2.2.3 Alternative 2A - At-Grade Intersection With Prospect Street Open

Alternative 2A involves the same physical improvements as the intersection design at the Canal Road entrance as shown in **Figure 2-3** for Alternative 2. However, Alternative 2A restricts traffic that exits the Main Academic Campus from turning left onto Canal Road during the morning peak hours. These eastbound movements are accommodated by allowing Prospect Street to remain open all of the time. With this Alternative, the heavier eastbound through traffic on Canal Road would not be stopped by a traffic signal during the morning rush hours; only the lighter westbound through traffic would be stopped periodically to permit left turns into the Main Academic Campus.

Direct costs for implementing Alternative 2A are estimated to be the same as for Alternative 2.

2.2.4 Alternative 3B - Westbound Canal Road Elevated

Alternative 3B, shown **in Figure 2-4,** is a grade-separated facility with the westbound lanes of Canal Road elevated. The eastbound lanes of Canal Road would remain at their current alignment and a left-hand exit and entrance for eastbound traffic on Canal Road would be provided. A left-turn lane of approximately 100 meters (330 feet) long would be provided for vehicles making the left turn from eastbound Canal Road. The conflict between left turning traffic exiting and entering at this location would be controlled by either a stop sign or a traffic signal. **In either case**, through traffic on Canal Road would have the right of way and would not have to stop. Traffic exiting the campus and turning left onto eastbound Canal Road would not have a merge left-turn lane.

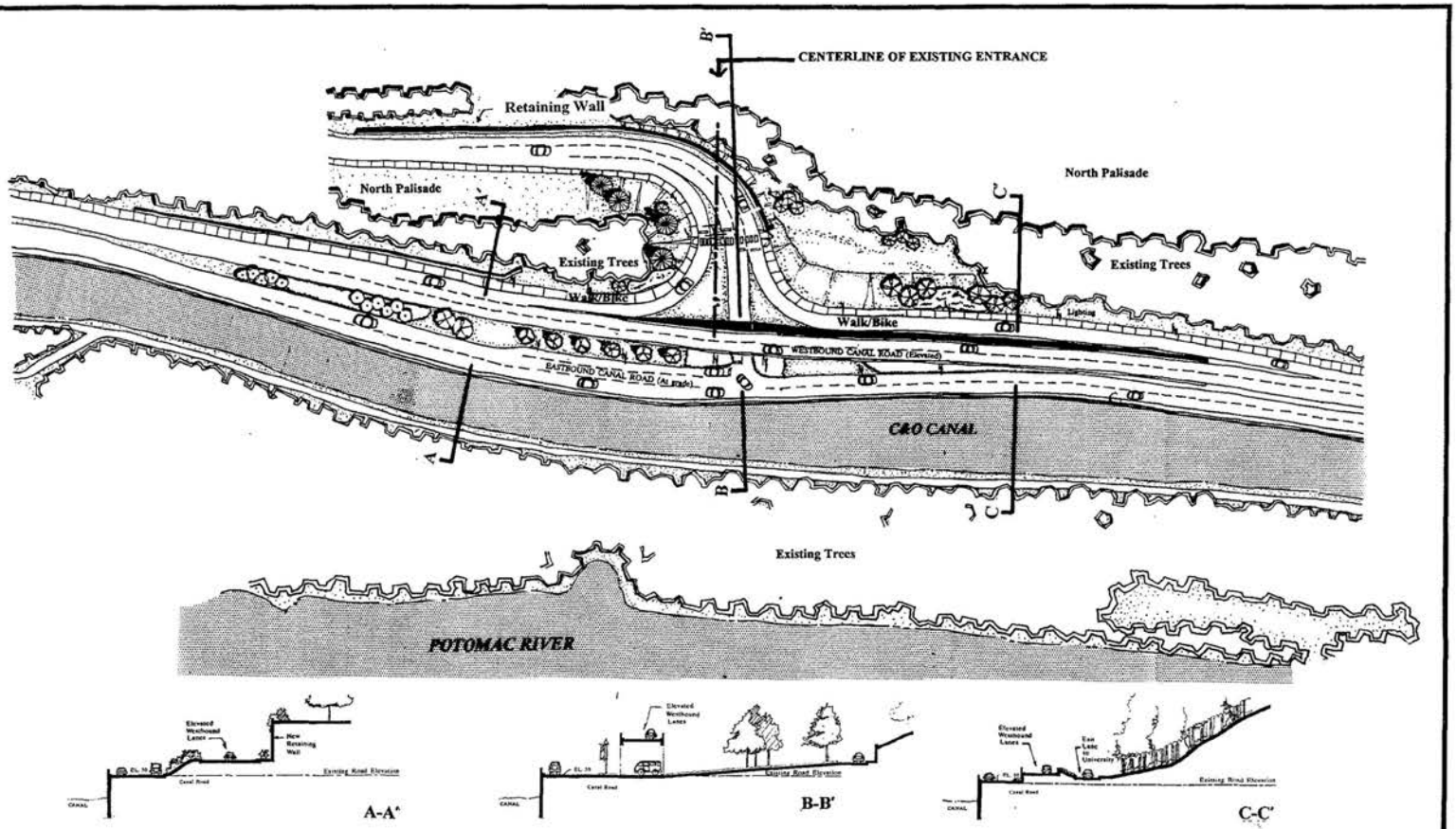
The westbound lanes of Canal Road would be shifted to the north to make room for the exit lane from eastbound Canal Road. The westbound lanes of Canal Road would be elevated to pass over the entrance road serving eastbound Canal Road. About 190 meters (620 feet) of structure would be required for westbound Canal Road. Right-hand exit and entrance ramps would be provided for westbound Canal Road. These ramps would remain at-grade. About 130 meters (430 feet) of retaining wall would be required to the west of the entrance, and about 150 meters (495 feet) of retaining wall along the entrance road itself.

Direct costs for implementing Alternative 3B are estimated to be:

Construction Costs	**$ 10,197,000**
Right-of-Way Costs (direct)	$ 4,275
Maintenance of Traffic Costs	$ 2,000,000
Utilities Costs	$ 30,000
Total Costs	**$12,231,275**, say **$ 12,232,000.**

Additional maintenance costs are estimated to be approximately $15,000 per year.

Board of Zoning Adjustment
District of Columbia
CASE NO.16566
EXHIBIT NO.7A2



Alternative 3B - Canal Road Elevated

2.2.5 Alternative 3H - Canal Road Underpass

Alternative 3H (**Figure 2-5**) is a grade-separated interchange with all through lanes of Canal Road depressed. All lanes of Canal Road would be moved to the north about six meters (20 feet) to provide room for right-hand exit and entrance ramps serving eastbound Canal Road. These ramps would connect the depressed Canal Road with an entrance bridge at the existing grade level. The conflict between entering and exiting traffic at the south end of this bridge would be controlled by a stop sign or traffic signal. Ramps to and from westbound Canal Road would connect with the through lanes at about the existing grade at either end of the depressed section of Canal Road.

This Alternative would require considerable excavation into the slopes of the Palisades to provide room for shifting Canal Road and adding the exit and entrance lanes. Approximately 110 meters (360 feet) of retaining wall would be required east of the entrance and approximately 235 meters (770 feet) of retaining wall west of the entrance.

This Alternative would require relocation of some major utilities, including water and sewer lines, requiring increased time of construction and costs for relocation.

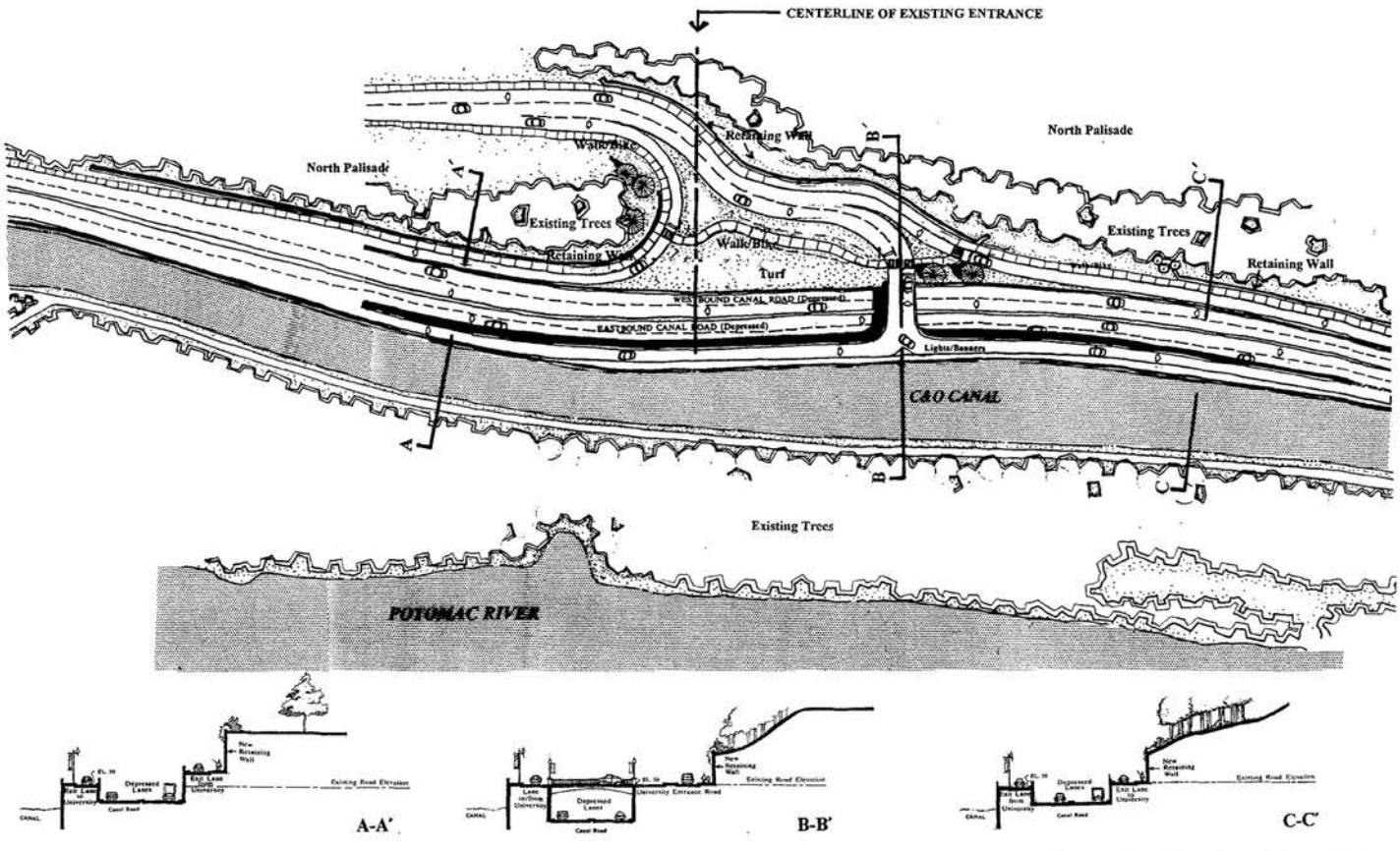
Direct costs for implementing Alternative 3H are estimated to be:

Construction Costs	**$ 16,830,000**
Right-of-Way Costs (direct)	$ 12,525
Maintenance of Traffic Costs	$ 2,000,000
Utilities Costs	$ 2,925,400
Total Costs	**$21,767,925**, say **$ 21,770,000.**

Additional maintenance costs are estimated to be approximately $15,000 per year.

2.3 ALTERNATIVES CONSIDERED AFTER DEIS AND PUBLIC HEARING

Several alternatives were suggested by different agencies and individuals as a result of the DEIS published in July, 1995 and the Public Hearing held on September 19, 1995. These suggestions were used to develop eight Alternatives with various options that were then analyzed with regards to traffic operations and capacity, cost, and general engineering principles and standards. Improvements included variations to median breaks, traffic signal locations, stacking lane configurations, and new design configurations at Canal Road and Foxhall Road such as traffic circles, "jughandles" and frontage roads. A summary of the analyses is included in the *Briefing Paper on DEIS Mitigation Alternatives: Engineering and Traffic Operational Considerations* dated April 30, 1996. It should be noted that the referenced reports are available for review in three area public libraries (M. L. King Memorial, Georgetown Regional, and Palisades Branch) or by calling FHWA.



Alternative 3H - Canal Road Underpass

Further investigation and analysis on a traffic circle Alternative was conducted which resulted in a technical report entitled *Traffic Circle Analysis: Traffic Operations and Engineering Considerations* dated July 10, 1996.

NCPC Variation of Alternative 2A

In the fall of 1996 the National Capital Planning Commission (NCPC) requested consideration of a signalized Alternative which proposed a break in the median of Canal Road at the existing entrance. The NCPC Alternative permitted left turn movements out of the Georgetown University Main Academic Campus parking lot except for the morning peak period. This Alternative kept the Prospect Street entrance open. Other considerations included having no left-turn stacking lane on eastbound Canal Road, breaking the median at the existing location only, and minimizing impacts to the Palisades bluffs. This proposal encompassed the generic term "Compromise Alternative" by members of the public.

In order to permit left turns into the University, a stacking lane also is necessary. Without left-turns in and out, the Purpose and Need for the Project would not be met. During evaluation, reducing some speed and design standards while providing adequate safety measures kept two variations of this concept under study. Due predominantly to safety concerns, a signal is required with this concept. Some improvements to the operational and safety issues were formulated which resulted in two additional signalized Alternative concepts. The analysis is summarized in the *Briefing Paper on Signalized Intersection Alternatives: Engineering and Traffic Operational Considerations* dated January 31, 1997.

Intersection NETSIM Analysis

To further address agency and public requests for more detailed system-level traffic analysis, a traffic-flow model along Canal Road was developed and run for the No Build and Alternative 2A, and other "Signalized Intersections" (formerly Compromise Concepts). Three draft technical memoranda were developed (*Network Simulation Traffic Operations Analysis* dated March 20, 1997, *Network Simulation Traffic Operations Analysis - II* dated June 17, 1997, and *Network Simulation Traffic Operations Analysis - III* dated October 6, 1997). Each presented results which successively led to further improvement and refinement of NCPC's Alternative 2A variation. A *Final Network Simulation Traffic Operations Analysis Report* dated November 1998 summarizes the results of these studies and provides details for Alternative 2A-Modified and the No Build Alternative.

Preferred Alternative

In considering the traffic implications and environmental issues of these additional Alternatives, Signalized Concept #3 (renamed Alternative 2A-Modified), was developed. Preliminary design variations (reducing heights and lengths of retaining walls, tying in to the existing drive south of Lot 822, modifying sidewalk locations, etc.) continued during the

detailed traffic modeling. Alternative 2A-Modified is similar in concept to Alternatives 2 and 2A as presented in Section 2.1.4 of this report. Alternative 2A-Modified has refined Alternatives 2 and 2A in order to reduce the footprint of construction, minimize impacts to the Palisades bluffs surrounding the entrance, avoid any adverse effect on the archeological site, and avoid Lot 822 (Washington Metropolitan Area Transit Authority (WMATA) property). Lot 822 is the only property in the Project area owned by other than one of the Cooperating Agencies.

