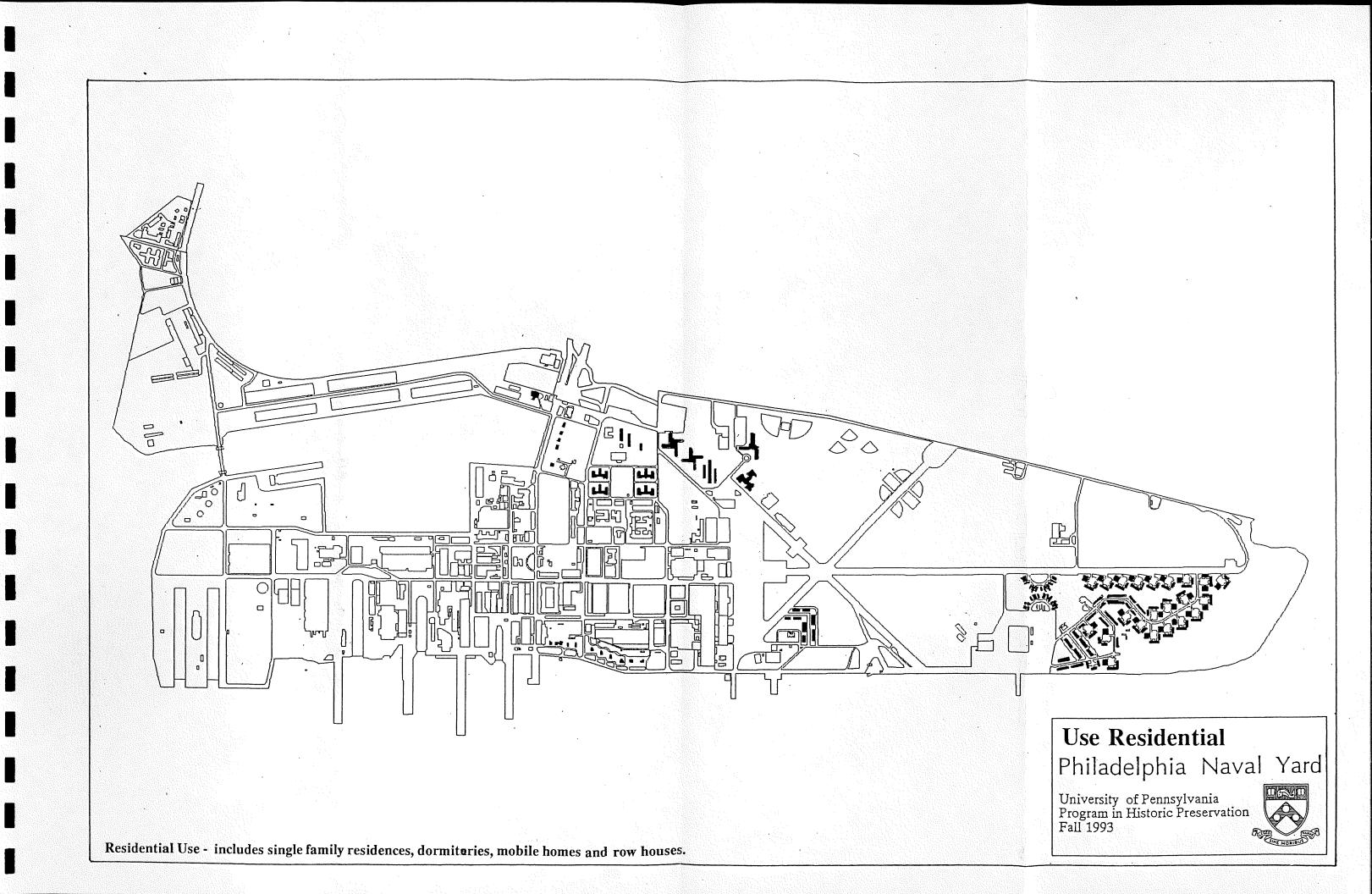


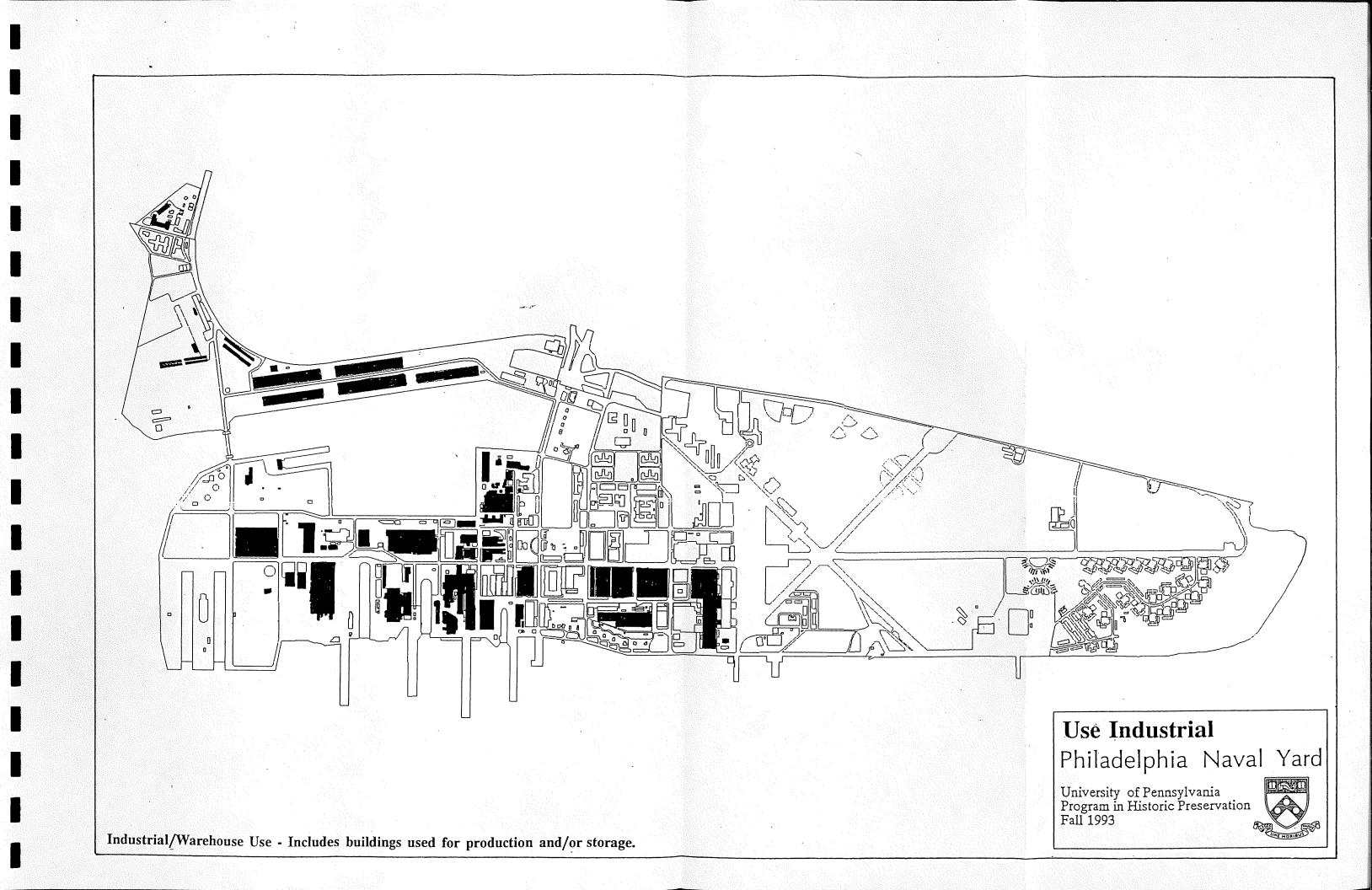


