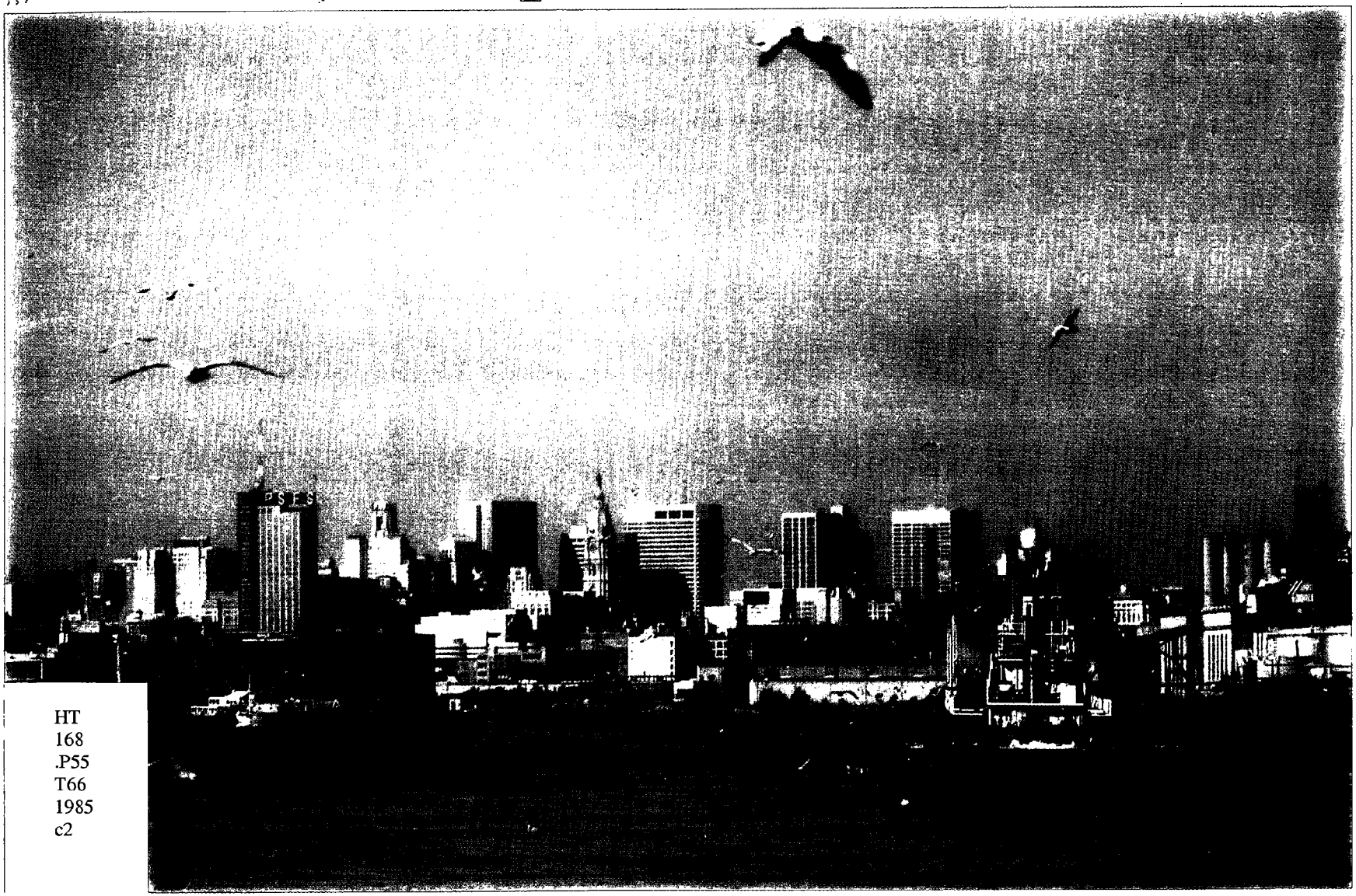
Plan for Philadelphia Riverfronts



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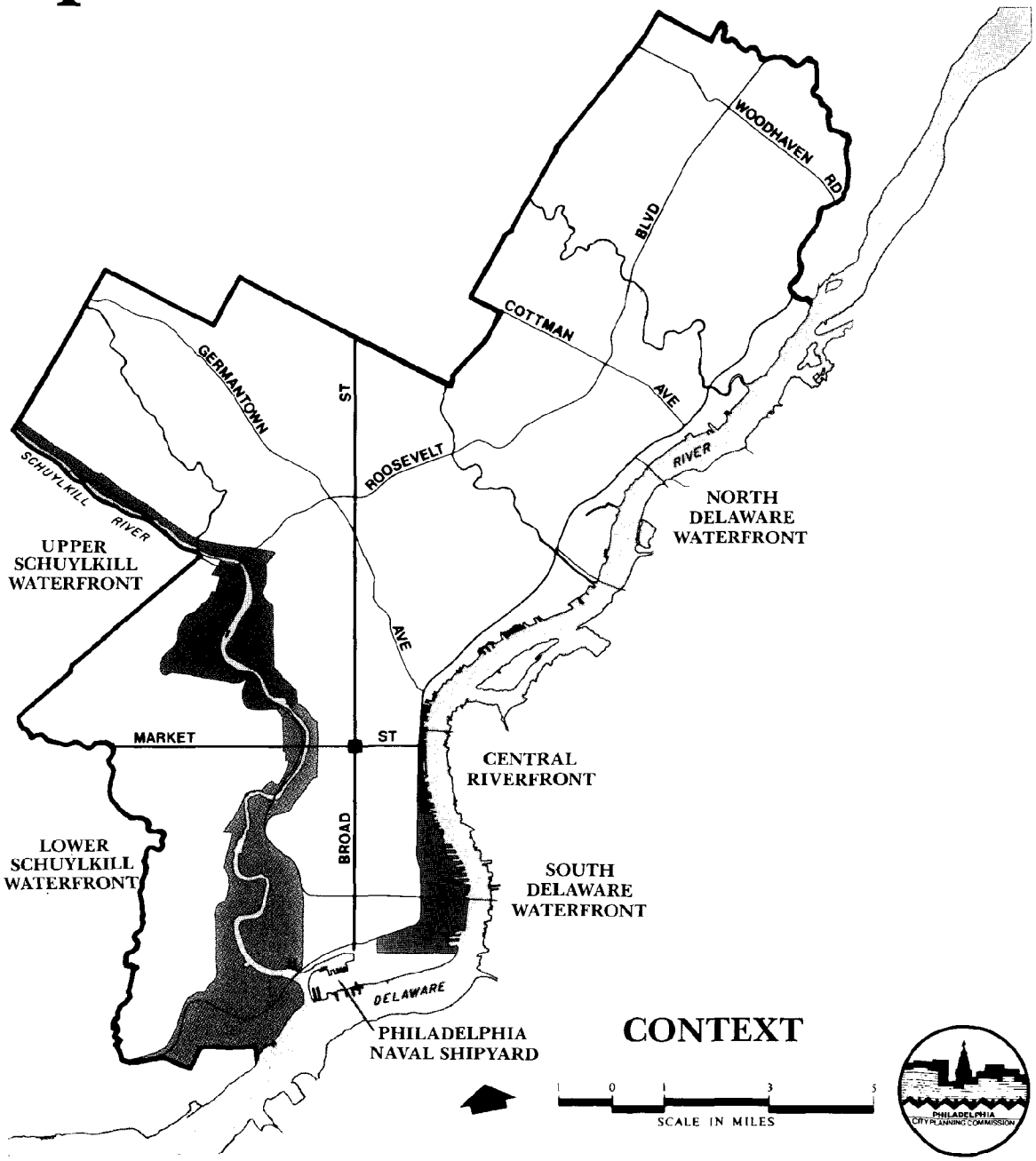
Riverfront Publications

Port Facilities Study	1978
South Delaware Waterfront District Plan	1981
Central Riverfront District Plan	1982
Philadelphia's River Resources	1982
Waterfront Industries Analysis	1982
North Delaware Waterfront District Plan	1982
Riverwalk Design Guide	1982
Lower Schuylkill Waterfront District Plan	1983
Philadelphia's Plan for River Recreation	1984
Upper Schuylkill Waterfront District Plan	1984
30th Street Station Area Plan	1985



Introduction

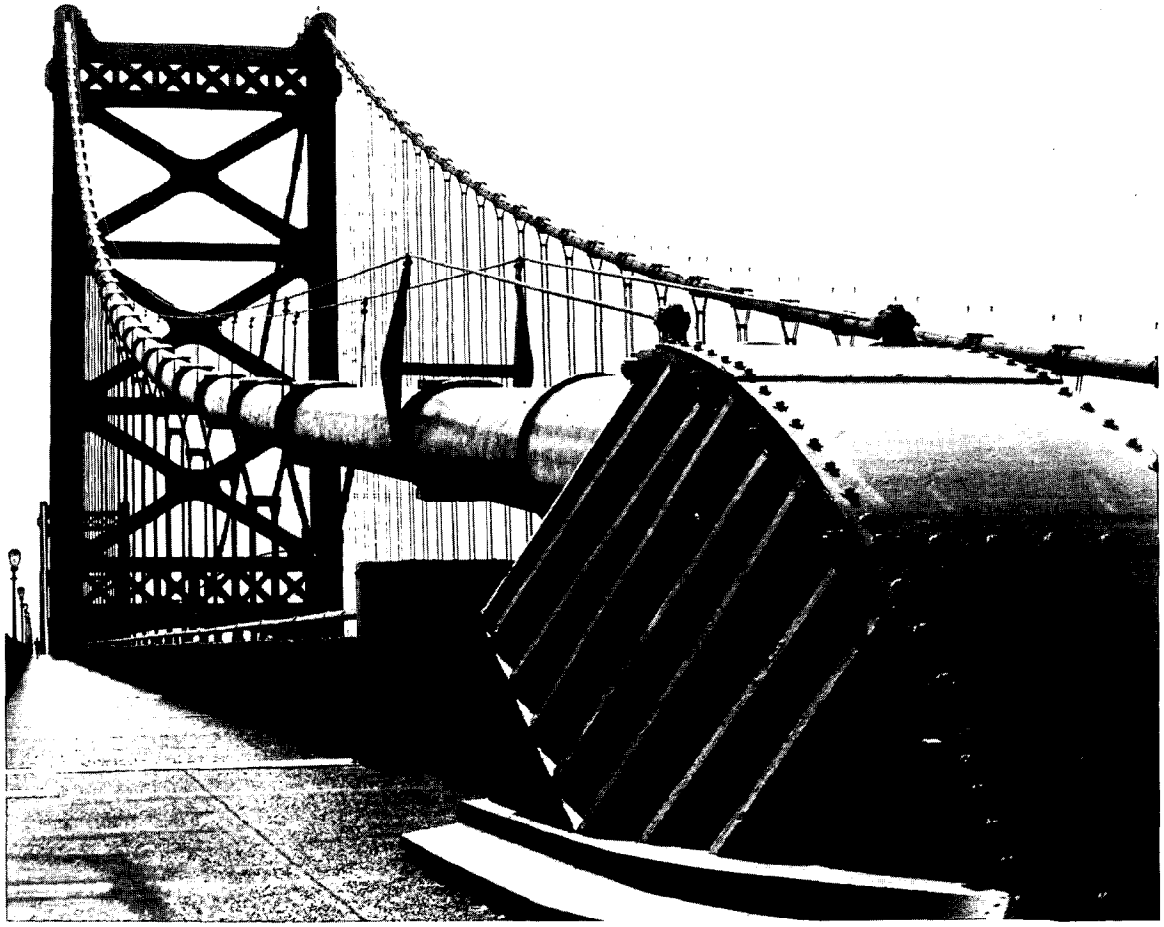
The Delaware and Schuylkill Rivers will shape Philadelphia's growth through to the next century, just as they have shaped the city's history and urban form for the past 300 years. The *Plan for Philadelphia Riverfronts* examines the forces which are propelling the city's rivers toward new and expanded roles, and identifies a coherent set of goals, policies and recommendations for directing future change to the rivers and their riverfront lands. The plan looks at all elements of the riverfront—its ports, highways, industries, residences, recreational facilities and environmental conditions. It prescribes actions for immediate implementation, while also charting a development course for the next twenty years.

The basis for this riverfront transformation is substantial. A $2 billion public investment has been made along the riverfront since 1970. A billion dollars has been spent on marine terminals, the airport, and expressways to provide modern facilities conducive to efficient, competitive enterprise. Another billion dollars has been invested in water pollution control, largely restoring the ecological productivity and recreational capacity of the Delaware River. Simultaneously, private investment in downtown office buildings is booming, causing Center City to expand toward both rivers, where large development parcels are available for retail, hotel, office and residential uses.

The essence of this plan is the productive use of all of Philadelphia's riverfront lands. To this end, the following goals guide the plan's recommendations:

- Increase activity at the Port of Philadelphia
- Expand industrial and commercial activity along the riverfront
- Foster residential communities within riverfront areas
- Increase recreational enjoyment of the rivers
- Upgrade the quality of the rivers and riverfront lands
- Improve accessibility to and within the riverfront

The *Plan for Philadelphia Riverfronts* is the culmination of a four year planning process which has been proceeding on three levels. On one level, functional planning studies have focused on port needs, industrial activity, environmental conditions, and recreational facilities, with separate reports issued for each topic. On the second level, development plans have been prepared for each of Philadelphia's five waterfront districts, containing recommendations on land use, transportation, and other physical improvements. The third level of planning was directed to key project sites, Penn's Landing, Riverwalk and 30th Street Station. The products of this planning process have been adopted by the Philadelphia City Planning Commission, after review by development agencies and community groups. The *Plan for Philadelphia Riverfronts* pulls together these separate products, updating information when warranted, to provide a comprehensive statement of Philadelphia's development plans for its forty-one miles of riverfront.



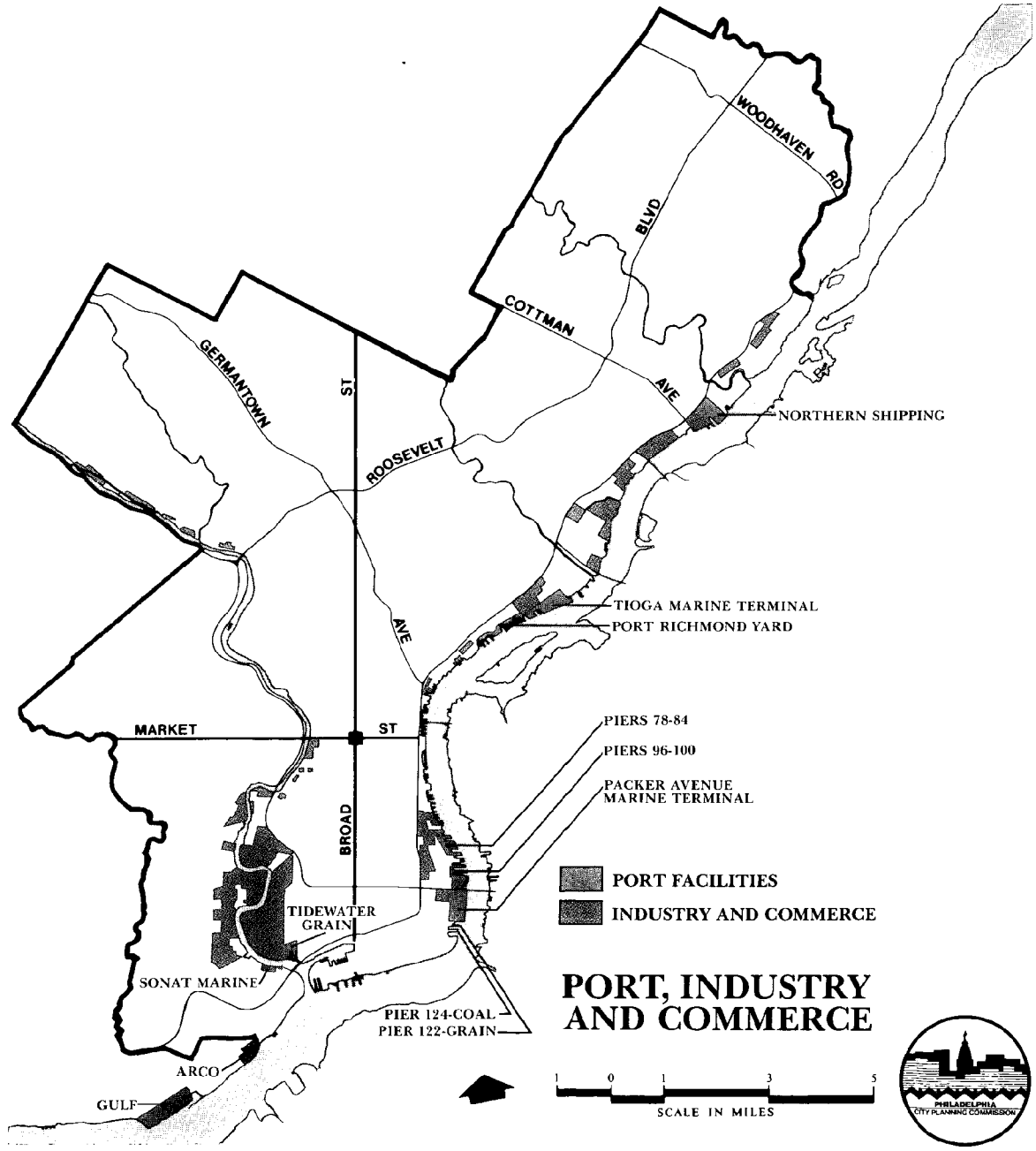
Existing Conditions

The Delaware and Schuylkill Rivers, and the lands which border them, provide resources vital for the economic and social life of Philadelphia and of the whole Delaware Valley. Some of these resources are natural elements: water used for drinking, transportation, recreation and waste assimilation and land for commercial and residential uses. Other resources include private and public facilities upon which all urban enterprise depends: the street, highway and rail systems; electrical, gas, water and sewer services; the capital stock of industrial buildings and equipment; and marine and airport terminals.