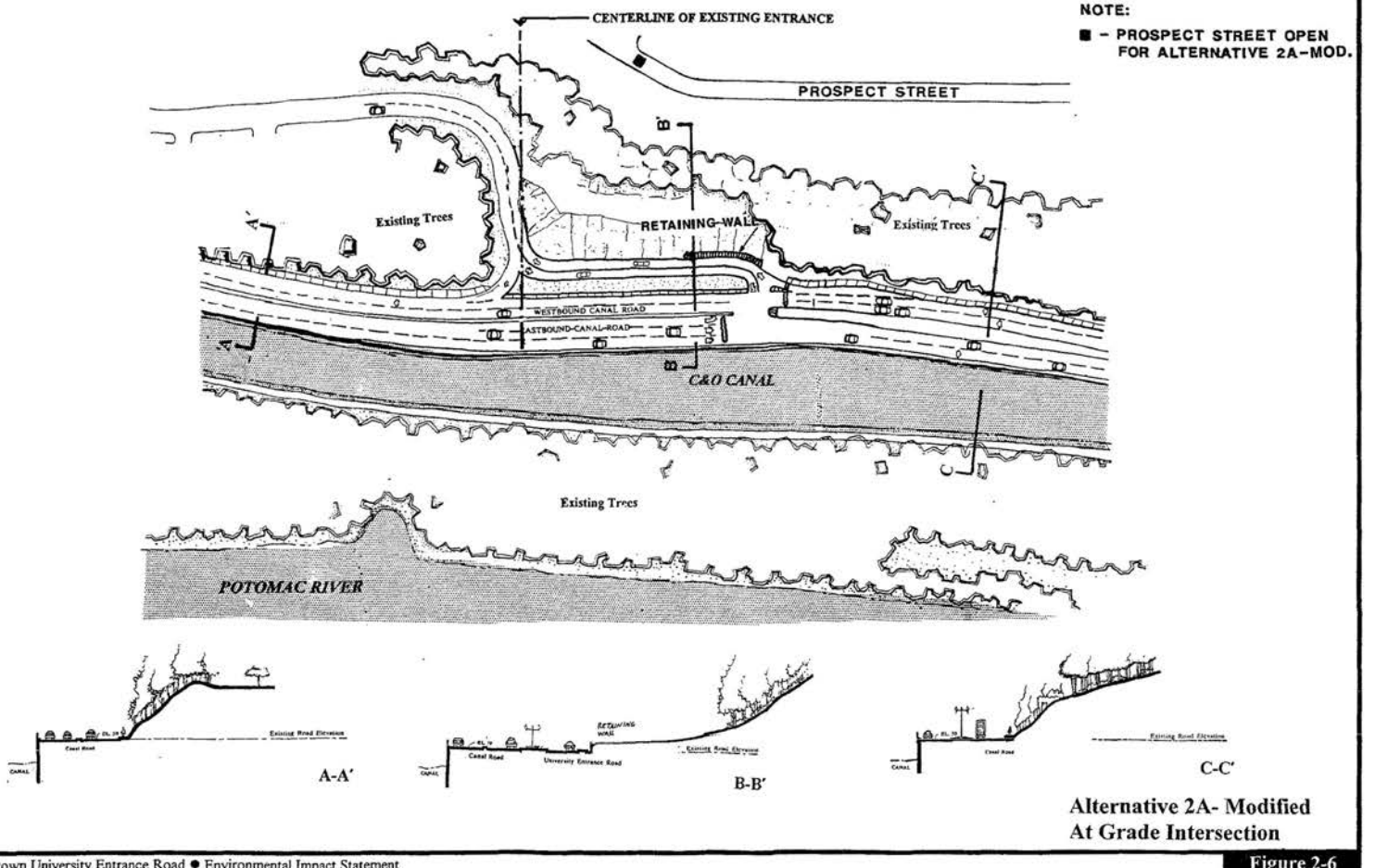
Alternative 2A-Modified would provide a break in the median of Canal Road for a new entrance to the University approximately 91 meters (300 feet) to the east of the existing entrance. (See *Figure 2-6*). The existing entrance would be used for exiting westbound traffic only. The new entrance would be used for entering traffic from both directions, and for exiting eastbound traffic making left turns. The new intersection would be signalized and a left turn storage lane would be provided on eastbound Canal Road for traffic making turns into the Main Academic Campus. The eastbound Canal Road turning lane would be about 75 meters (250 feet) in length and accommodate 10 to 12 vehicles.

Left turns onto eastbound Canal Road (exiting the Main Academic Campus) would be restricted during the morning peak period. Therefore, the heavier eastbound through traffic on Canal Road would not be stopped by a traffic signal during the morning peak period; only the lighter westbound through traffic would be stopped periodically to permit left turns into the parking area. The Prospect Street entrance would remain open.

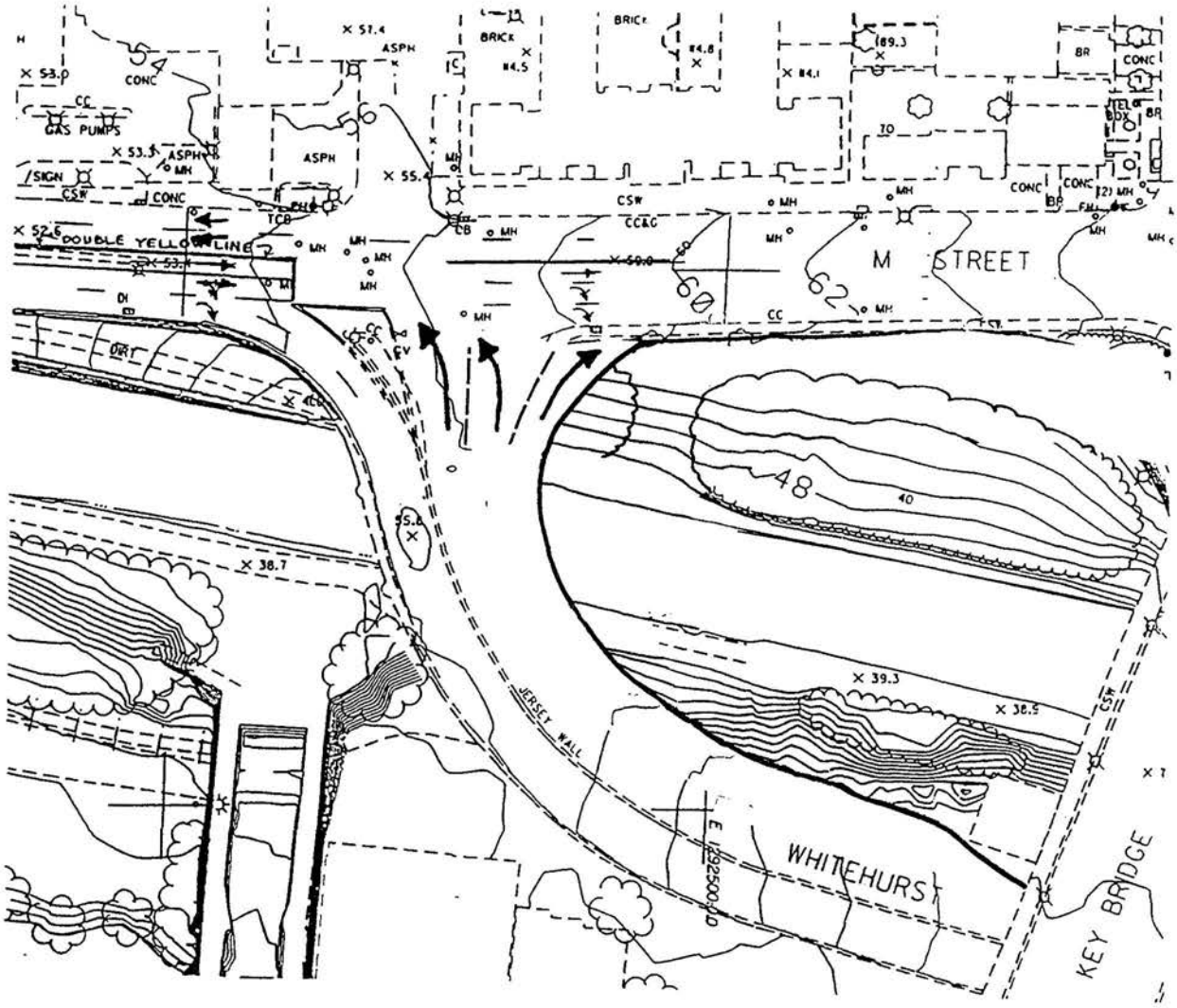
Alternative 2A-Modified would include a westbound deceleration area of about 45 meters (150 feet) in length for Canal Road traffic turning right into the Main Academic Campus similar to Alternatives 2 and 2A. However, the modified design would only provide a single lane for traffic exiting the campus and turning left onto eastbound Canal Road. It also incorporates a landscaped median between the entrance road and Canal Road. The retaining wall required along the northern edge of the entrance road would be minimized to approximately 31 meters (100 feet) in length and would be under 3 meters (ten feet) in height.

To mitigate potential traffic impacts on Canal Road, Alternative 2A-Modified would include changes to the lane configurations on Canal Road at the Whitehurst Freeway. The intersection design would accommodate three eastbound lanes and two westbound lanes on Whitehurst/Canal Road. (See *Figure 2-7.*) The modifications would provide a through, through/right, and right turn only lane for eastbound Canal Road at the Whitehurst Freeway. The modifications would rebuild the Canal Road retaining wall and maintain the service road to the National Park Service Property. These improvements would require less than 800 square feet of National Park Service property.

Direct costs for implementing Alternative 2A-Modified are estimated to be:

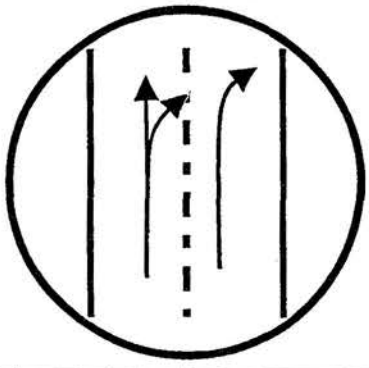


Alternative 2A- Modified
At Grade Intersection

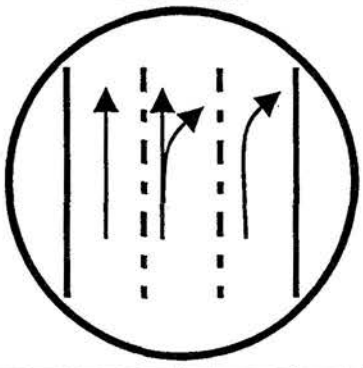


Eastbound Canal Road

Existing



Proposed



***Drawings not to Scale**



Preferred Alternative – Canal Road Lane Configuration at Whitehurst Freeway

Georgetown University Entrance Road ● Environmental Impact Statement **Figure 2-7**

Federal Highway Administration

Construction Costs	**$**	**978,300**
Right-of-Way Costs (direct)	**$**	**0**
Maintenance of Traffic Costs	**$**	**120,000**
Utilities Costs	**$**	**20,000**
Total Costs	**$1,118,300, say $1,120,000.**	

Additional maintenance costs are estimated to be approximately $1,500 per year. The cost of modifying Canal Road for new thru/right lane at Whitehurst Freeway is estimated to be $436,000 and is included.

2.4 COMPARISON OF ALTERNATIVES CONSIDERED IN DEIS AND THE PREFFERED ALTERNATIVE

As a result of ongoing agency coordination and public involvement, as well as a preliminary technical evaluation, five Alternatives were selected for further evaluation in the Draft Environmental Impact Statement (DEIS). **After the DEIS was published and the Public Hearing was held, Alternative 2A – Modified was conceived. Alternative 2A – Modified is selected as the Preferred Alternative because it fulfills the Purpose and Need and has the least environmental impacts. Table 2-1, also presented in the Summary, summarizes each Alternative and its elements in comparison to the Preferred Alternative.**

TABLE 2-1

Summary of Alternatives

ALTERNATIVE	GEOMETRICS	DIRECTIONAL MOVEMENT AT ENTRANCE	STATUS OF PROSPECT STREET	ESTIMATED COSTS ($ 1998)
Preferred Alternative Alternative 2A – Modified	**At-Grade Intersection; Adds thru lane at Whitehurst**	**All directions-- Left turn exit restrictions during AM peak**	**No change**	**$ 1.12 m.**
Alternative 1	**No Build**	Right-in/Right-out	No change	None
Alternative 2	**At-Grade Intersection**	All directions	Entrance at Prospect Street Closed	$ 1.86 m.
Alternative 2A	**At-Grade Intersection**	All directions -- Left turn exit restrictions during AM peak	No change	$ 1.86 m.
Alternative 3B	**Westbound Elevated Ramp**	All directions	Entrance at Prospect Street Closed	$ 12.23 m.
Alternative 3H	**Grade-Separated Interchange**	All directions	Entrance at Prospect Street Closed	$ 21.77 m.

Note: Preferred Alternative has been added. Costs have been updated to 1998 dollar estimates.

CHAPTER 3. AFFECTED ENVIRONMENT

Note: Highlighted text indicates substantive information different from the Draft Environmental Impact Statement (DEIS) or new to this Final Environmental Impact Statement.

The purpose of this chapter is to identify elements and resources of the built and natural environment that may be affected by the Proposed Action. It is organized into sections discussing the community, the transportation system, and the physical and natural environment.

3.1 COMMUNITY DESCRIPTION

The study area is located in the south central part of the District of Columbia. It is bounded on the south by the Potomac River, and extends east to Wisconsin Avenue, north of Reservoir Road and west to include the area around MacArthur Boulevard.

The community setting for the Proposed Action includes several residential neighborhoods, Georgetown University, and major waterways. Also discussed are features such as parklands and historic resources.