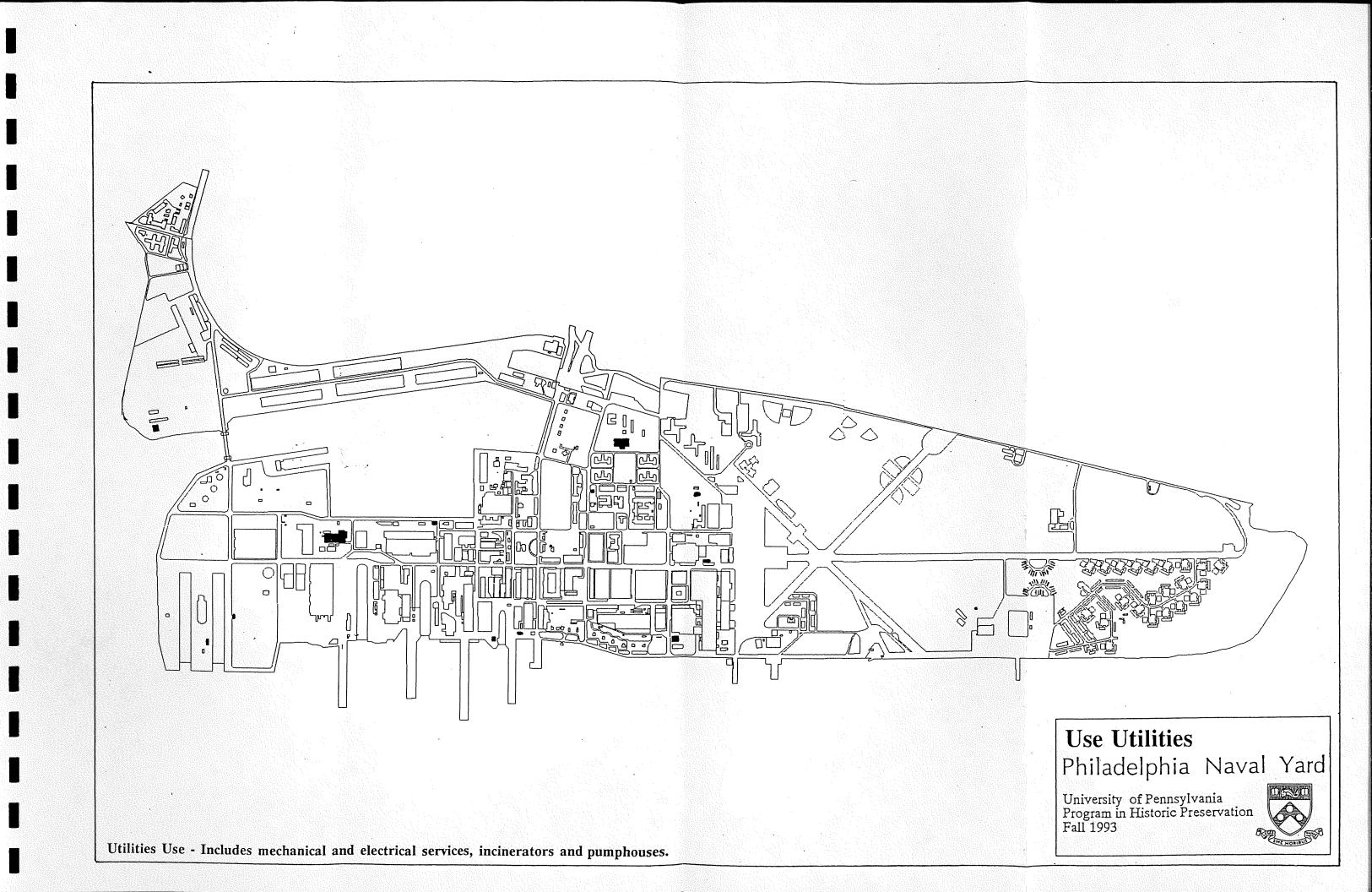
Philadelphia Naval Base Building Inventory Post-1995 Converted to Other Naval Use