Historical Perspective

The Delaware and Schuylkill Riverfronts were home for many of the earliest European settlers in America. The Dutch came in the 1620s to trade with the native Lenni Lenape, and Swedish and English farmers soon followed, establishing self-sufficient farming communities. These communities were situated close to the rivers for easy transportation access. Along the edge of the Delaware River, at its deepest point, William Penn established his city, which became the new country's largest urban center.

The industrial revolution had its effect during the early years of the nineteenth century. Canals were built on the Schuylkill River enabling coal to be barged to the city from northeast Pennsylvania to fuel burgeoning industrial activity. Railroad technology advanced in the 1830s, and both riverfronts were lined with trackage. In the middle of the century, Philadelphia became one of the world's largest fuel processing centers. Large industrial firms, many requiring water for processing and cooling, built immense factories along the riverfront. Major port facilities were developed by railroad companies at Greenwich and Port Richmond, and the city had one of the largest private shipyards in the world, the Cramp Shipyard. The federal government established two arsenals, one in Frankford and one on the Schuylkill, and a naval shipyard in South Philadelphia.



PORT, INDUSTRY AND COMMERCE

Many changes to the riverfront occurred during the twentieth century. Four electric generating stations, a drinking water filtration plant and a sewage treatment plant were built within the first two decades, and two other sewage treatment plants were installed in the mid 1950s. Two bridges were built in the late 1920s to link Philadelphia to New Jersey, and over the past two decades two additional bridges were built. An emergency shipyard during World War I, the 900 acre Hog Island site became the site of the municipal airport in the 1920s. During the 1950s both rivers were developed with interstate highways, and the airport was modernized and enlarged to accommodate international flights and jet planes. Marine transportation was similarly transformed by cargo containerization, which resulted in the development of Packer Avenue and Tioga Marine Terminals. Penn's Landing was built on the Delaware in central Philadelphia, replacing deteriorated piers.

Physical Conditions

The *Plan for Philadelphia Riverfronts* encompasses one-sixth of the city, approximately 15,000 acres, and examines the most heavily urbanized zone in the five million acre watershed of the Delaware River. Utilities and transportation facilities of critical importance to Philadelphia and the metropolitan area are located here, and the Delaware River and tidal Schuylkill River are the region's preeminent industrial corridors. Yet recreational opportunities are provided along the riverfront at such notable locations as Penn's Landing, Fairmount Park, and Fort Mifflin.

Table 1: Riverfront Land Use

Category	Delaware Riverfront	Schuylkill Riverfront	Total Riverfront
Port	9%	1%	5%
Manufacturing	9%	8%	9%
Warehousing & Wholesaling	8%	7%	5%
Transportation	29%	24%	26%
Utilities	9%	5%	8%
Vacant Land & Structures	21%	16%	18%
Commercial	4%	2%	3%
Residential	5%	2%	4%
Institutional	2%	3%	2%
Recreational	5%	32%	17%
Military	4%	—	3%
Total Acreage	10,868	4,563	15,431

Forty-one miles of river frontage were examined during this planning effort. The Delaware River in Philadelphia extends twenty-one miles from the northern city boundary in Torresdale downriver to the southern boundary at Fort Mifflin. The study area also includes three miles of riverfront owned by the City adjacent to Philadelphia International Airport in Delaware County. The Schuylkill River extends seventeen miles within the city. The Schuylkill is shared for four miles with Montgomery County; it passes for four and one-half miles through Fairmount Park, and is a tidal water body for eight and one-half miles above its confluence with the Delaware River.

Land use along the river is varied. Table 1 classifies land use into ten categories along each of the two rivers. Transportation, with over one-quarter of all land, is the dominant category and includes several rail yards, Philadelphia International Airport, a dense pattern of streets and highways, and the city's major truck terminals. Twenty-seven hundred acres of available vacant land and structures, 18 percent of the riverfront, are awaiting redevelopment. Recreation is a dominant land use along the Schuylkill River within Fairmount Park, but elsewhere is only a small proportion of land. Manufacturing, commercial, wholesaling and warehousing—the private business sector—together constitute 17 percent of riverfront lands. Less extensive classes of land uses, as those of residential and institutional, are primarily located in the North Delaware district.

Port Conditions

The Port of Philadelphia is one of the principal ports of North America. It offers marine transportation services to ports throughout the world through modern terminal facilities, and it handles cargo of all kinds, thus making a major contribution to the Philadelphia economy. Thirty-four thousand workers depend directly or indirectly on port activity, and $1.5 billion in economic benefits from the port accrue to the local economy each year.

Tioga and Packer Avenue Marine Terminals are the two principal container terminals in the Delaware Estuary. Tioga Marine Terminal is located three miles upriver of Center City Philadelphia, and Packer Avenue Marine Terminal is two miles downriver of Center City. Both are city-owned, administered by the Philadelphia Port Corporation and leased to private operators. With the capacity to handle either containerized or break-bulk general cargo, much of the manufactured products entering or leaving the Delaware Estuary are handled at these two marine terminals.

Complementing the two marine terminals are seven municipal piers on the South Delaware Waterfront. These piers are large enough to handle modern ships. They currently receive non-containerized general cargo, and have the capacity to be brought into service for other cargo purposes.

Shipping by private firms is a major contribution to the Port. Four private firms handle general and container cargo in Philadelphia: Delaware Operating Company, I.T.O. Corporation, Northern Shipping Company, and Independent Pier Company. Conrail handles imported ore at Pier 122 in South Philadelphia and export coal at the adjacent Pier 124. Many millions of tons of petroleum and related products and cereal grains are handled within the Lower Schuylkill district.

Port Richmond is a major port facility which has remained idle for several decades. While containing four general cargo piers and facilities for handling bulk grain, coal, ore and sugar cargoes, this 150 acre facility is no longer used. Although investment to grain and coal handling facilities have been recently made, no exports occurred in 1984.

Economic Conditions

Philadelphia's riverfronts are important locations for employment and business activity. Approximately 76,000 persons, ten percent of total city employment, work within the riverfront districts. Employment is especially strong in government, transportation and manufacturing, as indicated in Table 2.

Two riverfront districts are particularly important manufacturing areas—the North Delaware district, where the chemical industry dominates, and the Lower Schuylkill district, with its two refineries. Industrial firms along Delaware Avenue south of Center City in the South Delaware district and firms on Venice Island and along Umbria Street in the Upper Schuylkill district comprise two other important industrial areas.

Manufacturing provides a shrinking proportion of riverfront employment, and national and regional forces continue to cause declines in manufacturing sectors. Goods-producing industry, dominated by large firms, are contracting.

However, service industries, composed of relatively small firms, are growing. Firms engaged in warehousing, wholesaling and business support services constitute a significant proportion of business investment along the riverfront. Many firms make use of existing, well-built structures formerly used by goods-producing industry, but others seek cleared land within the City's new industrial parks.

Governments and institutions are major employers on the riverfront. Fourteen thousand workers are stationed at the Philadelphia Navy Base. The Central Post Office at 30th and Market Streets employs 5,800 persons. The City of Philadelphia employs several hundred workers at its prisons and other municipal facilities.

Transportation is a major employment category. Approximately one thousand persons work at the marine terminals, and 4,600 are employed at the airport. Conrail's offices in the Lower Schuylkill district house 2,800 workers. Motor freight transportation, an activity which is tied closely to rail, highway and port traffic, accounts for about 2,000 workers.

Utilities are important employers. Three thousand workers are employed at the gas plants, sewage treatment facilities, water filtration plants, and electrical generating stations in the area. In addition, the headquarters for Philadelphia Electric Company, housing about 3,000 employees, is situated close to the Schuylkill River in Center City.

Trade has been one of the major activities along the rivers for the past 350 years. Wholesale and retail trades together employ 8,000 workers. Accessibility to key modes of transportation makes riverfront districts prime locations for wholesaling activity. Trade associated with central Philadelphia and with the rail and air terminals is a significant part of this employment class. But retail and service firms also serve riverfront residents and businesses.

Business firms located along the Delaware and Schuylkill rivers share good access to the regional highway and rail transportation systems, airport and marine port facilities. One advantage which will continue to attract manufacturing firms to the riverfront is that relatively few urban places elsewhere in the Delaware Valley can provide those industries which produce noise, odor and traffic impacts the necessary isolation from residences. Riverfront business firms are also near a skilled, diversified labor force. Large developable tracts of vacant land is another significant asset. The City's development agencies, in many cases, can help firms locate suitable new quarters, and many prime sites are close to the riverfront. On the Schuylkill River, flooding hazards may be a deterrent to business expansion and investment.

Table 2: Estimated Employment By Riverfront District

Category	Upper Schuylkill	Lower Schuylkill	South Delaware	Central Delaware	North Delaware	U.S. Shipyard	Total
Construction	—	550	—	—	600	—	1,150
Manufacturing	1,350	8,750	1,650	50	6,200	—	18,000
Transportation	—	6,650	1,950	—	1,350	—	9,950
Communication & Utilities	—	4,400	1,050	—	600	—	6,050
Wholesale Trade	250	1,350	50	150	1,650	—	3,450
Retail Trade	150	4,050	50	50	200	—	4,500
Finance, Insurance Real Estate	—	1,850	200	—	50	—	2,100
Services	150	6,500	150	250	150	—	7,200
Government & Institutions	—	8,500	—	—	1,100	14,000	23,600
Total	1,900	42,600	5,100	500	11,900	14,000	76,000

Social Conditions

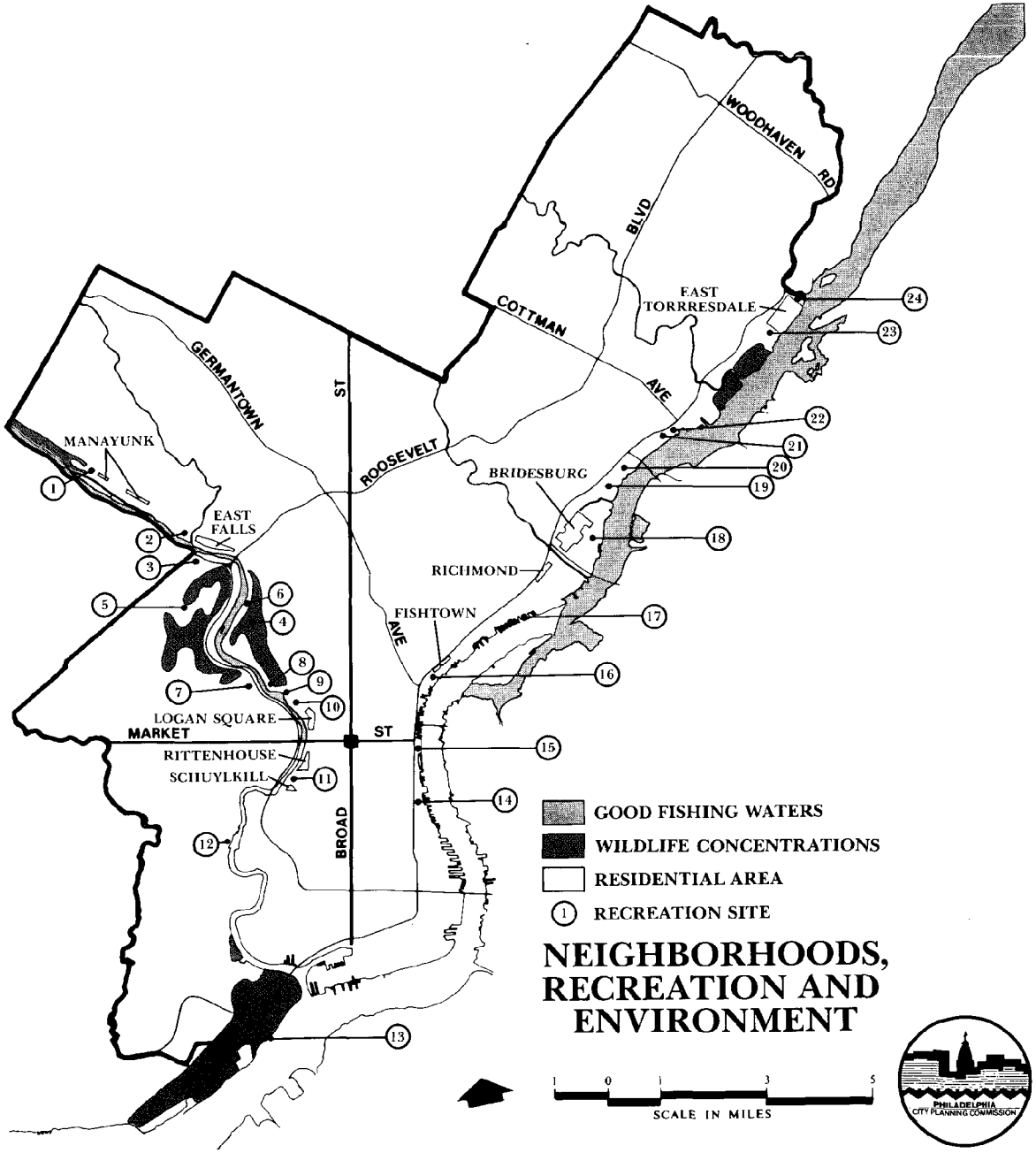
Philadelphia riverfronts are primarily non-residential. Only 21,600 persons reside within the boundary of the riverfront planning area. This is slightly greater than 1 percent of the city's population, although the riverfront comprises one-sixth the land area of the city. With the exception of the Bridesburg community, only small portions of each riverfront neighborhood are within the planning area.

Residential blocks in the riverfront planning area show some significant contrasts. Overall, the homes and population are representative of citywide characteristics. However, significantly different from most riverfront neighborhoods are the Torresdale community in the North Delaware district, and the Logan and Rittenhouse Square communities in the Center City portion of the Lower Schuylkill district. In contrast to modest row home neighborhoods, these communities are characterized by families with higher income and with a housing stock that offers a variety of housing types. New construction has changed these communities over the years.

The riverfront has the potential for doubling its residential population by development of suitable, available land. Penn's Landing and nearby parcels are poised for major new development. On the western edge of Center City, along the Schuylkill, there is potential for high rise development, in-fill townhouse development on formerly commercial lands, and the conversion of industrial buildings to residences. In both the North Delaware and Upper Schuylkill districts there are key parcels of river frontage which offer attractive locations for apartment or condominium construction. In Manayunk, vacant commercial buildings could be converted into apartment units.

Recreation Conditions

The Delaware and Schuylkill Rivers support only a small part of the boating and fishing activity of



city residents. A quarter million Philadelphians, 15 percent of the population, are boaters, yet only an estimated 50,000 persons use the Delaware or Schuylkill Rivers for boating. And although 17,000 Philadelphia families own boats, only 4,300 maintain their boats locally. Similarly, about one in ten Philadelphia residents are fishermen. But only 20 percent of fishing trips made by Philadelphia anglers are made to the Delaware or Schuylkill Rivers.

Existing recreation facilities for boaters and fishermen are inadequate. Public access for fishing is scarce along the Delaware River; the foot of Pennypack Street is the only important fishing area. The Schuylkill River, while supporting four times the fishing activity of the Delaware River, is limited by poor access and by lack of public space. Philadelphia boaters also face limited facilities close to home. Private clubs have moorings and slips for 200 boats, and the municipal ramp has a maximum daily capacity of 200 boats. These facilities accommodate only one-quarter of the demand in the city for moorings, slips and launch ramps.

The Delaware and Schuylkill Rivers are settings for a wide variety of recreational and cultural activities in addition to boating and fishing. Eight park facilities occupy just under one-fifth of all river frontage. Penn's Landing is Philadelphia's most important location for special events, attracting over one million visits annually, with its public plazas, embarcadero, historical ships, the Port of History and Maritime Museum exhibits, and commercial tour and cruise operations. Fairmount Park is a showcase riverfront park along the Schuylkill River, supporting such recreational uses as jogging, biking, walking, sunbathing and picnicking. The Delaware River will greatly improve as a recreational resource over the next several years as a twenty year effort to reduce municipal and industrial pollution nears completion.

Important historical landmarks are located close to the rivers. Situated along the Schuylkill Riverfront are the Fairmount Waterworks and fourteen historic mansions. The Manayunk Canal retains features of Philadelphia's history as a manufacturing center. Three historical landmarks are located on the Delaware River: Fort Mifflin, the site of a revolutionary war battle; Old Swede's Church, the oldest church in the city; and Penn Treaty Park, the site of William Penn's agreement with the Indians to purchase Philadelphia.

Environmental Conditions

Pollution of the Delaware and Schuylkill Rivers in Philadelphia is a serious problem. Sewage treatment plants and urban stormwater runoff in Philadelphia are responsible for two-thirds of all organic wastes released to the Delaware Estuary. Dissolved oxygen concentrations fall to low levels, particularly in summer when the river's capacity to carry oxygen is at its lowest. The tidal Schuylkill River and the Delaware River downstream of the Tacony-Palmyra Bridge do not meet oxygen standards.

High concentrations of fecal coliform bacteria, arising from sewage contamination, indicate a potential health hazard for swimming or waterskiing. Only sections of the Delaware River upstream of Pennypack Creek and the Schuylkill River upstream of Fairmount Dam have fecal coliform levels that meet health standards.

Metals and toxic organic substance are a third class of contaminants. These contaminants are discharged by municipal sewage treatment plants, industrial firms, and tributary streams. Even though concentrations may be at low levels, these contaminants concentrate in aquatic animals and may adversely affect the biological health of the rivers.

The quality of the sport fishery is extremely variable. Abundant fish populations live in the Delaware River north of the Tacony-Palmyra Bridge and in the Schuylkill River above Fairmount Dam. Between the Tioga Marine Terminal and Tacony-Palmyra Bridge, the recreational fishery is only acceptable. Major portions of the Delaware and Schuylkill Rivers cannot presently sustain recreational fishing because dissolved oxygen concentrations are too low for most fish.

Tidal wetlands and shallow waters are important habitats for fish. But scarcely 10 percent of shallows once existing in Philadelphia remain today, and tidal wetlands are virtually non-existent. The quality of fish habitats is also seriously compromised by a heavy load of sediment in both rivers that makes river bottoms poorly suited as a place for fish breeding.