3.1.1 Land Use and Zoning

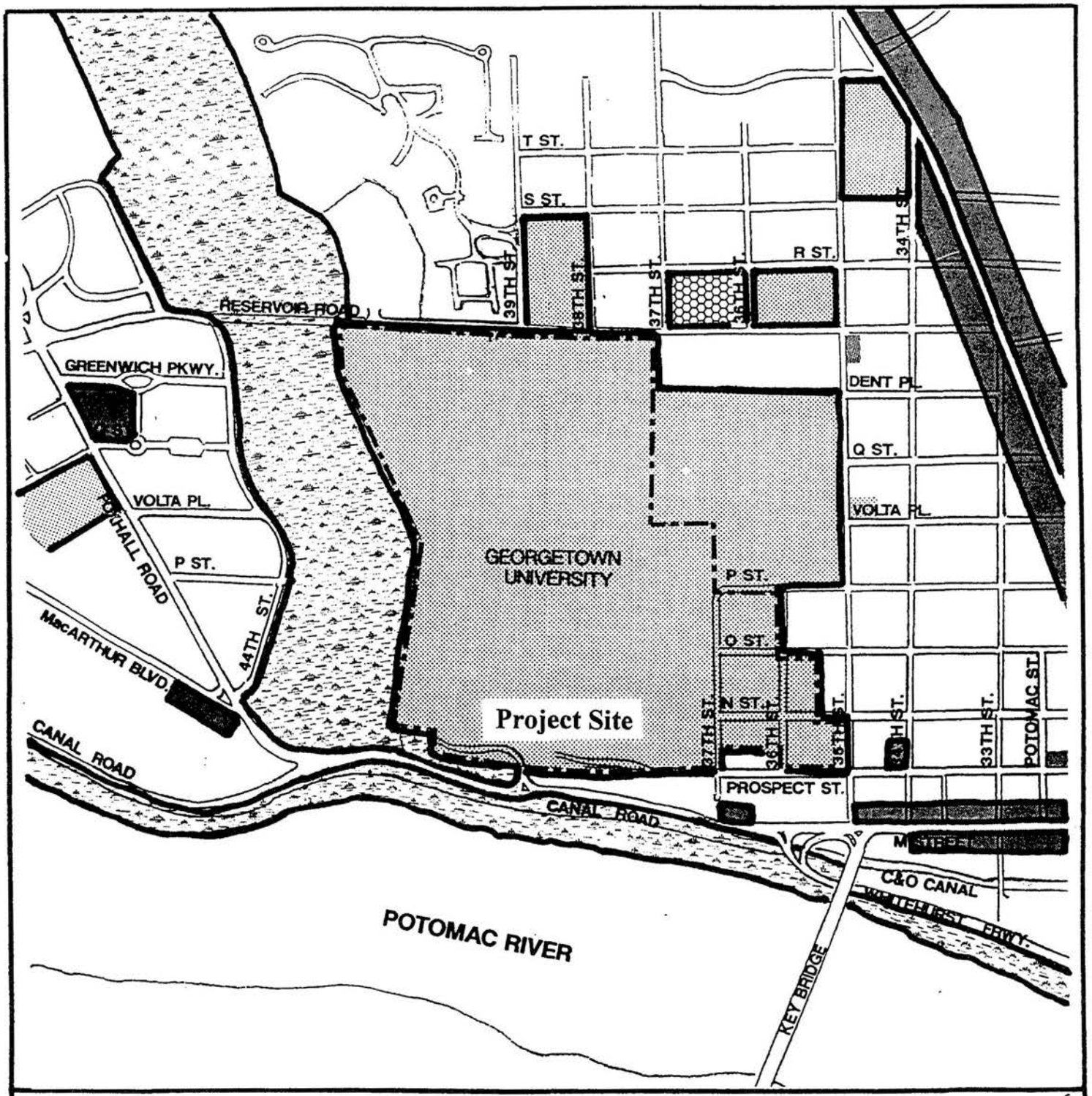
Georgetown University is bounded on all sides by parks and residential neighborhoods. **Figure 3-1** presents a generalized land use map of the area around Georgetown University. In most instances, the existing land use also represents the future land use plan, as most of the area is fully developed and not much change is expected in future years.

Land Use

The study area is predominantly residential, with the exception of Georgetown University and nearby parks. To the east and north of the University, are low- to moderate-density row houses. Just west of the University is Glover-Archbold Park, and beyond that is more single-family housing, again predominately row houses. Some low-density apartment buildings are located along MacArthur Boulevard to the west.

Property south of the University is parkland owned by the National Park Service, including the Potomac Palisades Parkway and the Chesapeake and Ohio (C&O) Canal National Historic Park just south of Canal Road. The strip of land between Georgetown University and Canal Road is currently undeveloped open space, with much of the property forested. The right-of-way of an abandoned trolley traverses the Project area. South of the C&O Canal is an abandoned railroad line. On the banks of the Potomac River, just west of Key Bridge, are two boathouses.

Commercial areas are located along M Street and Wisconsin Avenue. The Georgetown area is well known for its restaurants and shops, which attract patrons from throughout the metropolitan area,



LEGEND:

- RESIDENTIAL
- INSTITUTIONAL/ EDUCATIONAL
- COMMERCIAL
- RELIGIOUS
- PARK/OPEN SPACE

0 500' 1,000' 2,000'

0 50m 250m 500m

N

General Land Use Map

Georgetown University Entrance Road ● Environmental Impact Statement **Figure 3-1**

contributing to street congestion and parking shortages.

Zoning

The existing land use in the area is generally in conformance with the zoning. A generalized zoning map is presented in **Figure 3-2.** Most of the area is zoned R-3, which permits residential row houses. One block of Georgetown University property along 36th Street is zoned C-1 for neighborhood shopping.

The Comprehensive Plan of the District of Columbia identifies the University portion of the area west of 37th Street to remain in institutional use and the parkland north of Canal Road to remain as parks and open space. The area south of the C&O Canal is zoned C-M-1, low bulk commercial light manufacturing, though this area also is shown on the District's Land Use Plan to remain as parks, recreation and open space due to its historical designation.

In the immediate vicinity of the Proposed Action, the zoning is R-3, and the land is shown on the Land Use Plan as parks, recreation and open space. The parcels of land that would be used for construction of the various Alternatives are currently undeveloped.

3.1.2 Socioeconomic and Community Characteristics

Neighborhoods

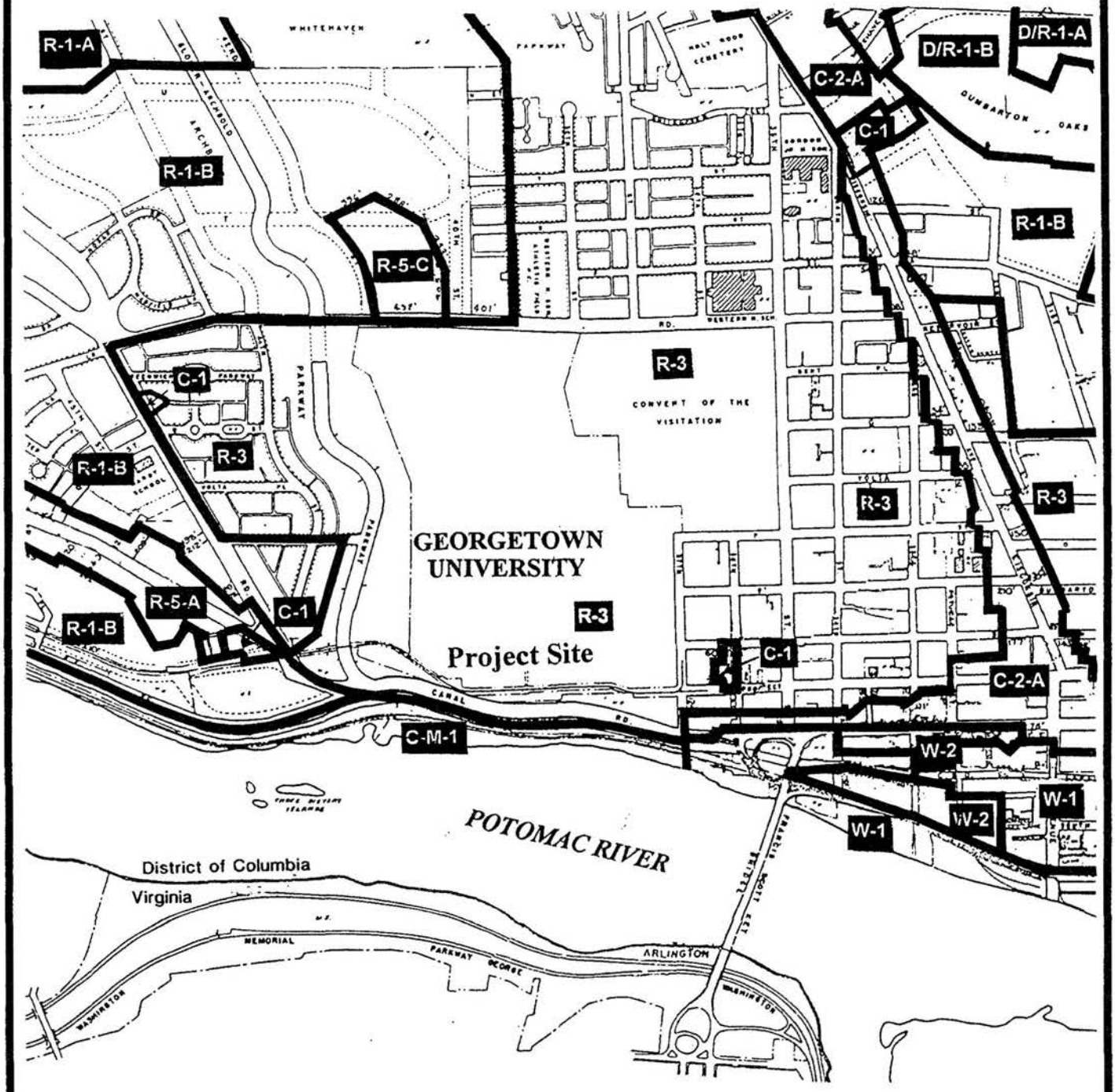
Several established residential neighborhoods, shown on **Figure 3-3,** constitute much of the study area. To the east is Georgetown, which consists mostly of row houses. Many of the houses date back to the 19th century, and most are maintained in good condition. Georgetown also has commercial areas along its principal arterial streets of Wisconsin Avenue and M Street.

North is Burleith, another neighborhood of row houses, though somewhat newer than most of Georgetown. Immediately west of the University is Glover-Archbold Park, then west and adjacent to the park is Foxhall Village. Foxhall Village includes row houses, single-family detached houses, and some apartment buildings along MacArthur Boulevard. Two more communities, Foxhall and Glover Hall are located to the north.

The Project area is in Ward 2, one of the eight election wards in the District of Columbia. Each Ward is further divided into several Advisory Neighborhood Commissions (ANC), whose members are elected. Figure 3-3 shows the ANC boundaries in the Project Area. The ANCs play an advisory role in reviewing proposed developments and changes in planning and zoning. The proposed Project is located in ANC 2E, which includes the Georgetown, Burleith and Foxhall Village neighborhoods.

Population and Housing

Information on population characteristics was obtained from the 1990 census for the five census



ZONING DISTRICT

R-1-A	ONE-FAMILY DETACHED DWELLINGS
R-1-B	ONE FAMILY DETACHED DWELLINGS
R-3	ROW HOUSES
R-5-A	LOW DENSITY APARTMENT HOUSES
W-1	LOW DENSITY MIXED RESIDENTIAL-COMMERCIAL IN WATERFRONT AREAS
W-2	MEDIUM DENSITY MIXED RESIDENTIAL-COMMERCIAL IN WATERFRONT AREAS
C-1	NEIGHBORHOOD SHOPPING
C-2-A	COMMUNITY BUSINESS CENTER-MEDIUM HIGH DENSITY
C-M-1	LOW BULK COMMERCIAL LIGHT MANUFACTURING
D/	DIPLOMATIC OVERLAY DISTRICT

0 500' 1000' 2000'

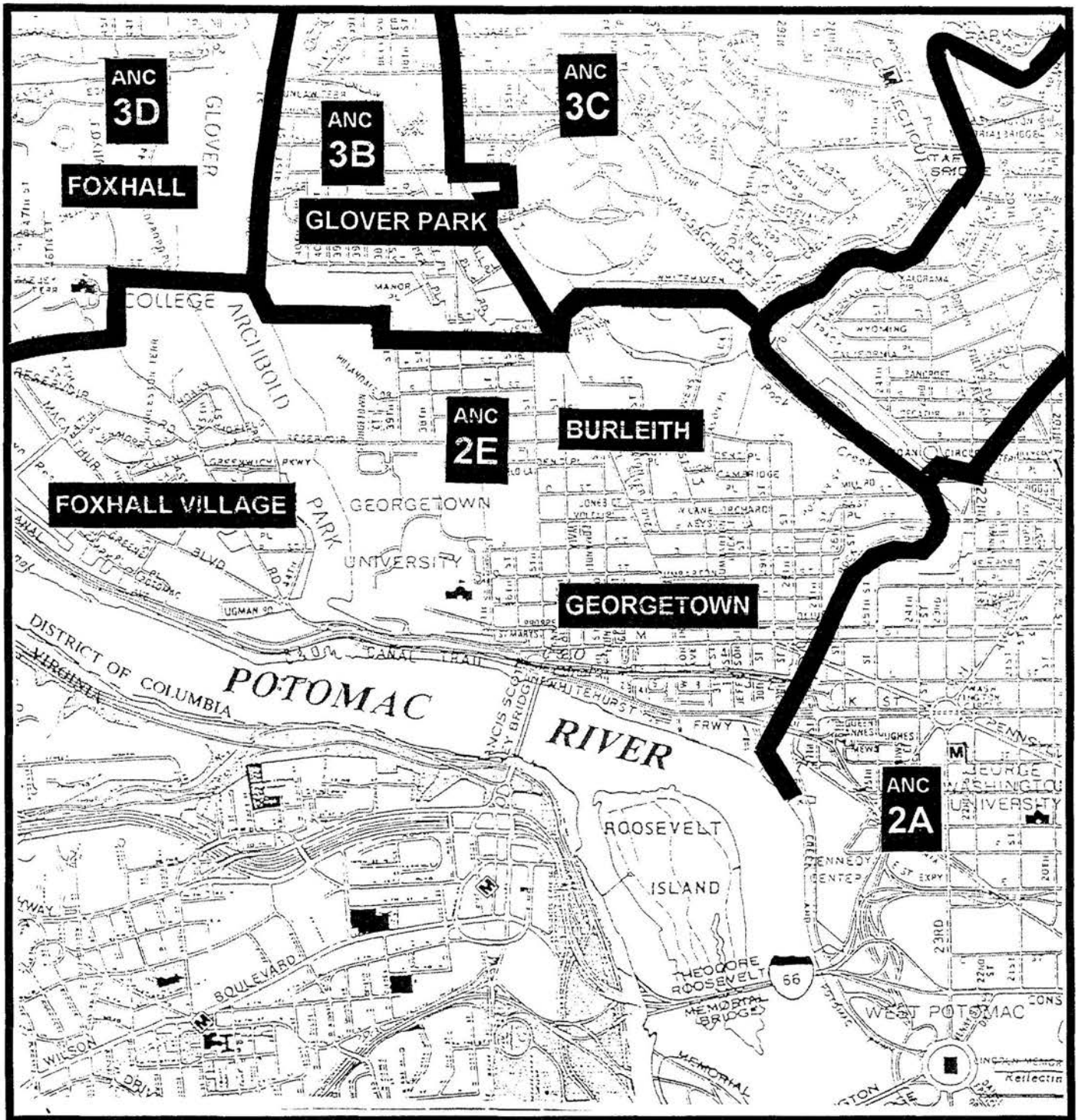
0 100m 250m 500m

N

Source: D.C Office of Planning

Zoning Map

Georgetown University Entrance Road • Environmental Impact Statement **Figure 3-2**



Community and ANC Boundaries

Georgetown University Entrance Road ● Environmental Impact Statement **Figure 3-3**

Federal Highway Administration

tracts that encompass the project area. The census tracts, shown in **Figure 3-4,** do not correspond exactly to the boundaries of the wards or the ANCs.

In the Georgetown neighborhood, the population includes fewer minorities and has greater average per capita income than Washington DC, as a whole, as shown in **Table 3-1**. The percentage of owner-occupied housing is greater and the median value of houses is more than twice that of the rest of the city.

