

**FINAL
ENVIRONMENTAL
IMPACT STATEMENT**

**WASHINGTON
METRORAIL SYSTEM
Green Line (E Route)
West Hyattsville
Segment**



U.S. DEPARTMENT OF TRANSPORTATION, URBAN MASS TRANSPORTATION ADMINISTRATION

APRIL 1983



U.S. Department
of Transportation

Urban Mass
Transportation
Administration

Headquarters

400 7th Street S W
Washington, D.C. 20590

APR 6 1983

Dear Sir:

The enclosed Final Environmental Impact Statement (EIS) documents the impacts of alternative alignments for the West Hyattsville Segment of Washington Metrorail's Green Line. In 1975 the Urban Mass Transportation Administration (UMTA) and the Washington Metropolitan Area Transit Authority (WMATA) issued a Systemwide EIS which analyzed the environmental impacts of the 97.2 mile Adopted Regional System (ARS). This document analyzes the impacts of the S-curve alignment, an alternative to the 1.5 mile ARS alignment for the West Hyattsville segment.

WMATA proposes to construct, with financial assistance from UMTA, the S-curve alignment at an estimated total cost of \$110 million.

This Final EIS is being sent to appropriate agencies as well as to those who commented on the Draft EIS. UMTA will wait a minimum of 30 days, ending on **MAY 16 1983**, before reaching a decision on whether to provide financial assistance for project implementation.

Sincerely,

Charles H. Graves
Director
Office of Planning Assistance

Enclosure



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Final Environmental Impact Statement

Washington Metrorail System
Green Line (E Route)
West Hyattsville Segment

MAR 15 1983

Date

A handwritten signature in cursive script, appearing to read "CH Graves".

Charles H. Graves
Director, Office of
Planning Assistance

U.S. DEPARTMENT OF TRANSPORTATION
URBAN MASS TRANSPORTATION ADMINISTRATION

FINAL ENVIRONMENTAL IMPACT STATEMENT
AND SECTION 4(f) STATEMENT

Pursuant to Section 102(2) (c) of the National Environmental Policy Act of 1969 (42 USC 4321), Sections 3(d) and 14 of the Urban Mass Transportation Act of 1964, as amended (49 USC 1601), and Section 4(f) of the Department of Transportation Act of 1966 (49 USC 1653).

Lead Agency

Urban Mass Transportation Administration

Cooperating Agency

The Washington Metropolitan Area Transit Authority

Title of Proposed Action

West Hyattsville Segment, Washington Metrorail System, Prince George's County, Maryland

Abstract

This Final Environmental Impact Statement (EIS) is a supplement to a Final EIS issued by UMTA in August 1975 for the original 97.2-mile Metrorail System, the Adopted Regional System (ARS). This supplemental EIS documents the impacts of the S-Curve Alignment for the West Hyattsville Segment of the Metrorail Green Line and responds to comments received on the Draft EIS, issued in October 1980.

The West Hyattsville Segment is located in Prince George's County, Maryland, between the District of Columbia boundary east of Sargent Road and the area northeast of the intersection of Ager Road and Nicholson Street. The S-Curve Alignment is proposed as an alternative to the ARS Alignment addressed in the 1975 System-wide EIS.

For evaluation purposes, the impacts of the proposed S-Curve Alignment are compared to those of the ARS Alignment.

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The Final Environmental Impact Statement was made available on

APR 15 1983

SUMMARY

MAJOR CONCLUSIONS

This document has been prepared by UMTA (U.S. Department of Transportation, Urban Mass Transportation Administration) in cooperation with WMATA (Washington Metropolitan Area Transit Authority). It is a supplement to a Final EIS (Environmental Impact Statement) issued by UMTA in 1975 for the Washington Metrorail System. The System-wide EIS analyzed the environmental impacts of the construction and operation of the 97.2-mile ARS (Adopted Regional System) and also addressed the alternative of taking no action.

This document analyzes the environmental impacts of the 1.8-mile S-Curve Alignment, an alternative to the 1.5-mile ARS Alignment for the West Hyattsville Segment of the Green Line. The West Hyattsville Segment is located in Prince George's County, Maryland, between the District of Columbia boundary east of Sargent Road and the area northeast of the intersection of Ager Road and Nicholson Street.

The draft of this document has been circulated in accordance with the regulations of the Council on Environmental Quality, the U.S. Department of Transportation, and UMTA. Responses to substantive comments received during the 45-day period following the official start of circulation on October 17 1980 are provided in Chapter 6. Subsequent changes to Chapters 1 through 5 are identified by vertical black stripes in the margins.

DEVELOPMENT OF ALTERNATIVES

Much of the 1.5-mile ARS Alignment for the West Hyattsville Segment analyzed in the System-wide EIS was designed to be in the median strip of I-95, an interstate highway. Plans for I-95 through West Hyattsville were withdrawn in 1974 to provide substitution funds for the Metrorail System. WMATA considered a modified ARS Alignment in its environmental impact study for the Greenbelt/E Route and has determined that the alignment is no longer feasible. Without I-95, the ARS Alignment requires the displacement of approximately 515 residential units, the disruption of a substantial amount of parkland, and significant floodplain encroachment.

In response to these findings, WMATA has developed and studied numerous alternative alignments for the Green Line. Along the West Hyattsville Segment of the route, three major alignment shifts have been considered. Numerous modifications and station locations have been proposed in conjunction with the major alignment shifts.

The 1.8-mile S-Curve Alignment was proposed as an alternative to the ARS Alignment in 1976. An amendment to WMATA's environmental impact study for the Greenbelt/E Route and the draft of this document identified the displacement of approximately 260 residential units at the Kirkwood Village Apartments as the major adverse effect of the S-Curve Alignment. Subsequently, WMATA modified the S-Curve to reduce displacements at Kirkwood by approximately 170 residential units.

General plans were issued by WMATA for the Prince George's County portion of the Green Line, or Greenbelt/E Route, in April 1982. The construction of design Section E-6, which includes the S-Curve Alignment, is scheduled to begin in June 1984 and be finished by December 1986. Operation of the West Hyattsville Station is anticipated in late 1990.

DESCRIPTION OF ALTERNATIVES

1. ARS Alignment

a. Description

The ARS Alignment extends from Station Point 310 to Station Point 390 on preliminary plans dated December 1968.

The ARS Alignment is at grade near the District boundary, heading east and northeast within the median strip of the deleted I-95 corridor. After crossing the Northwest Branch downstream of its confluence with Sligo Creek, the alignment begins to curve north. Near Ager Road, the alignment becomes aerial and turns eastward to leave the I-95 corridor.

The ARS Alignment's Chillum Station is located under Chillum Road. The station's parking area, located northwest of the deleted I-95 corridor, contains 500 park-ride spaces, 5 kiss-ride spaces and 5 bus bays. Pedestrian access to the station mezzanine from the parking area and surrounding residential neighborhoods is via Chillum Road (which would have crossed over I-95). Escalators connect the station's mezzanine with the inbound and outbound platforms below.

The ARS Alignment is 1.5 miles, or 8,000 feet, in length. Approximately 1,800 feet of the alignment is above grade and 6,200 feet is at grade.

b. Cost

The ARS Alignment could not be constructed as designed because I-95 has not been built in the West Hyattsville area. The projected cost of constructing the ARS Alignment without I-95 would be \$110,341,000 in September 1985 dollars. The projected cost of real estate acquisition, administration, relocation and demolition for the ARS Alignment is \$22,462,000 in July 1984 dollars.

c. Summary of Effects

The ARS Alignment would have the major beneficial effect of providing regional rapid transit service to the West Hyattsville area.