Table 3: Recreational and Cultural Facilities

Map No.	Facility Name
1	Manayunk Canal Towpath
2	Philadelphia Canoe Club
3	Gustine Lake
4	Fairmount Park—East Park
5	Fairmount Park—West Park
6	Canoe House
7	Philadelphia Zoo
8	Boat House Row
9	Fairmount Waterworks
10	Philadelphia Art Museum
11	Schuylkill River Park
12	Bartram's Garden
13	Fort Mifflin
14	Old Swede's Church
15	Penn's Landing
16	Penn Treaty Park
17	Pulaski Pier Park
18	Bridesburg Boat Club
19	Frankford Arsenal Boat Launch
20	Wissinoming Yacht Club
21	Tacony Boat Launch
22	Quaker City Yacht Club
23	Pleasant Hill Park and Boat Launch
24	Glen Foerd Estate

Flooding is a significant environmental concern. Approximately one-third of riverfront lands would be inundated during a 100 year flood. Properties along the Schuylkill River are generally more exposed to flood damage than those along the Delaware. City ordinances regulate development activity within floodplains.

The original physiography and vegetation of riverfront lands have been completely altered, and today the riverfront provides little support for plant and animal life. Three-quarters of the Delaware riverfront consists of piers and bulkheads, and most of the remainder has a rubble edge. Wildlife concentrate within open lands of the municipal sewage and water treatment facilities in the Lower Schuylkill and North Delaware districts and within some wooded private lands. The west bank of the tidal Schuylkill for about one mile supports a narrow corridor of shrubs and trees. In the Upper Schuylkill district, Fairmount Park and several areas with woodlands and fields provide habitats for birds and mammals.

Several environmental nuisances exist along the Delaware and Schuylkill Rivers as a consequence of industrialization. Eighty-four percent of all industrial air pollutant emissions in the city occur within riverfront areas. Odor sources are located along the riverfront; one is the oil refinery area in the Lower Schuylkill, and another is near industrial firms and utilities in the Richmond and Bridesburg sections of the North Delaware. Philadelphia International Airport is a major noise source.

Transportation Conditions

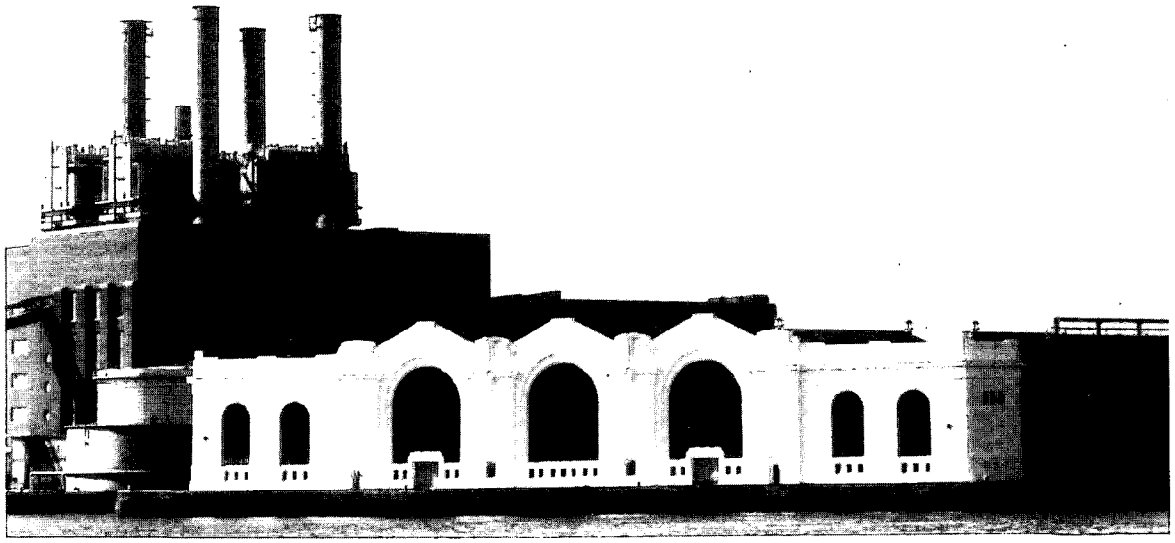
A great asset of Philadelphia's riverfronts is its transportation system. Access to water, rail, air and highway transportation is unmatched elsewhere in the Delaware Valley.

Highway Transportation Highway access is generally excellent for all riverfront businesses and residents. Delaware Expressway, also known as Interstate-95, marks the inland boundary of the South, Central and North Delaware districts and mirrors the river's westward bend in South and Southwest Philadelphia. Nine interchanges provide access to bridges to New Jersey and to the expressway, which is the principal route south to Baltimore and Washington, and north to Trenton and New York.

The Schuylkill Expressway, Interstate-76, follows the Schuylkill River corridor from South Philadelphia westward twenty miles to Valley Forge, and is the major highway for east-west traffic. This highway feeds traffic to the Walt Whitman Bridge in the South Delaware district, and to the airport and I-95 via the George C. Platt Bridge.

Highway transportation suffers from some deficiencies. A major problem is the lack of convenient entrance and exit ramps to the Delaware Expressway in the Central Riverfront, arising both from the lack of ramps to and from the expressway and from the need for the still awaited Vine Street Expressway connection. This problem becomes especially critical as development of offices, hotels, retail stores and public attractions takes place at Penn's Landing. The two mile gap in the Delaware Expressway, a source of traffic congestion in the airport area, is now being closed. Awkward and inadequate connections to bridges over the Delaware River have also hindered traffic flow. The Schuylkill Expressway, the city's earliest limited access highway, is scheduled for reconstruction through 1988. Both highways are plagued by an inadequate number of signs identifying important riverfront destinations.

Local Circulation Philadelphia's riverfront is fully developed with roadways which result in relatively good local circulation. But several factors adversely affect local circulation. Several heavily used corridors are in badly deteriorated condition. Traffic congestion is occasionally due to the temporary, though inappropriate, use of a roadway as a major arterial. Portions of Race and Callowhill Streets in the Central Riverfront are such examples of streets on which excessive traffic will persist until the Vine Street Expressway is completed. Other congestion problems are inherent in the street pattern. Richmond Street receives heavy car and truck traffic, and East and West River Drives, built originally as park drives,

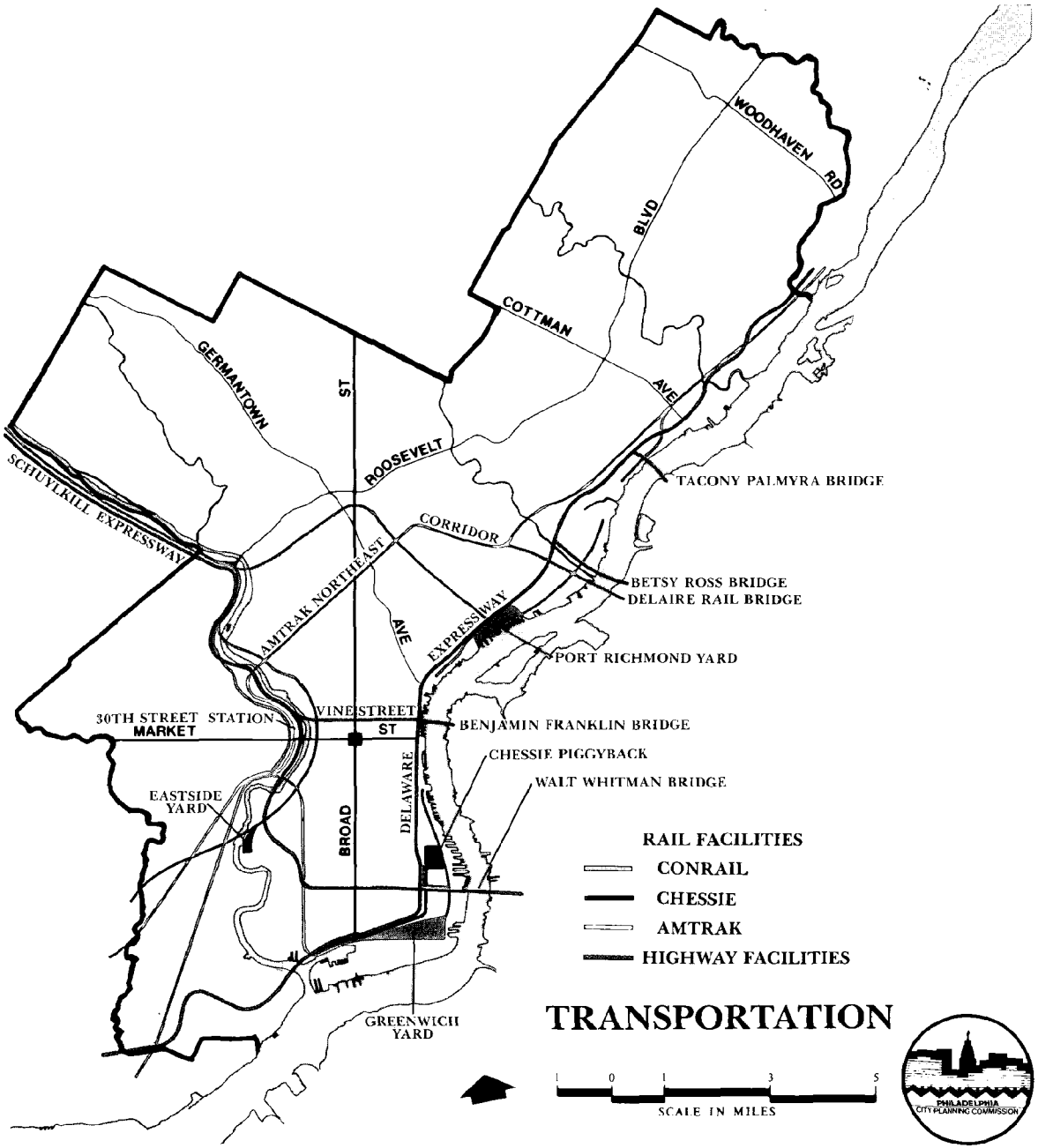


are similarly ill-designed to serve as major rush-hour thoroughfares.

Rail Transportation Main interurban rail lines and branch lines owned by Conrail, Chessie System and Amtrak provide generally excellent access to rail freight service within riverfront areas. Conrail has freight lines paralleling the Schuylkill River's west bank and the Schuylkill Expressway, and it owns a major branch line which connects the Northeast Corridor with Philadelphia Terminal. The Chessie System's freight track lines closely parallel Amtrak's Northeast Corridor in the Lower Schuylkill district, but cross the Schuylkill River at Grays Ferry and eventually connect with Conrail freight tracks north of the Art Museum.

Conrail provides important rail services in the North Delaware district. From the Port Richmond Terminal, the "Belt Line" extends north to Bridge Street, serving Allied Chemical and Rohm and Haas chemical companies. South of Port Richmond, Conrail controls the "Waterfront Line," which extends south to Columbia Avenue in Fishtown. The former Kensington and Tacony Line (K & T) has been retained by Conrail in two sections, one north of Bridge Street, connecting with the Northeast Corridor at Holmesburg Junction, and a southern section of the K & T linking Tioga Marine Terminal to the Trenton Avenue elevated freight line. Marine terminal service is also provided by Conrail's Port Richmond Branch Line.

The riverfront is the location for several important railyards. Conrail's main yard in the Delaware Valley for intercity traffic is the Greenwich Yard in South Philadelphia, called the Philadelphia Terminal. Several smaller nearby yards operated by Conrail serve bulk cargo customers and traffic from the Packer Avenue Marine Terminal. In the North Delaware district, Conrail's Port Richmond Yard services rail dependent bulk cargo from the Tioga Marine Terminal. The Chessie System's northernmost classification yard

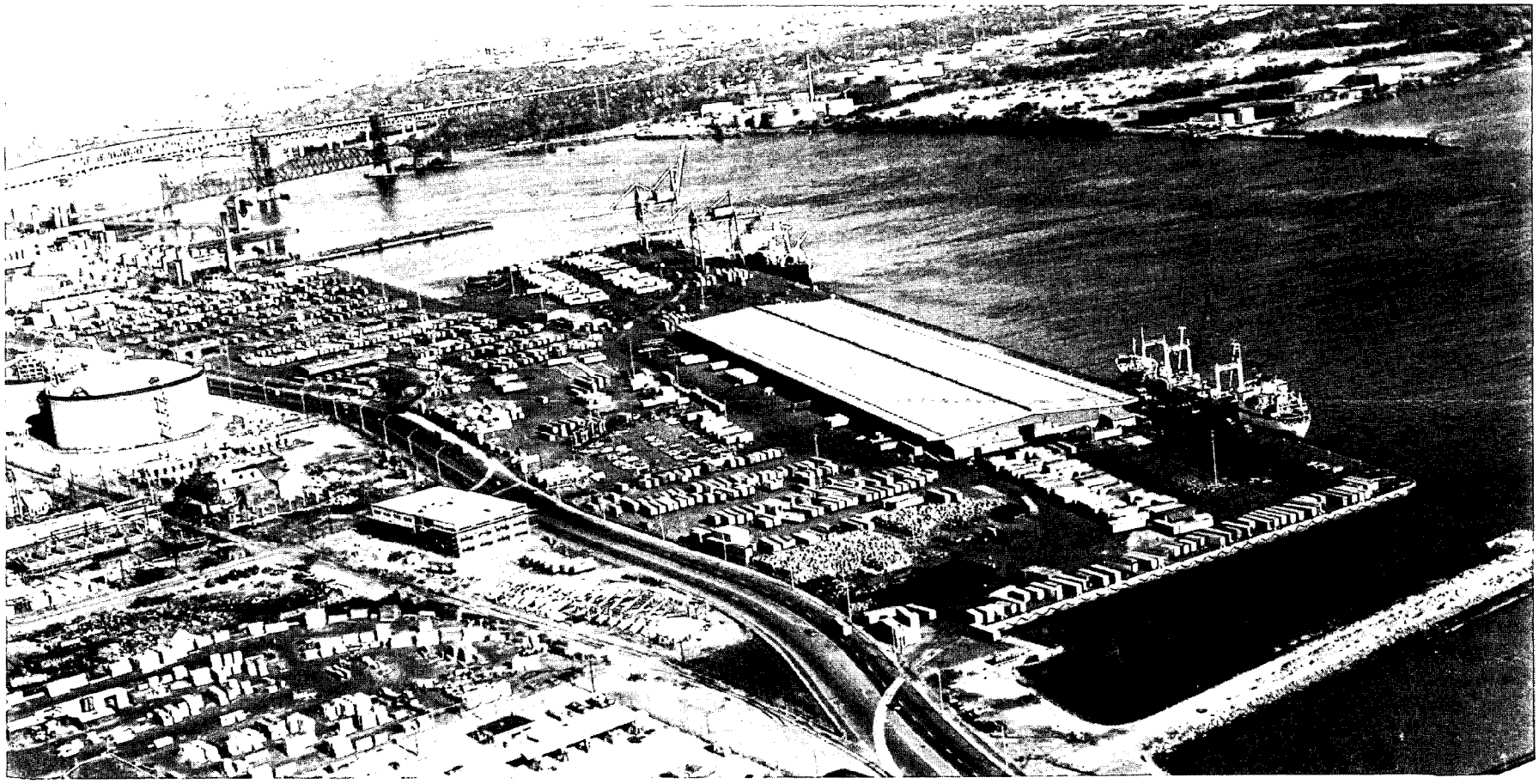


is the East Side Yard, situated in the Lower Schuylkill district.

Piggyback, the carrying of containers or trailers on train flat cars, is an important component of rail service. The demand for piggyback service, particularly containerized traffic through the marine terminals, has been strong. But piggyback service to Philadelphia's riverfront is presently limited, consisting of Chessie's small yard in the South Delaware district. Riverfront locations are available as sites for expanded piggyback service to the Delaware Valley.

Air Transportation Philadelphia International Airport is the Delaware Valley's principal terminal for domestic and international air travel. Thirty airlines provide service to over one hundred cities nation-wide with over nine million passengers arriving and departing annually. Philadelphia International Airport offers modern terminal and runway facilities, the result of a $350 million program for expansion and modernization. Three of five new terminals are fully operational, and two are reserved for future expansion to accommodate 14 million passengers annually. There is a need to replace the existing airport Overseas Terminal, which is unattractive, congested and inconveniently located.

Air freight is an important element of airport operations. Cargo City, located at the western end of the airport, is the major air freight terminal in the Delaware Valley. Nine air cargo carriers operate out of Cargo City and handle approximately 90,000 tons of freight annually. Land is available at the airport for expansion of this facility.