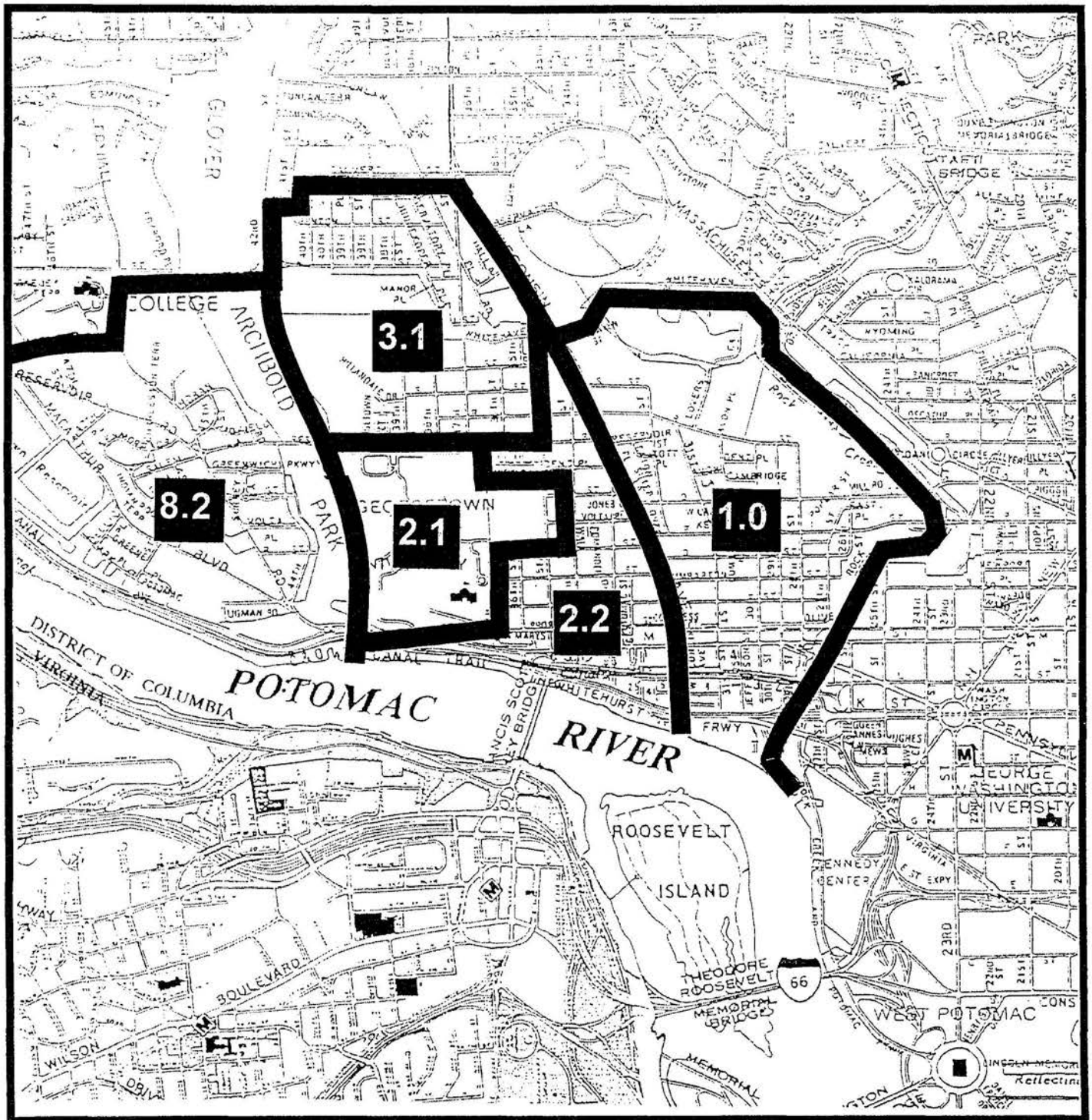
TABLE 3-1

Population and Housing Characteristics

TRACT CHARACTERISTIC	Census Tract 1.0	Census Tract 2.1[1]	Census Tract 2.2	Census Tract 3.1	Census Tract 8.2	All Of D.C.
Population	4,706	3,836	3,639	5,738	2,691	606,900
Non-White	7.2%	10.2%	6.0%	8.7%	9.1%	70.4%
Hispanic Origin[2]	5.0%	6.9%	5.0%	4.9%	6.1%	5.4%
Median Age	41.2	20.0	32.6	32.6	32.7	33.4
Over 65	16.7%	1.6%	9.5%	7.0%	9.6%	12.8%
Households	2,605	16	1,744	2,639	1,250	249,634
Persons per Household	1.75	3.00	2.06	2.16	2.11	2.26
Households Owner-occupied	49.3%	75.0%	52.0%	44.3%	51.5%	38.9%
Median Home Value	$500,000	$364,000	$496,000	$289,000	$356,000	$124,000
Median Household Income	$58,543	$41,974	$59,546	$44,349	$57,292	$30,727
Persons below Poverty Level	9.2%	22.0%[3]	20.4%	18.7%	9.6%	16.9%

(1) Georgetown University occupies most of this tract.
(2) Includes persons classified as both white and non-white.
(3) Based on only 118 persons for whom poverty status was known.
Source: 1990 Bureau of the Census

In census tracts 2.1, 2.2 and 3.1, the percent of persons below poverty level is higher than the District average. The data are skewed by the large numbers of students living in these tracts. In tracts 1.0 and 8.2, located farther from the University campus, the poverty rate is far below the District average.



Census tracts

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-4

Federal Highway Administration

Georgetown University

Georgetown University was founded in 1789, in what was then the village of Georgetown, a thriving tobacco port on the Potomac River in Maryland. The current campus, about 42 hectares (104 acres) in size is bounded on the north and east by residential neighborhoods and on the south and west by parkland. Georgetown University is a comprehensive university with a variety of programs, some of which are tailored to its location in the Nation's Capital. The campus itself is divided into two general areas--the Medical Center to the north and the Main Academic Campus to the south. (See **Figure 3-5.**)

Under Section 211 of the District of Columbia zoning regulations, Georgetown University must periodically present a plan of future development for approval by the District of Columbia Board of Zoning Adjustment (BZA). In addition to approval of the overall campus plan, individual construction projects must obtain approval from the BZA. Since the adoption of the 1958 zoning regulations, Georgetown University has submitted eight campus plans to the BZA for review and approval. The most recent master plan is the University's *1989 Bicentennial Master Plan* (**Campus** Plan), which was approved under BZA Order No. 15,302, dated October 12, 1990.

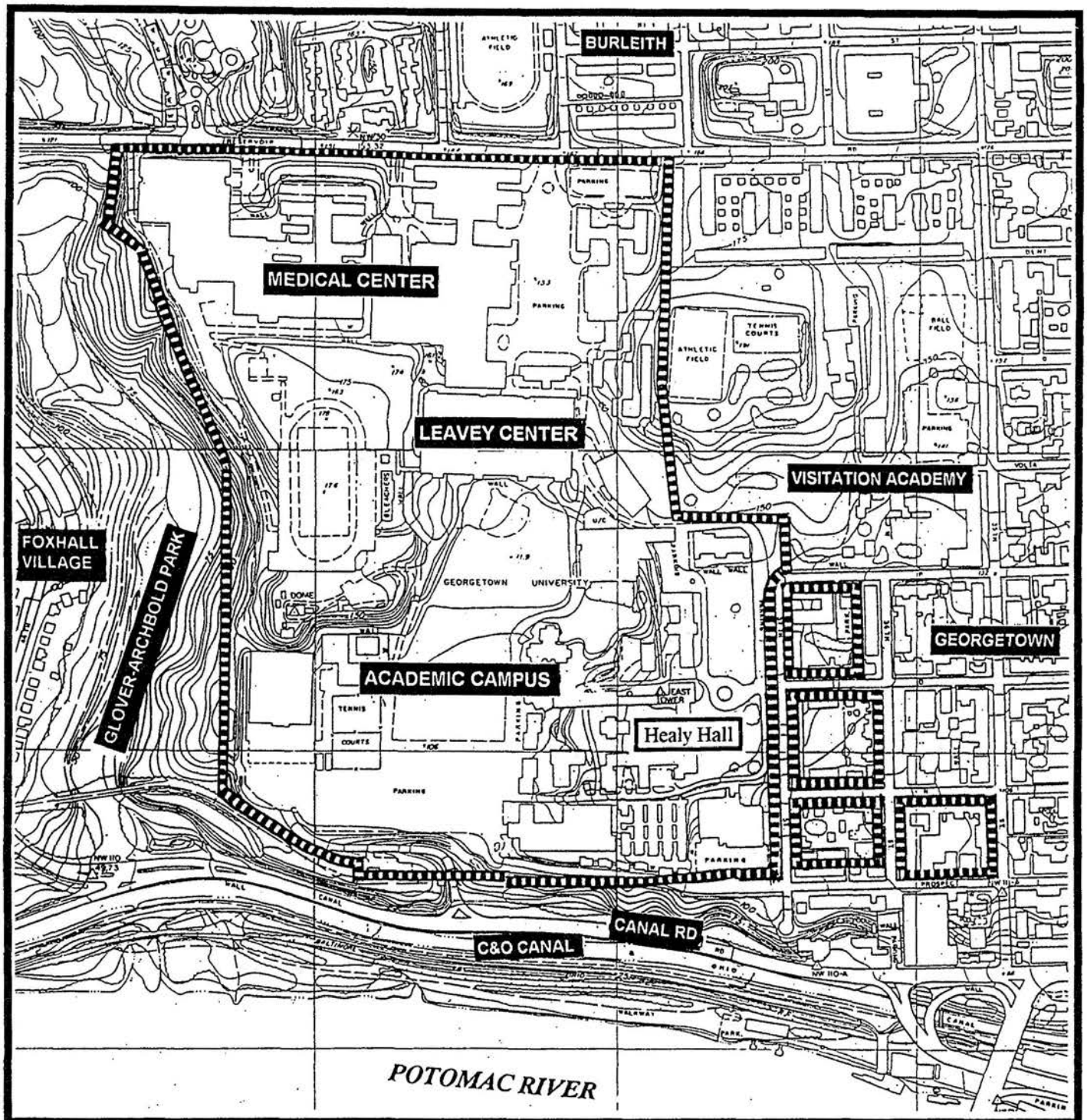
Student enrollment has been relatively constant for about a decade and the University does not expect much change in the number of faculty or students in the future. The University's most recent Campus Plan forecasted an undergraduate full-time equivalent enrollment of 5,627 in 1994, an increase of 340 (6.4%) over the figure for 1989-1990. **In the 1997-1998 academic year, there were 5,356 students, of which about 4,000 live on campus**. There are also **between 2,000 and 3,000 full-time equivalent** graduate and professional degree students in any given year **at the main academic campus.**

In 1990, when the University's **Campus** Plan **was approved, the existing bulk of all buildings on campus was approximately 390,390 square meters (4.2 million square feet) in gross[1] floor area. The Campus Plan projected the need for an additional approximate 260,260 square meters (2.8 million square feet) through the life of the Plan.** The additional space is to improve the work/study environment for existing programs and enrollment. The **Campus** Plan states, "... the extent of the development of new facilities will be based on the need to replace and/or reconfigure facilities, unmet needs for existing programs and population, and increased emphasis on research and graduate-level study." **Since 1990, the projects reviewed and approved by the BZA have totaled approximately 23,240 square meters (250,000 square feet).**

3.1.3 Community Facilities and Services

Community facilities in the study area include a number of schools, churches and other public facilities as shown in **Figure 3-6.**

[1] **Gross floor area means all space contained under roof, excluding cellars.**

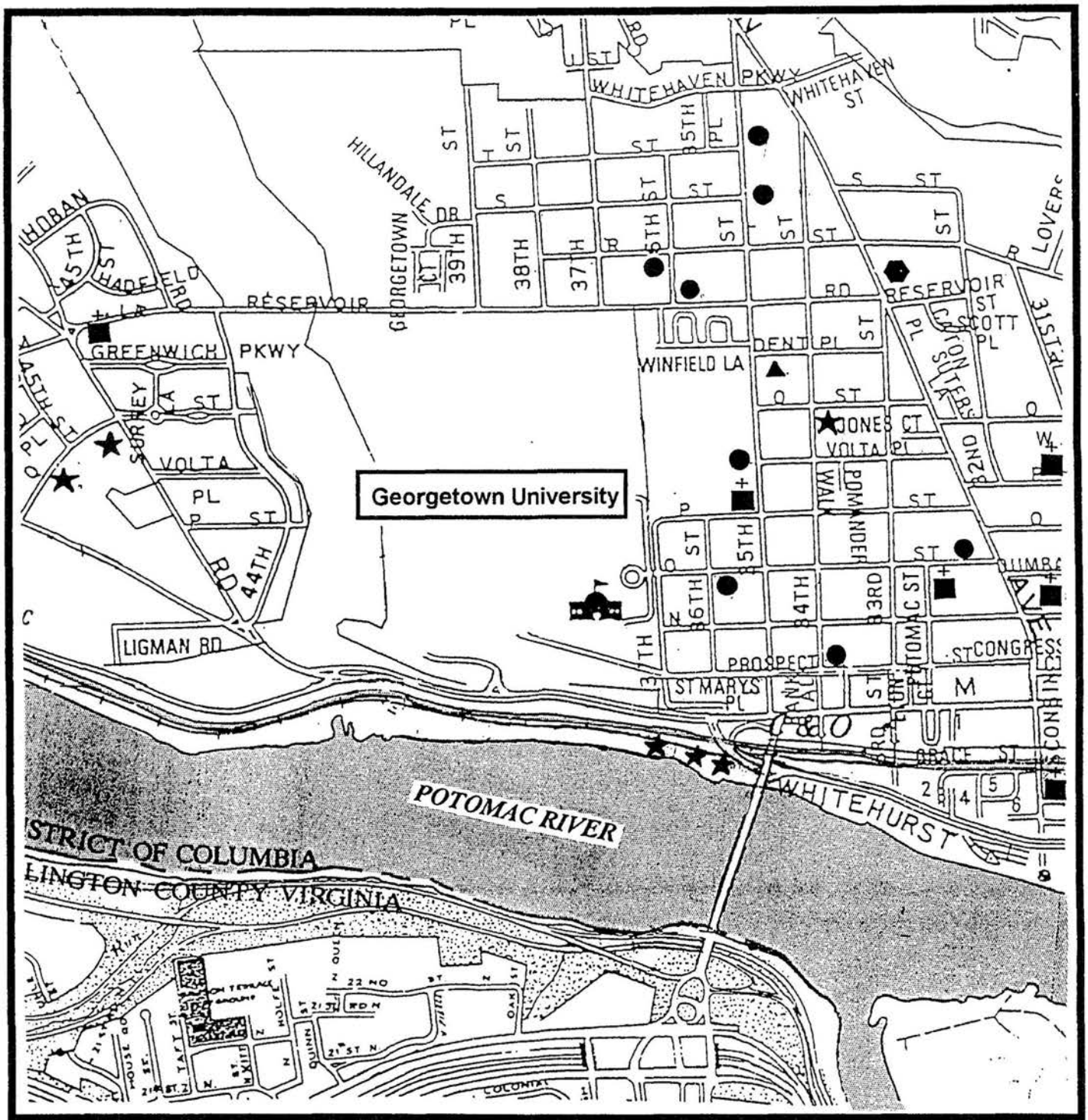


Georgetown University Campus

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-5

Federal Highway Administration



Note: Facilities in Virginia not shown.

