

5-1984

# Mixed-Use Low-Rise Alexandria, Virginia

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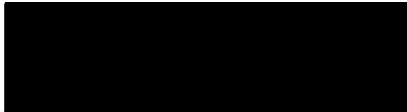
# A Mixed - Use    Low - Rise for Alexandria, Virginia


Patrick Mays, Spring 1984

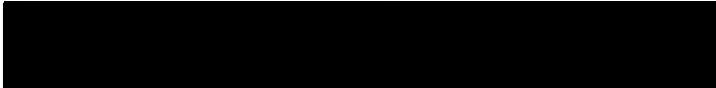
MIXED-USE LOW-RISE  
ALEXANDRIA, VIRGINIA

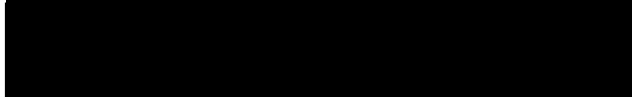
Patrick C. Mays, Spring 1984

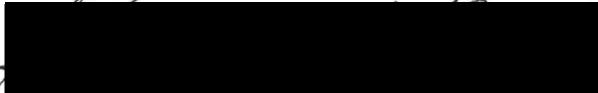
A terminal project submitted to the Faculty of the College  
of Architecture, Clemson University in partial fulfillment  
of the requirements for the degree of Master of Architecture.


  
Committee Chairman

  
Major Advisor

  
Committee Member

  
Committee Member

  
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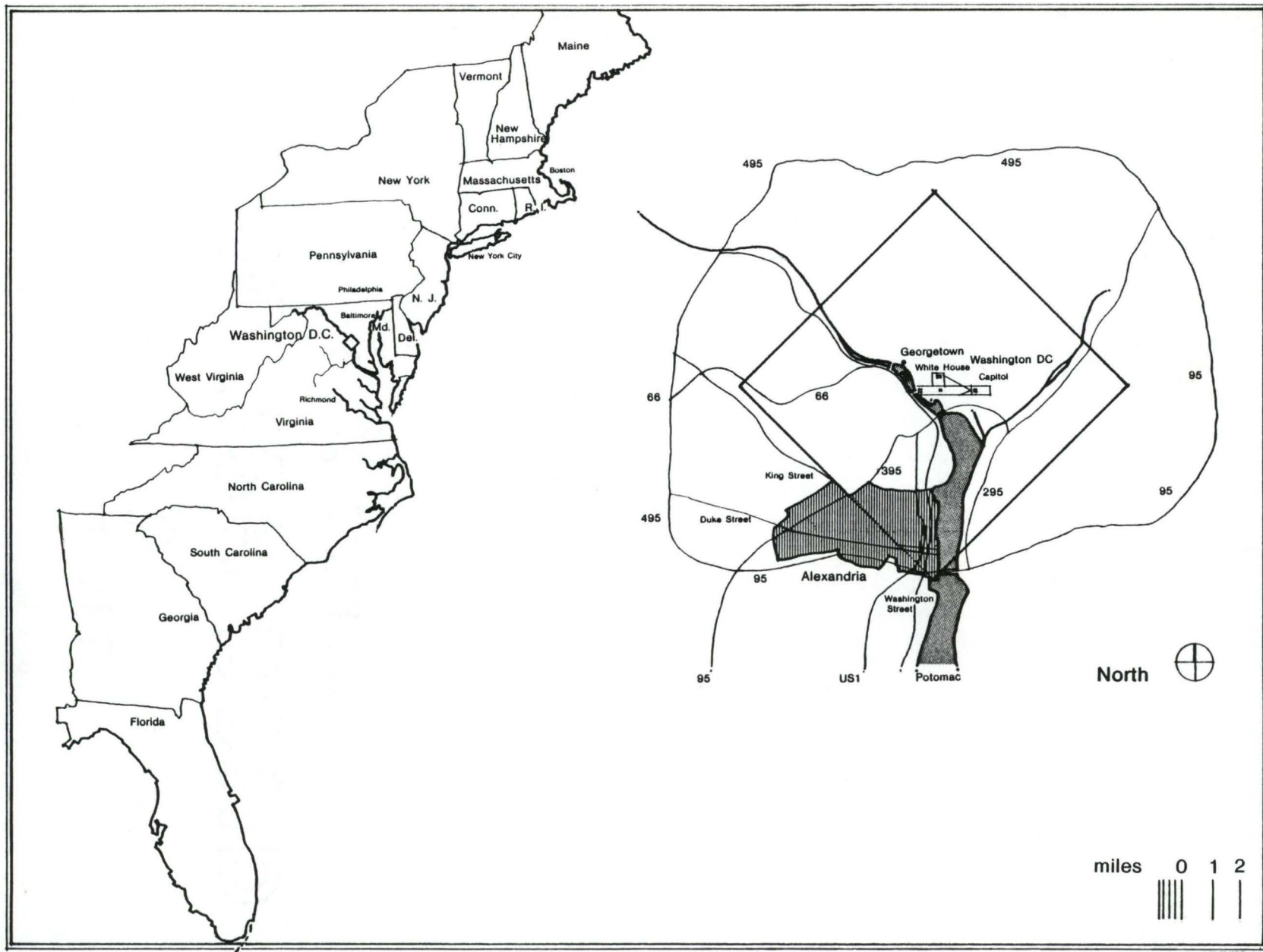
# PROJECT DESCRIPTION

## PROJECT DESCRIPTION

The City of Alexandria is an old Scottish seaport trading chiefly in tobacco. But when Washington, D.C. became the capital, Alexandria, which was included in the original ten-mile square, began to draw increasing livelihood from the Capital's commerce. It has traditionally been a favorite residential area for those employed in the District of Columbia and a pleasant relief for visitors and workers from Washington. In recent years, the growth of the bureaucracy and the escalating cost of office space in the Capital have caused an exodus to outlying areas. Alexandria has seen a steady rise in clean industries: lobbyist groups, law offices, and professional organizations. With the opening of the Metro Rail Station in December of 1983, Alexandria has a new area in the city that promises great prosperity. It is in this new Metro Transit area that the super block to be studied exists. The entire area's planning will be considered, but a specific proposal will be made for a selected site.



# INTRODUCTION



# Washington D.C. and Vicinity



## INTRODUCTION

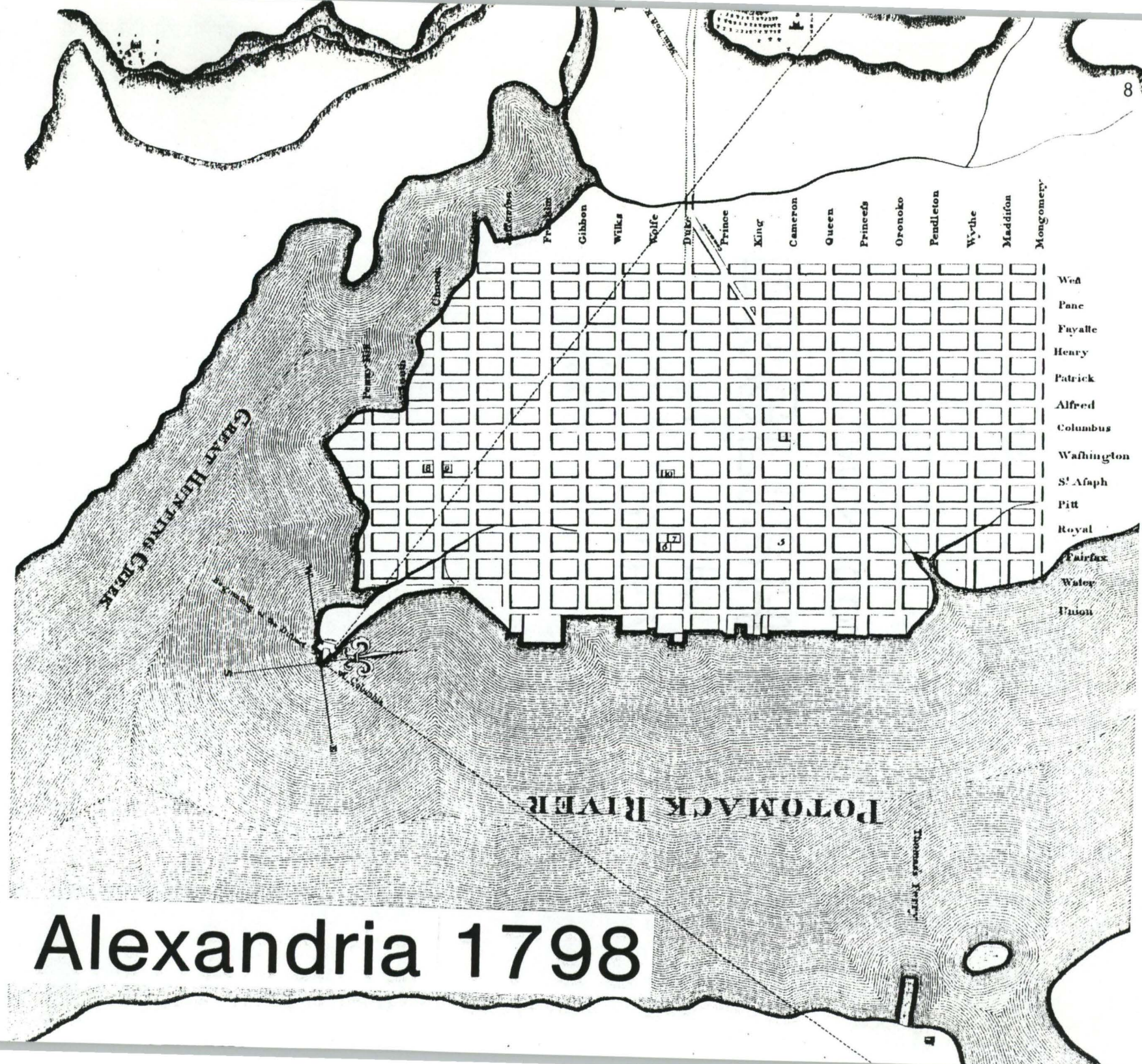
Alexandria, Virginia is located on the Potomac River, an estuary of the Chesapeake Bay, in the southern corner of the ten-mile square which was the District of Columbia. The entire Washington Metropolitan area is encompassed by the 495 Beltway. This highway permits I-95, running north and south, and I-66, running east and west, to by-pass the city traffic of Washington and its suburbs. Running parallel to the Potomac River is the George Washington Memorial Parkway, which is called Washington Street in Alexandria, and US1, which splits into Henry and Patrick Streets in Alexandria. Perpendicular to these two major north-south arteries are Duke Street and King Street, which connect the Beltway and outlying suburbs with Alexandria. Duke Street is a main commercial thoroughfare for east-west traffic as US1 is a commercial thoroughfare for north-south traffic. King Street and Washington Street, on the other hand, handle mostly mass transit and commuter traffic.

Alexandria, like the dozen or so other suburbs, depends on Washington as a primary generator of work. There are no other major industries which exist independent of Washington. Directly or indirectly the Federal Government is the reason for most of the activity in the Washington Metropolitan area. The majority of the businesses supporting the population in Alexandria exist indirectly because of Washington, since most of the people work in some capacity related to the government.

As a port, Alexandria continues to do a small but steady business. There are fewer warehouses and terminals on the waterfront these days, but the few that are there are active. Shipping varies from imported goods to small arms and munitions to print paper for the Washington Post.