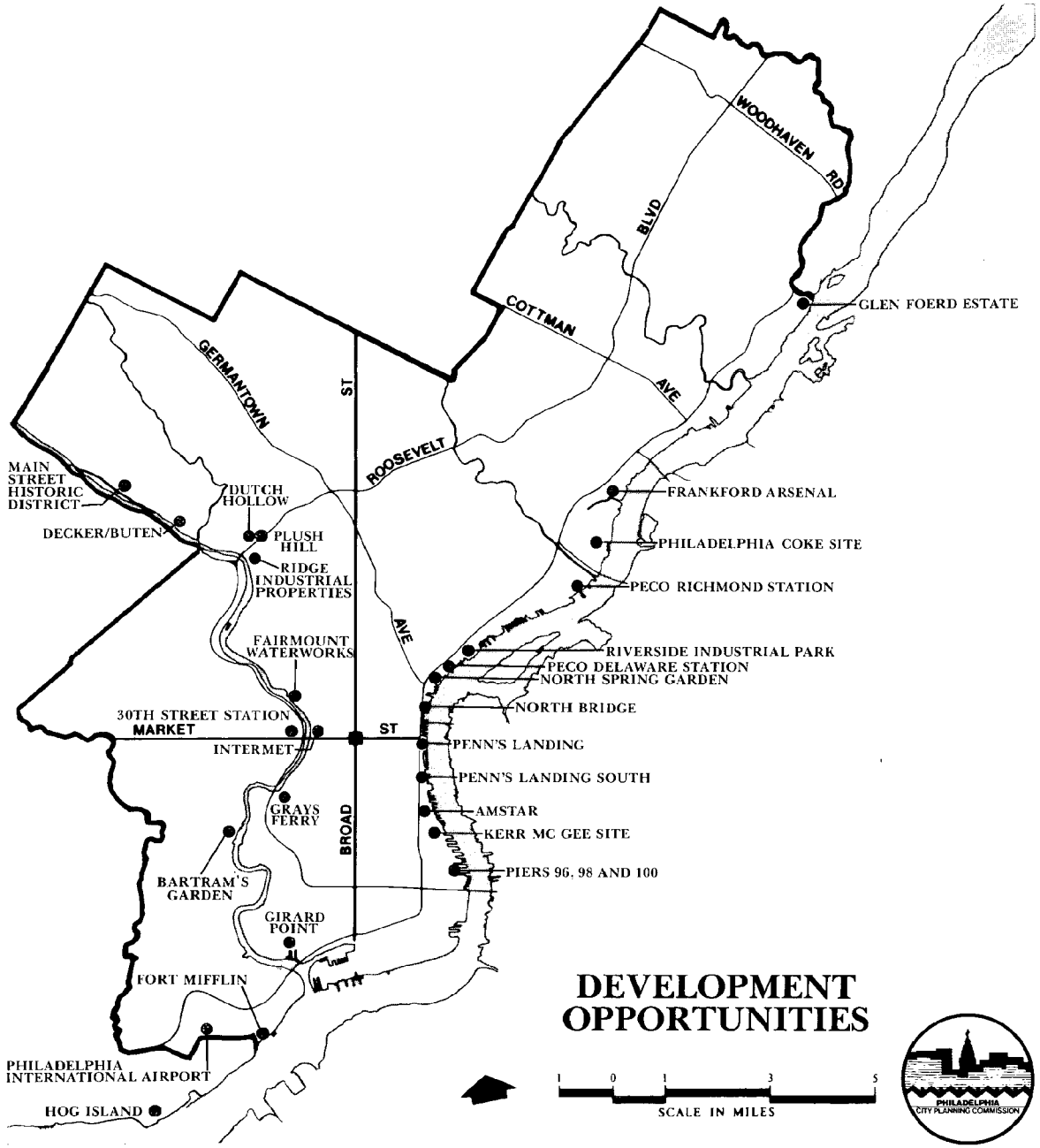
Development Opportunities

Opportunities for future public or private development are available at vacant or underutilized sites throughout each of the five riverfront districts. Locational and physical characteristics of each district, described below, provide a foundation for future development. The development potential for each site is also influenced by its size, configuration, physical condition, accessibility, ownership, and location within the district.

South Delaware Waterfront

The South Delaware Waterfront District is an important center for maritime trade and industrial activity. Extending from Center City to the Naval Base, the district contains a significant portion of the region's port facilities. This district's principal asset is its potential for significant expansion of port and port-related activity. The capacity utilization of existing municipal piers and Packer Avenue Marine Terminal can be expanded, and marginally-used warehouses and sheds may be rehabilitated for storage space. Underused rail yards, occupying large land areas, can be refurbished in response to changing rail and port shipping technology. Another major asset for the district is several unusually large land parcels available for industrial development at locations with superb regional and interregional accessibility. Rail, water, highway and air modes of transportation are close at hand, which is an attraction for firms dependent on convenient distribution of goods.

Piers 96, 98 and 100 These city-owned piers, which extend along the waterfront for approximately one thousand feet, provide opportunities for non-container port uses. The pier structures are in generally sound condition and have dimensions which are compatible with modern shipping needs. The piers are well suited for break bulk cargo handling, to which recent renovations of Pier 98 for cocoa import and Pier 96 for automobiles attest.



Kerr-McGee Property and Vicinity
Several industrially-zoned parcels of ground are presently for sale in the vicinity of Morris Street. The largest of these is the 18.7 acre Kerr-McGee site. There are port-related activities to the north and south and active rail lines to the west. Although situated among port-related activities, this opportunity site has a redevelopment potential primarily as an industrial park. Because competitive rail service is available from Conrail and Chessie, activities requiring rail access can best use this site.

Amstar Site Another major development opportunity, located at the northern edge of the district, is the Amstar Corporation parcel. This site, situated between Reed Street and Moore Street, is presently vacant and available for development. Several firms have expressed interest in that location for bulk loading and unloading operations, as this site contains 65,000 square feet of storage space. Amstar represents the northern limit of the industrial corridor of the South Delaware district.

Central Riverfront

The Central Riverfront is the focal point for the rebirth of public interest and excitement in Philadelphia's riverfront. Extending two miles from Spring Garden Street to Reed Street, the district offers unparalleled opportunities for housing, retailing and other commercial uses, and recreation. Each of the three sections of the Central Riverfront presents a different set of opportunities for development.

Penn's Landing Penn's Landing is the city's major development opportunity on the riverfront because of the size of its development parcels, the existing investment in land improvements, and the symbolism and prominence of its location. It has the potential of becoming integrated with Center City through a walkway system connecting the existing open spaces of Independence National Historic Park and the landscaped cover over I-95 with the public plaza at Penn's Landing. This connection is being further enhanced by the loop road between Market Street and Chestnut Street at Penn's Landing.

North Bridge North Bridge, situated just north of Penn's Landing, has excellent regional and City access, provides a dramatic river location, and contains many developable parcels and structures suitable for reuse. Residential reuse of existing finger piers is feasible, and conversion of warehouses and small row structures for mixed residential and commercial uses is possible. Piers 12 to 19 are suitable for development as a commercial marina, which would complement the Penn's Landing boat basin.

Penn's Landing South Unlike North Bridge, Penn's Landing South has few buildings suitable for rehabilitation, thus most development will be new construction. Vacant land on the westside of Delaware Avenue is a prime site for housing development. A major redevelopment opportunity would result from the consolidation of contiguous riverfront parcels adjacent to the Coast Guard's Marine Safety Office. The former Reed Street Rail Yard has been recently developed with a union headquarters, but in the long term could support a more intense residential and commercial use.

North Delaware Waterfront

The North Delaware Waterfront is an eleven mile long corridor that contains a wide range of river-related activities—port, water-dependent industry, and river recreation facilities. The district has an exceptional transportation system. Five interchanges provide excellent access to the Delaware Expressway, and freight rail service is available in most industrial sections of the district. Another asset is an existing stock of commercial and industrial buildings that is in generally sound condition and fully occupied.

Improvements to water quality will significantly change the desirability of the Delaware River for recreation. The expanded and upgraded Northeast Sewage Treatment Plant will be fully operational in 1985, and water quality and fishery conditions will greatly improve. Although public access to the river for recreation is currently inadequate, now that the river's recreational suitability has been restored, opportunities for increased access can be sought.

North Spring Garden This area, at one time a center for manufacturing and warehousing, is in a period of transition. Many industrial buildings and lands are in disuse and are suitable for redevelopment. The area is close to Center City, and thereby enjoys an attractiveness to private investors which it shares with Penn's Landing to the south and with the Callowhill Industrial Park to the west. Significant riverfront parcels are available with prime views of the river. The redevelopment of this area could include a mix of residential and commercial uses, including retail establishments serving new residents of the Central Riverfront.

Riverside Industrial Park This parcel is a major development opportunity, being 37 acres in size and containing streets and utilities. Good highway access and proximity to the Tioga Marine Terminal make it a suitable location for trucking terminals and wholesale trade firms. From the river edge there are extraordinary views of Center City. Potential constraints to development include uncertain soil bearing capacity and flooding.

Philadelphia Coke Company Site This 67 acre site has been recently cleared of the manufacturing equipment and structures of the former Philadelphia Coke Company. The site offers potentially large industrial parcels, a skilled work force nearby, and permissive zoning for industrial and commercial activity. The potential for development would increase dramatically if access were improved.

Philadelphia Electric Company Sites The completion of PECO's Limerick nuclear energy plant would lead to phasing out PECO's two generating stations on the North Delaware Waterfront by the late 1980s. These sites may offer special opportunities for expansion of port and other uses. For example, the Tioga Marine terminal could be expanded to the Richmond Station.

Frankford Arsenal The Frankford Arsenal is a 86 acre site situated close to the Bridge Street interchange of the Delaware Expressway containing 167 buildings with over 2 million square feet of potential industrial and office space. The Frankford Arsenal is on the National Register of Historic Places, permitting federal tax incentives for restoration of the site's historical buildings. As many as four thousand workers could be employed at the site if it were fully reoccupied. A nineteen acre portion of the former arsenal is under development by the Pennsylvania Fish Commission as a major boat launch, which will be an important community and employee amenity.

Glen Foerd Estate The Glen Foerd tract is 18.2 acres of landscaped grounds at the confluence of the Poquessing Creek and the Delaware River. The Fairmount Park Commission was recently granted jurisdiction to this tract, and a nonprofit group has been established to provide management of the attractive building as a conference center. Providing public access to the dramatic river views, while simultaneously encouraging semi-private use, will be a special challenge.

Lower Schuylkill Waterfront

The Lower Schuylkill Waterfront District contains 7,700 acres of land. It exhibits highly varied land use and contains some of the region's critical transportation, utility and energy facilities. The upriver section of the district is a major employment center, as it is the western edge of Center City. It will continue to experience development pressures linked with downtown office and residential construction. The downriver section is characterized by the near completion of a billion dollars of transportation, utility and site improvement projects that will serve to establish this district as a regional hub for transportation and employment.

Fairmount Waterworks Fairmount Waterworks, a two acre historic landmark, provides important opportunities for restoration and reuse. The potential for harnessing hydropower at Fairmount Dam should attract private investment funds. The Waterworks is in the middle of an important cultural and historical area of the City, being close to Fairmount Park, Boat House Row and the Art Museum. With its buildings symbolic of exceptional architectural and engineering accomplishments of the early nineteenth century, rehabilitation of these vacant structures will cost $7 million dollars. This cost is far in excess of available public resources, therefore private contributions must be sought.

Intermet Intermet is an eleven acre site along Market Street, east of the Schuylkill River. It is at the western edge of the Center City office core and has exceptional highway and transit accessibility. While its large size and strategic location assure that it will one day support substantial development, several factors will influence its design. The Chessie System to the west separates the parcel from Schuylkill River Park. Air rights over SEPTA's commuter rail lines will affect the pattern of land use, and floodplain restrictions will influence construction and allowable ground floor uses.

30th Street Station Area The 30th Street Station area represents the largest, most accessible area for the future growth and development of Center City. The area's large developable parcels and proximity to Center City offer a unique opportunity for large scale private investment. A major asset of the station area is its accessibility within the region and to other East Coast cities via its rail and highway systems. It is close to hospitals and universities and other major employment centers. In addition, over $15 million of improvements to the station are planned to enhance the commuter rail platform, the pedestrian circulation system, and train information signs. Physical and psychological barriers, however, must be addressed to make this an economically viable development opportunity.

Grays Ferry Avenue Area The Grays Ferry Avenue area, containing a significant number of vacant parcels and structures, has several development opportunities. First, because it is close to Center City, it may attract business services dependent on proximity to downtown customers. Second, the area has exceptional access, by way of the Schuylkill Expressway and major arterials, to regional markets.

Bartram's Gardens Bartram's Gardens, an historic site that has expanded and been recently refurbished, provides year round historic and environmental programs. Opportunities for greatly expanding visitation will depend on the restoration of several buildings near the homestead and on improvements to the newly acquired, 17 acre tract adjacent to the gardens. The entrance to the gardens is poorly marked, unattractive and lacks parking. Improvements to the buildings and grounds should come largely from private contributions.

Girard Point Girard Point is a two hundred acre area on the east side of the Schuylkill River which offers opportunities for increased port activity and for redevelopment. One opportunity is to support the continued growth of Tidewater Grain Company, the region's principal grain exporter. The reuse of Piers 1 and 2 for bulk or general cargo would be desirable, as long as it does not conflict with grain export. Nearby vacant land, remote from residences and with good access to both interstate highways, would be suitable for a wide variety of industrial or utility uses.

Fort Mifflin Fort Mifflin, an important landmark of the colonial period, is seriously deterio-

rated and desperately needs funding for its restoration. As the only point of recreational access to the Delaware River downriver of Penn's Landing, the fort could be a significant riverfront park and help boost tourism to the city. Immediate improvement needs include signs, parking and an information center.

Hog Island Hog Island is a vacant, city-owned parcel, situated between the airport and the Delaware River in Delaware County which has potential for maritime commerce. Located closer to Delaware Bay than the other marine terminals in Philadelphia, Hog Island is of sufficient size to provide the ground storage necessary at a modern terminal, and it has access to rail service and highways.

Philadelphia International Airport The airport and surrounding area hold potential for future employment gains. Several key parcels of land near the airport remain developable. Land is also available at the successful Cargo City for development of additional air freight operations. Growth in air traffic at the airport can occur by replacing the Overseas Terminal, which is an unattractive and inconvenient facility. A new terminal is needed to increase Philadelphia's share of the international market.

Upper Schuylkill Waterfront

The Upper Schuylkill district encompasses eight and one-half miles of the most attractive riverfront in Philadelphia. The district's 2,700 acres are unique among the riverfront districts for the large proportion of land devoted to recreational use, and the relatively small proportion of land supporting business activities. The district's principal asset is its strong highway linkages, with East and West River Drives and the Schuylkill Expressway providing good traffic flow through the riverfront corridor. A second major asset is the attractive recreational resource afforded by the river, both through the four and one-half mile stretch of river in Fairmount Park and the four mile length upriver of the park. A third asset is a stock of old industrial and commercial buildings which offers opportunities for economic revitalization and residential conversion.

Ridge Industrial Properties This 13.5 acre parcel contains many spacious, architecturally interesting buildings of the former Dobson Woolen Mill. The tract is centrally located in the metropolitan region, as it is close to interchanges of both the Schuylkill Expressway and the Roosevelt Boulevard. The buildings at this location are not fully utilized because of physical deterioration and inadequate expansion space. Their use is particularly suited for small firms and as industrial incubator space. As the site is possibly eligible for the National Register of Historic Places, the rehabilitation of Ridge Industrial Properties could be aided by tax incentives provided for historic building improvements.

Dutch Hollow and Plush Hill Two vacant parcels in the East Falls neighborhood, each about four acres in size, are available for residential development. Both occupy attractive sites overlooking the Schuylkill River valley and are located for convenient access to the district's highways.

Decker/Buten Site This seven acres, situated between Ridge Avenue and the Schuylkill River at the southern end of Main Street, is a prime development site. The river affords an attractive setting; the Schuylkill Expressway is readily accessible; and good shopping is available nearby. The site is mostly situated at an elevation above the floodplain of the Schuylkill River, unlike several other nearby riverfront parcels. High-rise residential riverfront development is suited to this site, though office space development is also appropriate.

Main Street Historic District Main Street in Manayunk, while not the vital neighborhood shopping district and industrial center it once was, is currently poised for important new investments. Its designation as a National Historic District allows investors to take advantage of favorable federal tax legislation for the rehabilitation of commercial structures. The City's completion of the Manayunk Canal Towpath will help attract customers to nearby Main Street. Many large, attractive stone factory buildings along Main Street could be rehabilitated for commercial use or converted to residential units, and other two and three story buildings could be refurbished with first floor stores with apartments above. Because the district is close to the Schuylkill Expressway and to commuter train stations, it provides easy access to downtown Philadelphia.

Goals and Policies for the Riverfront

The overriding goal of this plan is to make Philadelphia's riverfronts desirable places in which to live, work, and play. Set forth below are the goals adopted by the Philadelphia City Planning Commission for directing growth and change at the river's edge. These goals address the needs of port, business, and residential communities and the opportunities for improving recreational, environmental and transportation conditions. For each goal, policies have been derived to guide the development of the recommendations of this report, which follow.

Goal: *Increase Activity at the Port of Philadelphia*

The primary goal for the *Plan for Philadelphia Riverfronts* is to increase cargo traffic through the Port of Philadelphia in order to create port-related jobs, to make full use of existing terminal capacity, to expand employment in trucking, warehousing and other support services provided to the port, and to maintain the port facilities that are vital to a regional economy. The following three policies support this goal.

Policy: *Upgrade and Expand Port Facilities*

The Port of Philadelphia, to remain competitive with other ports in the North Atlantic, must continually upgrade its facilities in order to assure an efficient, economical, and modern port. This will require modernizing finger piers, expanding terminal capacity, and giving support to private terminal activities.

Policy: *Establish New Markets for the Port*

The Port of Philadelphia must strive to attain the effectiveness of its nearest competitors—Baltimore and New York—in being fully recognized by shippers for its modern, full service port. A very great potential exists for expanding export and import markets captured by the port through the marketing efforts of the Philadelphia Port Corporation and Delaware River Port Authority.

Policy: *Assure Adequate and Affordable River Dredging*

Essential to a viable port economy is maintenance of shipping channels through dredging of sediment deposited on the river bottom. The City must work to assure a long-term capacity to dispose of dredge spoil material at a cost which does not hurt the port's competitiveness.

Goal: *Expand Industrial and Commercial Activity along the Riverfront*

A major goal of this plan is to increase business activity, employment, and the tax base within Philadelphia's riverfront area. Two policies build upon the special assets of the riverfront for supporting business growth.

Policy: *Attract New Industrial and Port-Related Development and Strengthen Existing Businesses*

The riverfront's traditional role as a corridor for industry must be maintained and strengthened. New riverfront industrial parks should be developed; underutilized districts revitalized; and, within all industrial areas, zoning, financial assistance and public services directed to sustain existing businesses.

Policy: *Encourage Commercial Development*

The City must seek to take maximum advantage of the riverfront as an attractive location for offices, retail trade, entertainment, hotels and other commercial activities. While Penn's Landing is the focus of Philadelphia's riverfront renaissance, business investment along the Schuylkill River should also be strongly supported, as should neighborhood-serving commercial projects and commercial reuse of historic landmarks.