Long-term adverse effects associated with the ARS Alignment include:

1. Approximately 1,500 residents of the LaSalle Park Apartments, the North Avondale subdivision and the Kirkwood Village Apartments would be displaced because of the alignment. Two businesses would be displaced.
2. Use of Northwest Branch Stream Valley Park, Chillum Community Park and Kirkwood Neighborhood Park would be permanently disrupted by the at-grade alignment.
3. Significant encroachment of the FIA flood hazard area along the Northwest Branch would occur between Chillum and Ager Roads, where the alignment is at grade, but not between Ager Road and East-West Highway, where the alignment is on aerial structure.
4. The development potential of properties near the station for uses other than high-density residential is limited; office and commercial development would be inconsistent with the existing land use pattern and with current land use for the area.
5. The Chillum Road/Queens Chapel Road intersection would operate at or near capacity during rush hours once the station begins operation. Traffic volumes along Chillum Road would increase considerably once the station begins operation, possibly posing hazards to children walking to the Chillum Elementary School.

Although all practicable steps to reduce adverse construction-related impacts would be employed, the following local and regional inconveniences could be expected to occur during the construction period:

1. Traffic congestion would occasionally occur near construction sites.
2. Air quality would be decreased moderately by pollutants such as dust and carbon monoxide generated by construction activity and vehicular exhausts.
3. Ambient noise levels would be increased as a result of construction activities and traffic congestion.

2. S-Curve Alignment

a. Description

The S-Curve Alignment extends from Station Point 387+23 to Station Point 484 on general plans dated April 1982.

The S-Curve Alignment is at grade near the District boundary, heading east. Between Station Points 400 and 412 the alignment is below grade in cut-and-cover construction. After emerging from a portal east of the LaSalle Road/Russell Avenue intersection, the alignment turns northward on aerial structure over Chillum Road and the Northwest Branch. The alignment is at grade south of Ager Road and crosses under Ager Road in cut-and-cover construction. North of Ager Road, the alignment returns to grade and turns eastward before ending 2,000 feet west of the Prince George's Plaza Station.

The S-Curve Alignment's West Hyattsville Station is located at grade southwest of Ager Road near its intersection with Hamilton Street. The station's parking area contains 500 park-ride spaces, 75 kiss-ride spaces and 7 bus bays. Pedestrian access to the station mezzanine is available from the east and west.

The S-Curve Alignment is approximately 1.8 miles, or 9,700 feet in length. Approximately 1,950 feet of the alignment is above grade, 4,450 feet at grade and 3,300 feet below grade.

b. Cost

The projected cost of constructing the S-Curve Alignment is \$101,670,000 in September 1985 dollars. The projected cost of real estate acquisition, administration, relocation and demolition for the S-Curve Alignment is \$9,364,000 in July 1984 dollars. July 1984 is when construction on the West Hyattsville Segment is expected to begin.

c. Summary of Effects

The S-Curve Alignment will have the following major beneficial effects:

1. It will displace significantly fewer residents in the area than the ARS Alignment.
2. It will use and adversely effect significantly less parkland than the ARS Alignment.

3. It will encroach on the Northwest Branch base floodplain significantly less than the ARS Alignment.
4. The alignment will provide better access to properties having development potential for office, commercial and high-density residential use. These intensive uses would be consistent with the existing land use pattern and current land use plans for the area.

Long-term adverse effects associated with the S-Curve Alignment include:

1. Approximately 270 residents of the Kirkwood Village Apartments and three single family houses will be displaced because of the alignment. Five businesses will be displaced.
2. Use of Chillum Road Neighborhood Park (undeveloped) and Heurich Community Park will be permanently disrupted to some extent by the alignment.
3. Encroachment of the FIA flood hazard area along the Northwest Branch will occur near the existing drive-in theater and north of Ager Road.

Although all practicable steps to reduce adverse construction-related impacts will be employed, the following local and regional inconveniences can be expected to occur during the construction period:

1. Traffic congestion would occasionally occur near construction sites.
2. Air quality would be decreased moderately by pollutants such as dust and carbon monoxide generated by construction activity and vehicular exhausts.
3. Ambient noise levels would be increased as a result of construction activities and traffic congestion.
4. Use of the Avondale Neighborhood Park and part of the Northwest Branch Stream Valley Park would be temporarily disrupted.

EVALUATION OF ALTERNATIVES

There are three major differences between the ARS Alignment and the S-Curve Alignment.

The first major difference is the extent of residential displacement. The ARS Alignment requires the displacement of approximately 425 more residential units than the S-Curve Alignment.

The second major difference is the extent of parkland disruption. The ARS Alignment crosses over 40 percent more 4(f) parkland than the S-Curve Alignment.

The third major difference is the extent of floodplain encroachment. The ARS Alignment crosses nearly 70 percent more of the FIA flood hazard area at grade than the S-Curve Alignment.

Projected construction costs, in September 1985 dollars, are \$8.6 million greater for the ARS Alignment than for the S-Curve Alignment. Projected real estate costs, which include acquisition, administration, relocation and demolition costs in June 1984 dollars are \$13.1 million greater for the ARS Alignment than the S-Curve Alignment.

SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

The search for an alternative to the West Hyattsville Segment of the ARS was initiated when the inner-Beltway portion of I-95 was deleted. At that time, it was anticipated that an alignment could be identified which would have fewer potential adverse effects than the ARS Alignment.

The S-Curve Alignment has been proposed to replace the ARS Alignment. Studies have indicated that there are trade-offs between the ARS and S-Curve Alignments, some negative and some beneficial. As summarized in the preceding section, however, when the overall effects of the ARS and S-Curve Alignments are balanced, the S-Curve Alignment is preferred by WMATA and Prince George's County because it would require fewer displacements, disrupt less parkland and encroach less upon the 100-year floodplain than the ARS Alignment.

AREAS OF CONTROVERSY

Substantive comments raised during the circulation of the Draft Environmental Impact Statement focused primarily on impacts related to displacements, parklands, and floodplain encroachment.

ISSUES TO BE RESOLVED

The ARS Alignment is the current federally-approved alignment for the West Hyattsville Segment of the Washington Metropolitan Area Transit Authority's Adopted Regional System. The major issue to be resolved is whether to approve a change from the ARS Alignment, as studied in the System-wide EIS, to the S-Curve Alignment.