ALEXANDRIA, VIRGINIA



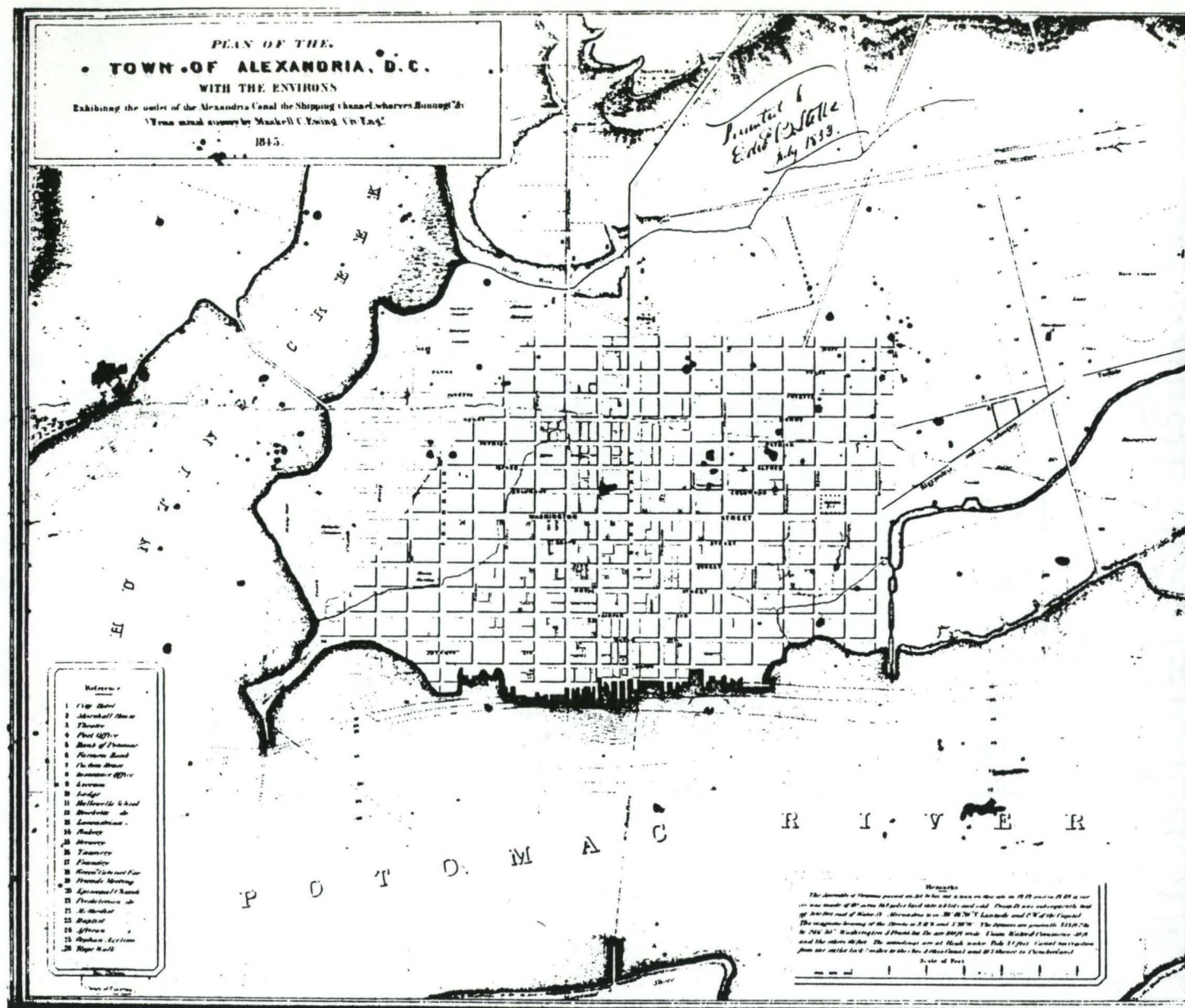


# Alexandria 1798

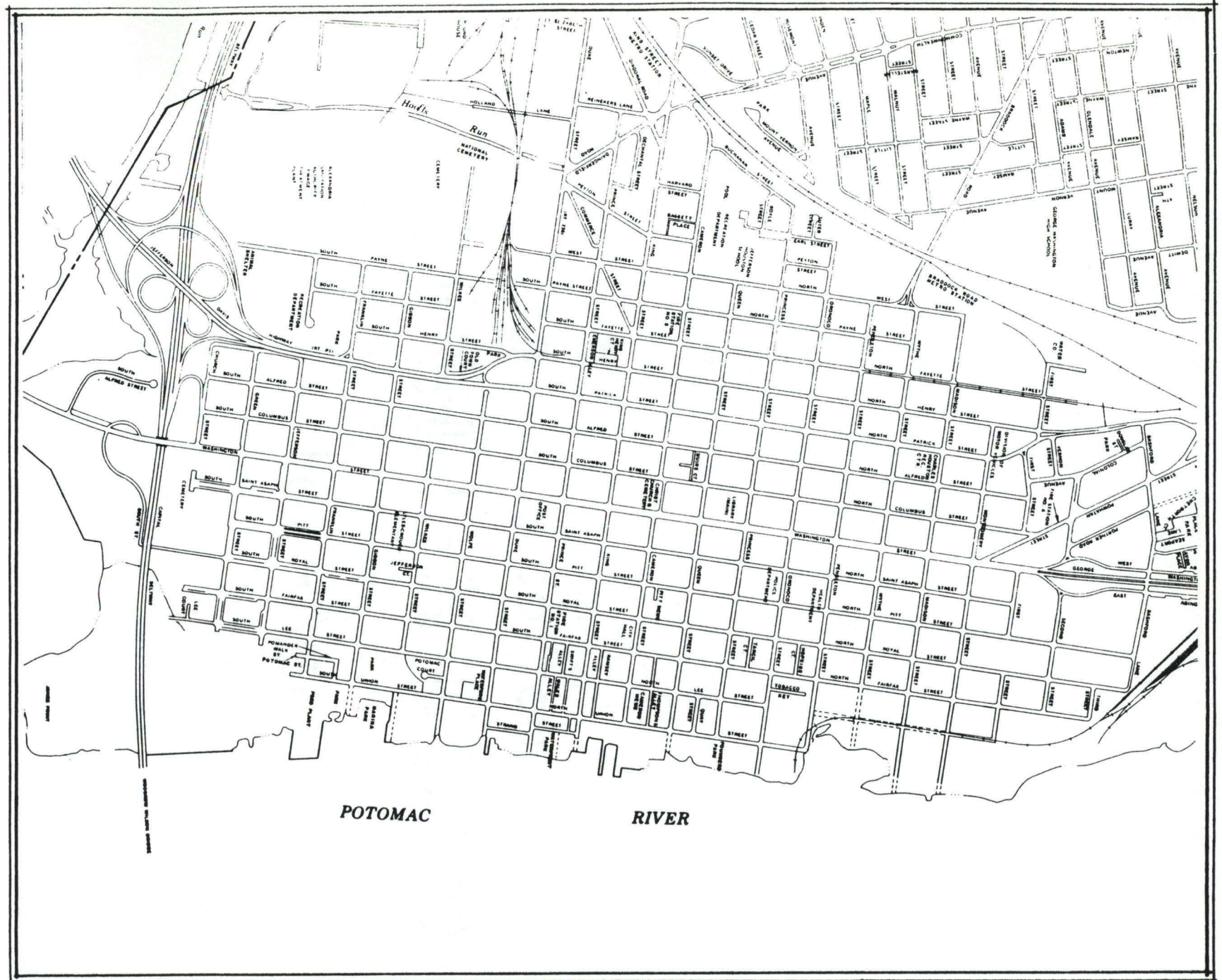
- Wed
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- Fairfax
- Walsey
- Union

- Mongomery
- Maddison
- Wythe
- Pendleton
- Oronoko
- Princeds
- Queen
- Cameron
- King
- Prince
- Duke
- Wolfe
- Wilks
- Gibson
- Prickins
- Jefferson





# Alexandria 1845



# Alexandria 1978



## ALEXANDRIA, VIRGINIA

Background

Like many Virginia towns, Alexandria was established because of the tobacco industry. Twenty years prior to the town's existence there had been a tobacco warehouse on Hunting Creek and the Potomac River, which served as an inspection and weighing station before the crop was sold to merchants from Scotland and England. The tobacco growers petitioned that a town should be created near the warehouse, and on May 11, 1749, the General Assembly and Royal Governor in Williamsburg assented to the petition. Sixty acres surrounding the warehouse were surveyed and laid out as streets and blocks.

The town was named Alexandria after the former owners of the land, John and Philip Alexander. They were compensated for their loss by proceeds from the public auction of eighty-four building lots. The fact that the town was carefully laid out in streets running parallel and perpendicular to the River, before a single house was built, made it rare among early colonial towns. Mostly early towns grew up in a more random fashion receiving their ordering later, if at all. But Alexandria was

planned from the beginning and grew, until recent years, in response to that plan. Looking at a map, one can see the neat arrangement of streets. Where the grid ends had been countryside for over a hundred years and today retains some of that original quality of the outskirts of a town.

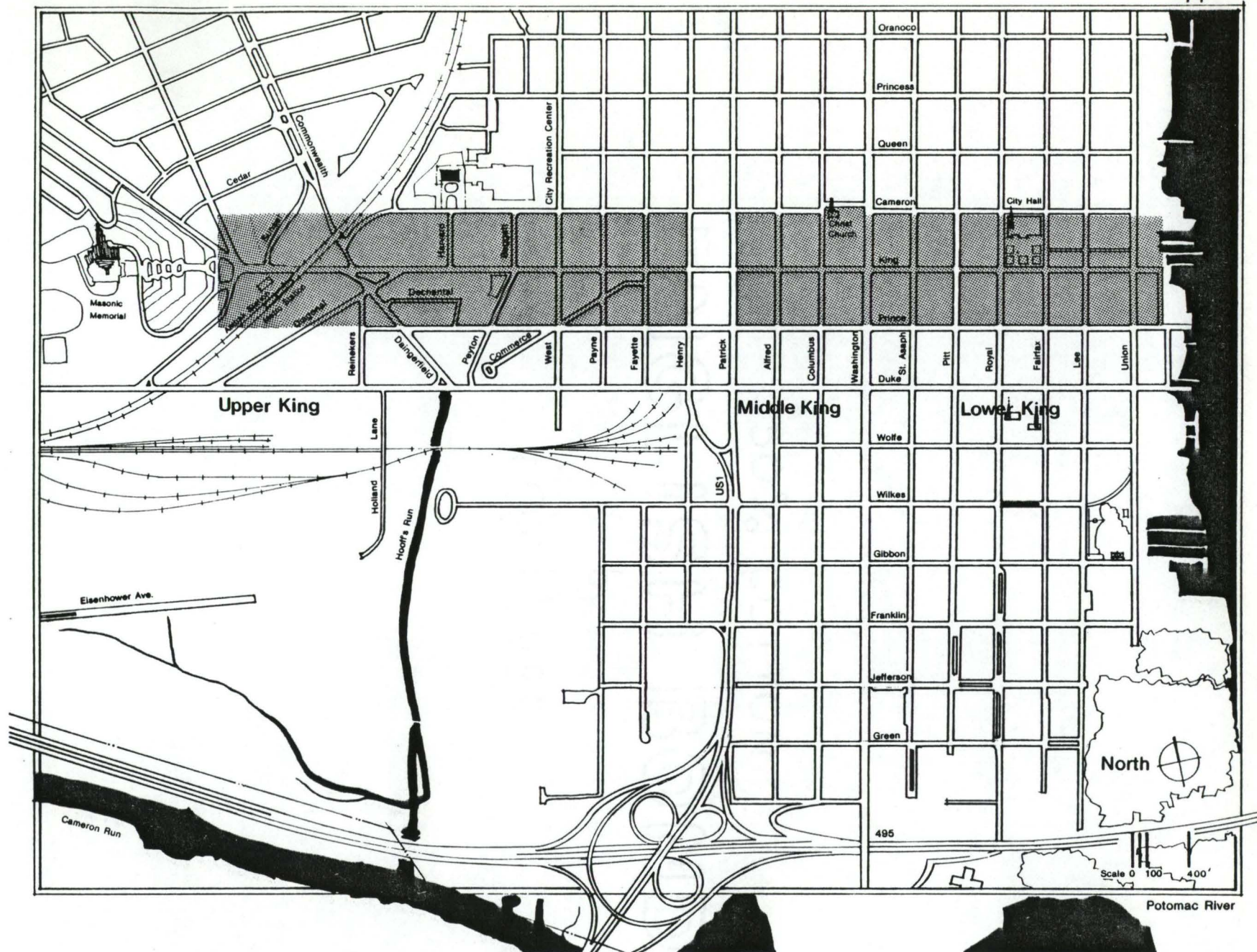
In 1847, after fifty years of being part of the District of Columbia, Alexandria was restored to the Commonwealth of Virginia. The association with the "Federal City" did much to promote growth in Alexandria, even though it had been an active port more than half a century before Washington was planned. Both cities were planned in some part by George Washington. In fact, Washington, working for High West, had been one of the original surveyors to lay out Alexandria.

The Civil War caused the destruction of many confederately loyal cities in the South, but Alexandria was one of the exceptions. In 1861, at the outbreak of the Civil War, Union troops marched across the Potomac and occupied the city. The local militia, loyal to the Southern cause, marched out to the South as the Union troops entered. There is a monument today of a



confederate soldier looking southward in the middle of the Duke and Washington Street intersection. This peaceful exchange of control preserved the planning fabric of Alexandria.

The present day City of Alexandria is twice the size it was during the Civil War. But the doubling in size occurred in a short period of time, and what had been the outskirts of "Old Town" was so quickly engulfed by the expansion that it maintained a great deal of its peripheral appearance. Industrial buildings, warehouses, antique shops, and car dealerships fill this borderline between the new in the west and Old Town in the east. Not surprisingly, the commercial rail terminals are here as well as the passenger depot. The two parts of the city are connected by two major avenues. Duke Street collects the commercial traffic, and King Street is the main artery for mass transit and local innercity traffic. "Downtown", which is the shopping and municipal center of Old Town is connected to the residential and school areas of town by King Street and its side streets.



# King Street

### King Street

Route 7 connecting Fredrick, Clarke, Loudoun, and Fairfax Counties in Virginia becomes King Street as it enters the City of Alexandria. But the portion of King Street which is important in this study is not the longer part following the old District of Columbia line, but the shorter portion off of this axis which forms the "Main Street" of Old Town Alexandria. This shorter portion of King Street is well defined by terminuses at each end. The George Washington Memorial Masonic Temple is on axis at the west end and the Potomac River terminates the street at the east end. The Masonic Memorial is designed to resemble what the lighthouse of Alexandria, Egypt might have been like, and so makes a strong reference to the river as a port.

Besides the clearly defined ends of this portion of King Street, there is a great deal of continuity in the character of the street. The buildings lining the street are mostly brick and of a height of three to seven stories. Zoning restrictions now maintain this height as well as the



size and character of signs. The sidewalks have all been paved in brick with carriage lantern street lights and trees interspersed every ten feet. Old and historic buildings are being carefully restored at many points along King Street. This restoration as much as anything is helping to preserve a human scale in the city.

Lower King, which is the eastern end of King Street, particularly the four or five blocks close to the river, has always been a popular tourist spot and retail area. The major municipal government buildings are in this area so both visitors and residents frequent this part of town. There is a plaza with fountains in front of City Hall, which has noon-time and evening concerts for most of the year. Parks and small open spaces are scattered in Lower King Street, making it very pleasant.

The center of this portion of King Street has a moderate but steady retail business, because of the office workers which fairly densely populate Washington Street. The restaurants, carry outs, and small shops in this part of town terminate at the intersection of US1 and King Street. The high volume of traffic on US1 discourages much pedestrian



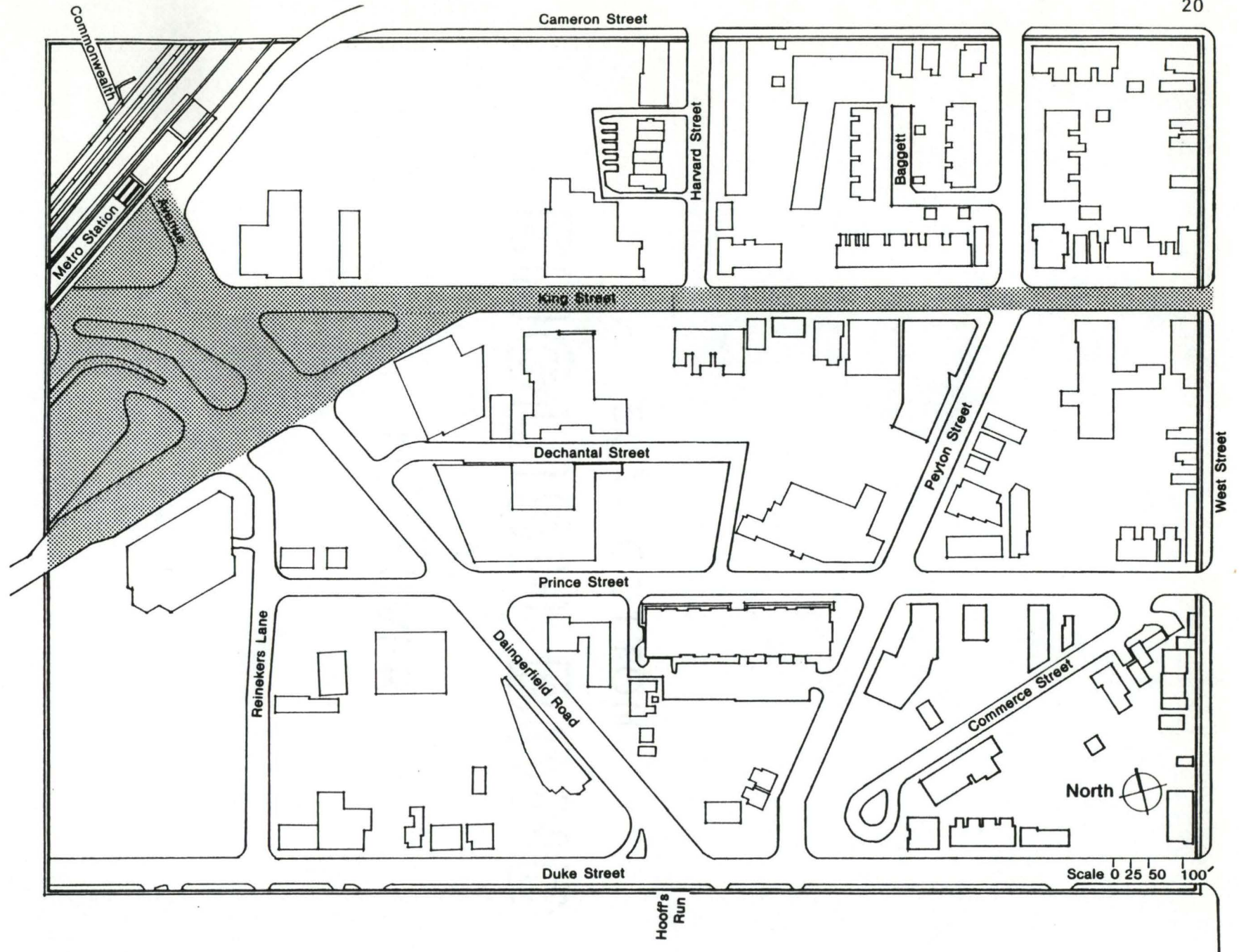
movement beyond this point. So like Lower King Street, Middle King Street has a consistent character for only about five blocks.