Goal: *Foster Residential Communities in Riverfront Areas*

Strengthening existing residential neighborhoods and creating a climate for investment in new residential dwellings is an important goal of this plan. It recognizes a tradition of close identity between residents of riverfront communities and their river. It acknowledges, too, a special attraction that river locations have for people choosing a place to live, which translates into a strong willingness to invest in riverfront properties.

Policy: *Encourage New Residential Development*

This plan proposes to make the riverfront a home for many thousands more families than currently reside there. A large majority will be living in areas which have evolved from a port or commercial use.

Policy: *Strengthen Existing Communities*

The stability of residential neighborhoods is of utmost importance to the City, and for this reason public and private resources need to be directed in support of existing riverfront communities through encouraging in-fill housing construction, making Community Development funds available to eligible residents, and reinvesting in deteriorated public housing.

Goal: *Increase Recreational Enjoyment of the Rivers*

A fundamental goal of this plan is to greatly increase use of the riverfront by Philadelphians and tourists, a goal made practicable by riverfront land becoming increasingly available for new uses, including recreation and redevelopment, and by enormous public investment in river pollution control. Development of recreation places along the Delaware is one way city residents can benefit from pollution control.

Policy: *Make Better Use of Existing River Recreation Facilities*

Riverfront parks and playgrounds on the Schuylkill and Delaware Rivers do not presently realize their full recreational potential. The City should embrace a policy of achieving full use of its existing facilities by improving its riverfront parks and historical sites and by making better known the wide variety of river activities available close to home.

Policy: *Provide New River Access Opportunities*

Because the existing stock of public facilities along Philadelphia's riverfronts is insufficient to support demand for recreation, new opportunities for river access should be provided. A dozen neighborhood access areas and several major new public open spaces are envisioned for the Delaware and Schuylkill Rivers. Also, commercial and private marinas, river tours and cruise ships can supplement public recreation in important ways.

Goal: *Upgrade the Quality of the Rivers and Riverfront Lands*

Investment in sewage treatment plants alone will not assure optimum water quality and fishing conditions, because other sources of pollution contribute to degraded waters and create conditions unfavorable for fish life. Moreover, the appearance and care given to riverfront lands do not reflect the growing importance of the river as a recreational corridor. The goal of this plan is to improve water quality and aquatic habitats in the rivers and to encourage restoration of riverfront lands.

Policy: *Enhance Water Quality and Aquatic Habitats*

The policy of this plan is for actions to be taken to enhance water quality and aquatic habitats. Sewer overflows and leaks and urban stormwater are sources of contamination which need to be investigated for potential controls. Fish habitats improvements, sport fishery research, fish ladder construction and fish stocking are actions necessary to support a healthy aquatic environment.

Policy: *Upgrade Environmental Conditions of Riverfront Lands*

Long segments of the land along the Delaware and Schuylkill Rivers are in poor condition, and fail to reflect the high quality recreational resource the river can be. This plan will encourage improved treatment and management of the river edge through establishing a riverfront beautification program.

Goal: *Improve Accessibility to and Within the Riverfront*

Although highway, rail and air transportation systems generally operate exceptionally well along the riverfront, improving the convenience, safety, and efficiency of riverfront transportation systems is a goal which will help strengthen the riverfront's principal asset in its competitiveness with other industrial centers in the region—its accessibility.

Policy: *Improve Highway and Street Circulation*

Improving truck and automobile circulation on several segments of the highway and street network is a necessary element of a comprehensive program to support business activities and residential communities. Highway and bridge interchanges need to be completed; inadequate and unsafe street patterns should be corrected; and deteriorated roadway surfaces must be reconstructed if hazardous and inconvenient conditions are to be overcome.

Policy: *Rationalize Rail Service*

Rail service to Philadelphia riverfronts is responding to a climate of reduced federal regulation and increased flexibility granted rail carriers to modify their services. The City of Philadelphia must closely study these changes so as to identify opportunities to encourage rail competition, adequate intermodal transfers and a rational—meaning efficient and service-oriented—rail system.

Policy: *Increase Passenger and Freight Traffic at International Airport*

The City of Philadelphia should support growth in air travel and air freight handling by making improvements to Philadelphia International Airport, the Delaware Valley's principal air terminal and one of the largest employers along the riverfront.

Port Recommendations

No function along the riverfront is more important than upgrading and maintaining the port. Capital investment is needed to keep the port operating at adequate levels of service, to adjust to changing technology and user needs, and to realize the full potential for private development of riverfront properties.

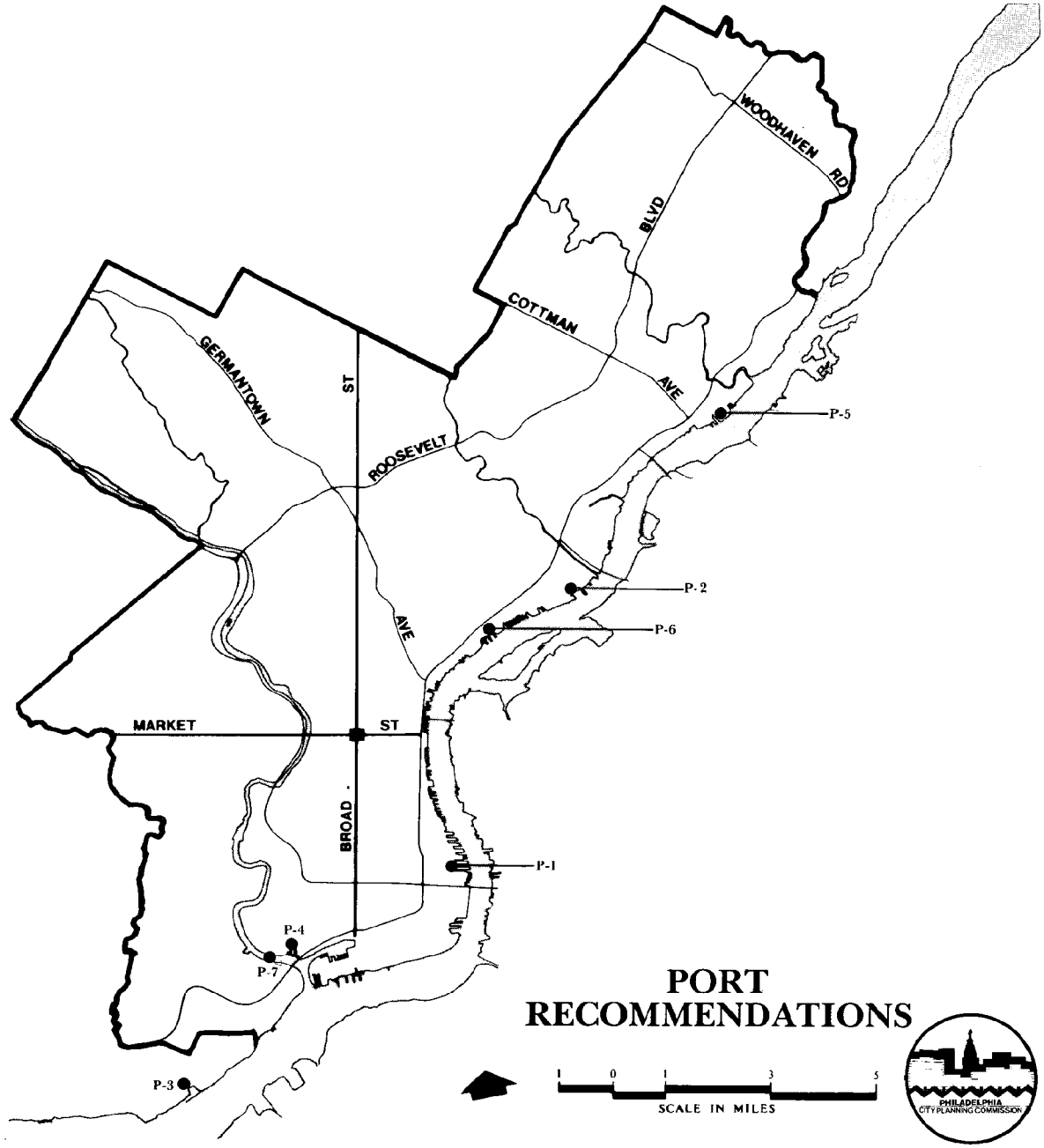
Improve Municipal Finger Piers (P-1)

Renovation of municipal piers on the South Delaware Waterfront is necessary to support break-bulk cargo handling. Municipal piers situated between McKean Street and Oregon Avenue are of dimensions suitable for modern ships, and there is backup cargo storage capacity here not found at finger piers elsewhere in the city. Three piers require repaving of shed floors and outdoor pavement, repair of water and fire service lines, and rehabilitation of pier and shed structures; these are Piers 82, 84, and 100. Building on the success of restoring Piers 96 and 98 to active port use, the Philadelphia Port Corporation should continue in its efforts to identify potential users of the finger piers and to seek federal and state funding to supplement city funded facility improvements. Pier renovations are recommended for early implementation.

Expand the Capacity of Philadelphia's Marine Terminals

Expand Tioga Marine Terminal (P-2)

A container berth should be added to Tioga Marine Terminal by extending the wharf approximately 1000 feet upriver to join Pier 217, thus increasing container handling capacity by 50 percent. To provide essential ground storage for containers, the area behind the extended wharf must be filled, which will require measures to mitigate loss of shallow water habitat. The cost of this project is approximately $15 million.



Hog Island (P-3) Hog Island is recommended to be reserved for the long-term development of a third marine terminal for the Port of Philadelphia when the capacity of the Tioga and Packer Avenue Marine Terminal is fully utilized. Hog Island, with ample land area and good rail and highway access, should be supported for development to a specialized cargo use, if the economic viability can be demonstrated by the willingness of a private operator to sustain the debt service for the terminal's development. The cost of terminal development would be $35 to $50 million.

Support Private Terminal Activities

Tidewater Grain Company (P-4) One of the East Coast's most active grain exporters, Tidewater plans to expand its operations over the coming decade. The City should make every effort to support the company's expansion, particularly through assisting in the process of having the Schuylkill River dredged to adequate depths for its grain ships.

Northern Shipping Company (P-5) Continued operation by Northern Shipping Company of a general cargo terminal should be encouraged by the City, even if portions of the property are marketed for industrial uses. It could either remain as a private terminal for public use, or it could be developed as a private terminal by a steamship line for its exclusive use. The facility is not recommended for bulk cargo, as rail service would be inadequate, requiring lengthy interruptions of traffic on State Road.

Port Richmond (P-6) The City should urge Conrail to make its Port Richmond terminal available for reuse for port or water-dependent industry. Existing facilities, some recently upgraded, could be restored to service at moderate cost. Port Richmond has excellent highway and rail access and a large size which might prove valuable to future port users. The desirability of the site would be diminished if it were subdivided without regard to long-term developability.

Support Deepening the Channel Depth of the Schuylkill River (P-7)

The Schuylkill River in the vicinity of Girard Point needs to be deepened from its present thirty-three feet to forty feet in order to accommodate grain vessels at Tidewater Grain Company and oil tankers at Gulf Oil Company. A study commissioned by the Army Corps of Engineers, studying the costs and benefits of this action, has recommended favorably this improvement to the channel. The expected dredging cost is $10 million, of which the federal share is $4 million. The rest must be raised from local sources. It is recommended that the City encourage use of the Army Corps of Engineer's Fort Mifflin disposal basins for this project and help coordinate this arrangement so that the lowest possible cost for this project can be achieved.

Support the Marketing of the Port's Competitive Advantage

Port facilities in the Delaware Valley offer competitive service for shipping of all kinds of goods to points throughout the world, and existing terminal facilities have ample capacity to handle increased shipping levels. Marketing is necessary to make better known to both shippers in the region and shippers in the Midwest the services and facilities in Philadelphia. Full support is recommended to be given to efforts now underway, both here and abroad, by the Philadelphia Port Corporation and by the World Trade Division of the Delaware River Port Authority to promote use of the Port of Philadelphia.

Assure Adequate and Cost Effective Dredging Operations

Dredging Costs Congress is studying proposals to allocate dredging costs to port users, which in the Delaware Estuary are $30 million annually. The port community must remain firm in its opposition to any proposal that would adversely affect Philadelphia's competitiveness with other ports, especially those of Canada.

Dredging Plans The City needs to participate in planning studies which the Army Corps of Engineers is conducting for the Ports. These include the recently completed Dredge Material Disposal Study and the Comprehensive Navigation Study. The City's Department of Commerce, in conjunction with the Philadelphia Port Corporation, must play a liaison role with the Corps, with assistance by Planning Commission staff.

Industry and Commerce Recommendations

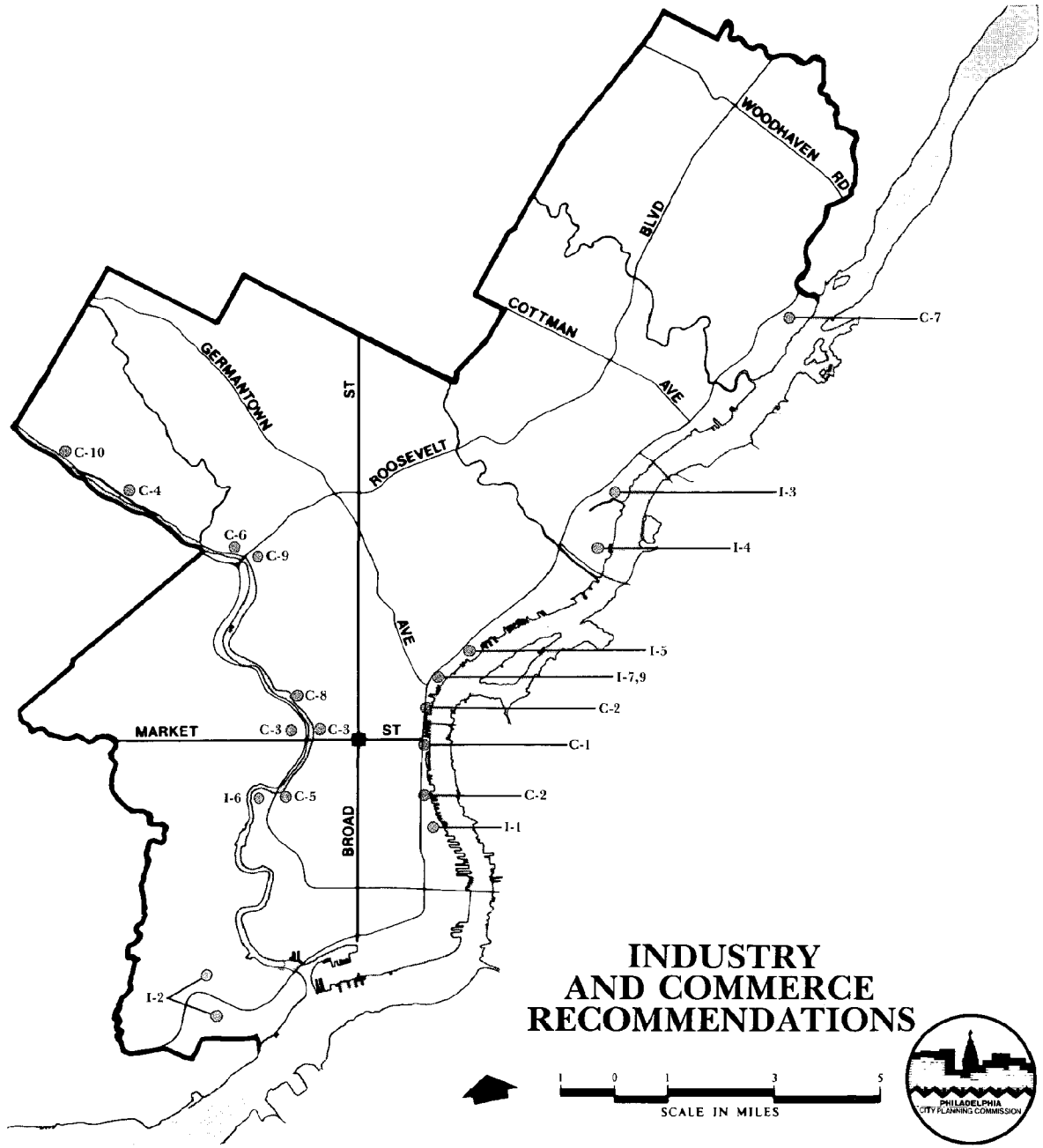
Throughout Philadelphia's three hundred year history, industry and commerce have been preeminent uses of the riverfront. Every proposal in this plan for Philadelphia riverfronts is attuned to productive use of riverfront land and to the need to enhance the climate for investment. Many of the needs of business firms close to the riverfront are shared with firms throughout the city, and public programs available to assist economic development city-wide can be directed to industrial and commercial areas of the riverfront.

Develop New Riverfront Industrial Parks

Kerr-McGee (I-1) The Kerr-McGee site, and adjacent parcels located within the industrial corridor of the South Delaware district, constitute an especially large riverfront area which could support new business firms and which would take advantage of unique access to rail service and marine shipping.

Interport Business Complex (I-2) Philadelphia Industrial Development Corporation should continue to aggressively market land in its Eastwick and Penrose industrial parks, utilizing the program to write down land prices to as low as $3,500 an acre. This marketing effort can focus on two elements: the area's special attractiveness to firms affiliated with airport services; and highway accessibility which will be achieved when the Delaware Expressway and interchange are soon completed.

Frankford Arsenal (I-3) The Frankford Arsenal site may become the city's most successful, privately developed riverfront industrial park. To assist this development, the City is pledged to contribute over a three year period a total of $3.5 million in funds from its Community Development Block Grant. City agencies need to continue working with the developer to resolve utility and fire code deficiencies.



Philadelphia Coke (I-4) The former Philadelphia Coke site should be prepared as an industrial park by making site improvements and installing utilities, utilizing the City's industrial land bank program. Industrial activities of many kinds are suitable for this site, including both heavy and light manufacturing, wholesale trade and truck transportation.

Riverside Industrial Park (I-5) This industrial park should be actively marketed for light industrial, warehouse and truck transportation activities. While the site has been improved with utilities and roadways, additional study is needed to correct soil conditions unfavorable for industrial development.