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Chapter 1

PURPOSE OF AND NEED FOR ACTION

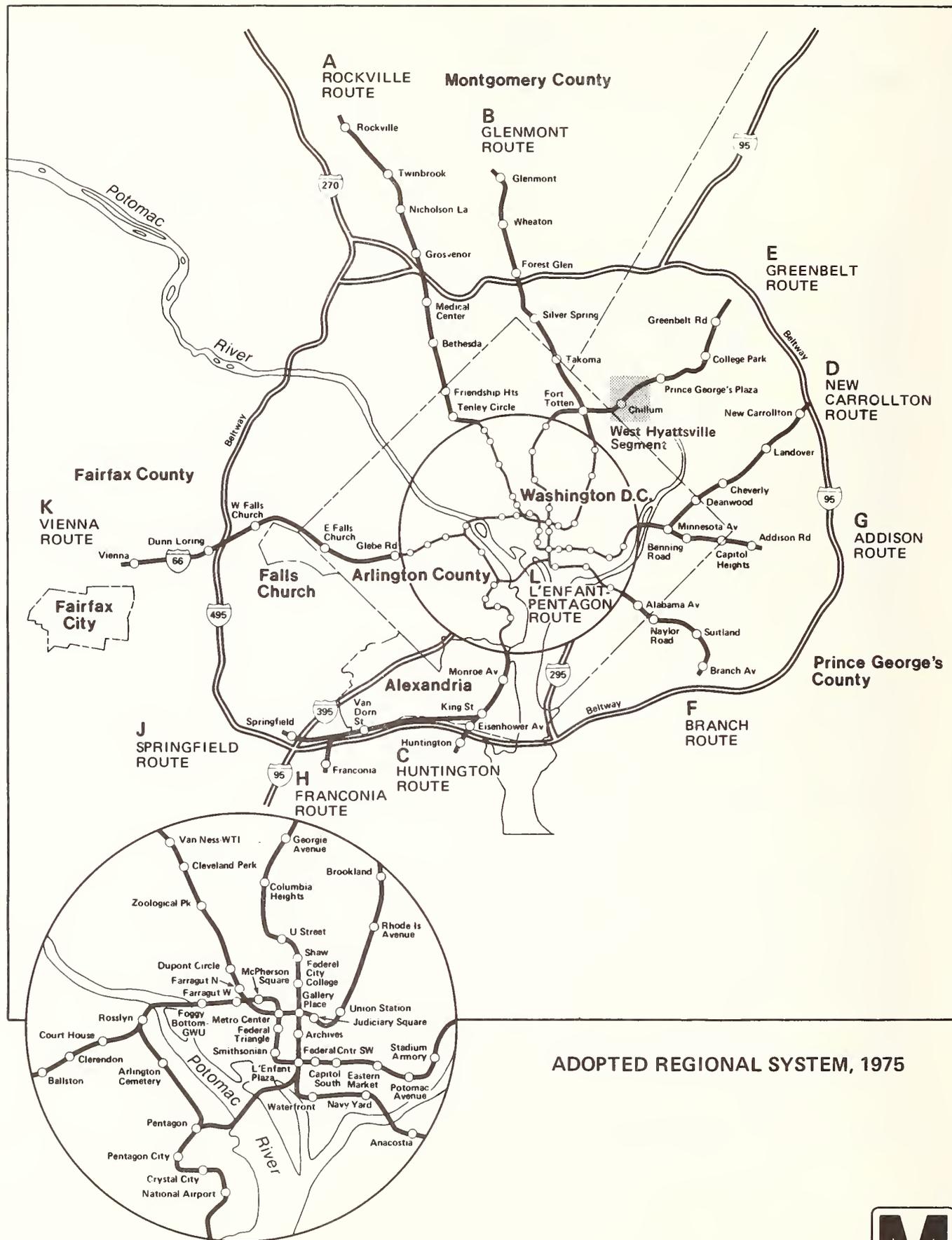
The Washington Metrorail System is the rail component of Metro, the national capital region's public transportation system. WMATA, a public agency created in 1967 through a Congressionally-approved interstate compact, has responsibility for planning, developing, financing, and operating Metro.

WMATA's decision-making body is a twelve-member Board of Directors comprised of delegates from Maryland, Virginia, and the District of Columbia. In 1968, the WMATA Board agreed upon a 97.2-mile regional system for Metrorail. This system is known as the ARS. The ARS was the product of nearly sixteen years of study and planning by Congress, the District of Columbia, the Commonwealth of Virginia, the State of Maryland, local jurisdictions, and numerous public agencies concerned with transportation and development in the Washington metropolitan area.

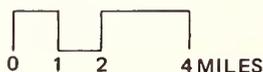
The design and construction of the Metrorail System was initially funded by direct Congressional appropriations combined with local monies at a two thirds/one third ratio. Since federally managed funds were not involved, this action was not initially subject to the provisions of the National Environmental Policy Act of 1969. During this period, WMATA prepared its own environmental studies to address Metrorail's environmental impacts.

The design and construction of the Metrorail System became subject to the provisions of the National Environmental Policy Act of 1969 in 1975 when the District of Columbia requested that certain designated urban interstate highway segments be withdrawn to provide federally-managed funds for Metrorail. The transfer of funds from deleted, non-essential segments of the interstate highway system to transit systems within the same metropolitan area was made possible by an amendment to the Federal Aid Highway Act of 1973, which specified that such projects were subject to the legal and administrative requirements of the UMTA Capital Assistance Program. Therefore, UMTA was required to prepare an EIS for the Metrorail System.

FIGURE 1.1



ADOPTED REGIONAL SYSTEM, 1975



UMTA issued a Final EIS for the Metrorail System in 1975.¹ It analyzed the environmental impacts of the 1968 ARS modified by changes which had been approved by the WMATA Board. The ARS addressed in the System-wide EIS was a 98.0-mile system (Figure 1.1). The System-wide EIS also addressed the alternative of taking no action.

In cooperation with WMATA, UMTA prepares supplements to the System-wide EIS to address changes to the Metrorail System proposed by WMATA which would have significantly different environmental impacts than those analyzed in the System-wide EIS.

The West Hyattsville Segment is one of three portions of the Metrorail System currently under environmental analysis by UMTA (Figure 1.2). The West Hyattsville Segment is located in Prince George's County, Maryland, between the District boundary east of Sargent Road and the area north-east of the intersection of Ager Road and Nicholson Street.

Much of the 1.5-mile ARS Alignment for the West Hyattsville Segment analyzed in the System-wide EIS was designed to be in the median strip of I-95, an interstate highway. Plans for I-95 through West Hyattsville were withdrawn in 1974 to provide substitution funds for the Metrorail System. WMATA considered a modified ARS Alignment in its environmental impact study for the Greenbelt/E Route² and has determined that the alignment is no longer feasible. Without I-95, the ARS Alignment requires the displacement of approximately 515 residential units, the disruption of a substantial amount of parkland and significant floodplain encroachment.

The 1.8-mile S-Curve Alignment was proposed as an alternative to the ARS Alignment in 1976. An amendment to WMATA's environmental impact study for the Greenbelt/E Route³ and the draft of this document⁴ identified the displacement of

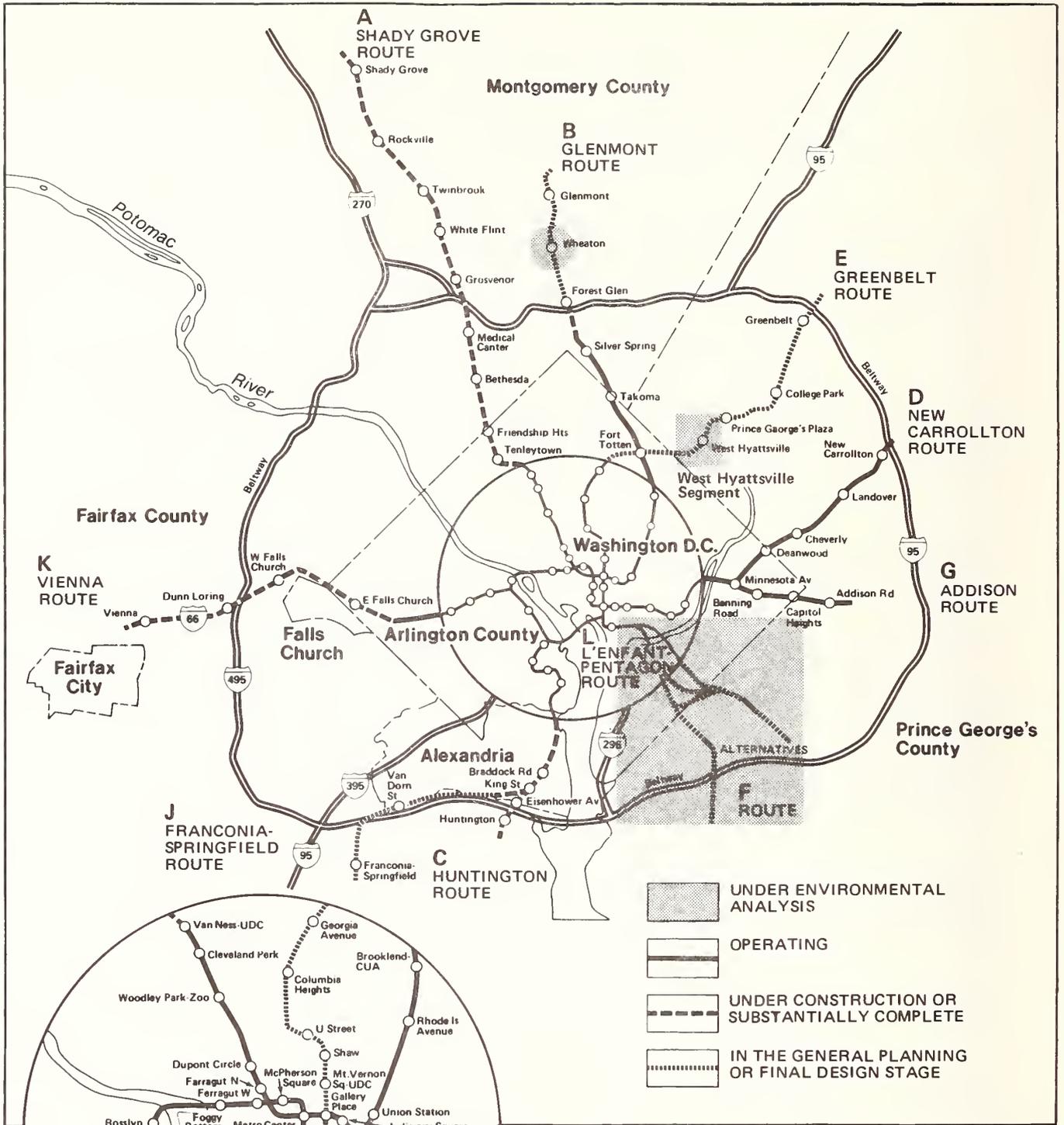
¹UMTA. "Final EIS: Metropolitan Washington Regional Rapid Rail Transit System (Project DC-23-9001)." August 1975.