The last five or six blocks at the west end of this portion of King Street are referred to as Upper King. Until recently, there have been no major traffic generators at this end of King Street, and it has maintained a character typical of the outskirts of a town. There are a number of old residential and commercial buildings in this vicinity but not generally of the caliber seen on Lower King. The city recreation facility is one block off King Street in this part of town. The rather large facility includes indoor recreation space, as well as swimming pools, tennis courts, and basketball courts outside, and there are a couple of open playing fields surrounding the facility for other sports. Adjacent to the Masonic Memorial grounds on Upper King is the Amtrak Rail Station, which has been in use for a long time but has recently been renovated.

Besides the normal pressure for expansion, Upper King will experience a tremendous growth in this decade because of the opening of a mass transit rail station next to the Amtrak Station. The new Metro Station is part of the Washington Metropolitan transportation system, which connects old bus lines with new subway lines to make public transit convenient in a city of mostly commuting workers. With the newly opened Metro Station people working or living in the Upper King Street area can reach downtown Washington in fifteen minutes, considerably faster than driving and without the problem of parking. Dozens of lobbying and professional organizations have moved to Alexandria in the past few years and most opened offices on Washington Street, since it had been the most direct link to Washington in the past. The new station changes this though, and new business openings in Alexandria will be likely to seek office space in the Upper King Street area. Of course, with this growth, auxiliary business will follow. In a few years, there will be a large number of small stores, restaurants, and carry outs. Recognizing this fact, the city has created a special commercial zoning area called the Metro

Transit District. This District has a reduced parking requirement and a number of other incentives encouraging commercial growth.





# The Problem

### Problem

The Metro Rail Station that opened in December of 1983 in Alexandria will have a profound effect upon the city's growth. King Street, the "main street" of Alexandria runs from the Potomac River in the east to the George Washington Memorial Masonic Temple in the west. The Metro Station is located at the west end of King Street near the Masonic Temple. The grounds around this monument are open, as is the parking area around the New Metro Station and old Amtrak Station. This condition creates a unique setting for buildings planned for the west end of King Street. They will form a gateway to the city, and carefully blend the new and the old. In some cases only the scale of existing buildings must be responded to, but in other places old buildings will be incorporated in with new ones.

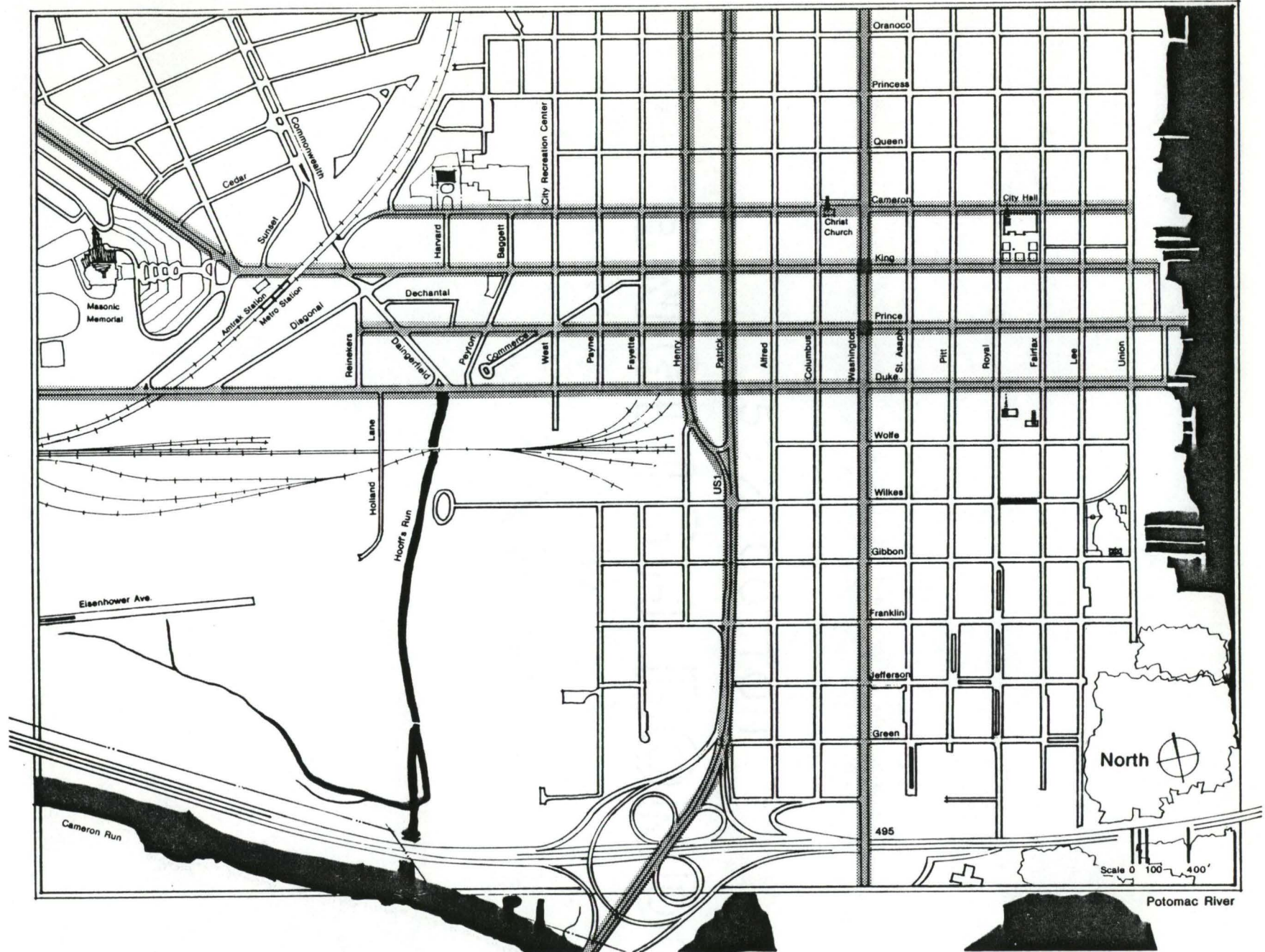
Most of the business moving into this area will be professional offices, but there will be a need as well for commercial spaces to support these new businesses and the traffic



they generate. There is currently some housing in the area around the Metro Station, and this will probably continue to be a popular residential area in the future. One of the biggest problems created by this new station is the additional automobile traffic it creates. There is not now adequate parking planned for the vicinity of the station, so new proposals must take this into account.

**SITE ANALYSIS**





# Alexandria Circulation

## SITE ANALYSIS

Alexandria Circulation

The north/south traffic in Alexandria is fairly straightforward. Public transit and commuter traffic move primarily on Washington Street. Commercial traffic, shipping, and transients travel on US1, with Patrick Street going north and Henry Street going south.

The east/west traffic is a little more complicated. Duke Street takes the commercial traffic, but the public transit and commuter traffic are segregated on three streets. King Street, in the center of the three, has its stop lights sequenced to discourage auto traffic and has buses taking up one lane with stops at every block. Consequently, King is primarily a public transit and pedestrian street. Autos and small shipping move west on Cameron Street and east on Prince Street. These two one-way streets create a loop around King Street.





### Perception

The old town portion of Alexandria has two major axes perpendicular to one another, Washington Street and King Street. King Street is terminated by focal points at both ends, the Masonic Memorial at one end and the Potomac River, a small park and flag poles at the other end.

There are several nodes along King Street and one on Washington Street. King Street, at the foot of the Masonic Memorial, is the intersection of the two axes of the street. There is a great deal of open space in this area and a World War I memorial in front of the restored train station. The intersection of King and Washington also forms a clear node, as does the open plaza with fountains in front of City Hall. Finally, the city park and Torpedo Factory Art Center on King by the river create a node. On Washington Street, there is a single major node one block off of King. The intersection of Prince Street and Washington has a monument to the Civil War in the center of the two streets. The Post Office, Bicentennial Center, and Recruiting Station surround this intersection, making it a spot frequented by tourists and residents.

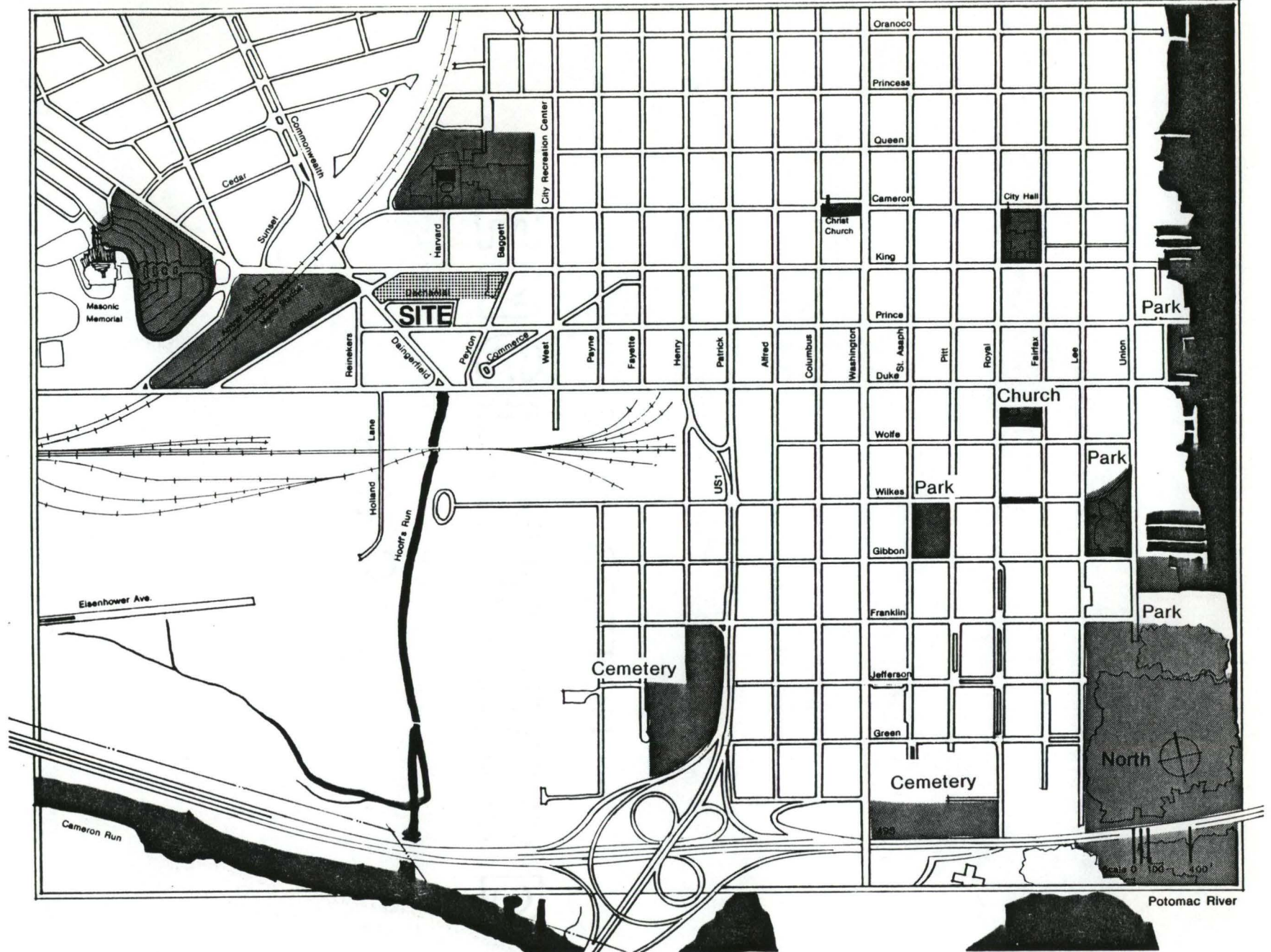






### Context

The Historic District residential areas cover most of Old Town Alexandria and are intersected by commercial areas along King and Washington Streets. To the north of the Historic District are new residential areas and to the southwest is the industrial area. Along US1 is the Dip Project, an old neighborhood being restored. Finally, on Upper King is the Metro Redevelopment area.

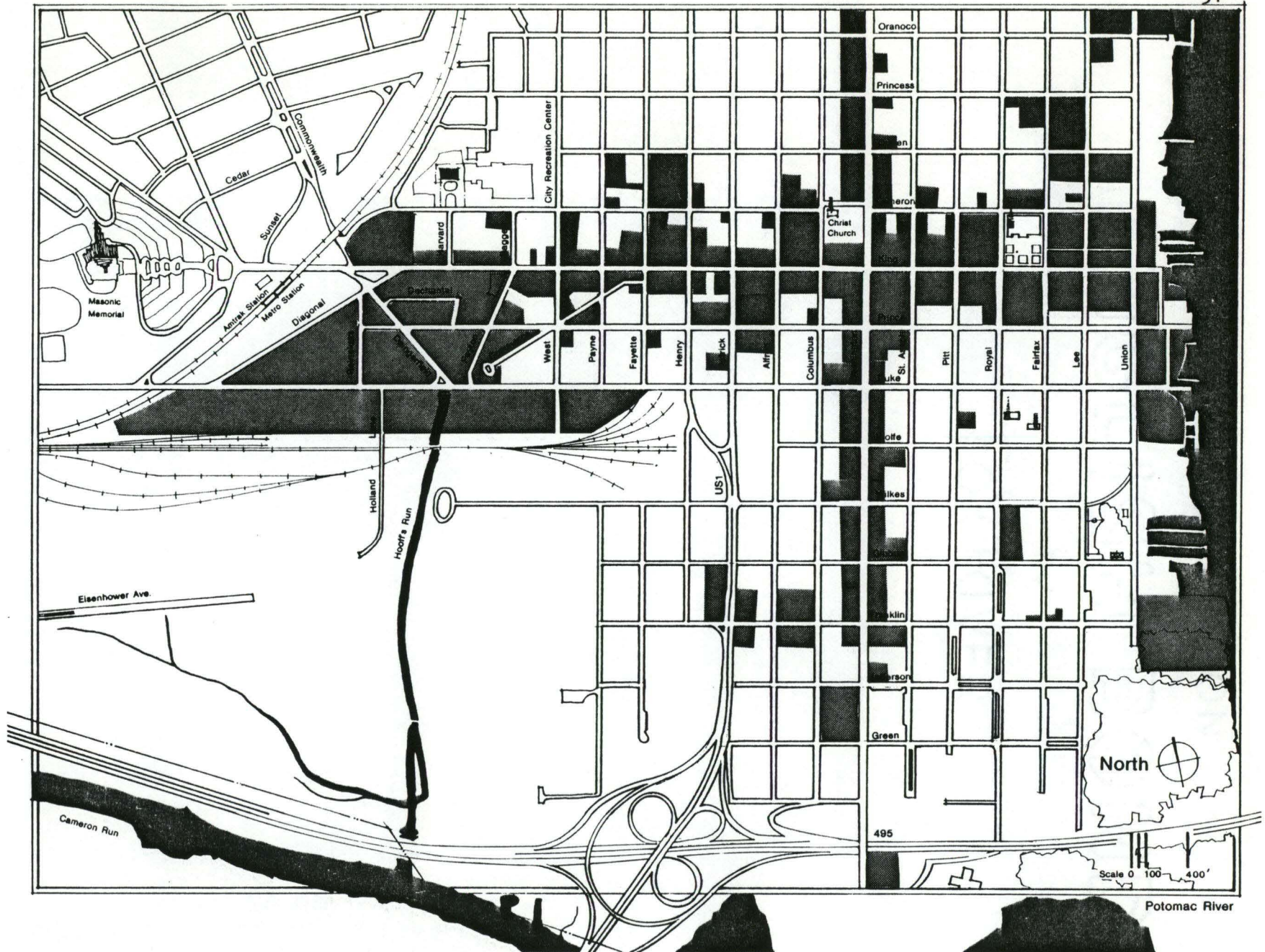


# Significant Elements

### Significant Elements

The spires of old churches and City Hall dominate the skyline of Alexandria because of the zoning height limits. North Alexandria, however, has highrises which increase the density in that part of town. There are a series of parks and open spaces along the waterfront, and more attention has been turned to the river in recent years. Around Old Town there are a few parks but not as many as along the river.