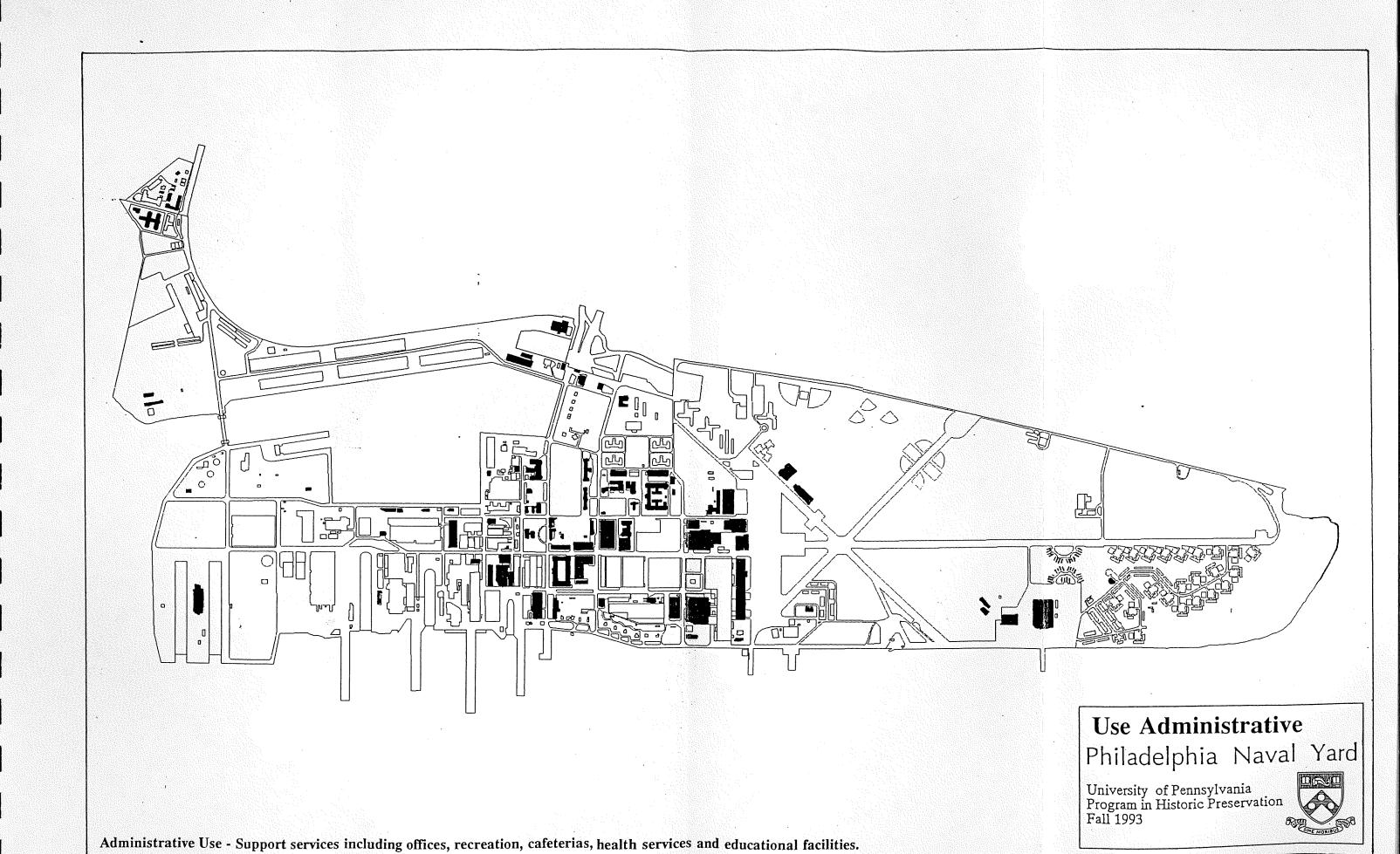


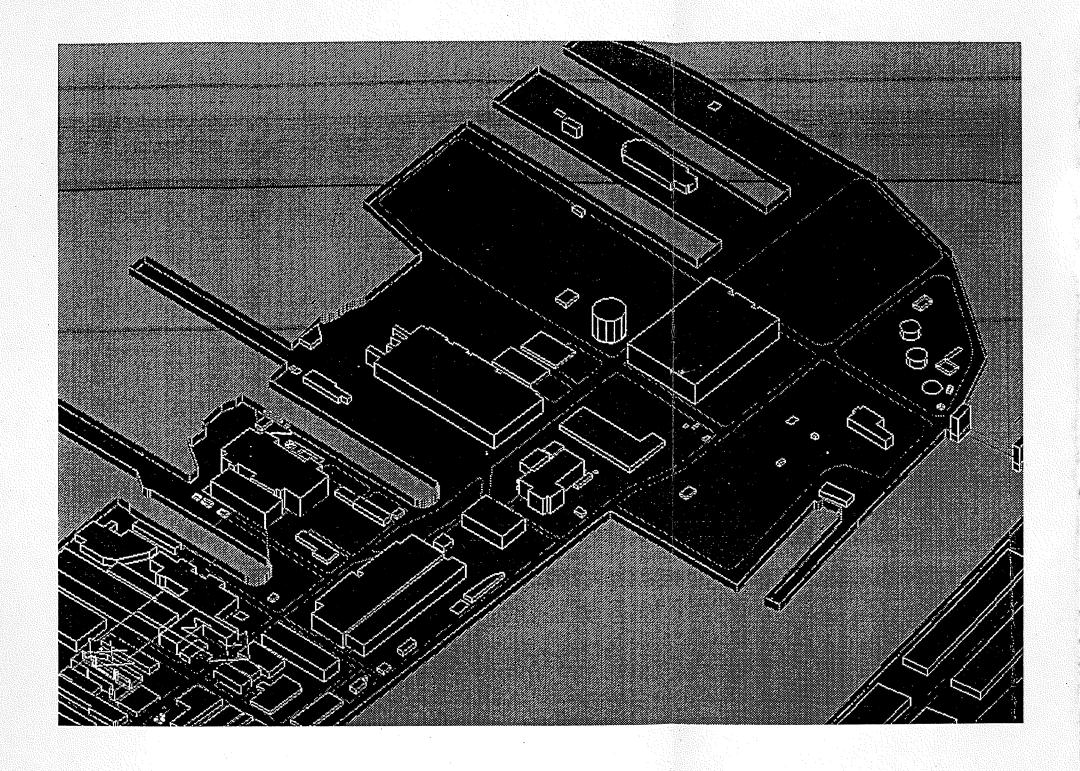










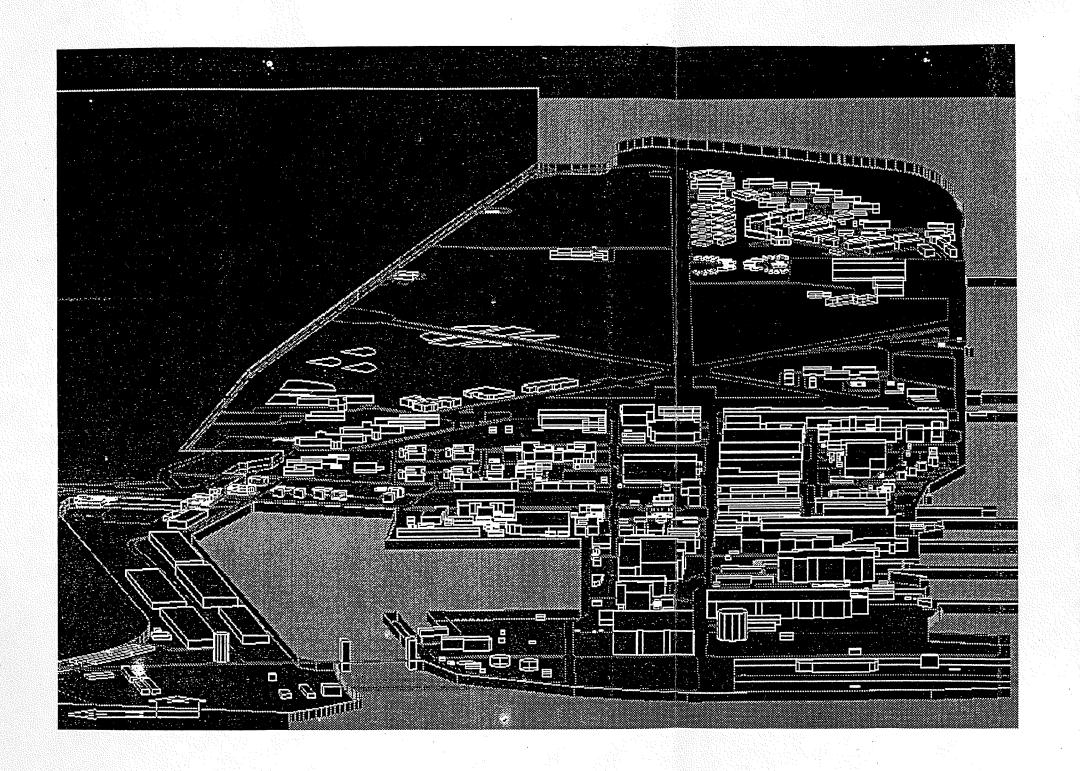


View of western quadrant, shipyard Dispersed high intensity - industrial

## **Building Volume**

Philadelphia Naval Yard