²WMATA. "Environmental Impact Study: Greenbelt/E Route, Sections E-3 through E-8." December 1974 and March 1975.

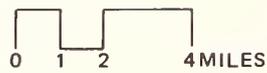
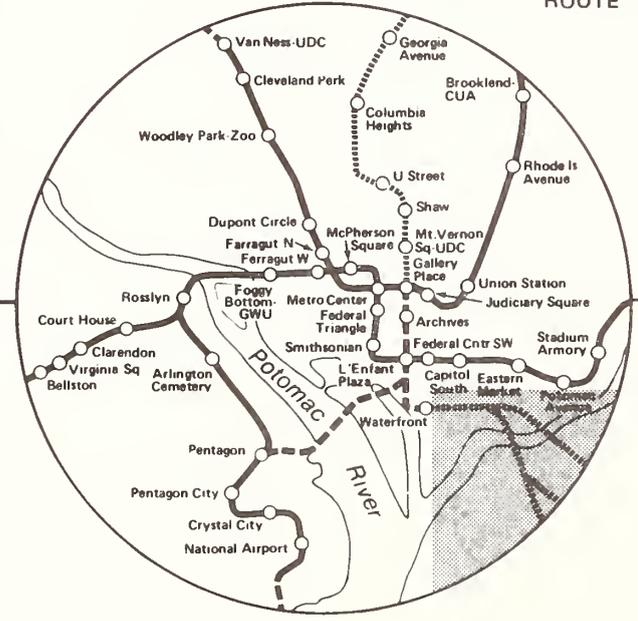
³WMATA. "Environmental Impact Study Amendment: Greenbelt/E Route, S-Curve Alignment." October 1979.

⁴UMTA. "Draft EIS: Washington Metrorail System, Green Line (E Route), West Hyattsville Segment." October 1980.

FIGURE 1.2



STATUS OF SYSTEM, 1982



approximately 260 residential units at the Kirkwood Village Apartments as the major adverse effect of the S-Curve Alignment. Subsequently, WMATA modified the S-Curve to reduce displacements at Kirkwood by approximately 170 residential units.

This document analyzes the environmental impacts of the modified S-Curve Alignment, comparing them to the impacts of the ARS Alignment addressed in the System-wide EIS.

Chapter 2

ALTERNATIVES INCLUDING THE PROPOSED ACTION

2.1 DEVELOPMENT OF ALTERNATIVES

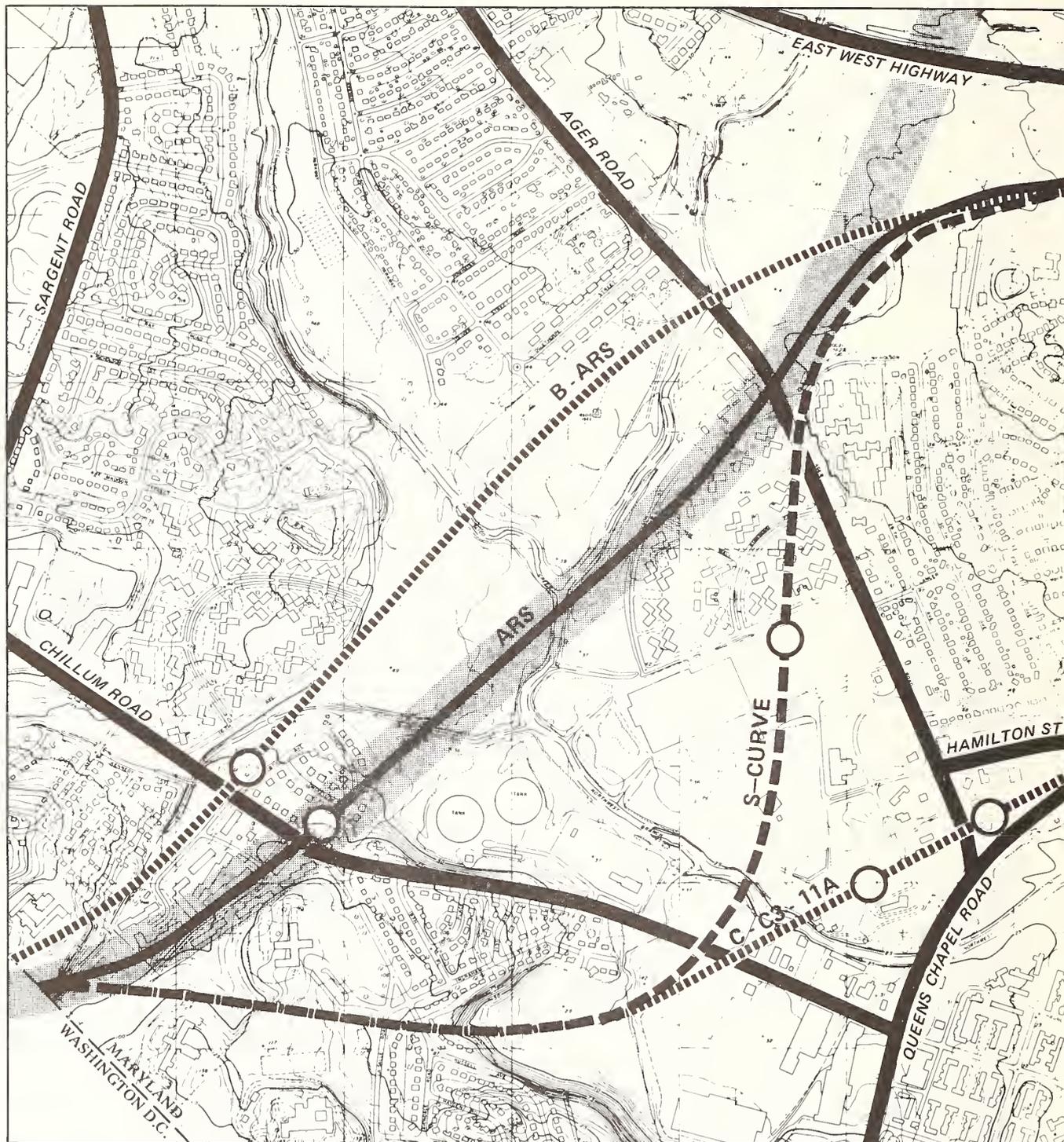
2.1.1 IDENTIFICATION OF ALTERNATIVES CONSIDERED

The ARS Alignment is 8,000 feet in length, beginning at the District boundary (Station Point 310) and ending 2,000 feet west of the ARS Prince George's Plaza Station (Station Point 390). The straight line distance between these two station points is approximately 7,800 feet.