- SCHOOLS
- CHURCHES
- RECREATION CENTERS, BOAT HOUSES
- LIBRARY
- FIRE STATIONS

0 500' 1000' 2000'

0 100m 250m 500m

N

Community Facilities

Georgetown University Entrance Road • Environmental Impact Statement

Figure 3-6

Federal Highway Administration

Institutional and Emergency Facilities

Educational facilities near the project area besides Georgetown University, include Visitation Academy and Convent, Duke Ellington High School, the Georgetown Day school, Our Lady of Victory, the Wormley School, and Holy Trinity School. Several of these schools are associated with the churches in the area including Holy Trinity and Our Lady of Victory Church. **Since the DEIS was published in 1995, the Hardy School has moved to a location on Wisconsin Avenue that is out of the project area. The school building has been converted into a recreational center.**

The only active hospital in the area is the large Medical Center which occupies the northern half of the Georgetown University campus. This is located along Reservoir Road. A Psychiatric Institute is located in the western part of the study area along MacArthur Boulevard; however, this facility is currently closed.

Two fire stations are located in the area--one in the Georgetown neighborhood on Dent Place and one to the west on MacArthur Boulevard. No police stations are located in the study area.

Parkland and Recreation

Figure 3-7 shows several different properties near the Project area that are owned by the National Park Service. These separate areas are not easily distinguishable to the general public, since there are no marked park boundaries or entrances. The properties include:

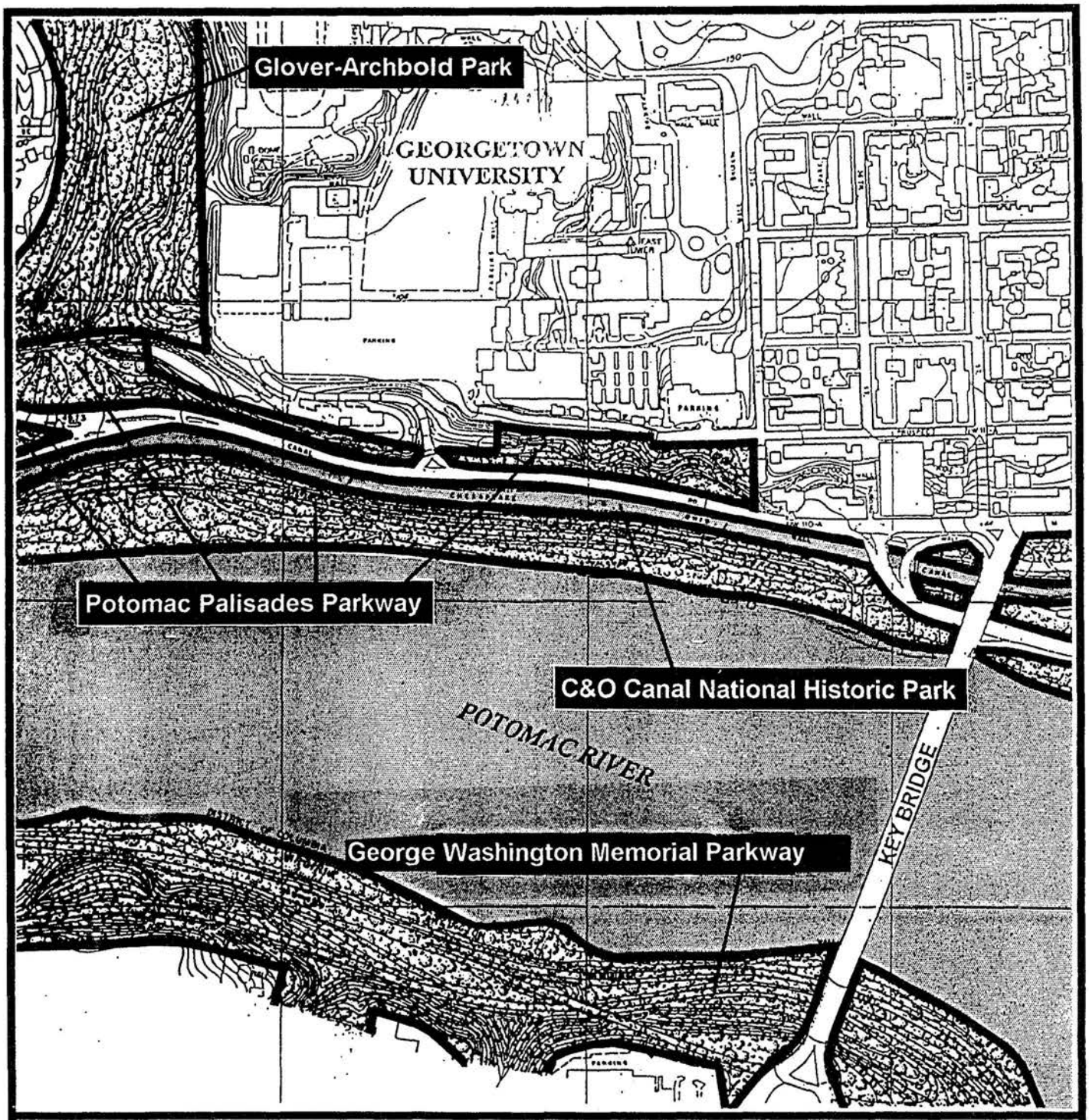
- Chesapeake & Ohio (C&O) Canal National Historic Park, located just to the south of Canal Road;
- Potomac Palisades Parkway, which includes the land just to the north of Canal Road and also south of the C&O Canal; and
- Glover-Archbold Park, located along the western boundary of Georgetown University.

(The Potomac Palisades Parkway mentioned above refers to an irregular wide and long corridor of land with general park-like qualities, but which is not a transportation facility.)

In addition, the George Washington Memorial Parkway, located in Virginia across the Potomac River, has the potential to experience visual impacts from the project. **However, no significant visual impact is expected from the Preferred Alternative.**

The C&O Canal National Historic Park includes hiking and bicycling trails along the canal towpath and is a popular recreation facility. There are also hiking trails in Glover-Archbold Park and along the Potomac River south of the C&O Canal. The parkland north of Canal Road is less accessible and is not used for active recreation. Its primary purpose is to provide open space and scenic views.

The Potomac River is a navigable waterway used for recreational activities. On the banks of the Potomac River are two boathouses, the Washington Canoe Club and the Potomac Boat Club.



National Park Service Property

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-7

Federal Highway Administration Project

Utilities

The study area is fully serviced by electric, water, gas, telephone, cable television and sewer facilities. Several water conduits and electrical lines are located under the Project area and cross under Canal Road into Georgetown University, as well as running alongside Canal Road to provide service to areas west along Foxhall Road.

3.1.4 Visual Context

The existing viewshed for the Project area is marked with natural features that provide a scenic landscape combining wooded parkland and historic waterways. The Potomac Palisades are a sharply rising landform alongside the Potomac River upstream from the Fall Line. The Palisades along Canal Road form a distinctive topographic feature and are visible from the Virginia side of the Potomac River. The topographic contours **shown on some** of the figures illustrate the steep rise in land form north of Canal Road. Later discussions in Chapter 4 - Environmental Consequences address the context of the Project to the Palisades.

View from the Road

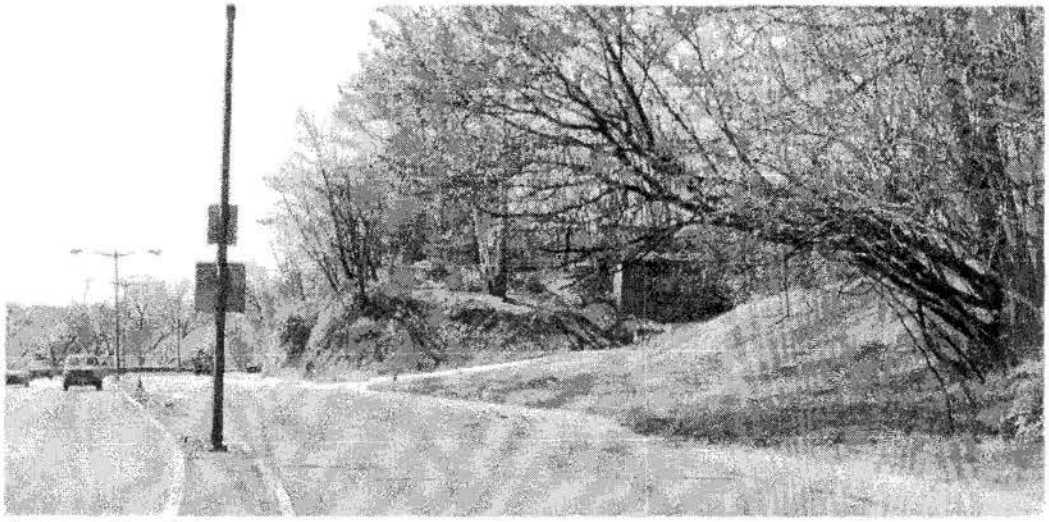
For persons traveling in vehicles, the portion of Canal Road between the Whitehurst Freeway and Foxhall Road offers a scenic passage. Steep bluffs and heavy woodlands are close to the northern side of the road, with more open views and glimpses of the C&O Canal and the Potomac River to the south.

At the Canal Road entrance to the main academic campus of the University, the woodlands on the north side of the road open up and the slopes are less severe and maintained as lawn. This presents a sharp contrast to the typical steep bluffs and heavy woodland cover. **Figure 3-8** shows a sequence of views when approaching the Georgetown University entrance from westbound Canal Road. **Figure 3-9** shows a similar sequence of views from eastbound Canal Road.

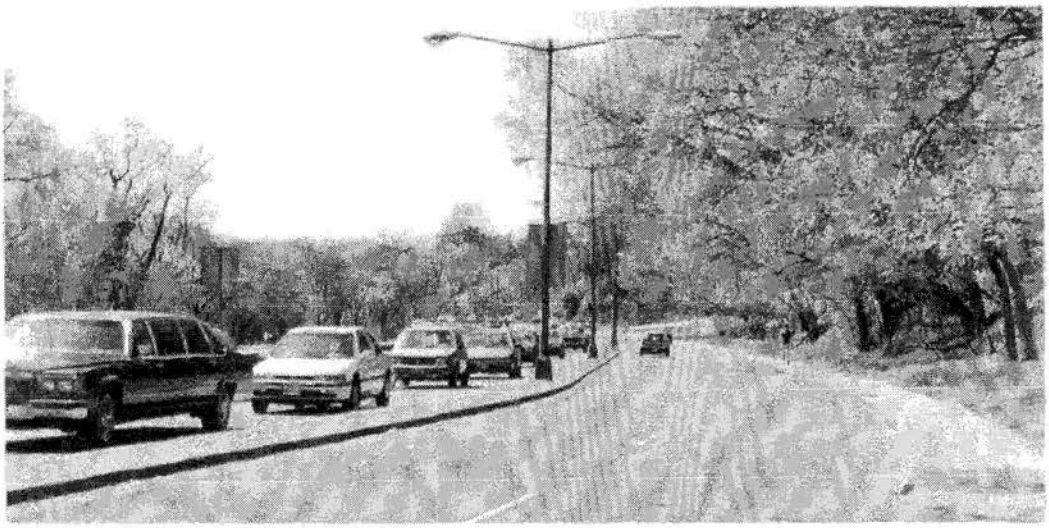
View of the Existing Entrance

Figure 3-10 presents views of the existing entrance road as seen from the C&O Canal Towpath, from Key Bridge, and from the George Washington Memorial Parkway on the Virginia side of the Potomac River. These photographs were taken in early spring, when the emerging foliage only partially obscured views of the area. Any alterations to the entrance road would be most visible from Canal Road and the C&O Canal Towpath, both of which allow close observation.

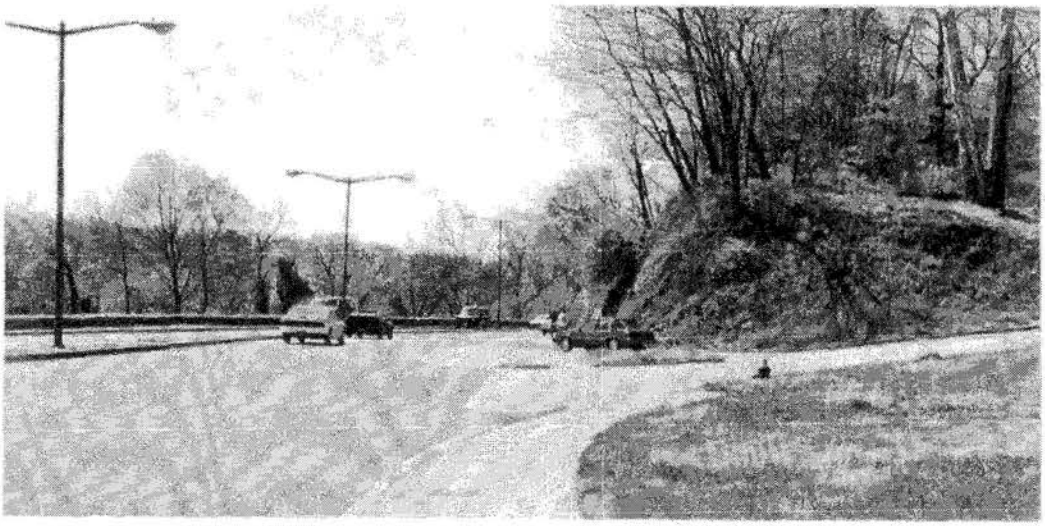
From the Key Bridge and from the George Washington Memorial Parkway, the area of the entrance road does not stand out particularly in the view of the Palisades. It is more than a 0.4 kilometer (quarter mile) distance and is mostly screened by trees for half of the year (see **Figure 3-11**). In the winter, the view from across the Potomac River tends to focus on the dramatic spires of Healy Hall and the other buildings on the top of the bluff at Georgetown University and not on the entrance road area below.