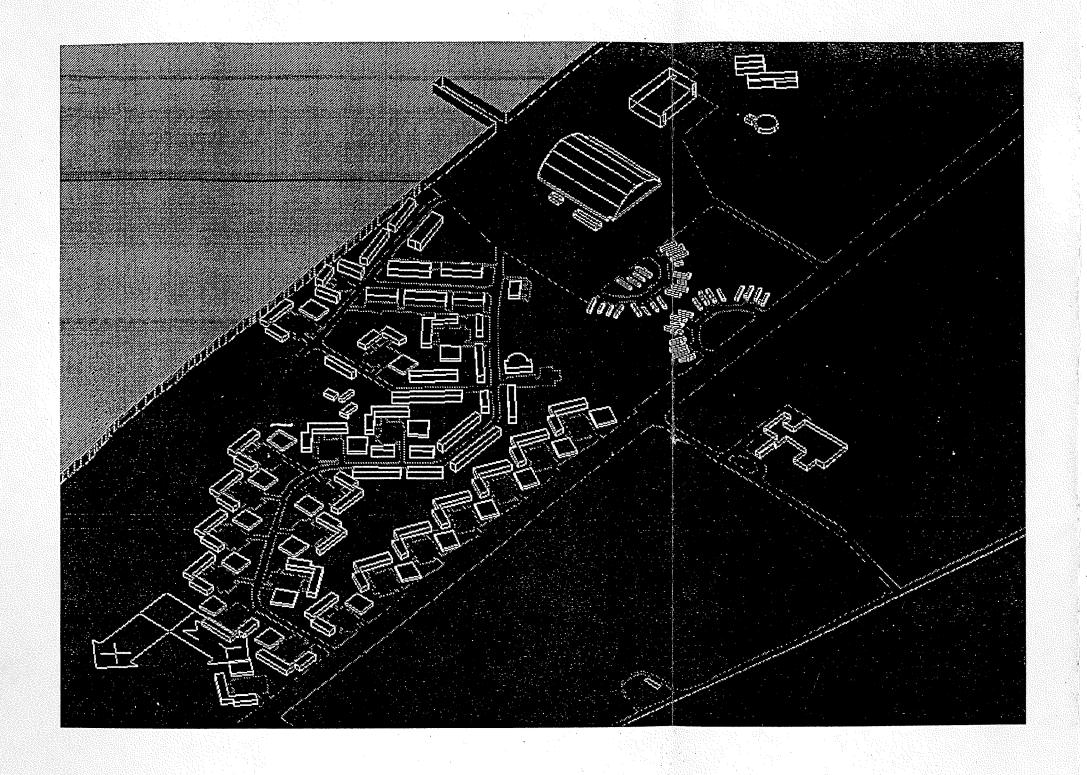




# **Building Volume**

Philadelphia Naval Yard



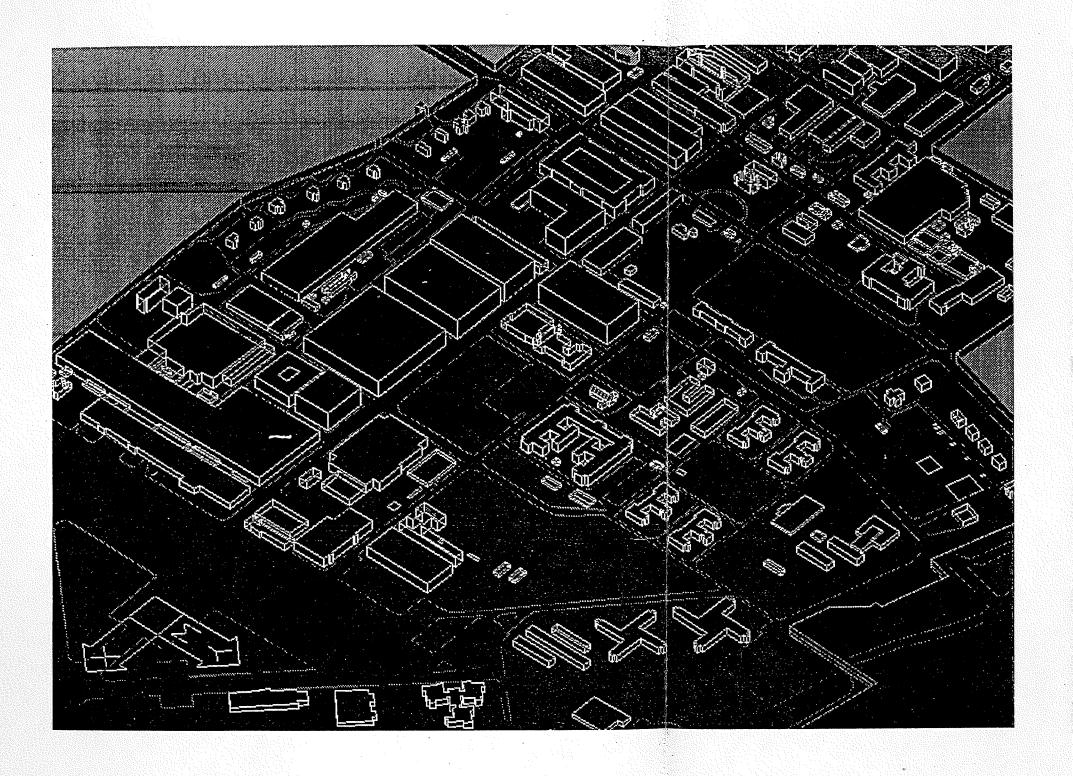


View of southeastern quadrant Low intensity - predominantly residential

# **Building Volume**

Philadelphia Naval Yard





View of Administrative Core of Naval Station Medium intensity - Administrative (foreground) High intensity - heavy industrial (background)

## **Building Volume**

Philadelphia Naval Yard



#### **BIBLIOGRAPHY: PHASE I**

## BIBLIOGRAPHY FOR HISTORICAL DEVELOPMENT AND REGULATORY ENVIRONMENT

A New England Man, Advantages of League Island. Philadelphia: Sherman and Co., Printers, 1866

Authorship Unknown, *History of the Philadelphia Naval Yard*, An unpublished manuscript. Bureau of Public Affairs, History File. The Philadelphia Naval Shipyard.