From Station Point 310 to Station Point 372, the ARS Alignment addressed in the 1975 System-wide EIS is at grade within the median strip of an unbuilt interstate highway which was proposed when the ARS was adopted in 1968 (Figure 2.1). The inner-Beltway portion of I-95, connecting downtown Washington with the Capital Beltway, offered the ARS Alignment a graded and barrier-free route under Chillum Road, across a rerouted Northwest Branch and over Ager Road.

The inner-Beltway portion of I-95 was deleted in 1974 to provide substitution funds for the Metrorail System in accordance with the amended Federal Aid Highway Act of 1973. After I-95 was deleted, WMATA considered modifications to the alignment but determined that the ARS Alignment for the West Hyattsville Segment was no longer viable. The alignment disrupted a significant amount of parkland and the station intruded on a residential area and required a substantial number of displacements. Recognizing these and other potential adverse environmental effects of the ARS Alignment, WMATA began to consider alternative alignments in 1974. Since that time, three alternatives to the ARS Alignment have been examined at various levels of detail: 1) the B-ARS Alignment, 2) the C-C3-11A Alignment, and 3) the S-Curve Alignment (Figure 2.1).

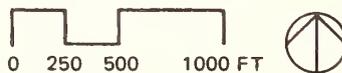
FIGURE 2.1



I-95 CORRIDOR

ALTERNATIVES CONSIDERED, 1975 – 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



The B-ARS and the C-C3-11A Alignments were included in WMATA's environmental impact study, completed in 1975.¹ A preliminary study had determined that, of the ARS alignment alternatives which had been identified by the WMATA staff, WMATA's consultants and the general public, only these were feasible.

The B-ARS Alignment is 200 feet northwest of the ARS Alignment between ARS Station Points 310 and 370. This alternative is entirely above grade on aerial structure and has a Chillum Road Station. WMATA has determined that this alternative is not viable because, like the ARS, it disrupts a considerable amount of parkland and causes the station to intrude upon a residential area.

The C-C3-11A Alignment follows an eastward route to Queens Chapel Road, crossing under LaSalle Road and over Chillum Road, the Northwest Branch and Ager Road. Two alternative stations, east and west of Ager Road, have been proposed. WMATA has determined that this alternative is not viable because it places the station in or near the 100-year floodplain, which would require the use of extensive and/or expensive mitigating measures, and because it necessitates the relocation of the Prince George's Plaza Station away from Prince George's Plaza.

WMATA included the S-Curve Alignment in a 1979 amendment to its 1975 study.² The alignment coincides with the C-C3-11A Alignment to Chillum Road, where it curves north to a station on the southwest side of Ager Road. Crossing under Ager Road, the S-Curve joins the ARS Alignment at ARS Station Point 390.

2.1.2 SELECTION OF STUDY ALTERNATIVES

This document analyzes the environmental impacts of two alternatives to the West Hyattsville Segment of the Green Line: the ARS Alignment and the S-Curve Alignment.

The following chronology of major events and decisions summarizes the selection of the ARS and the S-Curve Alignments for inclusion in this report.

¹WMATA. "Environmental Impact Study, Greenbelt/E Route, Sections E-3 through E-8." December 1974 and March 1975.

²WMATA. "Environmental Impact Study Amendment: Greenbelt/E Route, S-Curve Alignment." October 1979.

1. Adoption of the Regional System (March 1968)

The WMATA Board adopted the seven-branch regional Metro system known as the ARS. Within the West Hyattsville Segment, the ARS was situated in the median strip of the proposed I-95 corridor between downtown Washington and the Capital Beltway. The terminal station of the ARS Green Line (E Route) was at Greenbelt Road.

2. Request for Evaluation of an I-95/495 Green Line Terminus (May 1974)

The Maryland Department of Transportation, in cooperation with the U.S. Department of Transportation Federal Highway Administration and UMTA, presented the background report for the Western Prince George's County Transportation Alternatives Study in January 1973. The purpose of the study was to determine the need for additional transportation services within a north-south corridor in the western portion of Prince George's County, and to indicate alternative ways of serving this transportation need. The study was divided into two phases over a ten month period.

Following the completion of the Western Prince George's County Transportation Alternatives Study, the Maryland DOT and Prince George's County requested that WMATA study an alternative alignment for the Green Line which would enable it to terminate at the northern I-95/495 junction.

3. WMATA's Green Line Environmental Impact Study (December 1974)

The first volume of the environmental impact study for the Green Line prepared by WMATA evaluated the impacts of the ARS, the B-ARS and the C-C3-11A Alignments (Figure 2.1). Each of these alignments included variations which would have enabled them to continue north from Prince George's Plaza to the northern I-95/495 junction.

4. Parkland Issue Raised (May 1975)

The National Capital Planning Commission (NCPC) advised WMATA that, with respect to the location of the alignments affecting the Northwest Branch Stream Valley Park, Alignment C-C3-11A would be preferred since it crossed the narrowest portion of the park. The other alignments would adversely affect the park because they cross at the widest part. NCPC also advised WMATA that any alignment which

requires the use of stream valley parkland, such as Northwest Branch, acquired with federal financial assistance under the Capper-Cramton Act, will require the approval of such use by the Maryland-National Capital Park and Planning Commission and the NCPC. Such approval, together with conditions and limitations thereof and compensation to be paid by WMATA, would need to be set forth in an agreement between WMATA and the Commission.

5. WMATA's Green Line Public Hearings (May 1975)

Public hearings on the environmental impact study for the Green Line were held by WMATA. Opposition was expressed to the ARS, the B-ARS and the C-C3-11A Alignments. Specifically, the Chillum community objected to both the ARS and the B-ARS Alignments because they would use parkland, displace substantial numbers of homes and businesses, and increase traffic on Chillum Road. The C-C3-11A Alignment was criticized because the West Hyattsville Station would be constructed in the floodplain, traffic at the Hamilton Street/Queens Chapel Road intersection would be disrupted during construction, and the Prince George's Plaza Station would be poorly located with respect to its service area and would impact two churches.

6. Prince George's County Public Hearings on Metro Issues (June 1975)

Prince George's County Council conducted three public hearings on Metro issues in general. One hundred and thirteen people spoke at these hearings.

7. UMTA's System-wide EIS (August 1975)

The System-wide EIS issued by UMTA assessed the impacts of the ARS, which includes the ARS Alignment for the West Hyattsville Segment.

8. Prince George's County Public Hearings on Metro Issues (October 1975)

Prince George's County Council held another public hearing on proposed policy guidelines for Metro construction, several specific alignments and possible truncation of the Green Line.

9. Prince George's County Endorsement of C-C3-11A (March 1976)

Prince George's County Council endorsed the preparation of General Plans for the C-C3-11A Alignment as part of plans

for the entire Prince George's County portion of the Green Line. This alignment was endorsed because of a decision to terminate the line near Greenbelt rather than at the northern I-95/495 junction. County Council did not endorse the preparation of General Plans for the ARS and B-ARS Alignments because of the objections raised during the 1975 public hearings.