Approaching Entrance

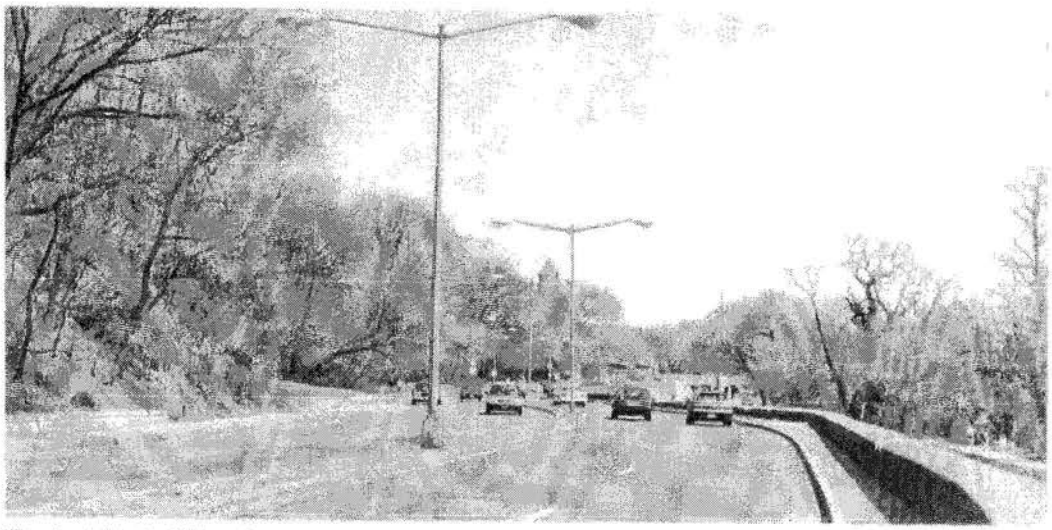


West of Whitehurst Freeway

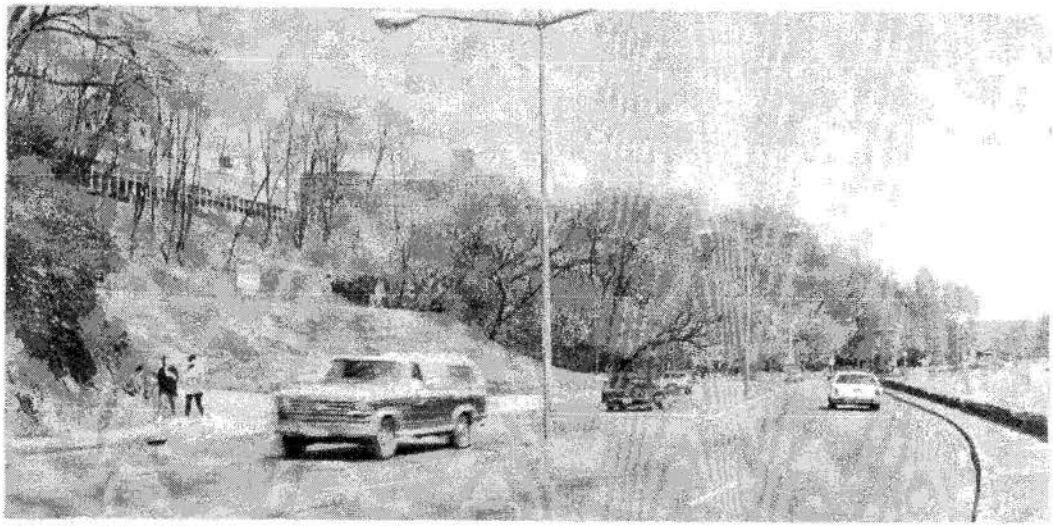


At Entrance - Palisades Shown

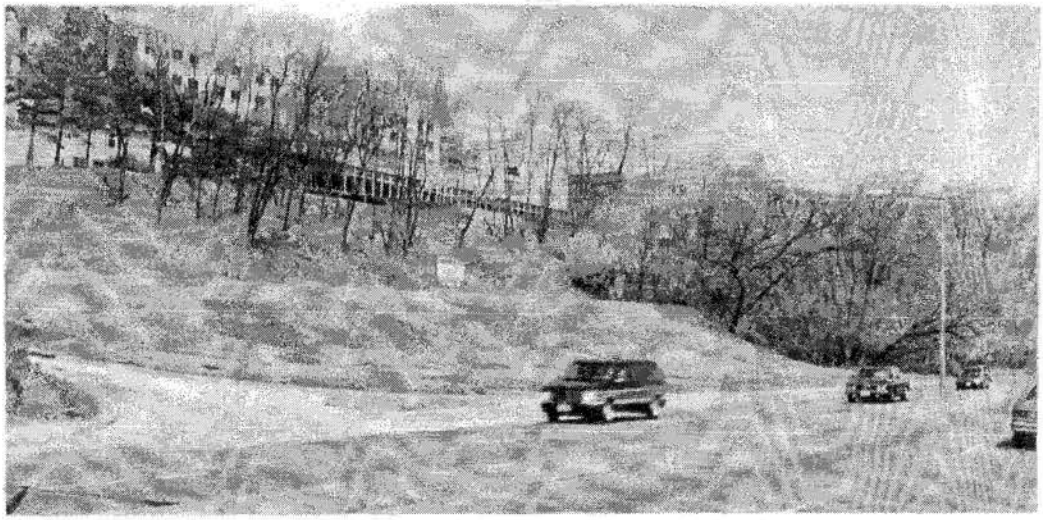
View from Westbound Canal Road



East of Foxhall Road



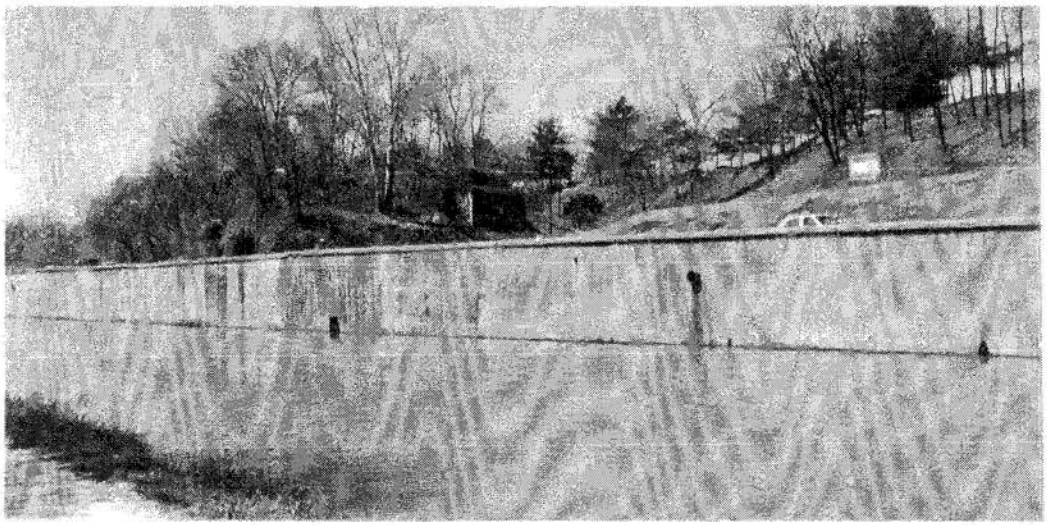
Approaching Entrance - Shows Opening



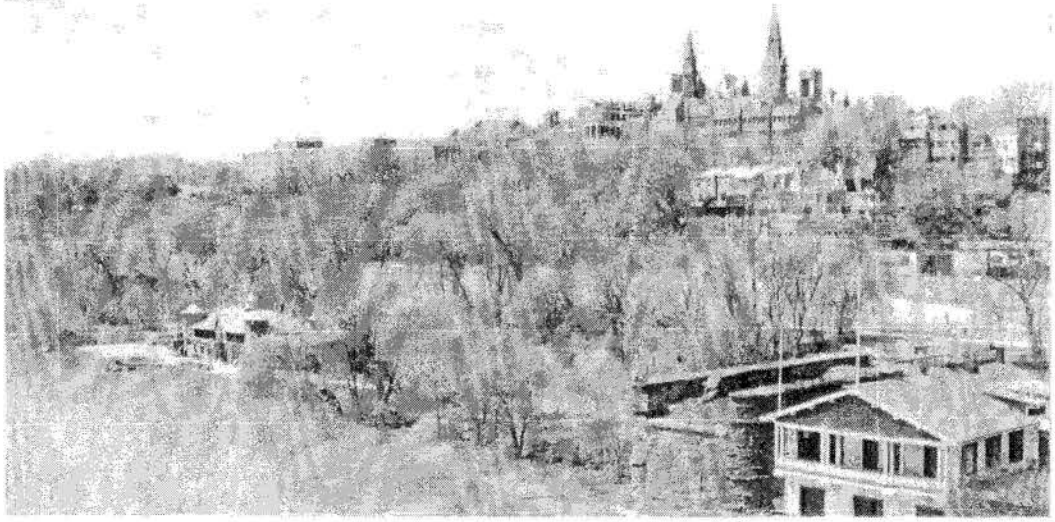
Open Area at Entrance with Campus Buildings at Top of Palisades

View from Eastbound Canal Road

Georgetown University Entrance Road ● Environmental Impact Statement **Figure 3-9**



From C&O Canal Towpath

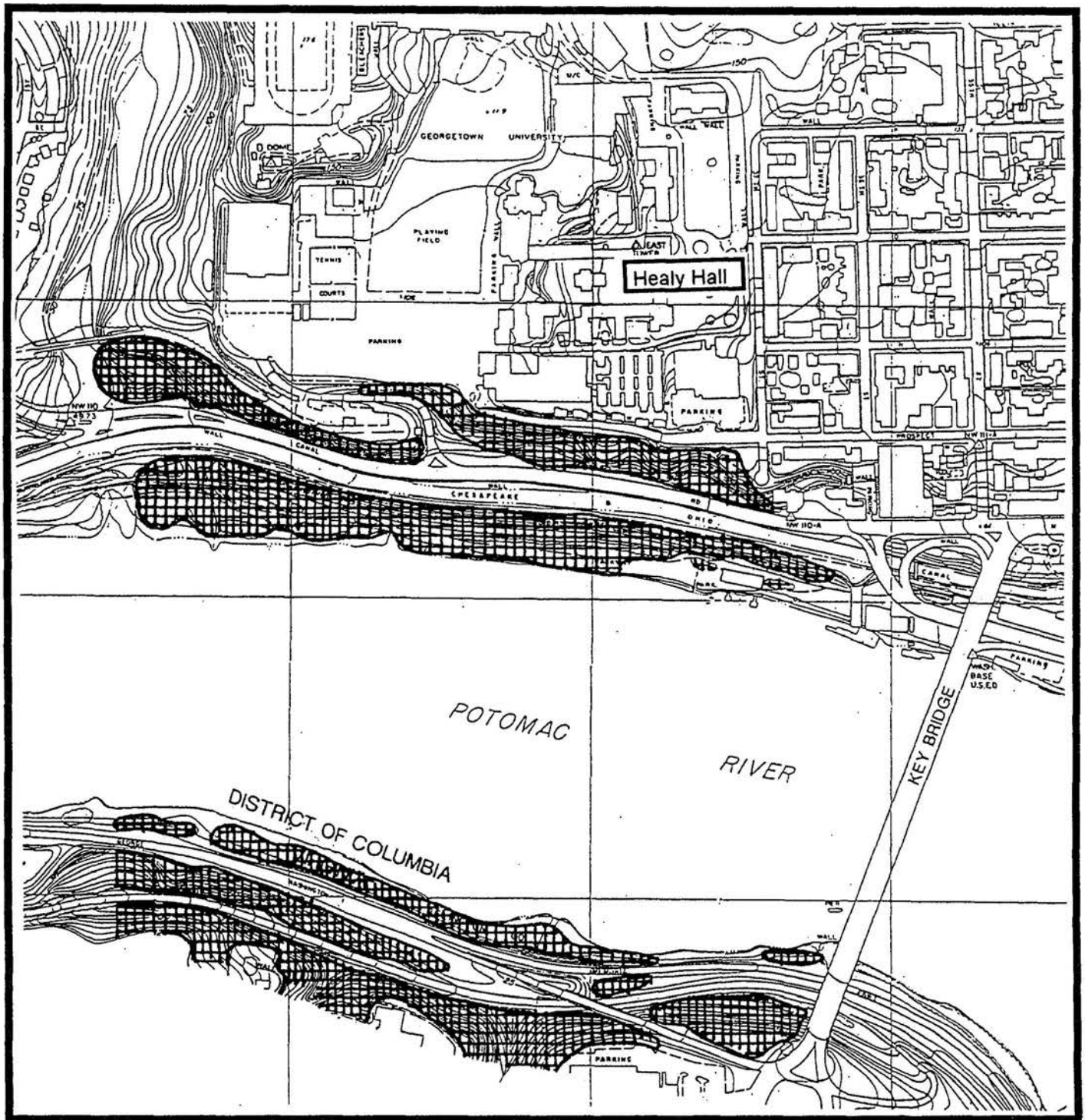


From Key Bridge



From George Washington Parkway in Virginia

Views of Georgetown Entrance Road



Tree Canopy

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-11

Federal Highway Administration

From the eastbound George Washington Memorial Parkway, people in vehicles have less opportunity to see the project area under study. The westbound lanes have somewhat better visibility, primarily because while traveling under the Key Bridge, the observer's line of sight is directed more toward the entrance road; there is a gap in the vegetation between the Parkway and the river's edge, allowing unrestricted visibility.

3.1.5 Historic and Archaeological Resources

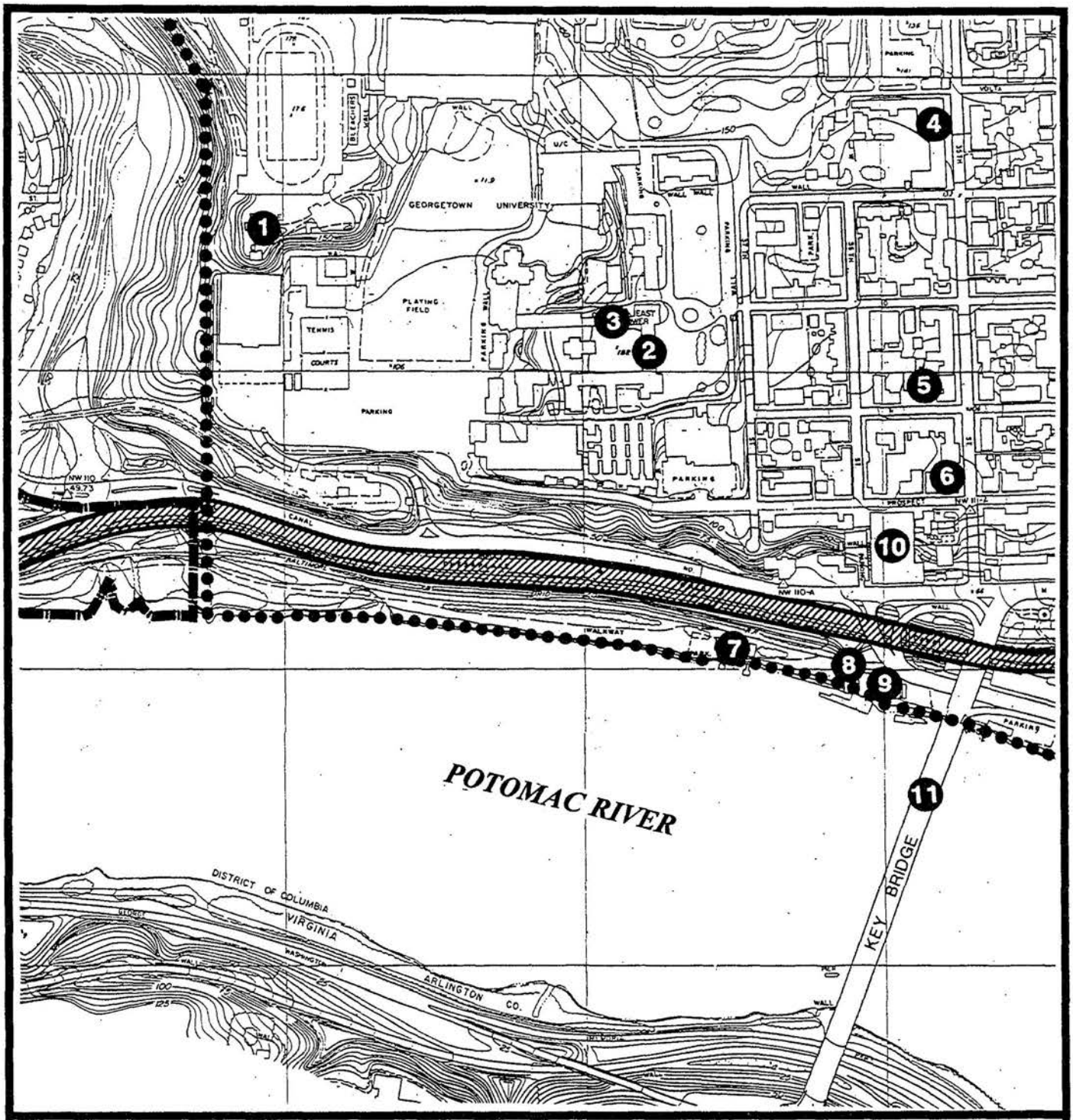
The Project is located within the Georgetown Historic District and adjacent to the C&O Canal Historic District, as shown on **Figure 3-12**. Both historic districts are Category II landmarks and are listed in the National Register of Historic Places. In addition, a section of the area designated as the Potomac Gorge begins at the shoreline of the Potomac River and extends along the river in a corridor approximately two city blocks in width on the District of Columbia (DC) and Maryland side. Thus, the Potomac Gorge encompasses the C&O Canal and overlaps the C&O Canal Historic District. Historical records indicate that the Potomac Gorge was listed on the DC Inventory of Historic Sites on November 8, 1964, but it was never nominated to the National Register of Historic Places. There are also a number of historic resources located in the vicinity of the project, as shown on Figure 3-12.