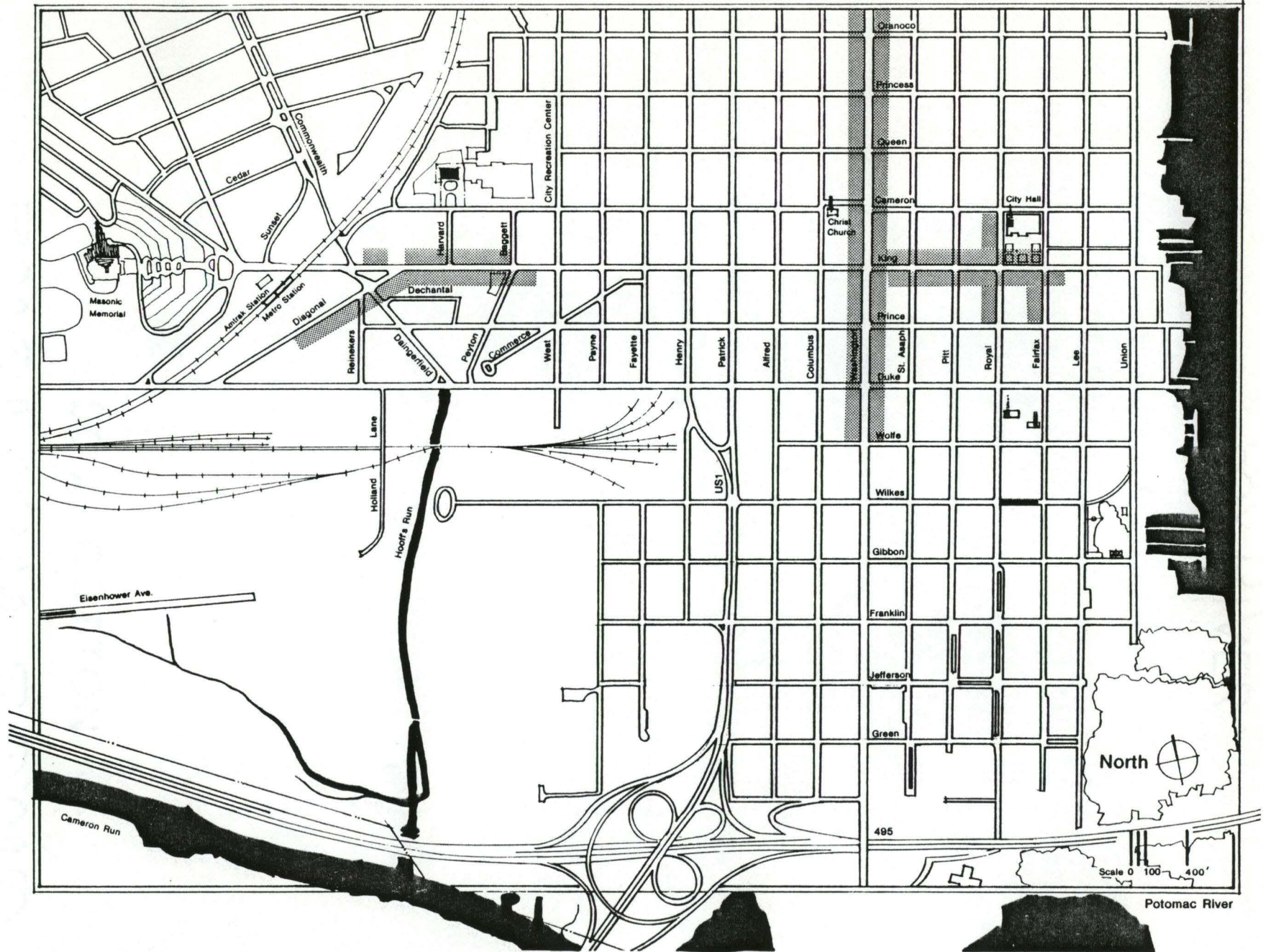


# Retail Areas

### Retail Areas

Most of the retail business is concentrated along King and Washington Streets, although upper Duke and Prince Streets have quite a few stores. The more expensive shops are on Lower King and Cameron Street. South Union Street, North Lee Street, and King Street are the most popular locations for restaurants, whereas Washington Street has mostly carryouts and sandwich shops.



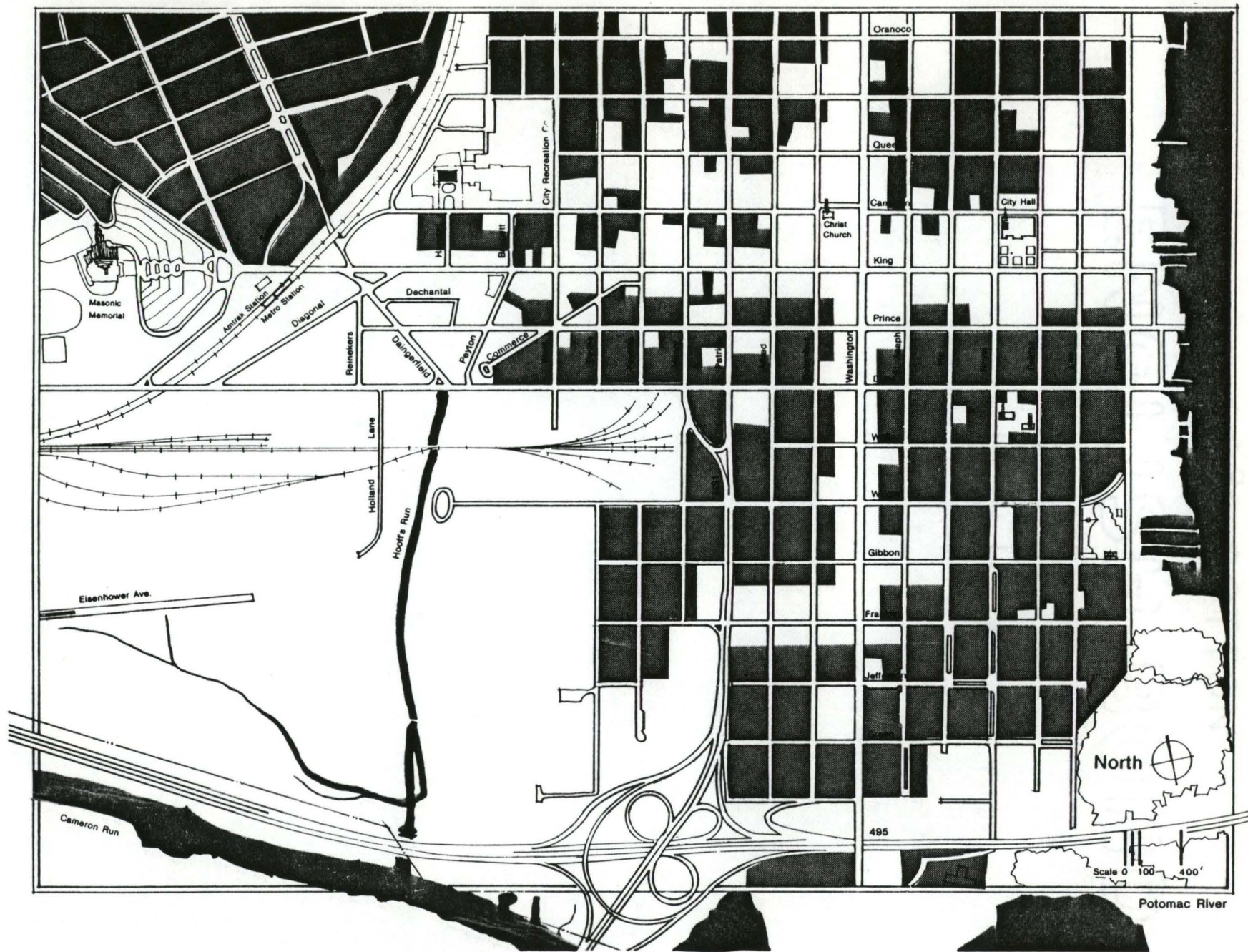


# Office Areas



### Office Areas

Washington Street is the most popular location for office space, primarily because the street is the main avenue into Washington, D.C. There is a cluster of offices around Lower King near City Hall, as one might expect in most towns. The fastest growing office area is Upper King, which will surpass even the recent rash of building in North Alexandria.



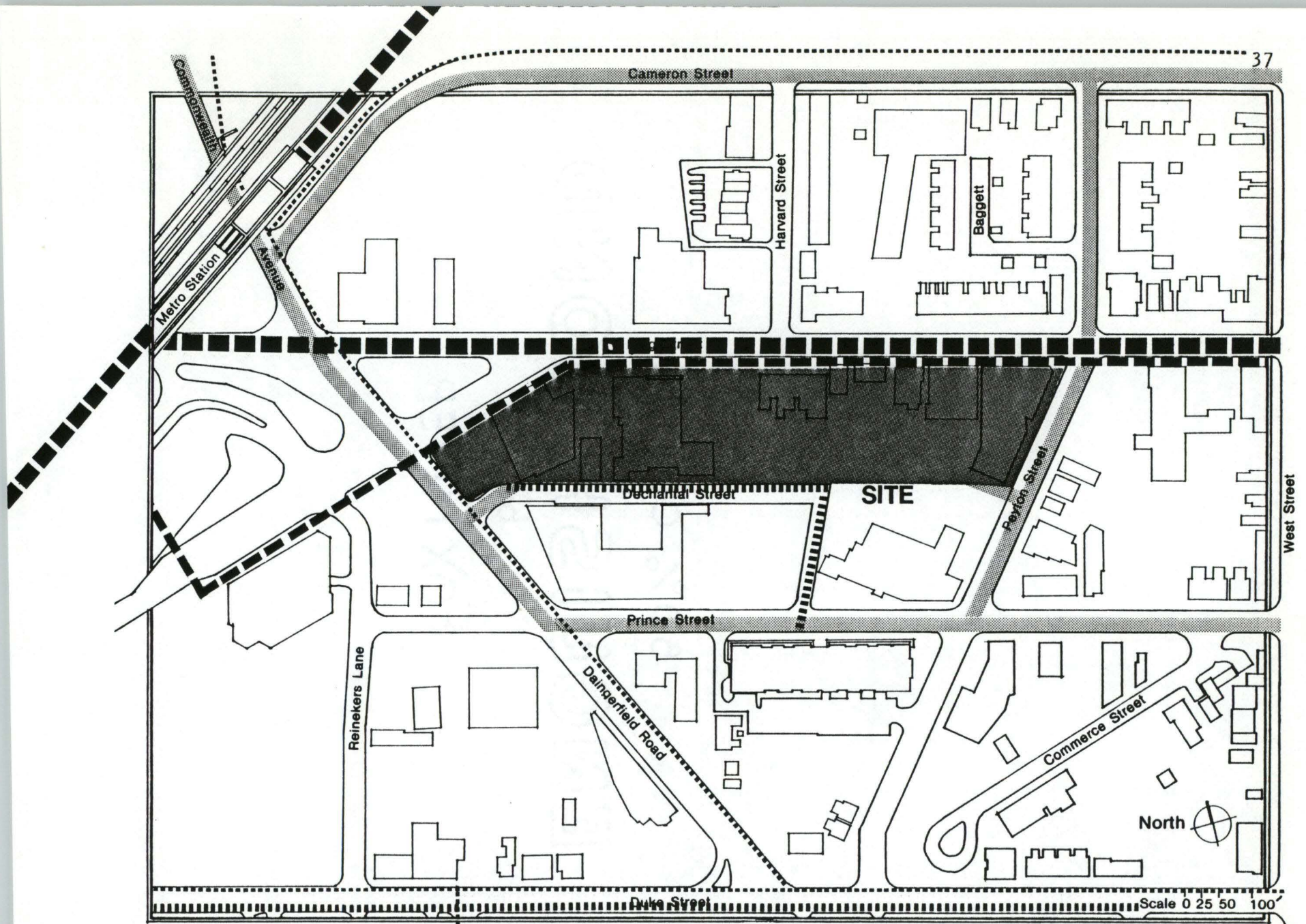
# Residential Areas

CLEMON UNIVERSITY LIBRARY

### Residential Areas

There are a number of "towns" within the City of Alexandria, each with its groups of neighborhoods. But generally speaking, west Alexandria, the newer part of the city, is mostly residential, and Old Town has four basic residential areas. King and Washington Streets create the divisions, which leave a lower income neighborhood in the northwest, a redeveloping low income neighborhood in the southwest, a high density residential area in the northeast, and the older upper income neighborhood in the southeast.





# Site Access

..... Service  
----- Bike

Public Transit  
Pedestrian  
Auto

### Site Access

In the vicinity of the site, a thorough movement system has been worked out, which partially determines the points and nature of site access. Besides the expensive shuttle bus system the city has purchased, a lot of effort and infrastructure has gone into a network of bicycle paths, which eventually join the major bike path from Mount Vernon to Washington, D.C. and Georgetown, paralleling the Potomac River.

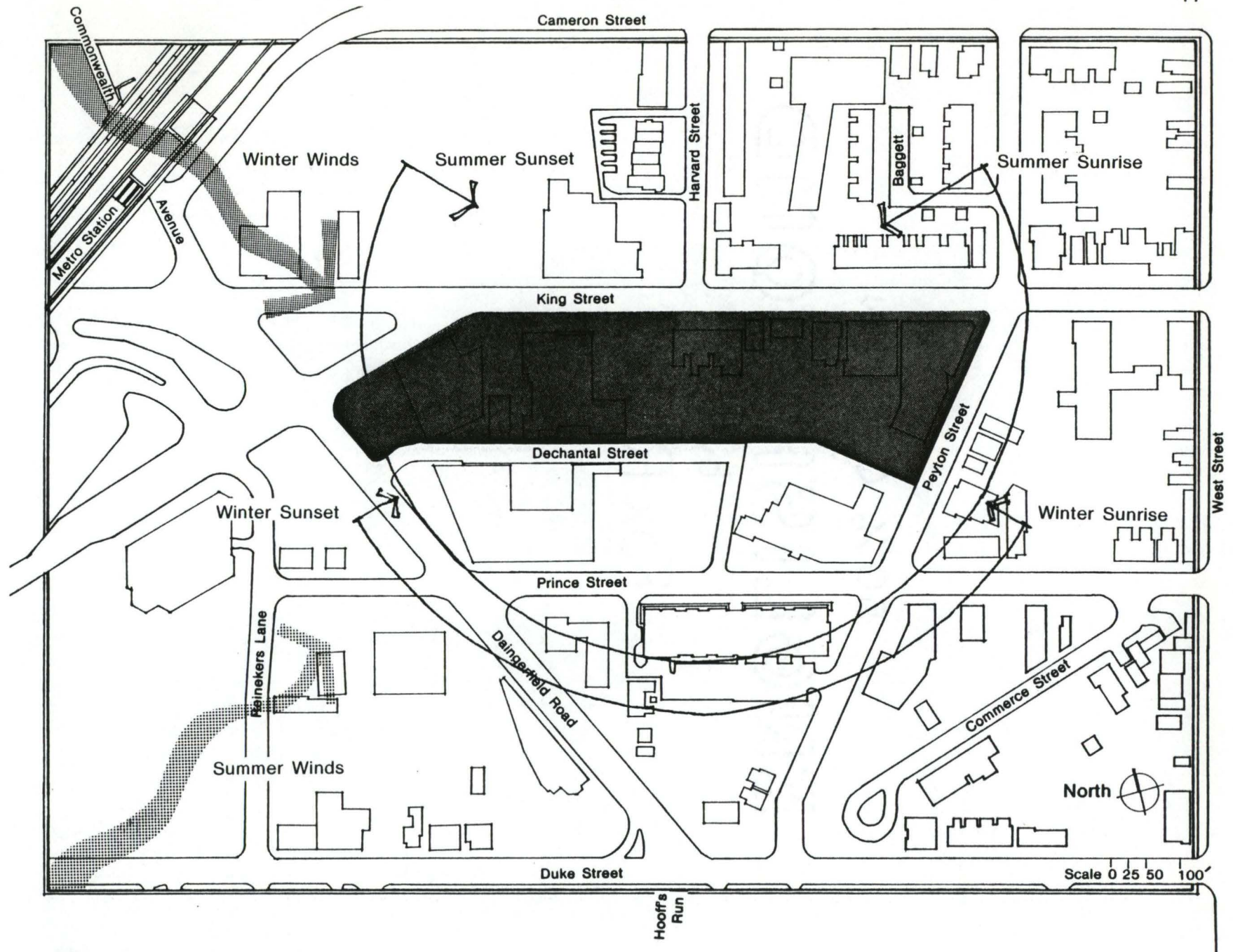






### Land Use

The existing land use is mostly car dealerships and residential in the vicinity of the site, but this is rapidly changing. Large parcels of land have been purchased and new zoning is being created to encourage growth. A number of large projects are already under construction. The historic buildings in this area are few and scattered compared to the rest of Old Town, but there are a number of older, non-historic buildings worth preserving.