10. Prince George's County Request for Evaluation of S-Curve Alignment (December 1976)

Prince George's County requested that General Plans for the S-Curve Alignment be prepared. This request was made on the basis of preliminary WMATA studies which showed that the S-Curve Alignment offered several advantages over the C-C3-11A Alignment, including 1) the removal of the West Hyattsville Station from the floodplain, 2) a more favorable location of the Prince George's Plaza Station in relation to its service area, 3) lessening of impact on two churches, and 4) reduction of the cost of the alignment by as much as \$46 million.

11. Decision to Drop Consideration of I-95/495 Green Line Terminus (January 1978)

The Corridor Task Force for the Metrorail Alternatives Analysis completed a series of public forums. At that time, Prince George's County decided to eliminate the I-95/495 terminus variations from further consideration.³

12. Prince George's County Endorsement of S-Curve (May 1978)

The completed Metrorail Alternatives Analysis reconfirmed the need to finish the entire Metrorail System. The analysis recommended that the S-Curve be built, eliminating the ARS Chillum Station on Chillum Road in favor of the S-Curve's West Hyattsville Station on Ager Road. Prince George's County, working with the Corridor Task Force and considering the hearing results, endorsed the S-Curve Alignment.

The Neighborhoods Uniting Project, a community organization which had been vocal in its opposition to the ARS, B-ARS and C-C3-11A Alignments, resolved to reaffirm

³Kelly, W.M., and F.W. White, Prince George's County Government. Letter to Metropolitan Washington Council of Governments. January 17 1978.

its support of the Metrorail system following the Alternatives Analysis determination of "the final alignment."⁴ In 1980, NUP was active in working with residents of the Kirkwood Village Apartments to reduce anticipated adverse effects associated with the S-Curve Alignment.

13. WMATA's Amendment to Green Line Environmental Impact Study (October 1979)

The amendment to WMATA's 1974-75 environmental impact study for the Green Line was completed. The amendment was prepared to point out to decision-makers the impacts associated with the S-Curve that differ from those described for the alternative alignments presented in the 1974-75 environmental impact study. In light of the comparison presented in this study, the Prince George's County Council continued to advocate the S-Curve Alignment.

14. UMTA's Draft EIS on West Hyattsville Segment (October 1980)

A Scoping Meeting on the need for an EIS on segments of the Green Line (E Route) was held jointly by UMTA and WMATA in November 1979.⁵

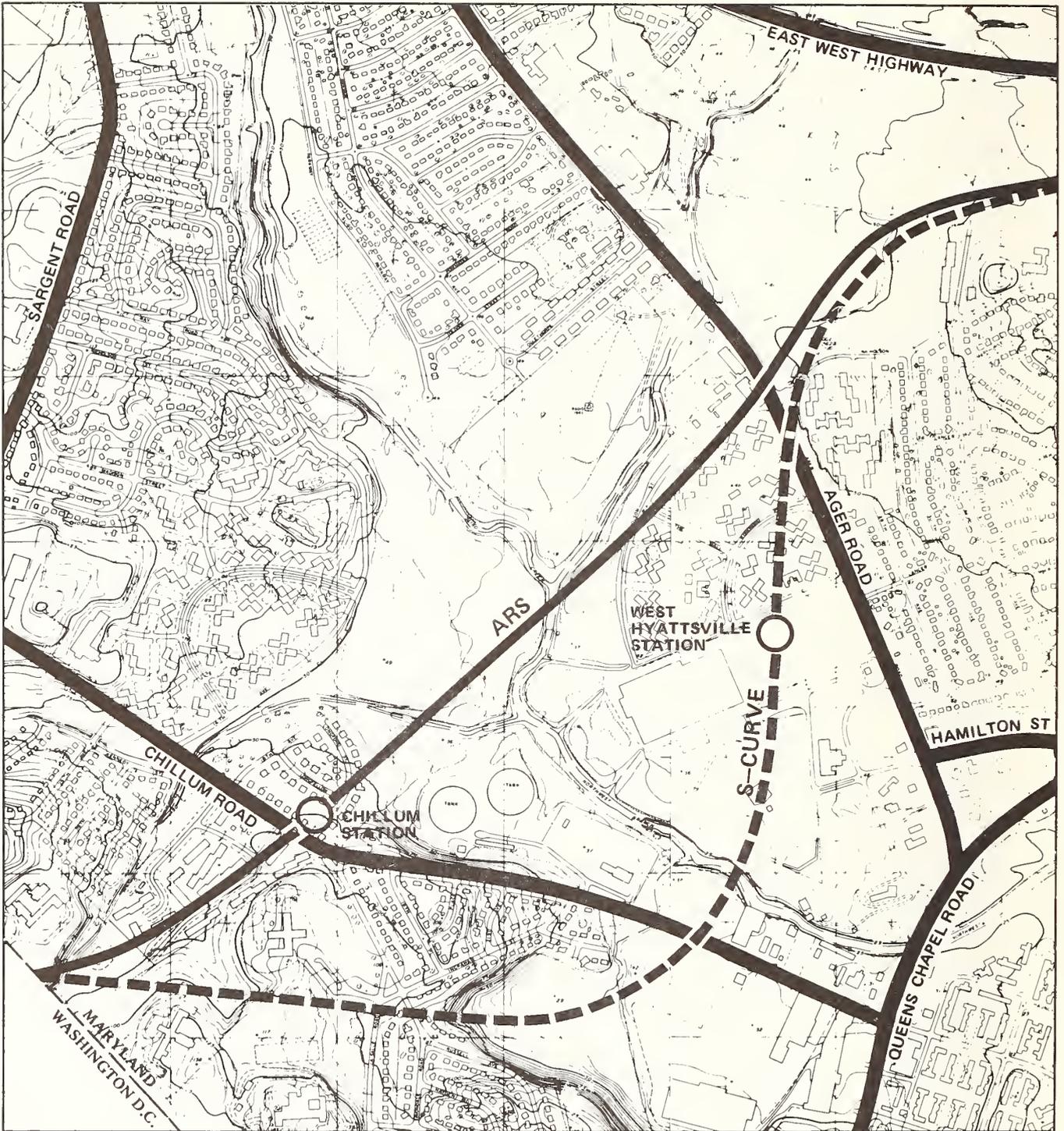
In March 1980, UMTA determined that many proposed modifications to the ARS Green Line in Prince George's County required no further environmental analysis other than compliance with Section 4(f) of the Department of Transportation Act of 1966, Section 106 of the National Historic Preservation Act of 1966, and Executive Order 11988, "Floodplain Management and Protection." UMTA requested further environmental analysis for two segments of the line: the West Hyattsville Segment and the Greenbelt Segment. UMTA specified that the West Hyattsville Segment be analyzed in a supplement to the 1975 System-wide EIS because the proposed changes would result in a significant change in the environmental impacts it described.⁶ The West Hyattsville Segment Draft EIS circulated in October 1980 analyzed the impacts of the S-Curve Alignment with comparison to the ARS Alignment (Figure 2.2).

⁴Neighborhoods Uniting Project. "Communities United in Action," p. 17. October 28 1978.

⁵WMATA. Transcript of the Environmental Impact Study Scoping Meeting held on November 13 1979.

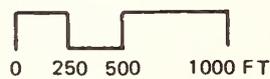
⁶Benjamin, P., UMTA. Letter to WMATA. March 14 1980.