Assist Revitalization of Underutilized Industrial Districts (I-6)

The City should target economic planning and development assistance to two deteriorated industrial areas which have potential for significant new investments, as they are close to Center City and have good highway access. These are the Grays Ferry area in the Lower Schuylkill district and the North Bridge area along Delaware Avenue, from Brown Street north to Aramingo Avenue. These two areas could support firms displaced by increasing costs for space in Center City buildings. Grays Ferry has the added potential for supporting research and development facilities needing to be close to the educational facilities in nearby University City.

Support Existing Riverfront Industry

Zoning (I-7) Existing industrial zoning should be retained in viable industrial corridors. The City must assure that no business firm regards its future threatened by zoning changes. Only few exceptions to this policy are recommended. In the Central Riverfront and a portion of adjacent North Spring Garden area south of Brown Street, the zoning should reflect this area's potential for conversion to a mix of commercial, residential and recreational uses. Elsewhere, only where land has been already converted to non-industrial or commercial uses, or has been publicly-acquired for recreation, should amendments to zoning classes be pursued.

Development Assistance The City's economic development programs should be targeted to riverfront firms. These programs include low interest loans for plant expansion and provision of second mortgage financing. This assistance will encourage reinvestment in existing commercial and industrial structures and will help increase jobs for persons of low and moderate income.

City Services Police surveillance and sanitation are two public services recommended for expansion in riverfront industrial areas, as two problems frequently noted by existing firms about their riverfront location are crime and illegal trash dumping.

Develop Penn's Landing as a Major Commercial Center and Public Attraction (C-1)

The City must insure that Penn's Landing develops as a center of public activity. To this end, a major public plaza is being constructed which will be a focal point of new hotel, office and residential development. This riverfront plaza will attract visitors and tourists to cultural and recreational activities and to restaurants, boutiques, and sidewalk vendors. New development will provide 400 or more housing units, as many as 400 hotel rooms, and significant new office and retail space. This combination of uses will assure activity around the clock and throughout the year. As much as a quarter billion dollars in private development is expected to occur as a result of a public investment of fifty million dollars.

Develop Commercial Centers North and South of Penn's Landing (C-2)

Philadelphia's river renaissance will not be confined to Penn's Landing, but will include piers and riverfront lands in North Bridge and in Penn's Landing South. Piers 25 North and 55, 56 and 57 South could support high-rise residential development. A mixture of townhouses, retailing, open space and parking is proposed for Piers 9, 11, 13 and 24 North and for Piers 28, 34, 35 and 36 South. In North Bridge, where substantial vacant or underutilized land is present, new housing units, designed to capture views of the river, could be built. And to the south, railyards and vacant piers in the vicinity of Washington Avenue may be developed as townhouses and mid-rise apartment buildings. In both North Bridge and Penn's Landing South, plans for new communities could feature commercial and private marinas built to serve new residents and adjacent communities.

Develop 30th Street Station and Intermet Sites (C-3)

Intermet and 30th Street Station have locational and physical characteristics that favor intensive, mixed use development. High-rise office and residential buildings with associated retail and commercial uses are proposed for these sites. Siting a hotel close to the riverfront on the Intermet site would take advantage of riverfront views and amenities, and at 30th Street Station residential and retail activities could be developed. To accommodate substantial parking demand, garages could be built to link conveniently to ramps of the Schuylkill and Vine Street Expressways. For both sites, substantial design integration is needed to take advantage of the proposed Schuylkill River Park, to minimize interference from road and rail noise, and to assure optimum circulation. Development should occur within the next twenty years.

Revitalize Main Street in Manayunk (C-4)

The Main Street National Historic District is a commercial corridor which has received economic support from the City's development agencies. The Philadelphia Citywide Development Corporation is coordinating efforts to achieve storefront improvements, sign control, street improvements, loans to businesses, and other assistance which will make the district appealing to shoppers. This effort was stimulated in part by the completion in 1978 of the $2 million restoration of the Manayunk Canal Towpath as a recreational trail. The successful application for an Urban Development Action Grant for assisting a commercial and housing development project is an additional development stimulus. The stock of existing commercial and industrial buildings and Manayunk's easy accessibility by highway and rail are assets which, together with incentives provided by historic tax credits, will encourage implementation of development plans for Main Street, plans formulated by the community and the City.

Promote Commercial Development Which Serves Existing Residential Communities

Grays Ferry (C-5) In the Grays Ferry community, land along Grays Ferry Avenue, vacant since its clearance in the 1960s, would be ideal in size, location and configuration for an area shopping center. It would provide needed retail services for residents of nearby neighborhoods and Center City, who must now travel long distances for modern supermarkets and accessory retail stores.

East Falls (C-6) The convenience shopping district serving the East Falls neighborhood in the Upper Schuylkill district is centered at the intersection of Ridge and Midvale Avenues. While retail stores in this district provide currently limited service, the substantial flow of traffic through this area and the buying power of the community are factors which would support the expansion and upgrading of business establishments. The City's development agencies, working cooperatively with the local business association, should identify strategies to attract business investment.

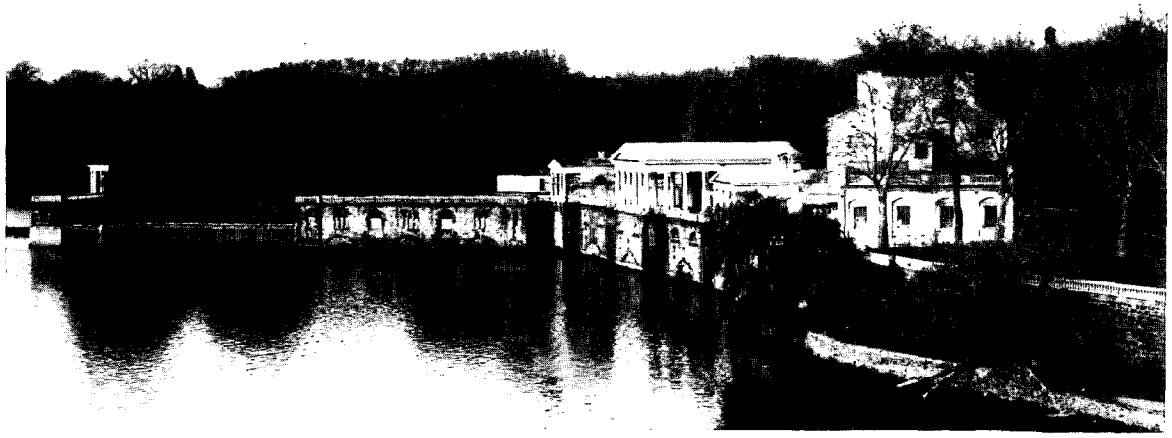
East Torresdale (C-7) The East Torresdale community is continuing to grow as condominiums and independent elderly housing units are built. Properties along State Road could be developed for retail and personal services.

Encourage Use of Unique or Historical Structures for Commercial Activity

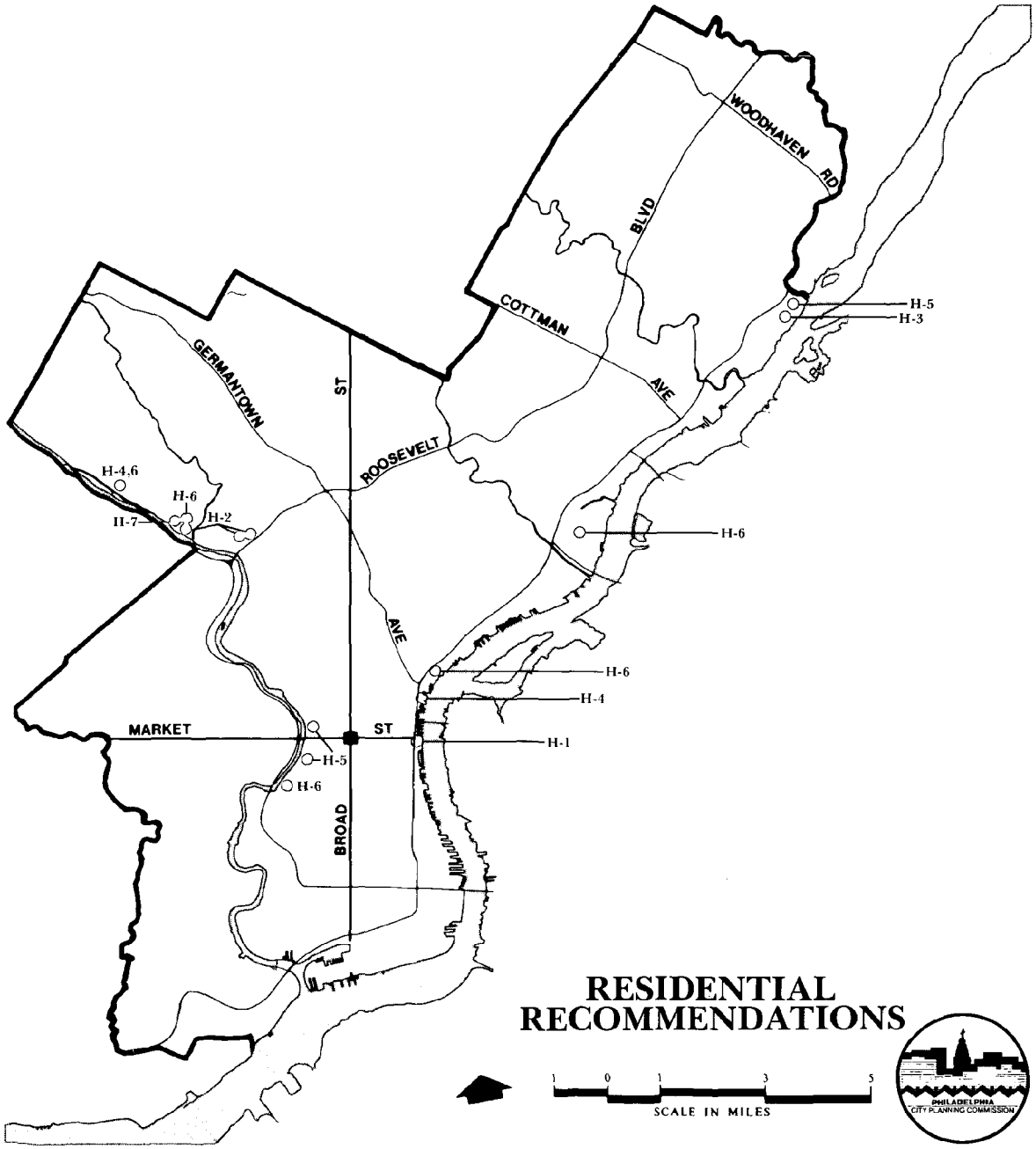
Restore Fairmount Waterworks (C-8) Fairmount Waterworks, one of Philadelphia's best known landmarks, requires $17 million for its adaptive reuse for hydropower generation, and as a restaurant and public gathering spot. A liaison of public and private groups has prepared a plan for the Waterwork's restoration, and fund raising efforts will assure its restoration without significant financial cost to city taxpayers.

Ridge Industrial Properties (C-9) The owners of Ridge Industrial Properties should be encouraged by the City's development agencies to make maximum use of historic and rehabilitation tax credits to make financially attractive the renovation of the several buildings which comprise this strategically located site. Although the area's role is best reserved for that of incubator space for new firms and for small businesses, over the long term the site could be converted to residential or to office space. The full range of business investment incentives available through the City's development agencies should be made available to this site.

Shawmont Pumping Station (C-10) The Shawmont pumping station buildings in the Upper Schuylkill district are recommended for reuse to commercial activity. They consist of two especially attractive buildings, situated within the riverfront parks bordering the Schuylkill upriver of Manayunk Canal. The City should encourage reuse as a snack shop, fishing supply store, and boat and bike rental concession to serve park visitors.



Residential Recommendations



Residences within riverfront districts are integral to the concept of the riverfront as a place for people to live and to enjoy. Throughout this plan, recommendations support improvements which open riverfront districts for productive uses, including residential use.

Encourage Mixed Development Which Includes Housing at the Riverfront in Central Philadelphia (H-1)

Major development sites along the Schuylkill and Delaware Rivers in Center City are proposed for mixed use development, in which residential units are a major component. Penn's Landing, and areas north and south of it, have the capacity to support over four thousand dwellings. Intermet and 30th Street Station sites on the Schuylkill River can support the development of several thousand units. Along 23rd Street, near the Intermet site, two vacant four-acre sites are zoned for high rise development.

Encourage New Development on Vacant Parcels in the Riverfront Districts

Upper Schuylkill (H-2) Three sites in the Upper Schuylkill district are recommended for residential development. High rise apartment structures are recommended for the Decker/Buten site, a housing site made attractive by a scenic river valley and good transportation access. Two other parcels, situated about a mile south of the Decker/Buten site, are suitable for single family units, also due to good access and scenic qualities. These East Falls sites are Dutch Hollow, situated between Midvale Avenue and Indian Queen Lane, and Plush Hollow, between the Roosevelt Boulevard and Indian Queen Lane. Both have site conditions requiring that they be

sensitively designed to integrate well within an older row home neighborhood.

Torresdale (H-3) For the Torresdale neighborhood, this plan supports appropriate development of the Baker's Bay site along State Road. Subject to agreements reserving riverfront land for open space, this site should be developed as high-rise housing for independent elderly as part of a master plan for a life-care center. Over 150 dwelling units can be built at this site.

Make Adaptive Reuse of Commercial Structures for Housing (H-4)

Conversion of commercial structures to housing is a significant trend in riverfront land use in several neighborhoods. This trend is supported by the plan in Manayunk and North Bridge where it is compatible with the community's development objectives. Both areas have a stock of attractive stone or brick warehouse structures which adapt well to residential use, and both areas demonstrate a growing demand for housing due to good location and tax laws favorable to reinvestment in old buildings.

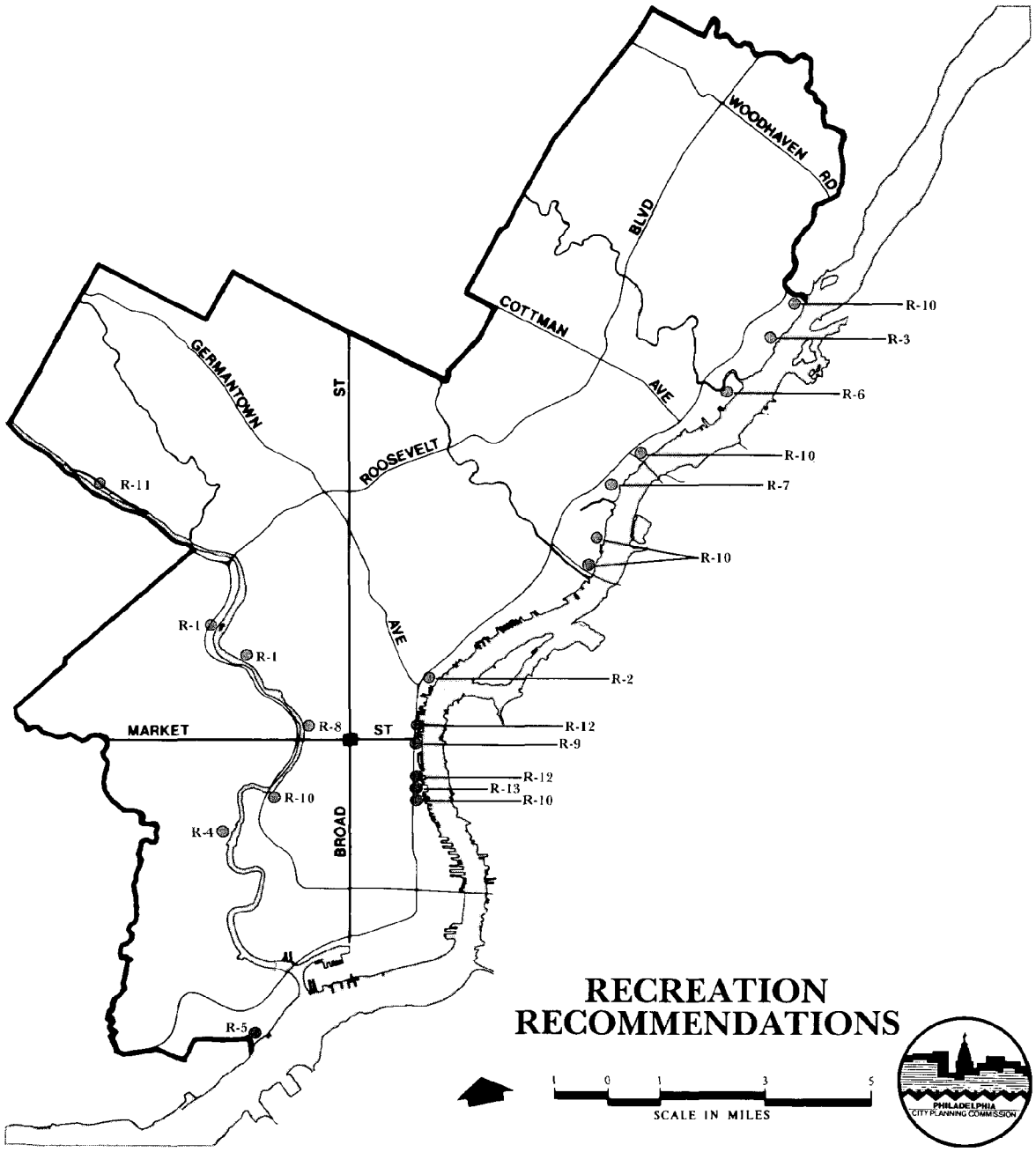
Support Improvements to Existing Residential Communities

In-fill Housing (H-5) Communities of East Torresdale in the North Delaware and of Logan Square and Rittenhouse in the Lower Schuylkill contain small parcels of land which are suitable for in-fill residential development. This plan recommends that these parcels be developed with housing compatible in scale and density to neighboring housing.

Community Development Funds (H-6) Housing agencies should target the use of Community Development funds to income eligible riverfront neighborhoods for the support of housing rehabilitation and improvements. Low interest loans may be provided to families to pay for major repairs and deferred maintenance. These programs are available to residents of Bridesburg, Fishtown, Schuylkill, East Falls, and Manayunk. The housing agencies can also support improvements to roadways, curbs, sidewalks and street trees.