# Climate

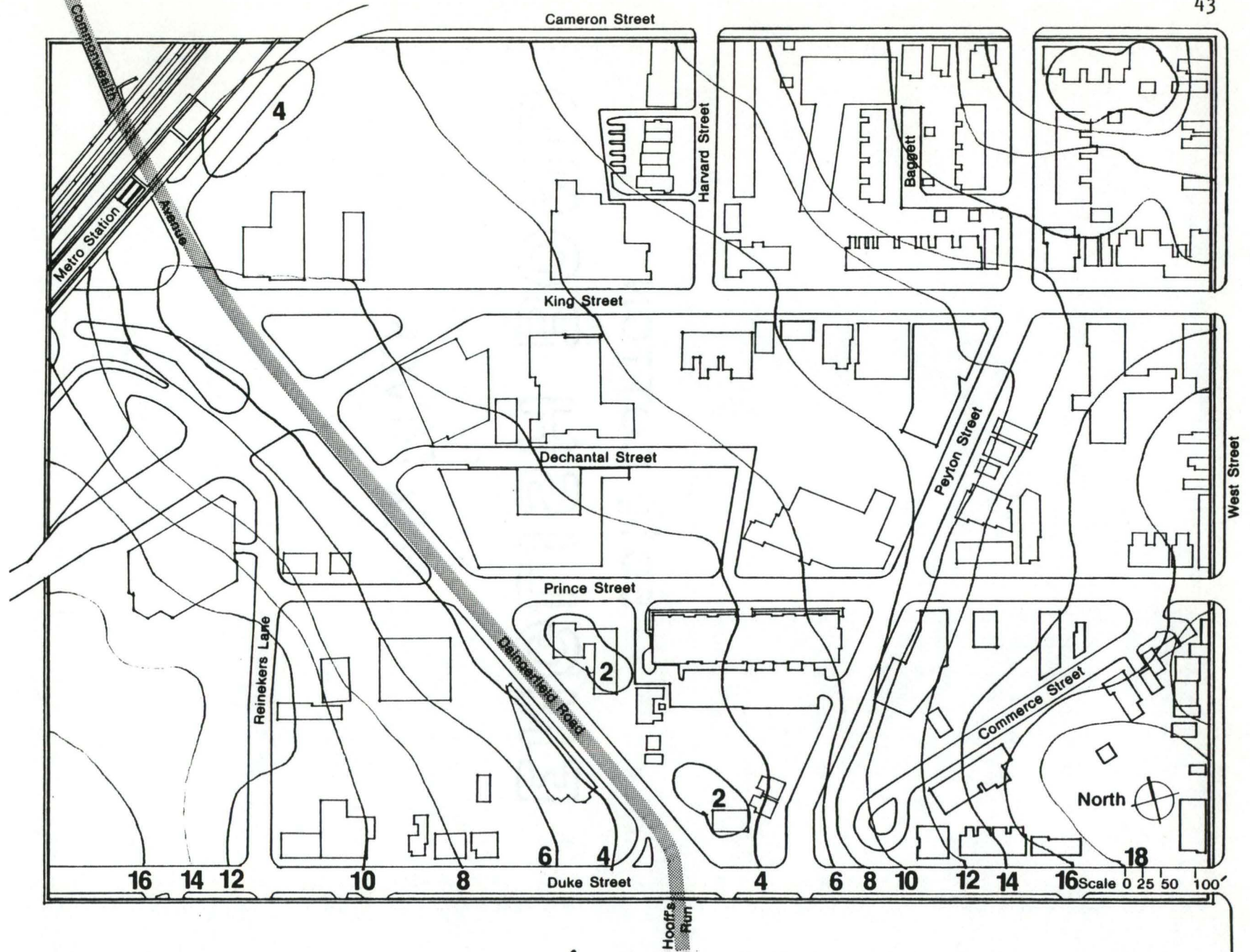
### Climate

The prevailing breezes in Alexandria are out of the northwest during the winter and out of the southwest during the summer. In the winter and early spring, the winds average a speed of 10 to 11 miles per hour, and from June to October, the speed averages between 8 and 9 miles per hour.

The sun at this latitude reaches an altitude of  $75^{\circ}$  in the summer, whereas the winter altitude for noon of December 21 is only  $30^{\circ}$ .

The average seasonal temperature ranges from  $35^{\circ}\text{F}$  in January to  $80^{\circ}\text{F}$  in July. Although the extremes within these months are much hotter or colder depending on the season. There is very little heavy vegetation in the vicinity of the site to help shade or cool the area during the summer.





# Topography / Soil Conditions

### Topography

The site is fairly level but has the major disadvantage of an underground stream. Hoof's Run passes under Daingefield Road and causes water to be hit at four feet when excavating. This makes building below grade expensive and fairly impractical. The contours show the path of the streams main body, because the water lies in the lowest area.



**CASE STUDIES**



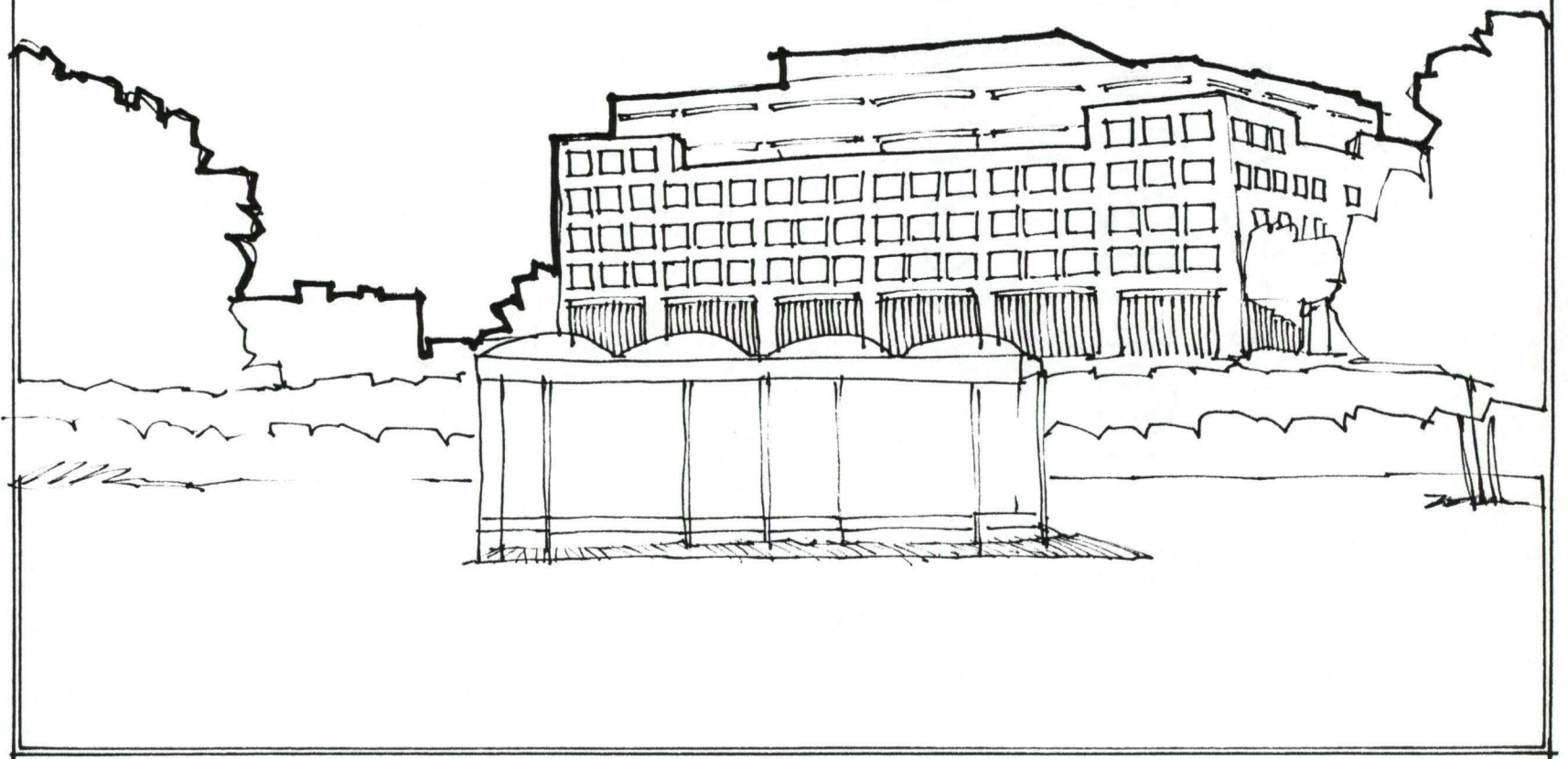


**Torpedo Factory**

## CASE STUDIES

Torpedo Factory  
Alexandria, Virginia

The World War I Torpedo Factory on the waterfront of Lower King has recently been partially renovated as an art center and office building. This is a relevant project, not only because it is in Alexandria, but also because it will contain residential, office, and retail space. The second phase, the residential section, has just started construction over the three-story parking garage finished earlier. The final phase will include improving the waterfront piers and adding shops and restaurants.

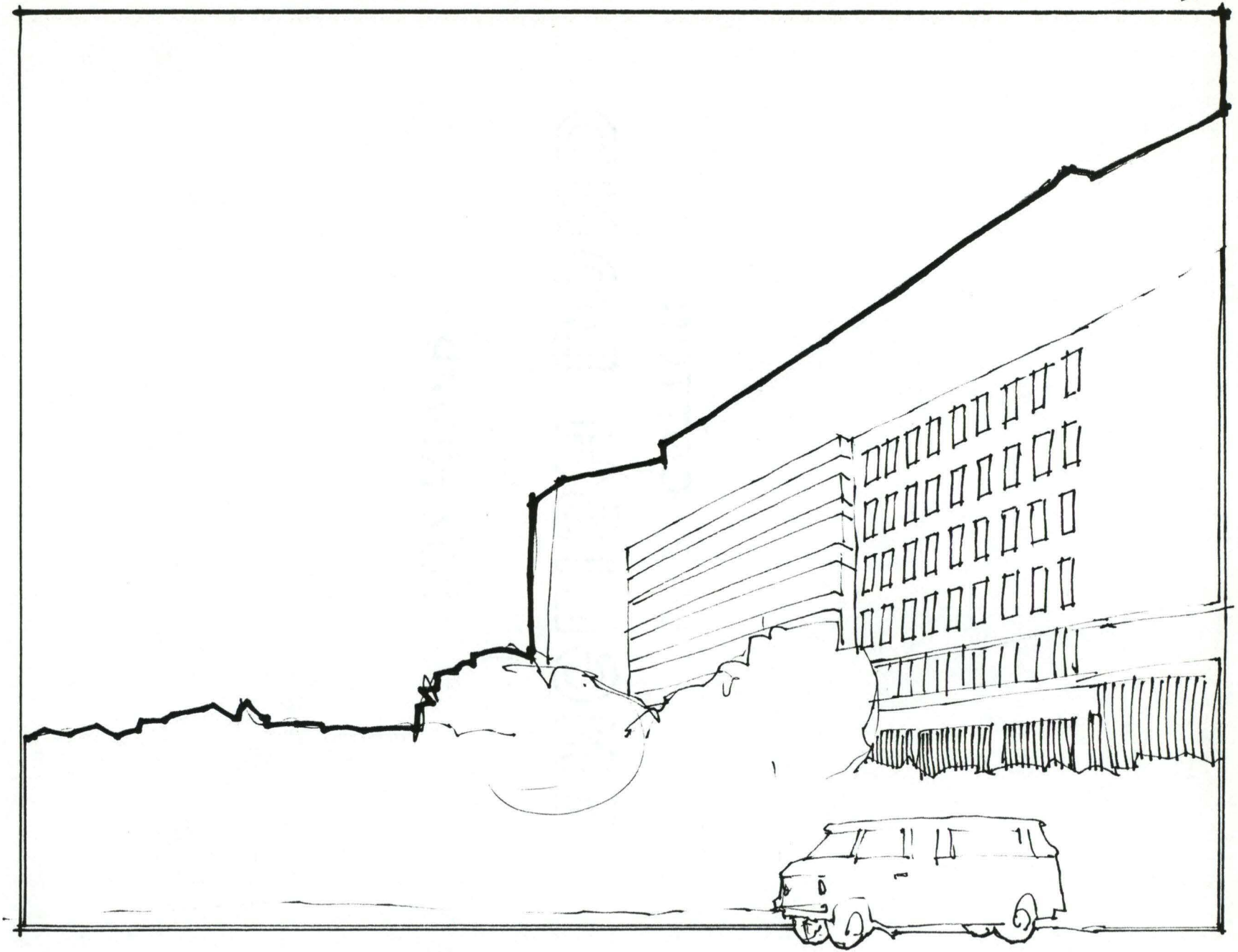


King Street Station



King Street Station  
Alexandria, Virginia

Obviously this is an important building since it is the first major retail and office building in the vicinity of the Metro. Also because of its proximity to the site of this project, it sets a certain precedent for future buildings to respond to. The developer of King Street Station owns a great deal more land in the same area and probably will continue to build projects of this same fine quality.