FIGURE 2.2



STUDY ALTERNATIVES, 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



15. WMATA's West Hyattsville Segment Public Hearing
(November 1980)

WMATA held a public hearing on the West Hyattsville Segment of the Green Line on November 18 1980. Approximately 250 persons were in attendance and 35 persons testified.⁷

At the public hearing, WMATA staff announced that two modifications to the S-Curve Alignment were being evaluated: 1 and 1A (Figure 2.3). Modification 1 had been proposed by community residents to eliminate the 260 residential unit displacements at the Kirkwood Village Apartments - the major adverse effect of the S-Curve Alignment. Modification 1A was proposed by WMATA staff to substantially reduce displacements at Kirkwood while retaining satisfactory operating characteristics along the alignment.

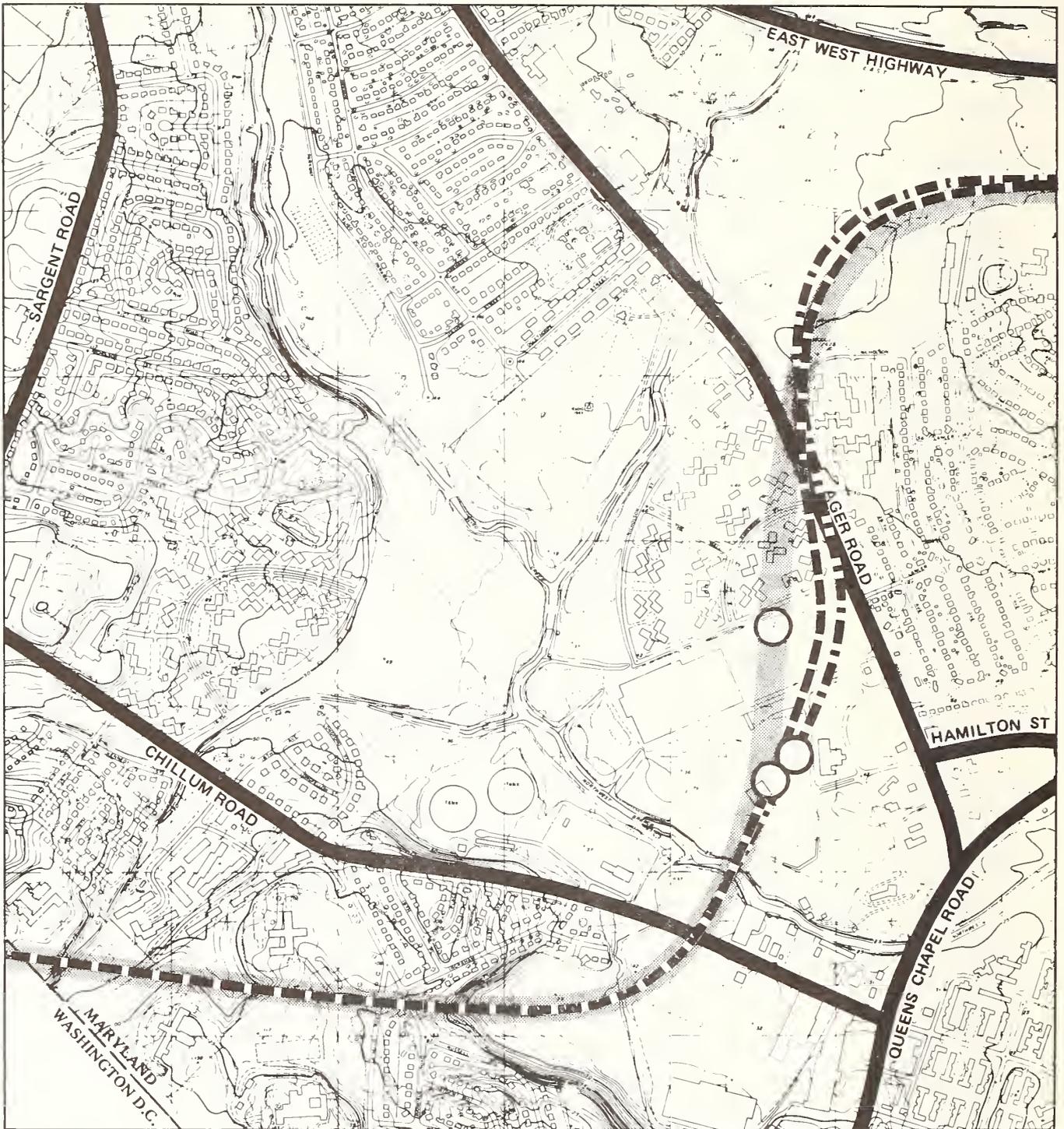
According to WMATA's preliminary analysis:

1. Modification 1A would reduce the number of Kirkwood units which would need to be acquired for construction to approximately 87.
2. The S-Curve would cost \$0.2 million less to construct with Modification 1A and \$0.5 million more to construct with Modification 1.
3. Annual operating costs for the S-Curve would not change with Modification 1A, but would increase by \$0.3 million with Modification 1.

Testimony was entered into the public hearing record that, prior to relocating to Prince George's County in 1978, the M.S. Ginn Company had obtained assurances that the County would take necessary steps to assure that the West Hyattsville Station and parking facilities be planned, located and constructed so as not to significantly interfere with Ginn's proposed use of its property on Ager Road. Ginn's suggested moving the portal outbound of the station to the Drive-In property such that the S-Curve could proceed through Ginn's property in cut-and-cover construction rather than in retained cut. This refinement was designated as Modification 1C by the WMATA staff.

⁷WMATA. Transcript of Proceedings on the Portion of the Proposed Greenbelt Route from the District of Columbia Line to Toledo Terrace Extended Including West Hyattsville Station held on November 18 1980.

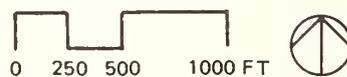
FIGURE 2.3



-  ALIGNMENT STUDIED IN 1980
-  MODIFICATION 1
-  MODIFICATIONS 1A, 1B, 1D

**S-CURVE MODIFICATIONS
CONSIDERED, 1980 – 1982**

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



In evaluating Modification 1C, WMATA staff became aware of a more desirable relationship between the station mezzanine and the existing grade. To position the mezzanine at ground level, the alignment's profile was raised such that the station was located on a low embankment. This refinement, Modification 1D, places the portal outbound of the station on Ginn's property; the raised profile enables alternate access to be provided to Ginn's warehouse under the alignment inbound of the station.

16. Prince George's County Endorsement of Modified S-Curve (March 1981)

On March 3 1981, the Prince George's County Council held a workshop session with WMATA, County and M-NCPPC staffs to receive recommendations regarding the alignment of the Greenbelt Route in Prince George's County. On March 17, County Council endorsed plans for the S-Curve, with Modification 1A as refined to 1D, for the West Hyattsville Segment.⁸

17. WMATA Approval of Modified S-Curve (April 1981)

WMATA staff issued a report which reviewed and analyzed the November 1980 public hearing.⁹ This report recommended that the Modification 1A as refined to 1D be approved for the S-Curve.

The WMATA Board of Directors resolved to change General Plans for the Green Line on April 9, 1981.¹⁰ Modification 1A as refined to 1D was approved for the S-Curve. In its resolution, the Board specified:

1. That Ginn's existing and future expansion plans be taken into account in the placement of the surface facilities;
2. That replacement access be provided to Ginn's as indicated in Modification 1D; and
3. That the future extension of Hamilton Road by others be accommodated.

⁸County Council of Prince George's County, Maryland. Minutes of Legislative Day No. 8. March 17 1981.

⁹WMATA. "Review of Public Hearings on General Plans of the Metro Greenbelt Route from the District of Columbia Line to the Capital Beltway, including the Proposed Greenbelt Storage Yard." April 1981.

¹⁰WMATA Board of Directors. Resolution. April 9 1981.