Schuylkill Falls (H-7) Reuse of two vacant, high-rise public housing structures at Schuylkill Falls for elderly housing is recommended, with improvements made to existing low-rise family public housing. There is a critical shortage of housing for low income persons, making public housing an important resource. Recognizing the unsuitability of the two high-rise structures for families, the federal Department of Housing and Urban Development has provided funds to convert these towers to elderly housing.

Recreation Recommendations



Rivers are places of enormous appeal. People use rivers to fish, to launch boats, to watch ships, and to see waves ripple with the wind. And because people enjoy water, they engage in other outdoor activities nearby—they come to jog, bicycle, sunbathe, picnic, watch other people, and play frisbee. Riverfronts therefore have become popular places for vendors to sell snacks and other wares. Also, they have become popular locations for major urban redevelopment projects.

Upgrade and Expand Existing Recreation and Cultural Sites

Fairmount Park (R-1) Parklands along East and West River Drive require additional public conveniences to better serve the large numbers which visit this premier riverfront park. Fairmount Park Commission should install two restrooms in addition to the facility at the Canoe House. Since parking is deficient, persons park on grass areas. Additional off-street parking is needed, and the Park Commission should explore the potential of weekend on-street parking on West River Drive. These improvements, expected to cost $1 million of general tax funds, should be made by the Fairmount Park Commission over the next five to ten years.

Penn Treaty Park (R-2) Penn Treaty Park in the Fishtown community has been recently expanded with open grassy fields and an attractive river edge. Parking, walkways, a fishing pier and additional landscaping, costing a half million dollars, should be installed by the Fairmount Park Commission over the next five years. State grants may be available to assist this project.

Pleasant Hill Park (R-3) Pleasant Hill Park should be improved to function far better than it now does as a boat launch facility and riverfront park. Overcrowding and confusion at the boat launch could be alleviated with pavement markings and signs. A boardwalk is proposed for

the rocky shoreline to provide shade and a suitable surface for fishermen and sightseers. Park furniture and landscaping is proposed for the parkland adjoining the boat launch facility. Funds were scheduled in the 1985-1990 Capital Program for this facility.

Expand Bartram's Garden (R-4) The City should support the long-range development plans of the John Bartram Association and its raising of over a half million dollars in private contributions for restoration of buildings associated with the Bartram homestead. The 17 acre parcel acquired for the site's expansion should be reclaimed so that it can serve as a passive park, and deteriorated play equipment and courts south of the homestead also need to be replaced. In the more distant future, fishing and boating access could be installed on the expanded site, which would also allow for visits to the gardens by boat.

Fort Mifflin (R-5) Fort Mifflin is recommended for restoration so that it may appropriately support interpretation of the city's history and may help expand tourism. With the leadership of the Olde Fort Mifflin Historical Society, ten million dollars must be raised for restoration of the fort's buildings, walls and moat. In the short term, an adequate parking area and visitor center is needed. Some public funds may be necessary to support a successful fund raising effort.

Promote and Publicize Use of Available Recreation Resources

"River Awakening" Festival River Awakening festivals should be held during the next several years to celebrate the rebirth of the Delaware River as a healthful river for recreation and to acknowledge the financial contribution of all Philadelphians to the pollution control investment. River Awakening, while an event coordinated by the City, should involve other levels of government concerned with pollution control and members of sporting, environmental and community organizations in the sponsorship of fishing derbies, community festivals, regattas, and fund raising events. The Office of the City Representative should coordinate this event, and much of the $200,000 of costs should be borne by corporate contributions.

Urban Fishing A comprehensive urban fishing program should be instituted in Philadelphia. The Pennsylvania Fish Commission should expand the scope of its fishing education program and is urged to assign a coordinator for fishing education to the metropolitan areas, with possible funding from the DER Division of Coastal Zone Management and from the National Marine Fisheries Service. Sporting organizations are encouraged to support this program by sponsoring competitive fishing derbies along the Delaware and Schuylkill Rivers to promote use of the rivers and publicize the variety and size of fish available in these waters.

Tourism Literature Two brochures are recommended to advertise river recreation in metropolitan Philadelphia. A boating map is needed to identify all boating facilities in the upper Delaware Estuary, and a second brochure would illustrate all recreational uses along the rivers—boating facilities, good fishing spots, historical sites, parks and playgrounds, and waters suitable for water skiing, sailing and canoeing. The Delaware River Basin Commission should prepare these brochures, with the projected $25,000 cost borne by other governmental agencies and by groups representing boating and fishing interests.

Complete Planned Riverfront Park Development

Pennypack Park at the Delaware River (R-6) The one-hundred acre site at the mouth of Pennypack Creek is ideal for passive recreation activities—fishing, picnics, nature walks, sunbathing, and sightseeing—and should prove to be the most important fishing spot on the Delaware River. The 1985 Capital Budget provided the Fairmount Park Commission with $390,000 for the first phase of park development of an entrance road, a parking lot and sitting area. Later phases will include access roadways, nature trails, site improvements and play areas, at an additional cost of $700,000.

Boat Launch at Frankford Arsenal (R-7) The Pennsylvania Fish Commission is encouraged to complete its boat launch at its Frankford Arsenal property. The Fish Commission has committed $2 million to building the launch over a ten year period. The first phase should be open in 1985 for about 190 cars and trailers, with restrooms, drainage, lighting and additional parking installed in subsequent years, for an ultimate capacity of 300 cars and trailers.

Schuylkill River Park (R-8) Schuylkill River Park in Center City will provide new river-related recreational opportunities for downtown

residents and give them an attractive pedestrian link to Fairmount Park and the Art Museum. The park will also be the principal open space amenity around which housing and office space could be designed and built at riverfront sites. Although costly land assembly and bulkheading is nearing completion, about $7 million will have to be programmed for landscaping, pathways, lighting and other improvements, and Fairmount Park Commission should pursue project completion.

Provide Maximum River Edge Access along the Central Riverfront (R-9)

The river edge in the Central Riverfront should be open for public access to the maximum feasible extent to assure public enjoyment of its amenities. Plans for Penn's Landing call for promenades at the site's perimeter, the Great Plaza for public festivals, and placement of retail, hotel and cultural activities with river views. Riverwalk is a $10 million four-mile long pathway proposed to be built jointly with public and private funds from Reed Street, south of Penn's Landing, upriver to Penn Treaty Park. Furnished with attractive paving, lighting and landscaping, it will connect all major riverfront activity centers to riverfront communities. The City also should require as a condition of pier renovation that developers provide pedestrian circulation along each pier's perimeter for viewing shipping activity and for jogging, fishing and other recreation.

Create Points for Neighborhood River Access (R-10)

Small public access points should be installed along the Delaware and tidal Schuylkill Rivers to provide access to the rivers for fishing and sightseeing. These access points are envisioned for street and bridge rights-of-way, unused utility lands, and underutilized industrial ground—anywhere that access is warranted to overcome barriers to waters of recreational value. Neighborhood organizations and sporting clubs are urged to initiate the planning and development of these low costs ($10,000 each) access areas, to initiate fund raising efforts, and to provide on-going maintenance. The DER Division of Coastal Zone Management may provide a limited amount of technical assistance toward this kind of project.

Develop the Upper Schuylkill as a Major Recreation Area (R-11)

The Schuylkill River upstream of Fairmount Park, and portions of Venice Island which border it, are recommended to be transformed into a vibrant recreation corridor. Seven elements comprise this comprehensive proposal, costing about $5 million over the next twenty years. A bridge connector must be built to the city-owned land at the northern tip of Venice Island to make accessible sport fishing waters and views of Flat Rock Dam. At the existing Venice Island Playground at Cotton Street a launch for canoes should be installed, and three acres of adjacent vacant land, extending to the southern end of the island, should be acquired and developed for picnicking, playfields, parking, and fishing. At the northern end of the corridor, an activity center at the old Shawmont pumping station would provide parking, restrooms, and a concession stand for food and bike rentals. From both the northern and southern end of this corridor, pathways should be developed to link it to other recreational areas—the Valley Forge-to-Philadelphia Bike Trail and the paths along East and West River Drives and in Wissahickon Park. These projects would be under the purview of the Fairmount Park Commission.

Support Commercial Recreation Ventures

Marina Development (R-12) Marinas are integral elements of plans for riverfront redevelopment along the Central Riverfront. In addition to representing approximately $50 million in private investment, a marina would attract boating tourists to Center City and contribute to an atmosphere of riverfront vitality and excitement. The Penn's Landing Corporation and Philadelphia Port Corporation are offering unused City piers upriver of Penn's Landing for commercial marina construction. A commercial marina upriver of Penn's Landing would compensate for excess demand on summer weekends for daytime or overnight dockage at Penn's Landing and for Penn's Landing's lack of restrooms, eating facilities and other conveniences. Private marinas are recommended for new residential areas in the Central Riverfront as an amenity of enormous appeal to homebuyers attracted to river settings. Safety precautions may be necessary to avoid collisions with marine vessels passing close by in the main shipping channel, and specially designed breakwaters will have to be installed to protect recreational boats from large wakes of passing vessels.

River Tours River tours are commercial ventures that could be made more attractive than they currently are, both by improvements to the boats and by a greater variety of tour programs. The Penn's Landing Corporation should evaluate options for expanding tour programs on the Delaware, for example by linking riverfront historic sites through boat tours.

Cruise Ships (R-13) The Penn's Landing Corporation and Philadelphia Port Corporation should continue to work to establish a regular schedule of cruise ship departures from Philadelphia, helping build the city's reputation as a center of diverse leisure activities and amenities. If a stable number of scheduled cruises is achieved, the Port Corporation either should make improvements to Piers 38-40 to better accommodate tourists at this location or assure scheduling at Penn's Landing that would not conflict with other public events.

Environmental Recommendations

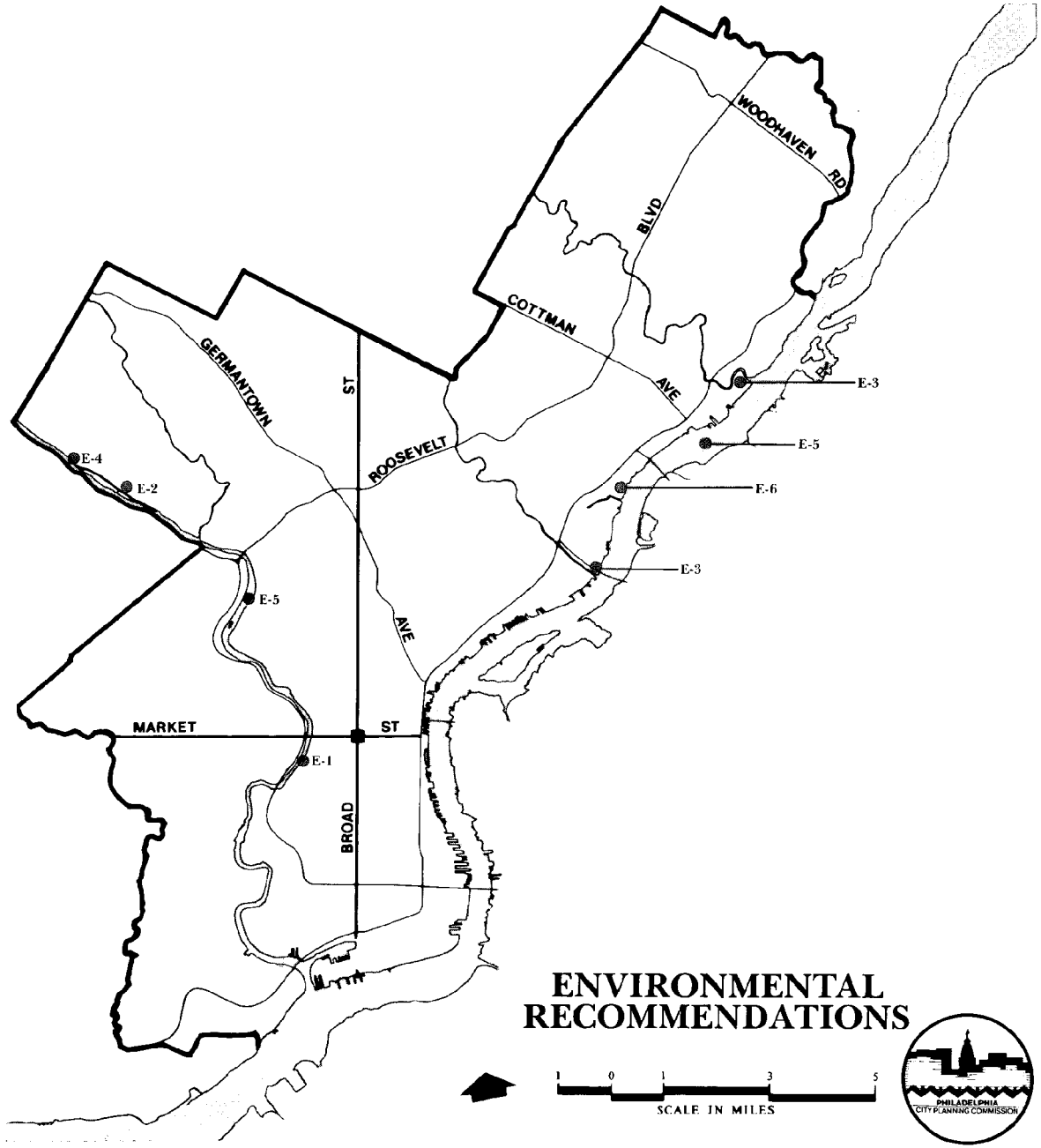
Improvement of environmental conditions over the past thirty years has increased the potential for development of the riverfront. Foul smelling wastes have been removed from the Delaware and tidal Schuylkill Rivers, and air pollutants have been reduced by two-thirds. Penn's Landing and Schuylkill River Park, and the riverfront housing and commercial development they help support, would not be feasible without the enormous environmental improvements accomplished over the past thirty years. Moreover, a second round of water clean-up will soon be completed by the Philadelphia Water Department which will further support riverfront land development.

Reduce Pollution Discharges

Sewer Overflow (E-1) The Philadelphia Water Department is encouraged to continue its evaluation of control mechanisms to reliably divert sewage away from overflow pipes and into interceptor sewers, thereby reducing the frequency with which sewage is discharged directly to the rivers during dry weather. This is especially critical in the portion of the tidal Schuylkill in the vicinity of Schuylkill River Park.

Leaking Sewers (E-2) Water quality in the Manayunk Canal is adversely affected by drainage of sewage into the canal, caused by leaks or breaks in sanitary sewers. The Water Department should analyze the sources of sewage leakage to evaluate the cost-effectiveness of sewer repair or replacement actions.

Urban Stormwater Because a quarter of the pollution discharged to the rivers comes from stormwater, the City should regulate activities which generate pollution during storms. The City of Philadelphia should adopt an erosion control ordinance requiring use of methods to catch sediment from construction sites before it is carried off by storm drainage. Also, existing regulations on placement of fill in floodplains and on residential ground should be better enforced in order to reduce contamination from landfilling .



Protect and Improve Aquatic Habitats

Shallow Water and Wetland Habitats (E-3)

Shallow water and wetland habitats are protected from disturbance by federal and state regulations, and the City is urged to fully consider these regulations in its plans for improving marine facilities and for other riverfront projects. The City and the Philadelphia Port Corporation, in making application for riverfront projects, should plan to offset any loss of shallows or wetlands by creating new habitats out of riverfront lands. Such an improvement might cost perhaps one percent of a marine development project, based on schematic plans in EPA's Environmental Enhancement Plan for the upper estuary, completed in 1983. EPA's plan identified areas beneath Betsy Ross Bridge and at the mouth of Pennypack Creek as possible mitigation sites in Philadelphia.

Fish Ladders on the Schuylkill River (E-4)

Removal of obstructions at dams to the passage of shad, herring and other migratory fish is necessary to restore American shad to the Schuylkill River, and to add thereby an exciting new element to the Schuylkill's sport fishery. The Pennsylvania Department of Environmental Resources (DER) is urged to install a fish ladder at Flat Rock Dam in coordination with any hydroelectric project development. Recent proposals by a hydropower developer appear to be acceptable and should result in the issuance of the required Federal Power License and the eventual construction of the fish ladder at Flat Rock. In addition, five other obstructions exist on the Schuylkill River upstream of Flat Rock Dam which prohibit fish migration. Each of these five dams, three of which are state owned and two of which are owned by the Philadelphia Electric Company, are currently being considered for hydroelectric development. Should these hydroelectric projects occur, each project would require construction of a fish passage facility. Provisions of fish passage devices at the dams located upstream of the Fairmount Dam would provide some natural reproduction and migration of shad along forty-five miles of the Schuylkill River.

Conduct Fishery Management and Research Programs

Fishery Research State, regional and federal agencies should cooperate in a major study of fish populations in the Delaware and Schuylkill Rivers. This is necessary to answer basic questions about fish responses to changing water quality, the level of fish contamination by toxic substances, the benefits of upgrading wetland and shallows habitats, and the contribution of the sport fishery to urban residents' leisure activities. Such research would provide important impetus for the implementation of federal and state environmental legislation and would provide insight into the value of the City's pollution control program. The cost of a comprehensive fishery study would be about a half-million dollars, and funding should come from state and federal sources.

Fish Stocking (E-5) The Pennsylvania Fish Commission is urged to continue its programs for stocking walleye and muskellunge in the Delaware and Schuylkill Rivers so as to assure a full response to improving water quality. The Fish Commission should also be prepared to initiate a shad stocking program for the Schuylkill River, timed to begin when fish passage facilities have been installed. Fish stocking programs in Philadelphia have an annual cost of $15,000 to $20,000.