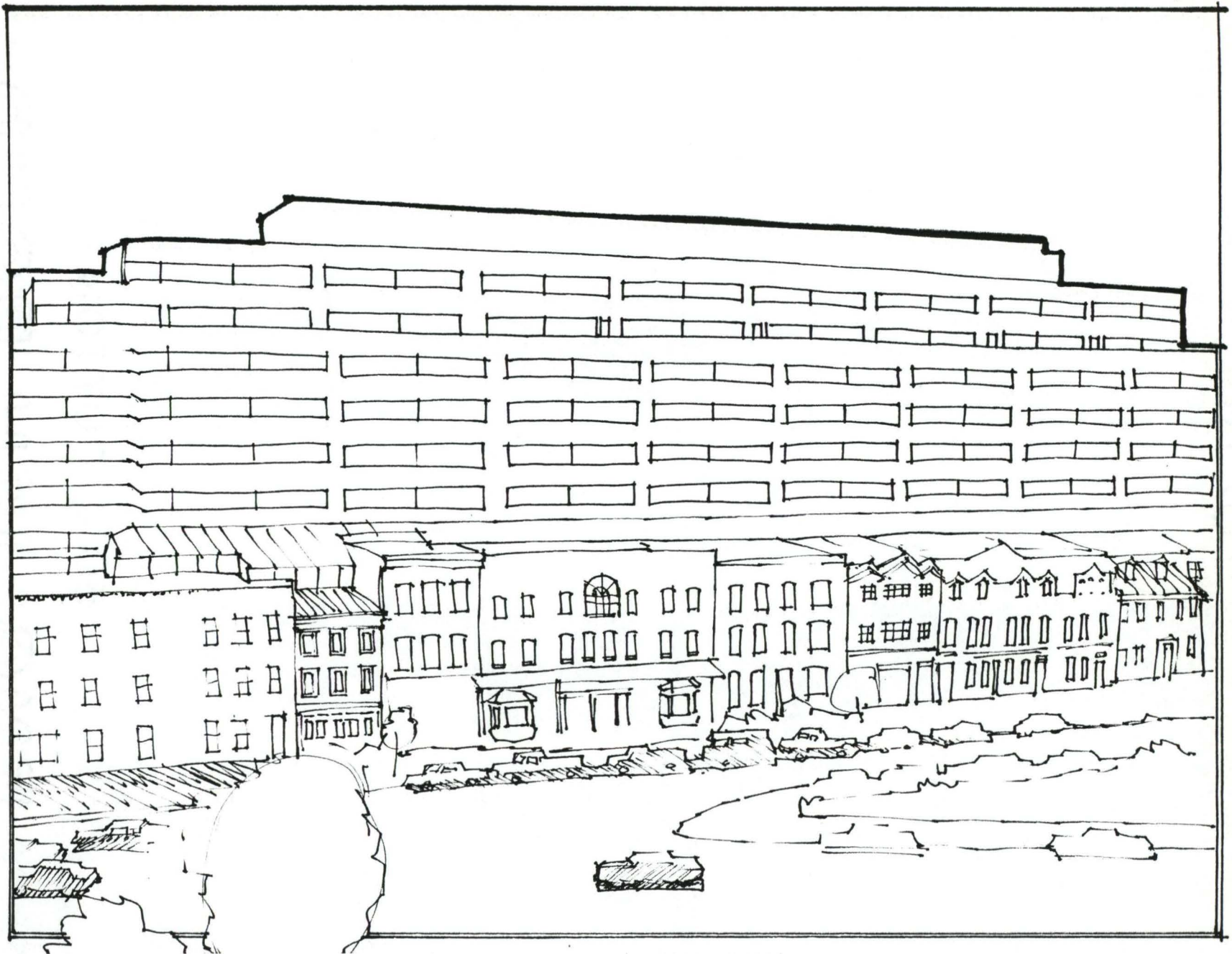


National Place



National Place  
Washington, D.C.

Although there is a considerable difference between buildings in Alexandria and Washington, there are similar market conditions. National Place is located on Pennsylvania Avenue three blocks from the White House and contains two levels of retail space with office floors above and parking in a garage. The building is not like one that might be seen in Alexandria, but it does have an exacting context to respond to.



2000 Pennsylvania Avenue

2000 Pennsylvania Avenue  
Washington, D.C.

The old houses, which zoning required to be preserved, make George Washington University's new building similar in contextural difficulty to the project of this manuscript. Although the old buildings of GWU's site form a continuous row, the site in Alexandria being studied has only scattered buildings. The use of the space between the new building and old houses as an atrium for circulation is of interest.

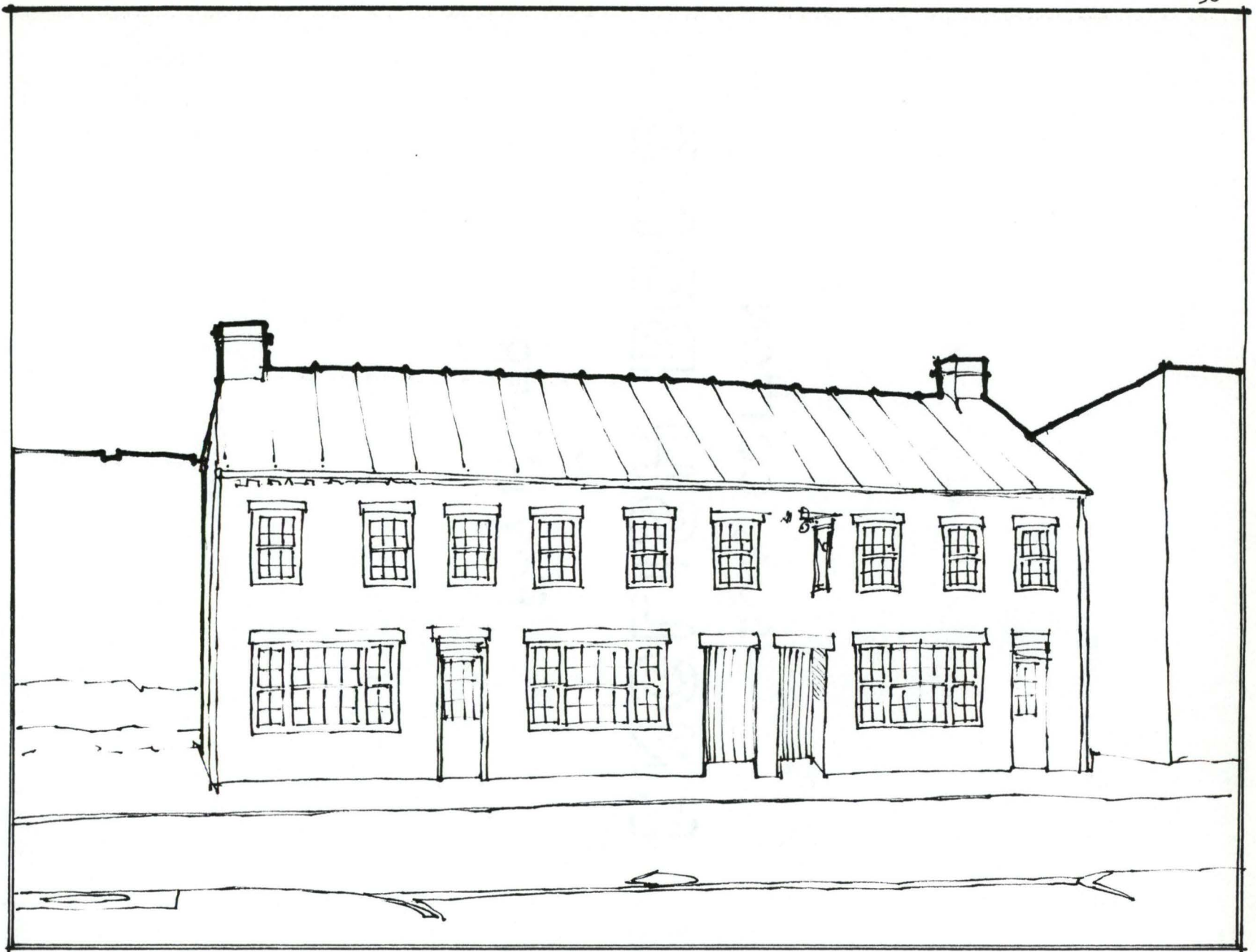




**The Coca-Cola Building**

The Coca-Cola Building  
Alexandria, Virginia

This building is part of the project in this manuscript. The proposal now being pursued for this building will be incorporated into the rest of the block's design. The street level of this building is to be used as retail space with office space above and surface parking in the rear. Only one floor will be added to the currently two-story structure, so it should work well in scale to the surrounding context.



1522 King Street



1522 King Street  
Alexandria, Virginia

This historic, although not very distinguished, building is also on the site of this manuscript's proposal. Unlike the rest of the houses and buildings on the site, it must be saved because of its age. It was originally three small shops with apartments above but has been altered in plan by the renovation. The three street addresses have been maintained, but the second floor has been interconnected to create a suite of offices.

**PROGRAM DEVELOPMENT**

## PROGRAM DEVELOPMENT

Activity Types

The project being proposed will contain residential, office, and retail space, with the necessary amount of parking and support functions. The parking requirement for this part of town has been reduced because of the Metro Station. However, many commuters would prefer to drive to a Metro Station and take the train into the city so a commercial parking garage close to the Station should do well.

There have always been a fair number of residents in this area; so whether they are displaced or not, there will be a need for residential space. Their presence as well as the pedestrian traffic generated by the Metro Station should cause the retail portion of this project to do well. The highest rent and largest portion of this project will be office space. Most of the office space will be rented, sold, or leased as open blocks to be finished by the tenant, but some of the project should consist of completed offices.



### Spatial Requirements

There are about 172,000 square feet of space on the site, and with a zoning permitting a floor area to site ratio of three, this allows about 516,000 square feet to be built. Because of the low density across the street from the site, consisting of old houses to be preserved, less than the maximum density should be built. Therefore, the program calls for about 350,000 square feet of building. This breaks down to approximately 153,000 square feet of office space, 40,000 square feet of residential space, 40,000 square feet of retail space, and 65,000 square feet of parking. The rest of the total is made up of support and circulation.

The retail area will be unfinished space, the same as most of the office space. There is likely to be a wide variety of types and sizes of shops, ranging from restaurants and carryouts to office supply stores.

The residential space will consist of apartments to be sold as condominiums or rented. Market studies demonstrate that a good breakdown of the units is as follows:

<u>Quantity</u>	<u>Size</u>	<u>Type</u>	<u>% of Total</u>
11	325 sq. ft.	efficiency	16%
29	455 sq. ft.	1 bedroom	41%
21	650 sq. ft.	2 bedrooms	30%
9	910 sq. ft.	3 bedrooms	13%

There will be a total of 70 units in this project with amenities such as a commons building with a laundry and security office.

### Relationships

The retail businesses will do best if kept close to street level and on the King Street side of the site. The parking would benefit by keeping to the Dechantal Street, alley, side of the site and also as close to ground level as possible.

There is likely to be a great deal of traffic between the office areas and the street, and it would be desirable to keep the residents out of this traffic. Therefore, the upper most levels or otherwise isolated areas of the project should be residential.



**RESOURCES**

## RESOURCES

### Design Standards

The majority of the buildings in Alexandria are in brick, and the existing buildings around this site are of the three to five-story scale. Even though there is no set-back requirement, some relief from the street should be provided partly to reduce the severity of this area and partly to relate to the scale. There are buildings flanking the site on both sides, in addition to the small buildings on the site so the facades of these must also be dealt with.

### Codes and Zoning Constraints

The zoning for this site restricts the building height to 75 feet, which allows about seven floors to be built. The parking requirement is reduced in this area on the assumption that many people will be using the new public transit system and Metro Rail, but the new zoning is not yet in effect, since proposals are still being discussed. There is no set back required and normal fire safety and building code conditions exist.