Georgetown's history began early in the 1700s when a settlement developed around the tobacco inspection station of George Gordon. By the mid 1700s, it was a busy trading center and tobacco port. The coming of steam navigation and the need for deeper harbors, along with competition from other ports, led to a decline in commercial activity at Georgetown. In an effort to halt this decline, a waterway was planned to the Ohio Valley. Construction of the Chesapeake and Ohio Canal began in 1828. The canal finally reached Cumberland, Maryland in 1850. As mentioned previously, the Canal currently exists as a historic district, and is located south of Canal Road.

Georgetown was annexed to the City of Washington in 1871. By the turn of the century, the development of streetcars, and the suburbs they made possible, led to the separation of places of work from places of residence. One of these suburban streetcar lines ran through the Project area. It was incorporated in 1882 as the Washington and Great Falls Electric Railway Company. The line eventually became part of the Capital Transit Company, later part of the D.C. Transit System. The right-of-way for the old streetcar lines, along with the bridges, are still visible today near the project site.

Federal legislation, including Section 106 of the National Historic Preservation Act of 1966, as amended, requires consideration of means to preserve historic and archaeological resources that might be affected by activities involving Federal funding. More specifically, this legislation requires that a search be conducted for cultural resources that might be eligible for inclusion on the National Register of Historic Places. If such resources are found, consideration must be given to steps that would mitigate potential negative effects to these resources.

Because of the history of the area, it was anticipated that there would be historic and archaeological remains in the Project area. Thus, an archaeological assessment was conducted. It has been



LEGEND

1	Astronomical Observatory
2	Old North
3	Healy Building
4	Convent of the Visitation
5	Convent of Mercy
6	Prospect House
7	Washington Canoe Club
8	Potomac Aqueduct Bridge
9	Potomac Boat Club
10	Capitol Traction Company Union Station
11	Francis Scott Key Bridge

Chesapeak & Ohio Canal

Georgetown Historic District

Potomac Gorge Historic District

0 250' 500' 1000'

0 100m 200m 300m

N

Historic Resources

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-12

Federal Highway Administration

published as a separate technical report, *Preliminary Archaeological Assessment for Georgetown University Entrance Road*, by Elizabeth Anderson Comer/Archaeology, February 20, 1993, which has been coordinated with the National Park Service and the Historic Preservation Office of the District of Columbia.

The *Preliminary Archaeological Assessment* indicated that there are historic archaeological sites within the Project area. Field surveys of the Project area have established that historic archaeological sites are present at locations that appear to coincide with structures visible on historic maps of the vicinity. Portions of brick and stone foundations are extant in the Project area. Remnants of the Washington and Great Falls Electric Railway bed as well as the trestle over the Canal Road entrance to Georgetown University, formerly designated as Gym (Fowler's) Road, are extant.

Prehistoric human activities also almost certainly have occurred at and near the Project area due to the proximity of the Potomac River and the streams that flow through the Project area into the Potomac River. Other clues leading to this assumption are: the flora and fauna that were associated with the aquatic ecosystem; the movement of prehistoric populations along the natural corridors provided by the Potomac River Valley and the fall of the Potomac River; and the quartzite inclusions in the local bedrock which could be utilized to make stone tools and weapons.

The significance of the architectural and the archaeological remains is determined not only by their presence, but also by the degree of disturbance encountered. This determination can only be made by detailed field surveys (Phase I). A Phase I survey, ***Phase I Archaeological Identification Survey for Georgetown University Entrance Road,* June 1995**, has been conducted to more precisely study the observed archaeological remains, identify and locate other archaeological remains, and evaluate their historic significance. The results of the Phase I field investigation **were** submitted to the National Park Service and the District's State Historic Preservation Officer for review and additional coordination.

3.1.6 NCPC's Comprehensive Plan

Note: This section is new to the FEIS.

The main campus of Georgetown University, including the Prospect Street gate, is designated a Special Place and Canal Road is designated a Special Street in the Preservation and Historic Features element. The following policies apply:

> **The existing street space and the buildings fronting on Special Streets and Places should be maintained, protected, and enhanced. Any repair, maintenance, improvement or new building should respect the historic elements, enhance the aesthetic quality, and promote the amenity of this space.**
>
> **The integrity of the form and design of Special Streets and Places, particularly those of historic significance, should be maintained and**

protected to the extent feasible and as warranted by safety requirements from unnecessary traffic channelization and from encroachment of new buildings into public space. The intersection of Special Streets should be carefully designed to reflect the importance of the junctures and to respect the historic plans.

The visual quality of Special Streets and Places should be carefully controlled and coordinated by the selection and placement of signs, traffic signals, lighting, bus stops, and other elements of street furniture, as well as pavement patterns, and materials that together should promote a harmonious, orderly, and safe Streetscape. Parking areas, driveways or service areas should be carefully controlled, located, and designed to avoid adverse impact.

The Parks, Open Space and Natural Features element designates Canal Road as a Gateway, the adjoining Palisades a Natural Feature, and the C&O Canal as a Historic Park. Gateways are to be maintained and enhanced to provide scenic and attractive entrance ways to the seat of government. Natural Parks are established to protect and insure the conservation and enhancement of the significant natural features of the National Capital.

The following policy is applicable to the C&O Canal Historical Park:

The C&O Canal National Historical Park should be preserved as a legacy of inland waterway development. It should also serve as a recreational area for non-motorized uses, such as bicycling, jogging, hiking and boating, through preservation of park's historic resources should take precedence over the provision of recreational activities. Adjacent development should be kept at a low density, except east of Key Bridge in Georgetown. Public utilities requiring water from the Potomac should be located and constructed so as to protect the historic integrity and natural qualities of the park.

The following policy, regarding Terrain Features, applies to the Potomac Palisades:

Conspicuous man-made forms should be avoided upstream from Key Bridge. The transitions from natural to urban character on the higher slopes and crests paralleling the Potomac River and its tributary valleys should remain gradual.

3.2 TRANSPORTATION SYSTEM

Following is a description of the existing roadway network around the immediate Project area, and its operation. A frame of reference is provided as well for the other existing transportation facilities serving Georgetown University.

3.2.1 Transportation Facilities and Services

The Georgetown University is served by a network of roads and public transportation facilities that connects to the entire metropolitan area. The campus is divided between the Medical and the Main Academic Campus; the focus of this study is on the access and conditions related to the Main Academic Campus.

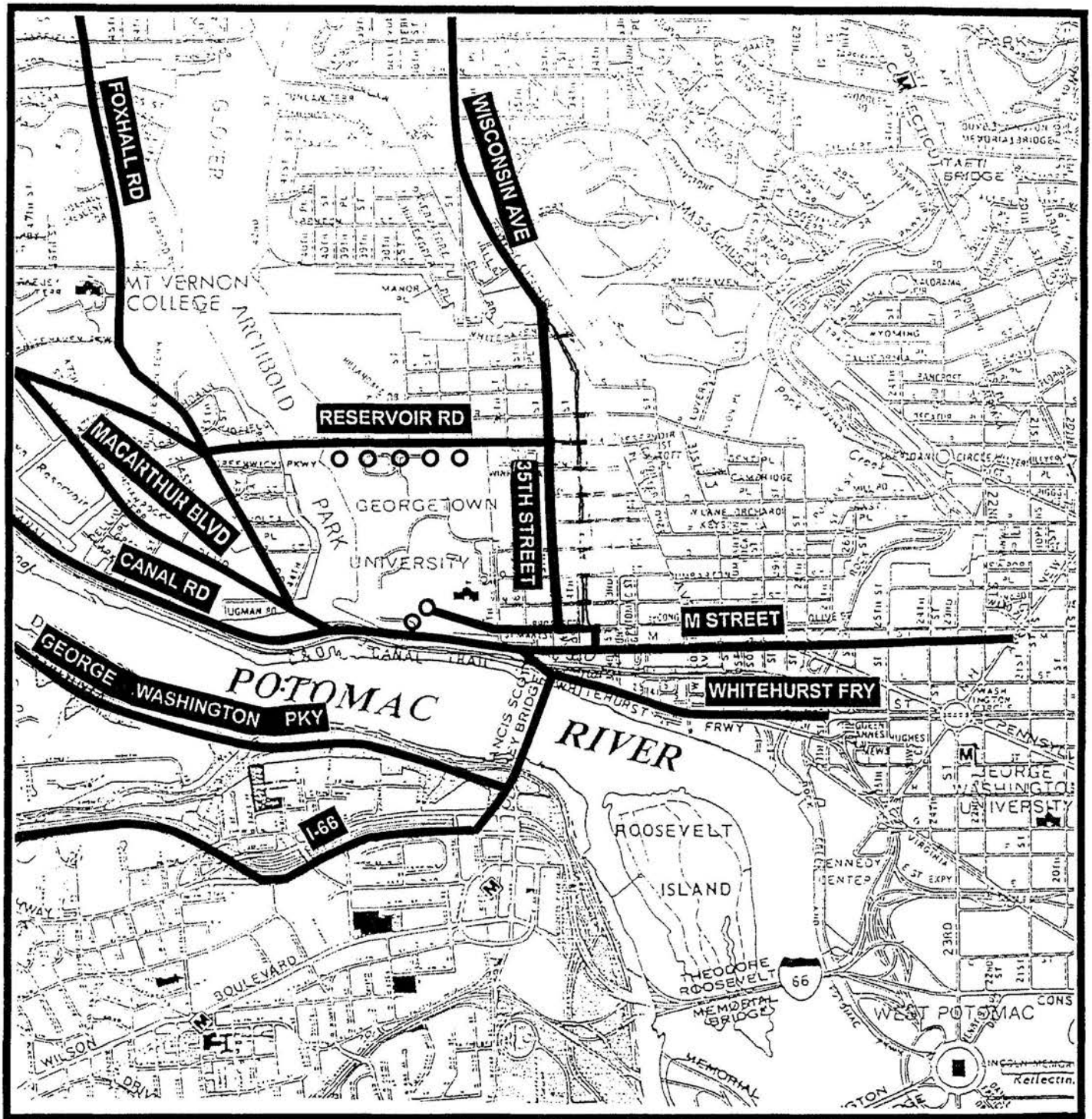
Regional and Local Access Routes

The principle existing regional access routes to the University are shown in **Figure 3-13**. Canal Road is a four lane, east-west arterial along the southern boundary of the University. West of the intersection with Foxhall Road until Arizona Avenue, Canal Road is two lanes; from Arizona Avenue to Chain Bridge, it is three lanes. During morning and afternoon peak periods, two lanes are inbound or outbound, respectively. It is one of the primary commuter routes to the District from northern Virginia and western suburban Maryland. MacArthur Boulevard and Foxhall Boulevard run northwest and north of the University. For Foxhall Boulevard, parking is permitted on both sides of the street that results in only two travel lanes for most of the day; MacArthur Boulevard has restricted parking in the peak hours, providing two available lanes in the peak direction.

Key and Chain Bridges, which provide access to the University from Virginia, are also important commuter routes into and out of the District. Key Bridge--east of the University--has six lanes and connects to George Washington Memorial Parkway and other important routes in northern Virginia. The Whitehurst Freeway and M Street are east-west routes that provide access to the University from the central and eastern parts of the District and from Maryland. Streets that provide local access to the University include Reservoir Road to the north, Canal Road to the south, and the local Georgetown streets to the east. Frequently used Georgetown streets include 34th through 37th Streets from the north and south and P and O Streets from the east.

Several intersections on arterial streets in the study area are controlled by traffic signals. Signalized intersections include those for Canal Road with Foxhall Road, the Whitehurst Freeway and Key Bridge. (This segment of Canal Road includes the entrance to the University's Main Academic Campus under consideration.) These signals are part of the computer-controlled system operated by the District. The signals are timed to favor eastbound traffic in the morning peak hour and westbound traffic in the afternoon peak hour. Other signalized intersections include those for Foxhall Road with Reservoir Road and MacArthur Boulevard, Reservoir Road with 35th Street, and M Street with 34th Street.

The study area for the detailed traffic analysis generally encompassed the roadways identified on **Figure 3-1**.



Primary Georgetown University Access Routes

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-13

Federal Highway Administration

Public Transportation System

The public transportation system serving the University includes the MetroBuses of the Washington Metropolitan Area Transit Authority (WMATA), and the shuttle buses of the Georgetown University Transportation Society (G.U.T.S.). The primary MetroBus routes are depicted on **Figure 3-14**, showing a lack of available service between the University and areas to the northeast and northwest. While WMATA's MetroRail system serves the region in general, it does not provide convenient, direct service to the University. As shown on Figure 3-14, none of the MetroRail stations are within convenient walking distance of the University. Furthermore, there are no current plans to provide a rail extension to the Georgetown area.

Georgetown University's own transit system, G.U.T.S., was established in 1974 to augment the transit service provided by WMATA. G.U.T.S. has five main routes (shown in **Figure 3-15**) that link the University to the Dupont Circle and Rosslyn's MetroRail stations, and neighborhoods in Arlington, Virginia. The buses all leave the University by way of the Reservoir Road exit. Ridership on the G.U.T.S. system has grown during the past several years. In the 1992-1993 year, G.U.T.S. carried 117,000 riders; **by 1997-1998, it carried 809,000 passengers. There are 15 vehicles in the G.U.T.S. system, which operates between 6 a.m. and 9:30 p.m.**

Taxicabs are another type of public transportation used by people traveling to and from the University. Georgetown University officials estimate about 20 taxis come into the University's Main Academic Campus each hour, about 10 taxis at each entrance.