Establish a Riverfront Beautification Program (E-6)

The Pennsylvania Horticultural Society and the Chamber of Commerce are urged to establish a program to encourage owners of riverfront properties to upgrade their river edge. Visual screening of outside storage areas and riverside structures should be installed so as to make the shoreline attractive, both to boaters and to employees and others visiting the shoreline. This program could emphasize river beautification as an act of civic responsibility with significant public relations benefits. This program might work well in conjunction with the application of a zoning overlay district to regulate activities within fifty feet of the river edge. A landscaping plan could be required for the river edge when new development or rehabilitation is planned. The cost of upgrading riverfront land would be approximately $100,000 per mile of corridor fifty feet wide.

Transportation Recommendations

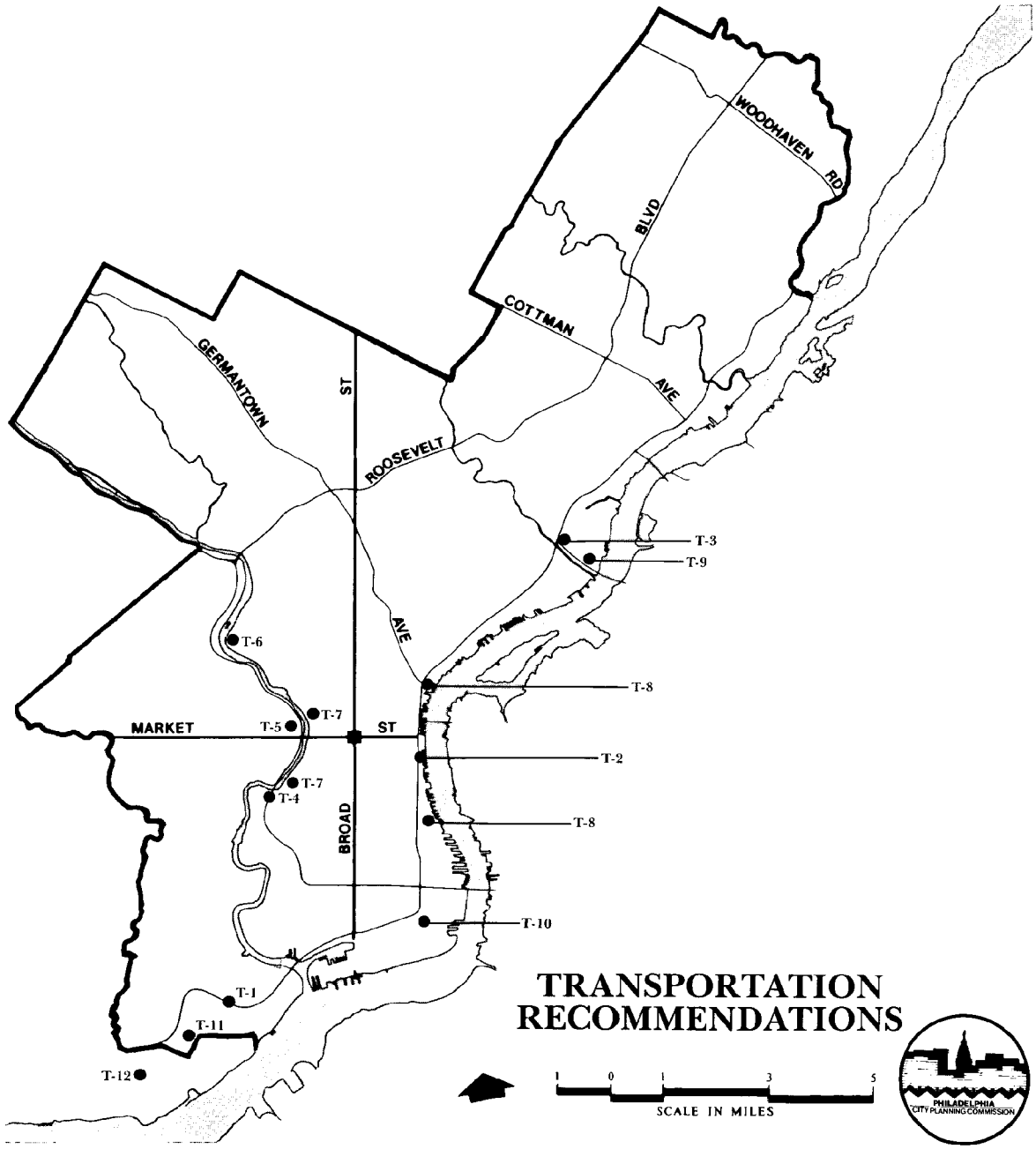
Complete Highway and Bridge Connections

Delaware Expressway at the Airport (T-1) A critical two mile section of the Delaware Expressway in the vicinity of the airport, which was held up for more than a decade, is now underway by the Pennsylvania Department of Transportation. Its completion at a cost of about $200 million in federal and state funds will contribute significantly to the attractiveness of the airport area for future commercial and industrial development.

Delaware Expressway in Center City (T-2) Exit and entrance ramps to the Delaware Expressway in vicinity of Center City must be installed expeditiously. An environmental impact study is to be completed in 1985 which will identify optimum ramp configurations for traffic flow onto the expressway from both Delaware Avenue and from the Vine Street Expressway, as well as exit ramps for northbound travelers near Center City. The cost for ramps, and for installing a long-planned expressway cover, is $30 million in federal and state funds.

Betsy Ross Bridge Connection (T-3) Vehicles with destinations or origins in Bridesburg and Port Richmond must be afforded improved connections with the Betsy Ross Bridge. A secondary slip ramp is proposed to allow trucks entering the expressway northbound at Castor Avenue access to the Betsy Ross Bridge. A second improvement would allow trucks from New Jersey to exit at Wheatsheaf Lane from the bridge's ramp to the southbound expressway. The cost of these ramps has been estimated to be in the $4 million range, borne by State and Authority funding.

Schuylkill Expressway at University Avenue (T-4) A direct entrance ramp in the Grays Ferry area to westbound Schuylkill Expressway from University Avenue will become in-



creasingly necessary with business growth in the Grays Ferry area. A temporary ramp, installed as a detour during reconstruction of the Schuylkill Expressway, should be made into a permanent ramp by the Pennsylvania Department of Transportation.

Reorganize 30th Street Station Circulation (T-5)

Traffic circulation around 30th Street Station is confusing and requires excessive looping for drivers seeking access to the station. In addition, pedestrians must cross many lanes of traffic in order to reach major destinations to the west and east. The maze of roadways and the dullness along Market Street have reduced use of the station's southern entrance and its associated commercial and retail space. A thorough redesign of the road system is recommended, recognizing the potential for development north of the station. The cost for reorganizing the road system is expected to be $3 million, of which a maximum of 25 percent would be City funds.

Reduce Traffic Hazards on East and West River Drives (T-6)

East and West River Drives through Fairmount Park pose hazardous conditions at several intersections. These can be reduced by adding turning lanes, providing markings to aid traffic flow and adding traffic signals. At Columbia Bridge, a notoriously sharp bend on East River Drive requires extensive improvements, including roadway widening, barriers and changes to the pitch of the road. The Pennsylvania Department of Transportation has scheduled this project for implementation at a cost of about $2 million. After the Schuylkill Expressway reconstruction project has been completed, the current pattern of alternating one-way and two-way traffic flow on West River Drive should be eliminated to reduce driver confusion. In addition, a detailed study should be made of restrictions on traffic during times of peak use of riverbanks and paths.

Improve Local Streets (T-7)

Street Repair Local streets are deteriorated in many locations and should be reconstructed or resurfaced during the coming decade. While rail trackage has accelerated deterioration of several industrial streets, others have not received adequate maintenance, including well-traveled routes to recreation sites.

Circulation A variety of conditions need to be corrected to alleviate congestion and provide improved circulation. New off-street parking facilities and enforcement of parking regulations would help alleviate congestion within several commercial areas, notably in Old City and Society Hill near the Central Riverfront and on Main Street on the Upper Schuylkill. A new spur from the Parkway would be useful to enhance access to the Logan Square neighborhood and to riverfront parcels west of 22nd Street. To accommodate a projected increase in traffic along Grays Ferry Avenue, this street should be opened for northbound traffic movement to South Street. Throughout the riverfront, directional and trailblazer signs are needed to direct drivers to and from major destinations, principal arterials and highways.

Make Improvements to Delaware Avenue in Support of Reinvestment

Existing Delaware Avenue (T-8)

Reconstruction of three miles of Delaware Avenue, including elimination of unneeded tracks and addition of a median with left-turn lanes, is necessary to bring it up to acceptable standards and to support reinvestment which has been occurring in the section from Oregon Avenue north to Aramingo Avenue. The cost for reconstructing Delaware Avenue is estimated at $35 million, and it should be completed by the end of the decade. In addition, Washington Avenue should be extended east of its intersection with Delaware Avenue, in support of the Coast Guard's new Marine Safety Office and of long-range, multiple use development plans for the riverfront at this location.

Delaware Avenue Extension (T-9)

Delaware Avenue is recommended for extension from Lewis Street 1.3 miles north to Bridge Street. This would improve the marketability of the site of the former Philadelphia Coke Company, improve flow of traffic associated with marine and truck terminals, and reduce traffic on Richmond Street, a source of neighborhood complaints. Estimated to cost about $9 million, the project would require a bridge over Frankford Creek and selection of an alignment to minimize disruption of businesses and branch rail traffic. The Philadelphia Department of Streets should implement this project within the next ten years.

Provide Optimum Rail Service to the Port and Riverfront Industry

Philadelphia Terminal (T-10) The City should facilitate improved rail service to the Philadelphia Terminal in Greenwich. The Federal Railroad Administration's diversion of Conrail traffic onto Chessie trackage may be the basis for negotiations to revise agreements governing access to the terminal, and the City of Philadelphia should play its historic role as a catalyst in the negotiation process.

Piggyback Facilities The City should actively participate with the Chessie System in the identification of a site for a new intermodal, trailer-on-flatcar yard, which it has announced an intention to develop. Similarly, Conrail, which has developed recently a major piggyback facility in

Morrisville, Pennsylvania, may find it advantageous to have a second piggyback yard situated closer to shippers in the city. Conrail property at the Greenwich Railyard might be available for development of such a facility. High quality service and attractive rates could be best offered if containers can be "double-stacked" on railroad cars. The City should encourage new piggyback facilities which can handle this new type of service.

Delaware and Hudson The Delaware and Hudson Railroad Company's authorization to negotiate reciprocal switching rights with Conrail should be supported by the City. It offers the City an opportunity to regain a portion of the intramodal competition that was lost when the bankrupt Penn Central and Reading railroads were absorbed into Conrail in 1976. The benefit of increased rail competition in Philadelphia should occur, however, only if Conrail is fully reimbursed for performing reciprocal switching.

Make Airport Improvements Which Expand Passenger Travel and Cargo Handling

International Terminal (T-11) A new International Terminal must be built to replace the present Overseas Terminal at Philadelphia International Airport so as to improve connections between international and domestic flights and take advantage of the Airport Rail Line. Either terminal A, presently unused, or terminal E, which can be expanded, could be developed for this new terminal. The Commerce Department's Division of Aviation should implement this project over the next several years at a projected cost of $30 to $75 million in federal and city self-sustaining funds.

Cargo City (T-12) Successful freight handling operations at Cargo City should be expanded in accord with Philadelphia International Airport's Master Plan. Freight aviation is not only an important element of the region's transportation system, but it is a major factor in the region's capacity to develop and enlarge its high technology industry, which is very dependent on air transport.

Implementation Strategy

The *Plan for Philadelphia Riverfronts*, which sets forth a comprehensive, long-term program for riverfront development, has no single implementation strategy. Implementation will depend on coordinated actions by government as well as many individuals and organizations. This planning document lays out, in a single place, many elements which together fashion a cohesive pattern of land use changes for Philadelphia's riverfront, and it attempts to make citizens, public officials and investors aware that Philadelphia's riverfronts are alive with new possibilities, not just at Penn's Landing, but all along the City's forty-two miles of river. Its development concepts will require an investment of several billion dollars, largely private funds. The two billion dollar public investment made in riverfront facilities over the past ten years alone will not assure that this private investment will occur. Coordinated and diligent efforts of government at all levels are required to help realize this return and to guide the form of development. The following local, state and federal strategies, working in concert, can accomplish many of the policies and recommendations of this plan and create a favorable climate for private investment in the riverfront.

Local Strategies

Public Capital Investment The City of Philadelphia prepares annually a budget for capital improvements which has been the principal funding source for strategic investments at Penn's Landing, Schuylkill River Park, and the marine terminals. Grants from federal sources are also of prime importance when matching local funds, particularly for airport, sewage treatment and highways. The responsibility for preparing, adopting and implementing the City's Capital Budget is jointly shared by the City administration, City Planning Commission, City Council, and several quasi-governmental agencies.

Project Review and Regulation The City enforces regulations for land use and standards for building construction along the riverfront. The principal agency advising on use of riverfront land is the City Planning Commission. Zoning, building and use regulations are administered by the Department of Licenses and Inspections (L&I) and the Zoning Board of Adjustment through ordinances passed by City Council and made law by the Mayor's signature. Through the project review process, the City helps assure that riverfront development meets requirements for floodplain development and other environmental controls, is consistent with long-term land use plans and zoning, receives adequate review by neighbors, and achieves standards for quality design.

Redevelopment and Development Assistance The City can actively promote riverfront development in several ways. The Philadelphia Port Corporation, a non-profit corporation which is responsible for managing, constructing and promoting port facilities in the city, is also responsible for utilization and development of city-owned river frontage. The Corporation markets unneeded piers for new port uses and prepares Penn's Landing for development. The Redevelopment Authority of Philadelphia is the principal agency for acquiring land for disposition for new residential development, and assists the development process by assembling and clearing land into marketable parcels. The City's several development agencies—Philadelphia Industrial Development Corporation, Philadelphia Citywide Development Corporation and the Philadelphia Housing Development Corporation—are the organizations through which private investment is leveraged by favorable land prices and financing, using tax-exempt bonds and subsidies from the Community Development Block Grant.

City Management and Services The City provides municipal services to businesses and residents, and the dependability and adequacy of those services contribute to the desirability of the riverfront. These services include gas, water and sewage treatment utilities, street cleaning and solid waste disposal, and police and fire protection. The City develops riverfront open space, supports community festivals and public programs at these facilities, and is responsible for their care and improvement. The City also provides interagency coordination with state and federal governments, giving policy advice on matters of river channel maintenance and assisting in law enforcement on the waterways.

Regional Strategies

Several organizations provide a regional forum for governmental coordination on riverfront issues affecting port, business and recreation facilities. The Delaware River Port Authority, while having a limited operating role, is a principal agency for promoting and marketing the port, and, through its formal organizational links to the Philadelphia Port Corporation, helps coordinate long-range planning for the Ports of Philadelphia. The Delaware River Basin Commission is a federal agency established principally to provide for equitable allocation of water resources and coordinated control of pollution, although the compact under which it operates would permit a large role in fisheries management and recreation planning. The Delaware Valley Regional Planning Commission is the metropolitan planning organization responsible for transportation and other planning functions and it provides the regional coordination for on-going elements of the coastal zone management program, including an Urban Waterfront Action Group committee to provide early permit review of riverfront projects.

State Strategies

Highways and Port Investments The State is the principal level of government responsible for building and maintaining both the highways vital to the functioning of the city and the roads along its riverfront areas. The State has played a significant role also in funding reinvestment in the coal export capacity of the port and in

the promotion of port and industrial development opportunities at riverfront locations. The Pennsylvania Water Facilities Loan Board provides loans at attractive interest rates for port improvements.

Environmental Management State agencies manage river resources, thereby influencing their capacity to sustain recreational use. The Pennsylvania Department of Environmental Resources (DER) is responsible for protecting water quality and wetlands, regulating obstructions along waterways, and assuring local compliance with the floodplain laws and regulations. The Pennsylvania Fish Commission protects and enhances the state's fisheries by enforcing fishing and pollution control laws, and by stocking the streams and rivers with game fish.

Coastal Zone Management and River Recreation Several state agencies work toward increased public enjoyment of the rivers. The Division of Coastal Zone Management in DER administers the Pennsylvania Coastal Zone Management Program and has provided the funding for Philadelphia's riverfront planning. The Department of Communities Affairs (DCA) administers grants to local governments for recreation projects qualifying under the federal Coastal Energy Impact Program; assistance has been provided to Pulaski Pier and Penn Treaty Parks by this department. DCA also allocates funds from two other federal sources—the Urban Park and Recreation Recovery Program and Land and Water Conservation Fund—although both sources are becoming increasingly scarce. The Pennsylvania Fish Commission plays a major role in boating on the river, both through its enforcement of state boating regulations and through its construction and operation of boat launch facilities, and it also provides fishing education to city residents.

Federal Strategies

Commerce, Transportation and Port Development The federal government has a large role in supporting transportation and economic development in the city's riverfront areas. Three agencies help manage waterborne commerce on the nation's waterways. The Army Corps of Engineers maintains the shipping channels; the Coast Guard is the law enforcement agency on navigable waters; and the Federal Maritime Commission regulates and reviews the practices of shippers and terminal operators. The Federal Aviation Administration provides funding assistance for airport development and makes regulations for safe airport operations. The U.S. Department of Transportation provides substantial grants for expressway and highway developments. The Economic Development Administration provides financial assistance to development projects in Philadelphia, having assisted several pier renovation projects. The federal Department of Housing and Urban Development, through its Community Development Block Grant and Urban Development Action Grants, has provided several million dollars to riverfront firms over the past several years for their expansion or rehabilitation. The federal Department of Commerce, through its National Oceanic and Atmospheric Administration, provides the framework and funding for the development and implementation of state coastal zone management programs.

Environmental Control Several agencies enforce national environmental laws in navigable waters and thereby contribute to an improving resource for recreation. The Environmental Protection Agency (EPA) has been the principal organization for pollution clean up, providing a billion dollars in funds for upgrading levels of sewage treatment in the Delaware Estuary. The Army Corps of Engineers is the permitting agency for any construction work at the water's edge and for any landfilling in the water which might adversely affect aquatic habitats. The U.S. Fish and Wildlife Service of the U.S. Department of Interior and the National Marine Fisheries of the Department of Commerce have complementary roles in the protection and promotion of sport and commercial fisheries of the Delaware Estuary.

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