**Design Solution**

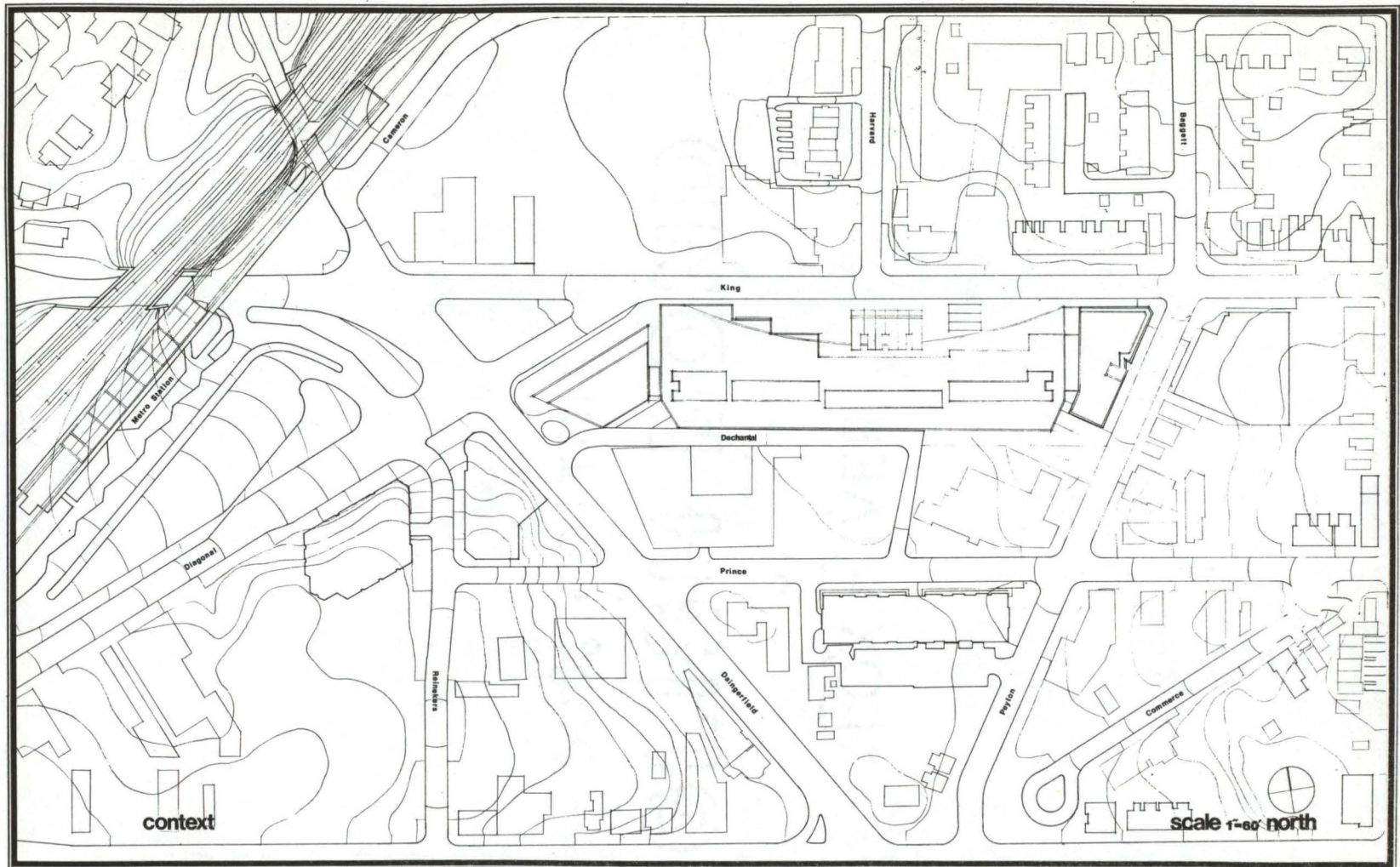


MIXED-USE LOW-RISE

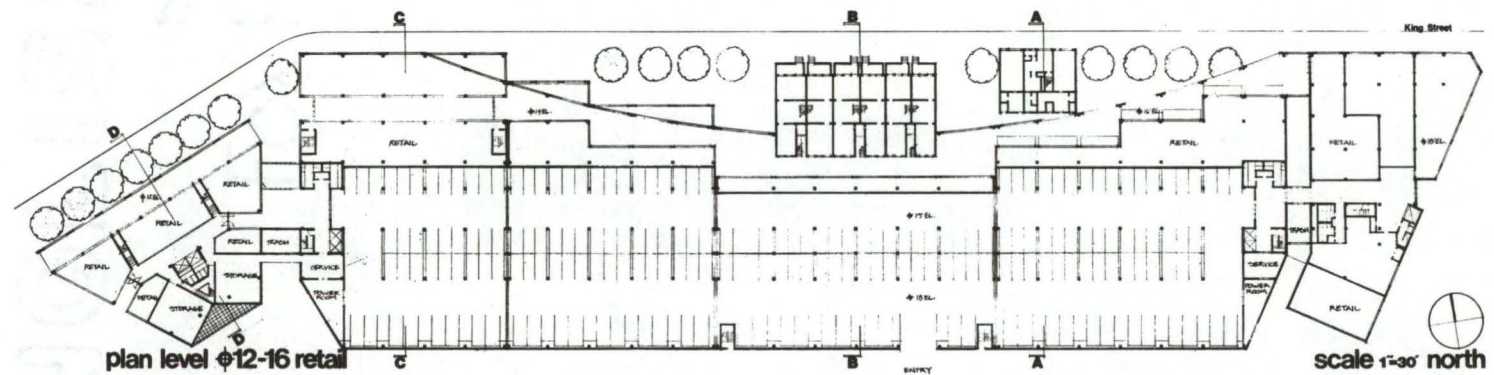
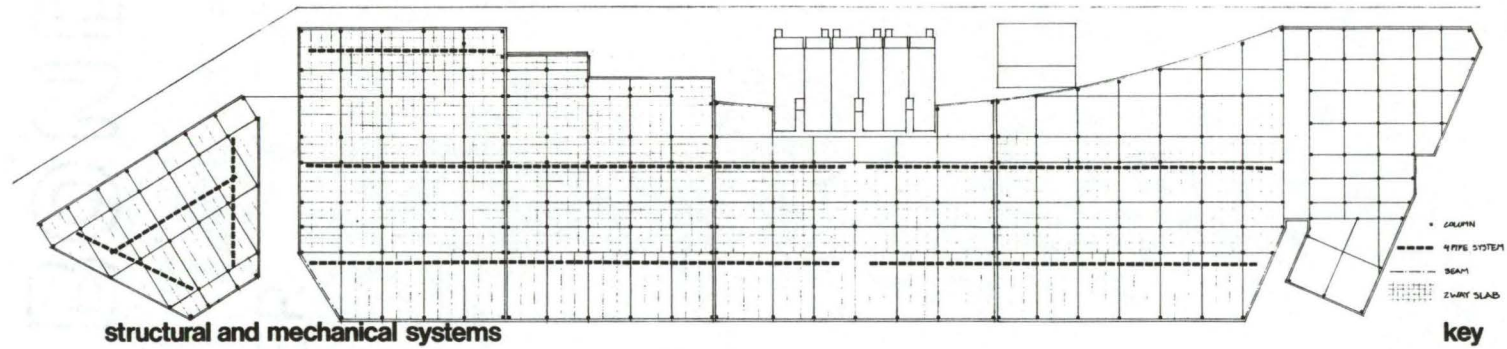
Patrick C. Mayo 10 Apr 01

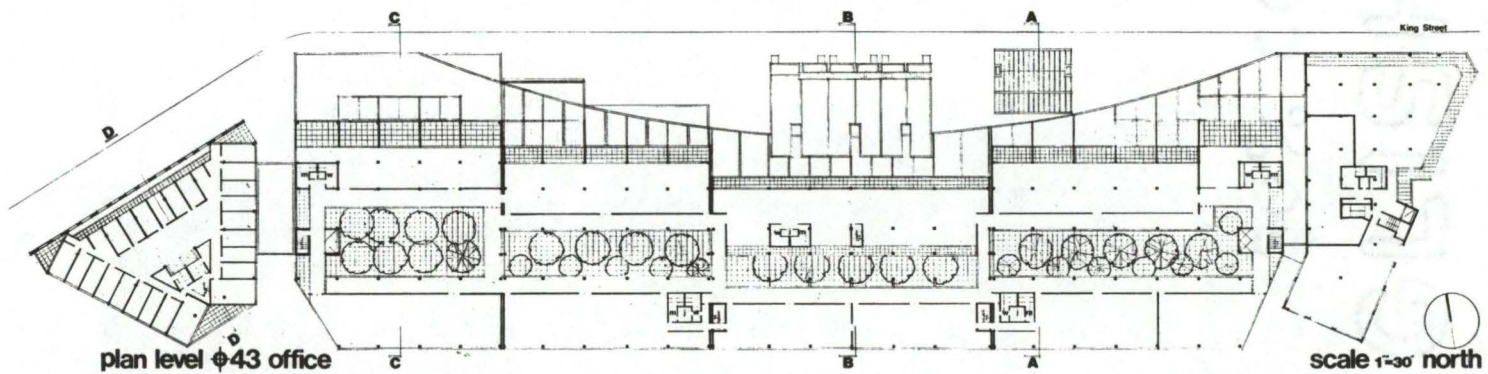
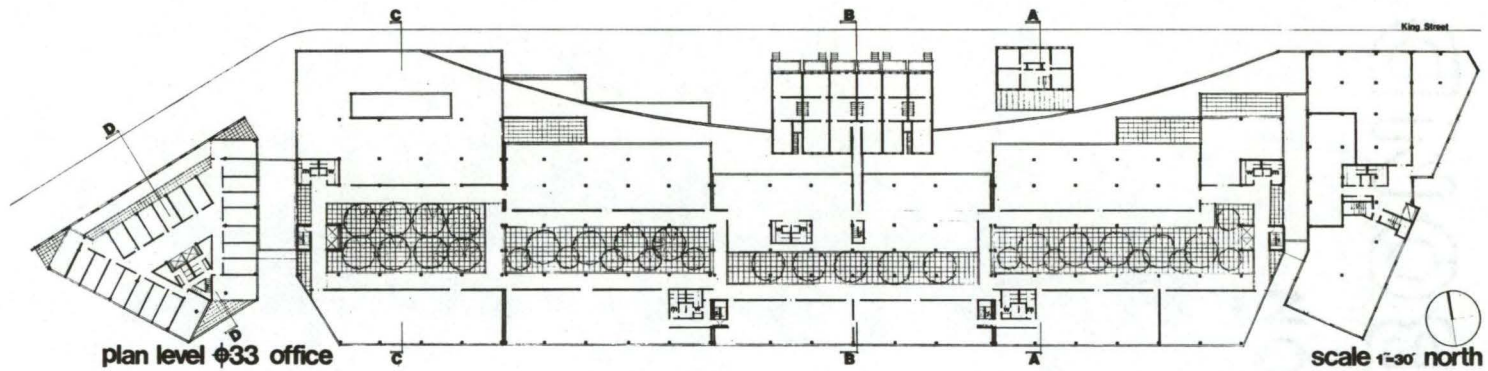
ALEXANDRIA, VIRGINIA



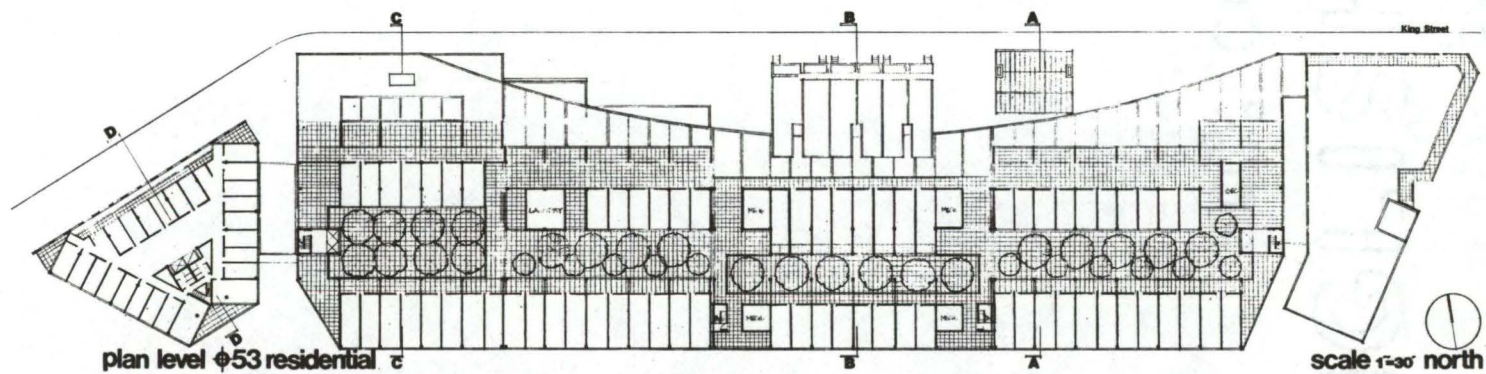
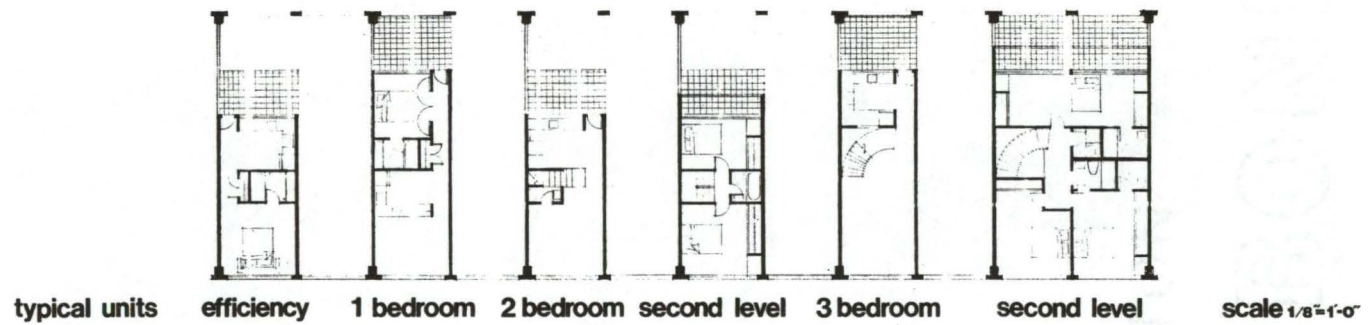




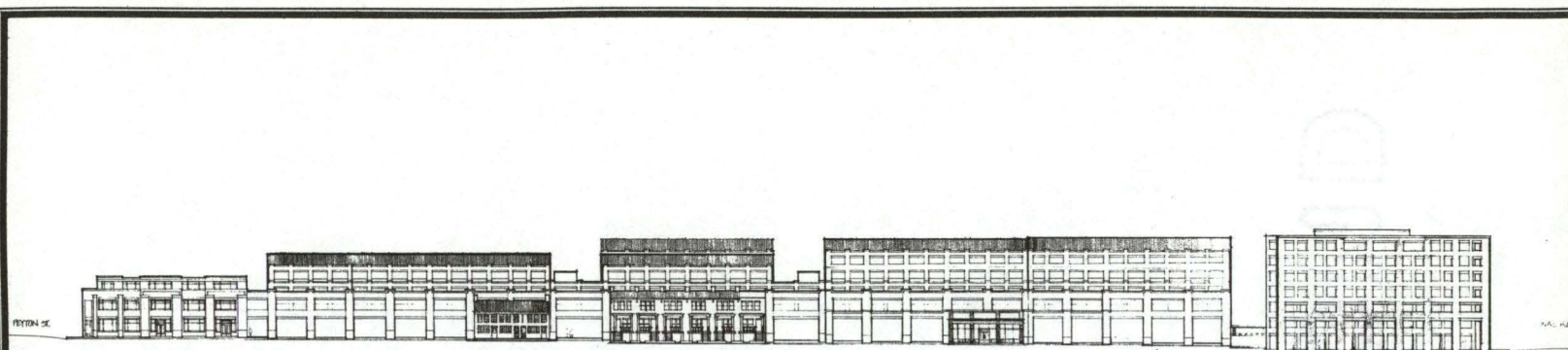




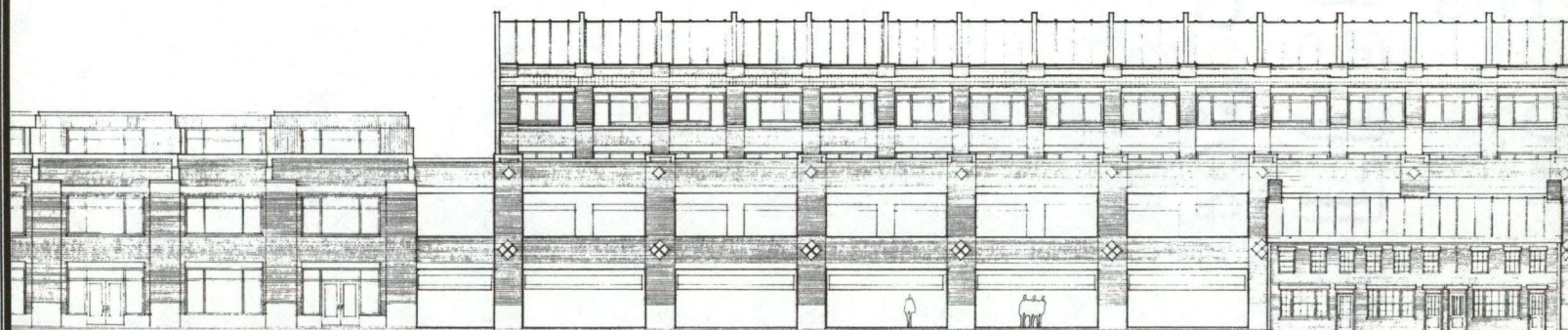






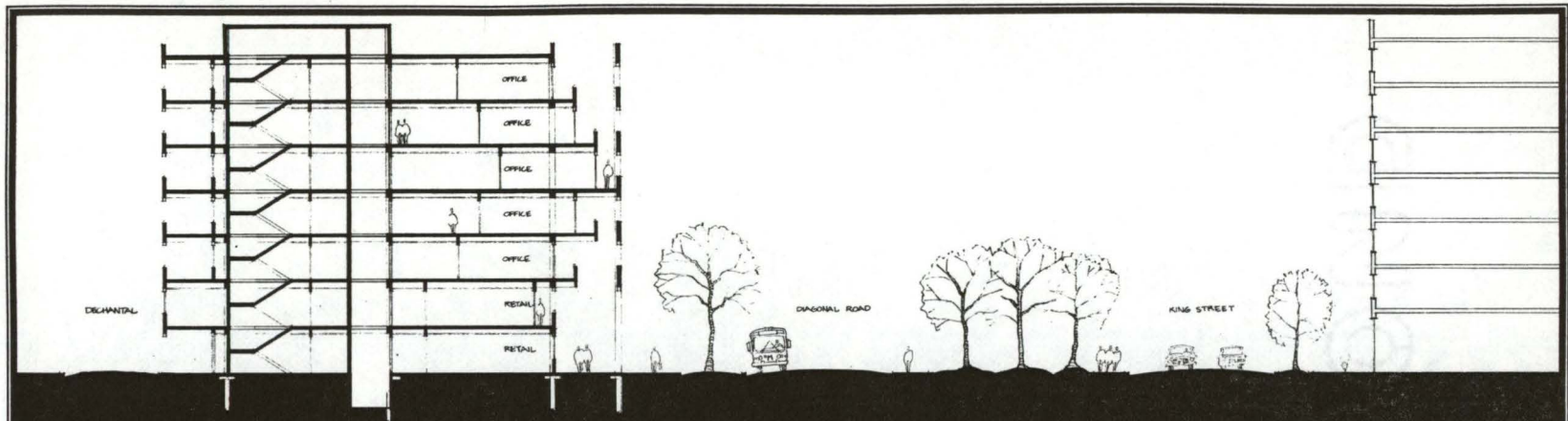


scale 1"=30'