Board of Trade of Philadelphia. Statements relating to A Navy Yard in the Delaware. A pamphlet prepared by a Special Committee of the Board of Trade Philadelphia. Philadelphia: Collins, Printer, 1862

Brandt, Francis Burke. *The Majestic Delaware*. Philadelphia: Brandt and Gummere Company, 1929

Coletta, Paolo. editor, *United States Navy and Marine Corps Bases, Domestic*. Westport, CT: Greenwood Press, 1985

Cooling, Benjamin Franklin, *Gray Steel and Blue Water Navy*. Hamden, CT: Archon Books, 1979

Choay, Francoise. The Modern City, Planning in the 19th Century. New York, George Braziller, 1969

Department of the Navy. Building the Navy 's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946, Volume 1. Washington: The Government Printing Office, 1947

Farr, Gail E. and Brett Bostwick. Shipbuilding at Cramp and Sons, Philadelphia: Philadelphia Maritime Museum, 1991

Johnson, Arthur Menzies. "The Genesis of a Naval Yard", in *The United States Naval Institute Proceedings*. 81, (September 1955)

Mack-Forlist, Daniel M and Arthur Newman. The Conversion of Shipbuilding from Military to Civilian Markets. New York: Praeger Publishers, 1970

Morris, Richard B., editor, *Encyclopedia of American History, 6th Edition*. New York: Harper and Row, Publishers, 1981

Paullin, Charles Oscar. Paullin's History of Naval Administration, 1775-1911. Annapolis, MD: U.S. Naval Institute, 1968

Ritter, A.R. A Brief History of the Philadelphia Navy Yard From Its Inception to December 31, 1920. An unpublished manuscript. Bureau of Public Affairs, History File. The Philadelphia Naval Shipvard.

Sutcliffe, Anthony. Toward the Planned City; Germany, Britain, the United States and France 1780-1914. New York: St. Martin's Press, 1981.

- Trimble, William F. Wings for the Navy. Annapolis, MD: United States Naval Institute, 1990
- Wharton, Charles, Jr. Letters and Documents Pertaining to an Application to Connect League Island to the Mainland., A Pamphlet. Harrisburg, PA: Charles Wharton, Jr., 1837

#### **BIBLIOGRAPHY FOR PHYSICAL TYPOLOGIES**

- Architectural Endeavor, Inc. and Roy Mann Associates, Inc. Base Exterior Architectural Plan, U.S. Naval Base, Philadelphia, Pa., Final Report. Philadelphia: Northern Division, Naval Facilities Engineering Command (NAVFACENGCOM), 1984.
- Commander, Naval Base Philadelphia. Proposed Base Realignment and Closure Implementation Plan for the Philadelphia Naval Complex. Philadelphia: Commander, Philadelphia Naval Base, July, 1992.
- Greenhorne and O'Mara, Inc. Overview Survey Report, Naval Complex, Philadelphia, Pa. Philadelphia: Naval Facilities Engineering Command, August, 1991.
- HABS/HAER Division, National Park Service, U.S. Department of the Interior. An Inventory of Historic Structures Within the Illinois and Michigan Canal National Heritage Corridor. Washington: Department of the Interior, 1985.
- National Register Branch, Interagency Resources Division, National Park Service, U.S. Department of the Interior. *National Register Bulletin 16: Guidelines for Completing National Register of Historic Places Forms*. Washington: U.S. Department of the Interior.
- National Trust for Historic Preservation. A Guide to Delineating Edges of Historic Districts. Washington, D.C.: Preservation Press, 1976.
- Northern Division, Naval Facilities Engineering Command (NAVFACENGCOM). *Philadelphia Naval Complex, Philadelphia, Pa., Master Plan.* Philadelphia: NAVFACENGCOM, 1989.
- Naval Facilities Database (NFADB). Philadelphia Naval Base, Building Inventory by Building Number and Building Inventory by Location and Type.
- Parkinson, Jamie. "Information about Philadelphia Navy Yard Housed at National Archives, Washington, D.C." Memo dated 9/21/93.
- Teutonico, Jeanne Marie. "Lecture Notes: Use of Building Typologies in Preservation Planning." Presented October 8, 1993.