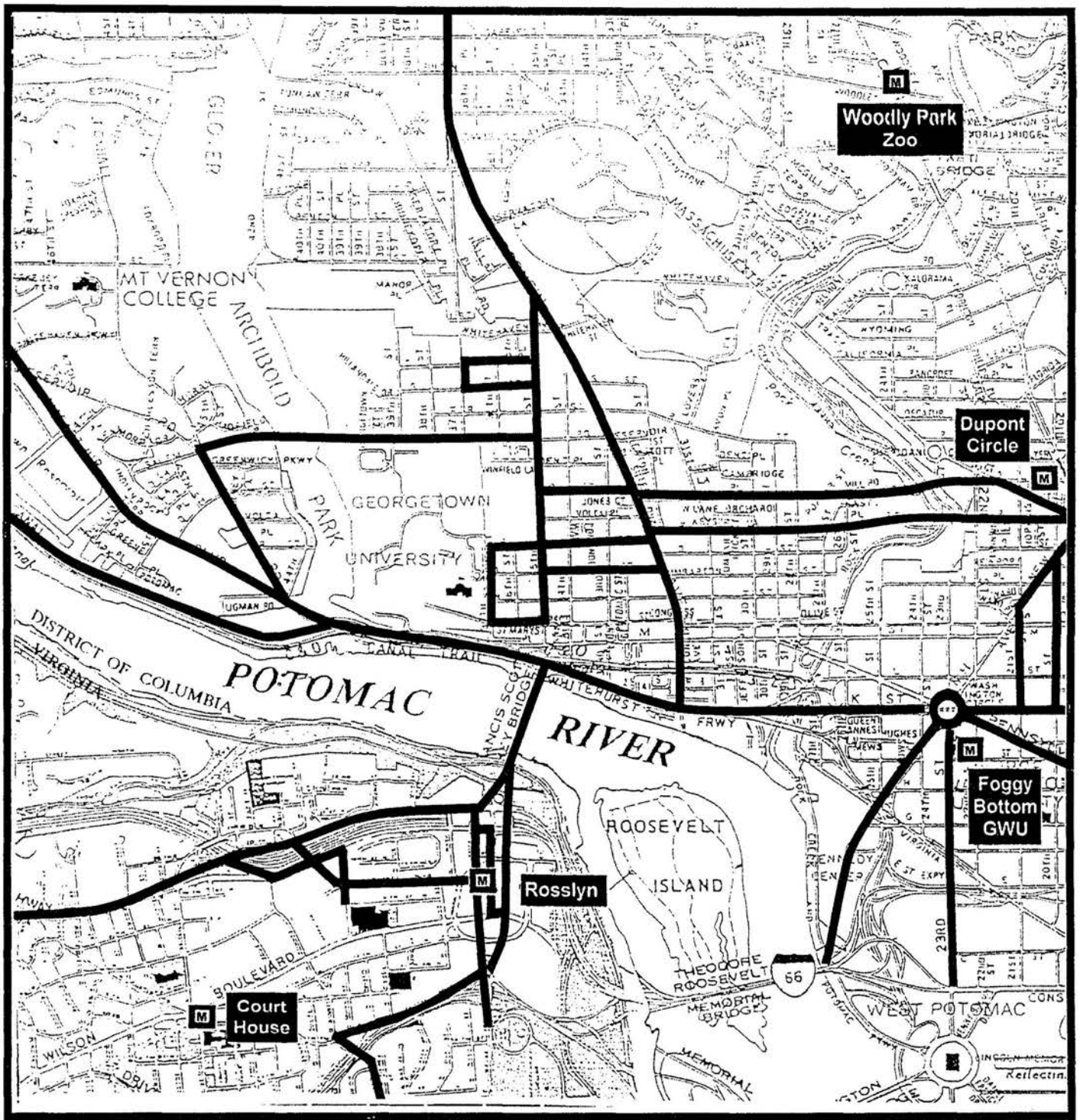
Pedestrian and Bicycle Facilities

A bicycle/pedestrian path is located on the north side of Canal Road. It continues as a combined-use sidewalk until MacArthur Boulevard where the bicycle route moves onto the street. The path is connected by an underpass under Canal Road to the bicycle/pedestrian pathway along the C&O Canal. The C&O Canal path is part of a widely used regional network of bicycle/pedestrian pathways. Bicycle use along the C&O Canal is particularly high on weekends, with many users accessing via the sidewalk along Canal Road and the tunnel near the Foxhall Road intersection. Pedestrian and bicycle travel is high near the University; pedestrian traffic is especially high east of the University on weekends.

Georgetown University--Circulation and Parking

Georgetown University's students, faculty, staff, and visitors travel to and from the University by various means. Based upon the survey conducted as part of the *Georgetown Area Access Alternatives Study* done in the early 1980s, approximately 50 percent of commuters to the University arrive by automobile, 14 percent use public transit, seven percent use G.U.T.S., and the remaining 30 percent either walk, bicycle, or ride a motorcycle to the University.

The University campus is divided into two general areas--the Medical Center on the north and the Main Academic Campus to the south. North-south vehicle circulation on the University campus is

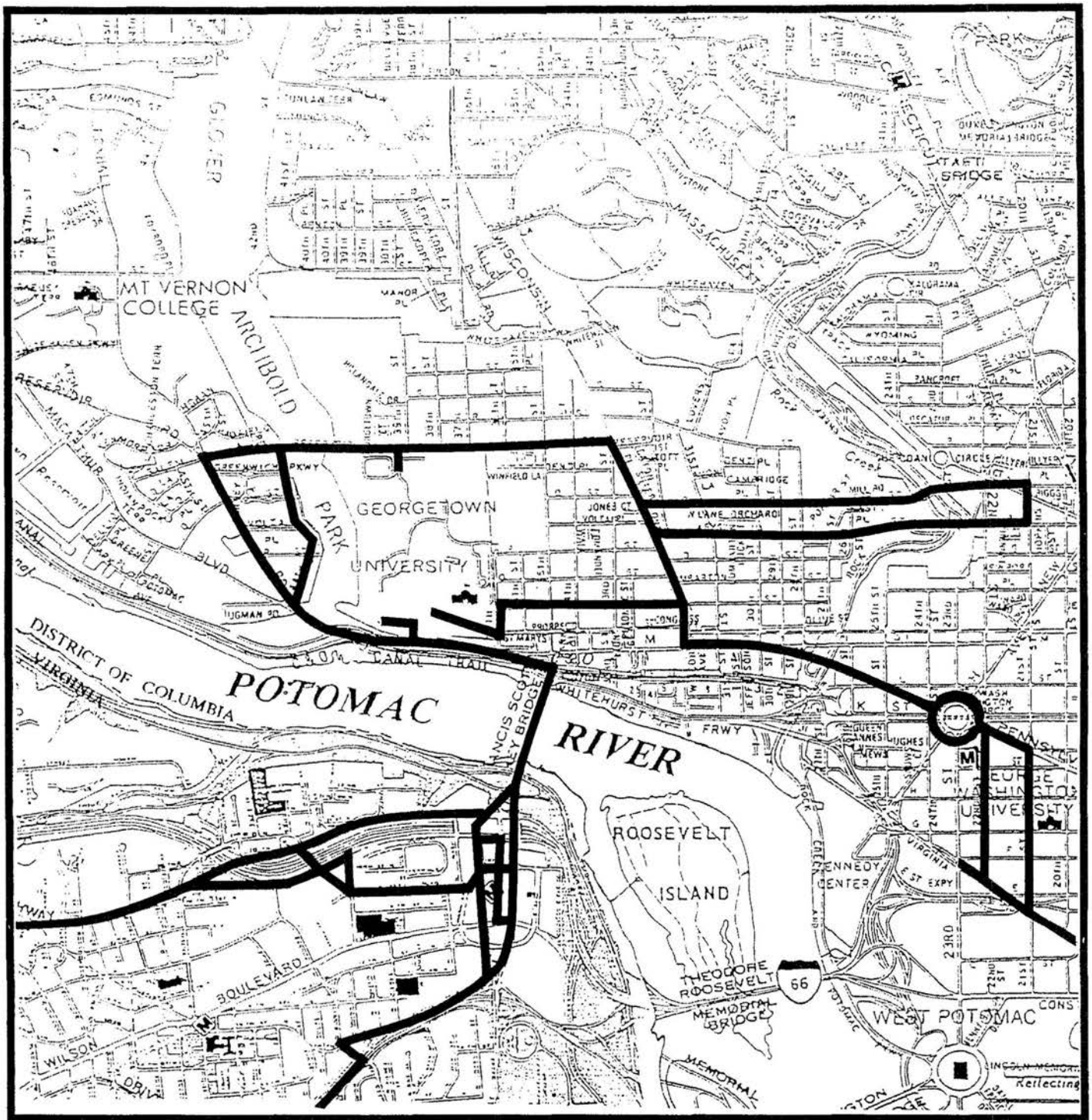


Public Transportation System

Georgetown University Entrance Road ● Environmental Impact Statement

Figure 3-14

Federal Highway Administration



G.U.T.S Shuttle Routes

Georgetown University Entrance Road • Environmental Impact Statement | **Figure 3-15**

Federal Highway Administration

controlled by a gate, which effectively separates the two portions of the University. This control and separation of traffic is planned to remain regardless of changes in specific access points to the University, and is required under BZA approval in order to maintain traffic distribution.

The Main Academic Campus only has entrances from Canal Road and Prospect Street. (As was shown in **Figures 1-3** and **3-13**.) Improving the access from Canal Road is the purpose of this Proposed Action. The Canal Road entrance currently accommodates right turns to and from westbound Canal Road, but does not allow left turns to and from eastbound Canal Road. The Medical Campus is served by five access points off Reservoir Road.

The Board of Zoning Adjustment (BZA) of the District of Columbia, in approving the campus master plan, had defined 4,080 spaces as the maximum number of parking spaces that can be provided on the Georgetown University campus. As shown in **Table 3-2**, 2,157 of the spaces serve the medical center campus and 1,451 spaces serve the Main Academic Campus. Some additional spaces are allowed to park vehicles owned and operated by the University. Though there are now only about 3,600 actual public parking spaces, this translates into the equivalent of about 4,080 spaces, since the University at present uses valet parking. **Valet parking expands the equivalent number of cars parked in a given area because vehicles may be queued in tight rows**. This valet parking will be discontinued when the additional spaces allowed by the BZA are constructed, **resulting in no change to the number of available spaces.**

TABLE 3-2

Existing On-Campus Parking Spaces
Georgetown University

	Main Academic Campus	*Medical Center*	
TOTAL			
Off-campus Students	100	--	
Jesuit Vehicles	57	--	
Yates Field Hose	30	--	
Staff/Faculty/Visitor	1,264	2,157	
TOTAL	1,451	2,157	3,608*
PERCENT OF TOTAL	40.2%	59.8%	100%

** With valet parking, the effective number of vehicles which can be parked in these spaces is 4,080.*

Source: Georgetown University Traffic & Parking Study, 1989

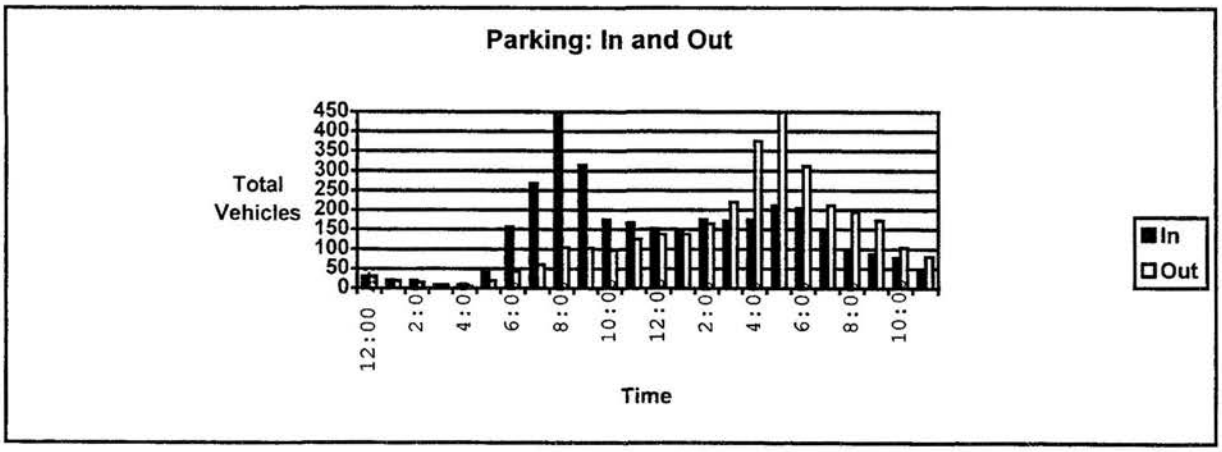
As shown on **Table 3-3,** the parking utilization for the Main Academic Campus is approximately ninety percent during the early to mid afternoon hours. This is consistent with the findings of the 1989 traffic and parking study.

TABLE 3-3

Parking Accumulations
Georgetown University Main Academic Campus

Time Begun	Hourly Movements			Accumulation (2)	
	In	Out	Net	Number	Percent
Overnight (1)	--	--	300	300	20.7%
12:00 am	30	31	-1	299	20.6%
1:00	21	19	2	301	20.7%
2:00	21	15	6	307	21.2%
3:00	8	8	0	307	21.2%
4:00	8	5	3	310	21.4%
5:00	49	19	30	340	23.4%
6:00	157	43	114	454	31.3%
7:00	268	60	208	662	45.6%
8:00	449	105	344	1,006	69.3%
9:00	314	103	211	1,217	83.9%
10:00	175	97	78	1,295	89.2%
11:00	167	125	42	1,337	92.1%
12:00 pm	152	138	14	1,351	93.1%
1:00	149	139	10	1,361	93.8%
2:00	176	165	11	1,372	94.6%
3:00	172	220	-48	1,324	91.2%
4:00	175	375	-200	1,124	77.5%
5:00	212	450	-238	886	61.1%
6:00	205	311	-106	780	53.8%
7:00	144	212	-68	712	49.1%
8:00	94	195	-101	611	42.1%
9:00	88	173	-85	526	36.3%
10:00	78	104	-26	500	34.5%
11:00	42	81	-39	461	31.8%
TOTALS	3,354	3,193	-	-	-

(1) Assumed overnight hold includes vehicles from the Jesuit community and the Yates Fieldhouse.
(2) Percent of Accumulation based on 1,451 spaces in Main Academic Campus.



Recent historical volumes have been computed for the activity at the two entrances to the Main Academic Campus. **Table 3-4** shows the morning and evening peak hour and **the daily** traffic volumes at both entrances.

TABLE 3-4

Traffic Volumes - Daily and Peak Hours
Entrances to Main Academic Campus 1982-1988-1993

	Canal Road			Prospect Street			TOTAL BOTH ENTRANCES			
TIME	In	Out	TOTAL	In	Out	TOTAL	In	Out	**TOTAL**	*Pct.Annual Change*
AM Peak Hour										
1982(1)	80	25	105	320	110	430	400	135	535	--
1988	185	6	191	277	81	358	462	87	549	*2.5%*
1993	236	20	256	213	85	298	449	105	554	*3.6%*
PM Peak Hour										
1982(1)	35	85	120	130	330	460	165	415	580	--
1988	81	134	215	146	270	416	227	404	631	*8.8%*
1993	62	135	197	150	315	465	212	450	662	*14.1%*
6:00AM - 8:00 PM										
1982(1)	590	595	1185	2325	2355	4680	2915	2950	5865	--
1988	1221	570	1791	1984	1855	3839	3205	2425	5630	*(4.0)%*
1993	1262	659	1921	1653	1884	3537	2915	2543	5458	*(6.9)%*

(1) 1982 totals for Prospect Street Entrance include traffic from O Street Entrance which was subsequently closed.

3.2.2 Travel and Traffic Characteristics

Travel and traffic conditions were developed to identify "Background" and "University-related" (hereinafter meaning Main Academic Campus only) traffic levels. These two components were then totaled for assessing existing and future conditions during the transportation analysis conducted for this project. Volumes for 1993, the Base Year, peak hour traffic are shown in **Figure 3-16**.

Travel and Traffic on Local Streets

Traffic analysis and evaluation were based on existing data: counts, surveys, field observations, tube counts, and other information as supplied by DC Department of Public Works. The Base Year for the project is 1993; with **1998 identified as the Build Year (anticipated at the time of**