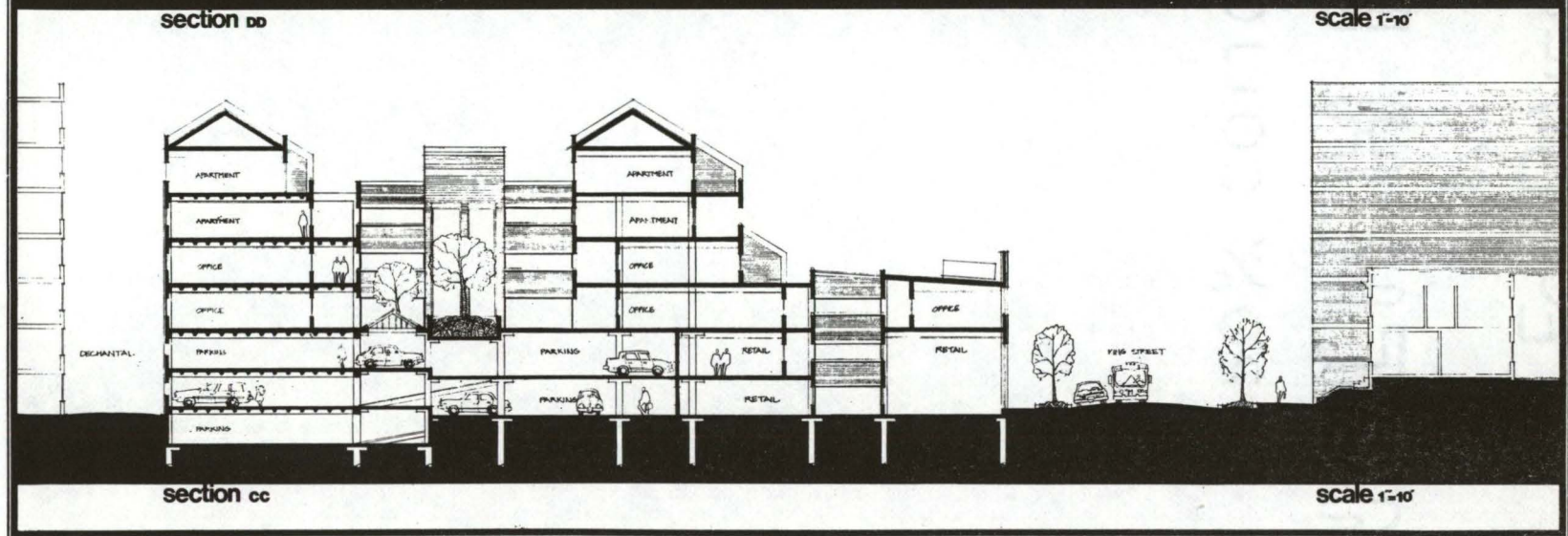
north elevations

scale 1/8"=1'-0"



section dd

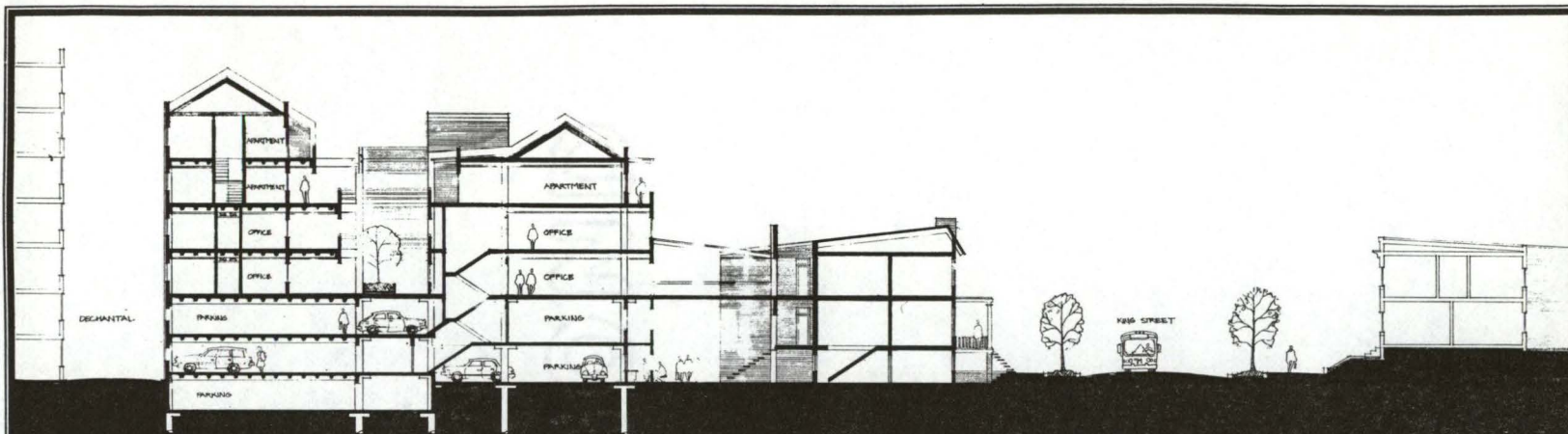
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section cc

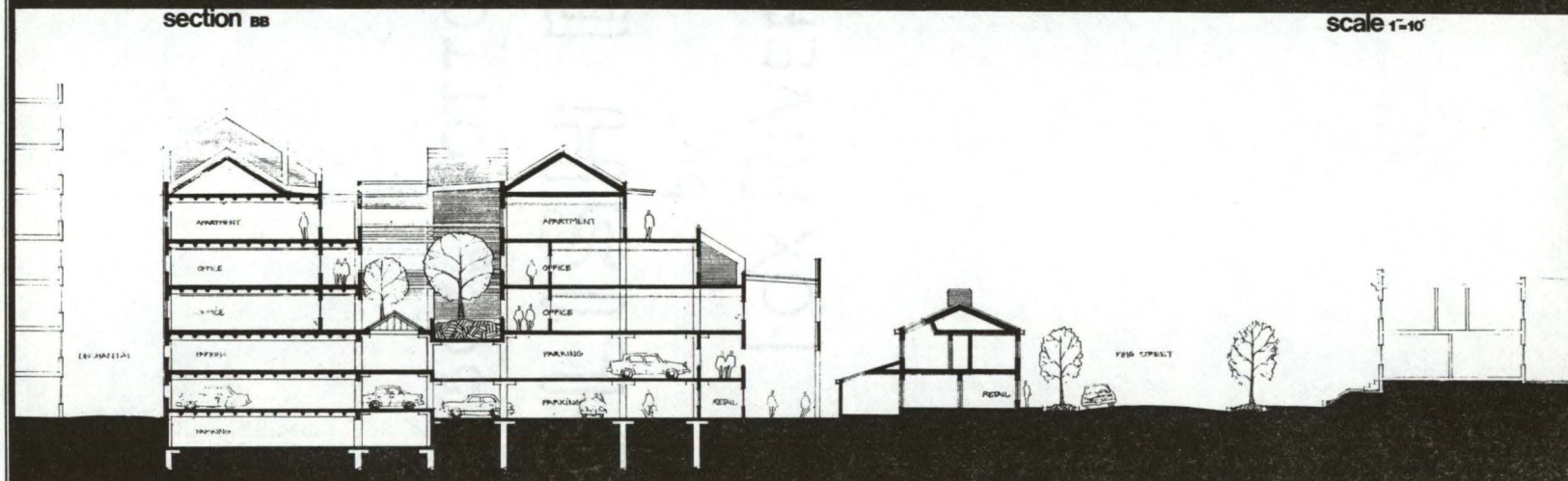
scale 1"=10'





section BB

scale 1"=10'



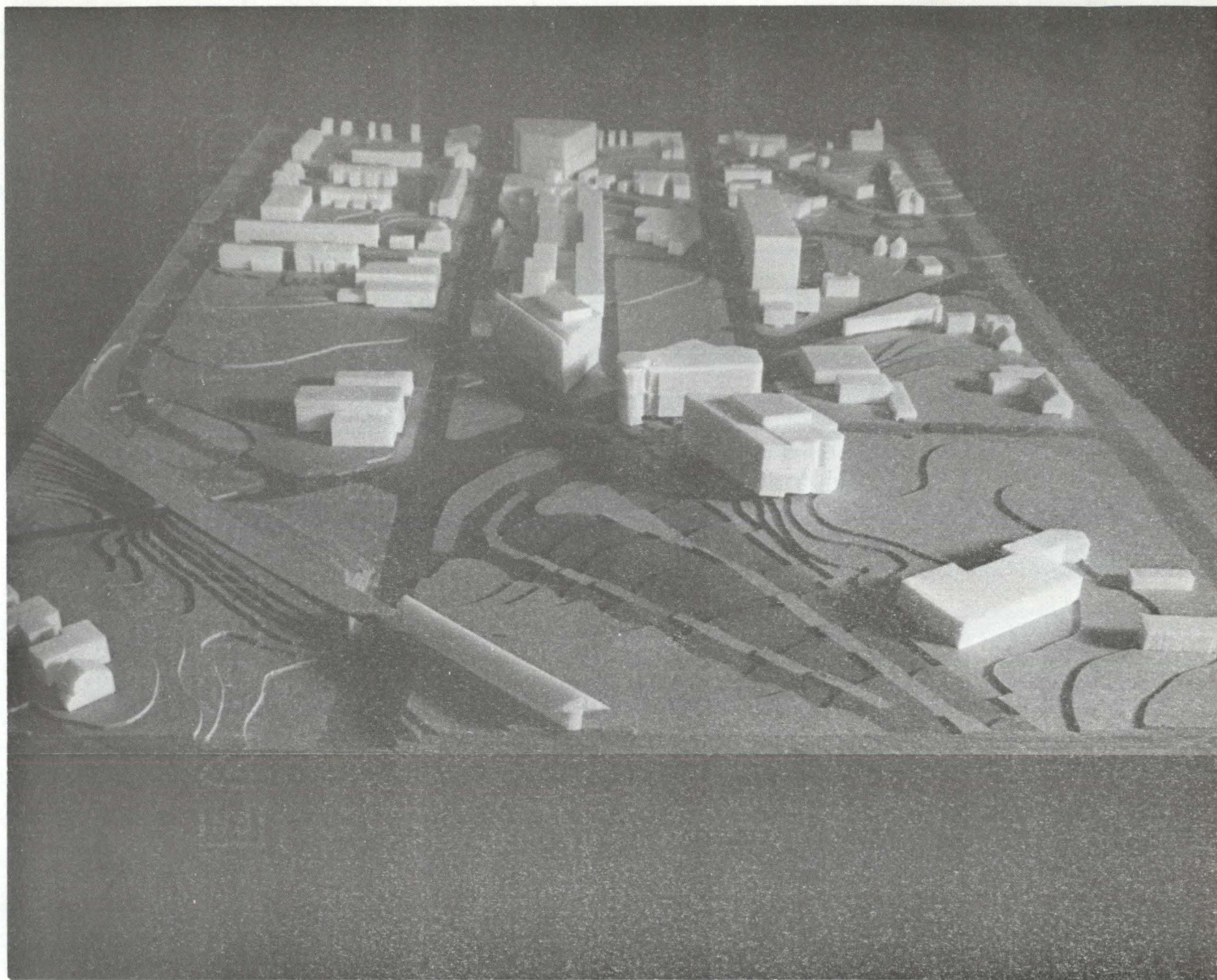
section AA

scale 1"=10'

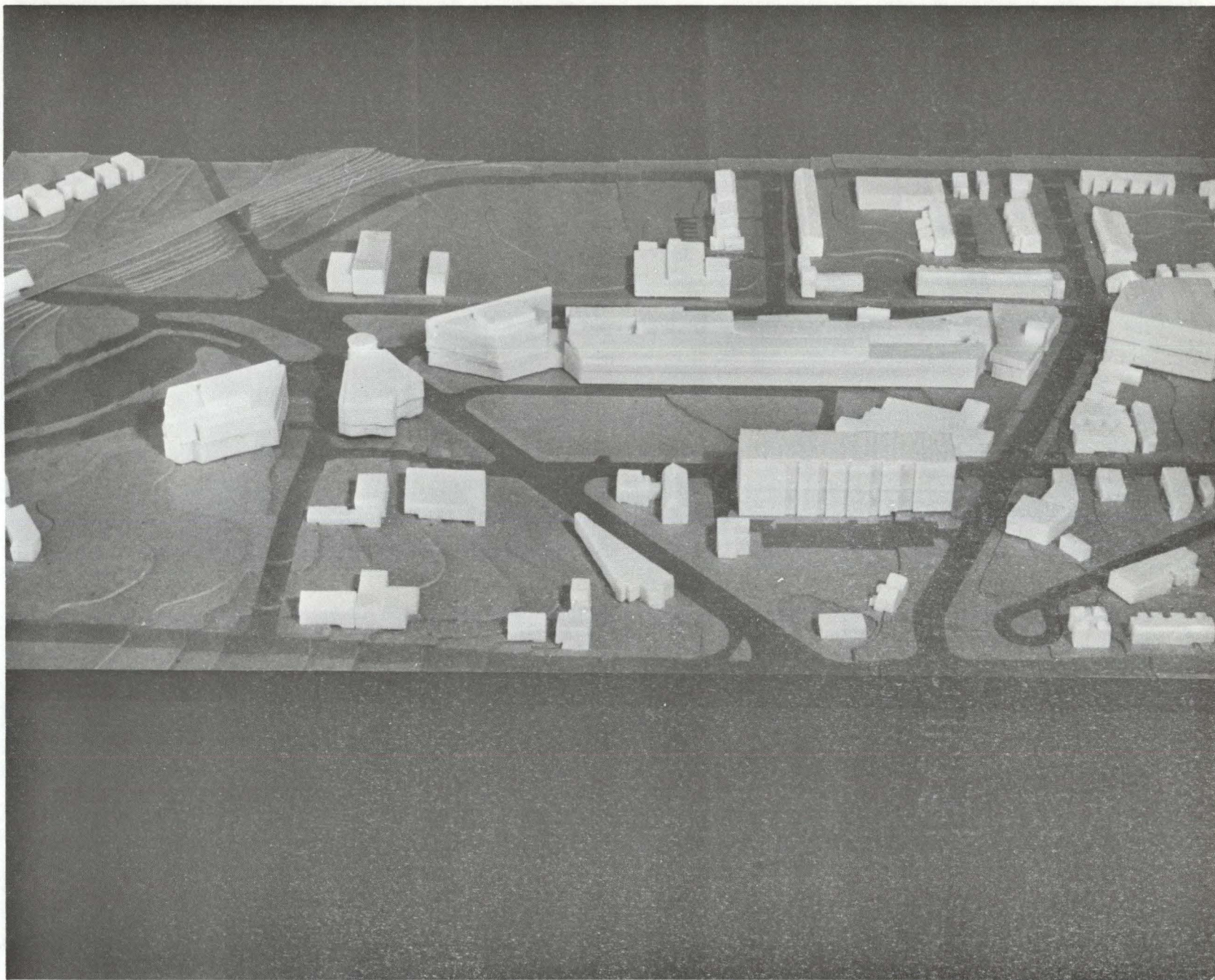


**Model Photographs**















# Bibliography

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