18. Maryland DOT Endorsement of Modified S-Curve (June 1981)

The Maryland Department of Transportation approved the modifications to the Metrorail ARS Greenbelt Route Alignment endorsed by the WMATA Board of Directors at their April 9 1981 meeting, stating that the changes represent a significant improvement to the previously adopted alignment of this line by reducing the costs and negative impacts of construction and by enhancing access, and also that the Board's action resolves matters of particular interest to the Department.¹¹

19. WMATA Approval of New General Plans for the S-Curve (April 1982)

In April 1982, WMATA approved General Plans for the design sections for the Prince George's County portion of the Greenbelt Route.

The S-Curve Alignment extends from Station Point 387+23 to Station Point 484 on these plans.

¹¹O'Donnell, J.J., Maryland Department of Transportation.
Letter to WMATA. June 3 1981.

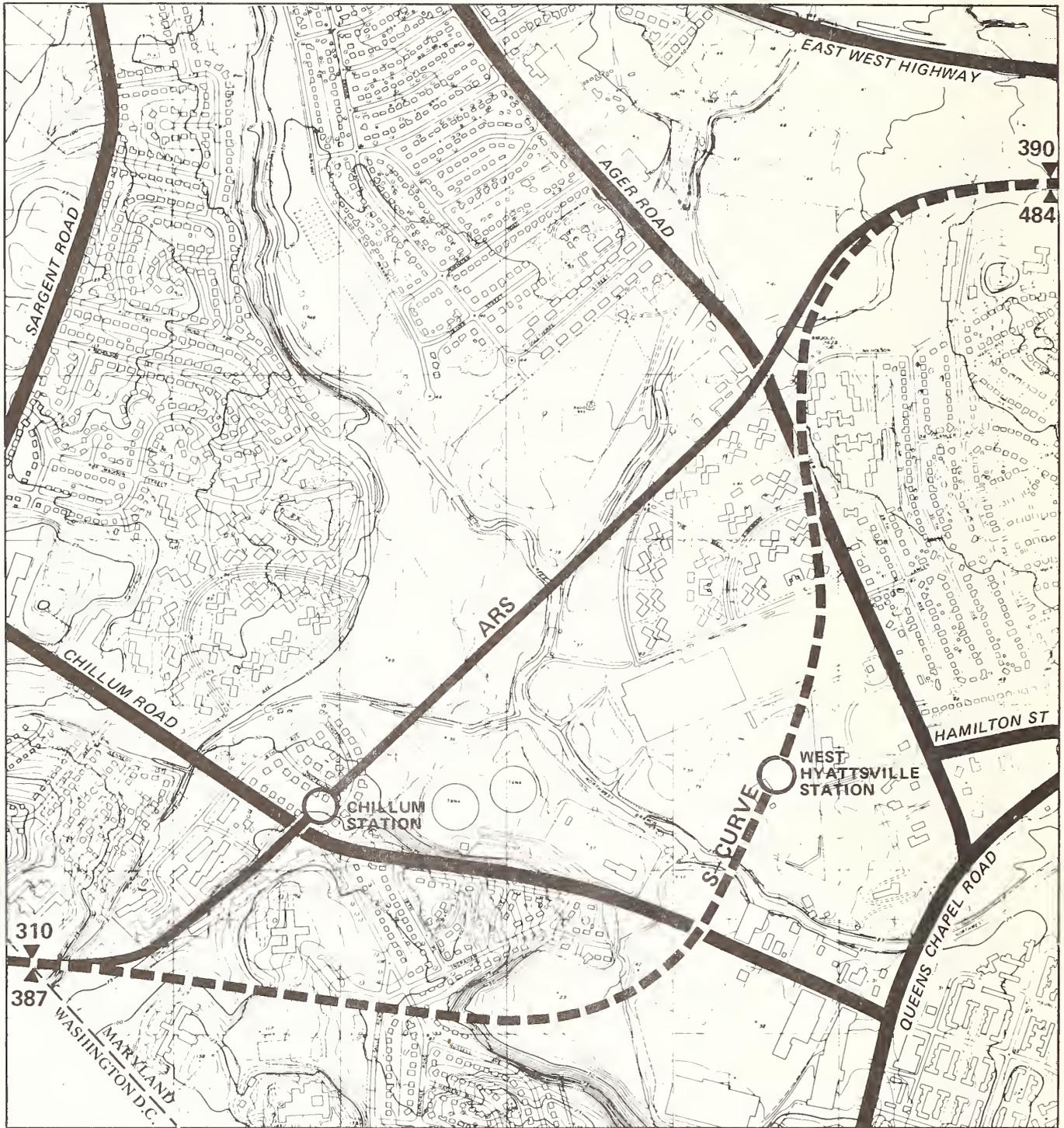
2.2 DESCRIPTION OF ALTERNATIVES AND SUMMARY OF IMPACTS

Two alternatives for the West Hyattsville Segment are addressed in this document: the ARS Alignment and the S-Curve Alignment (Figure 2.4). The alternative of taking no action was addressed in the 1975 System-wide EIS, to which this is a supplement, and analysis of its impacts is incorporated here by reference.

The West Hyattsville Segment is located in Prince George's County, Maryland, between the District boundary east of Sargent Road and the area northeast of the intersection of Ager Road and Nicholson Street. The West Hyattsville Segment is on the Green Line which, north of Gallery Place in Downtown Washington, is also known as the Greenbelt/E Route.

General plans were issued by WMATA for the Prince George's County portion of the Green Line, or Greenbelt/E Route, in April 1982. The construction of design section E-6, which includes the S-Curve Alignment, is scheduled to begin in June 1984 and be finished by December 1986. Operation of the West Hyattsville Station is anticipated in late 1990.

FIGURE 2.4



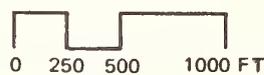
ARS STATION POINTS DEFINING SEGMENT



S-CURVE STATION POINTS DEFINING SEGMENT

STUDY ALTERNATIVES, 1982

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



2.2.1 ARS ALIGNMENT

1. Description

The ARS Alignment extends from Station Point 310 to Station Point 390 on preliminary plans dated December 1968.

The ARS Alignment is at grade near the District boundary, heading east and northeast within the median strip of the deleted I-95 corridor (Figure 2.5a). After crossing the Northwest Branch downstream of its confluence with Sligo Creek, the alignment begins to curve north (Figure 2.5b). Near Ager Road, the alignment becomes aerial and turns eastward to leave the I-95 corridor.

The ARS Alignment's Chillum Station is located under Chillum Road. The station's parking area, located northwest of the deleted I-95 corridor, contains 500 park-ride spaces, 5 kiss-ride spaces and 5 bus bays. Pedestrian access to the station mezzanine from the parking area and surrounding residential neighborhoods is via Chillum Road (which would have crossed over I-95). Escalators connect the station's mezzanine with the inbound and outbound platforms below.

The ARS Alignment is 1.5 miles, or 8,000 feet, in length. Approximately 1,800 feet of the alignment is above grade and 6,200 feet is at grade.

2. Summary of Impacts

A detailed discussion of probable environmental impacts of the ARS Alignment is included in Chapters 4 and 5 of this document. The following is a summary of those impacts:

Land Use Impacts

The development potential of properties near the station for uses other than high-density residential is limited; office and commercial development would be inconsistent with the existing land use pattern and with current land use for the area.

Socio-Economic Impacts

Approximately 1,500 residents of the LaSalle Park Apartments, the North Avondale subdivision and the Kirkwood Village Apartments would be displaced because of the alignment. Two businesses would be displaced.

The Michigan Park Hills and Chillum Heights neighborhoods would become separated from the Avondale Terrace and Avondale neighborhoods because interlying residential development would be displaced by the alignment.

Natural Impacts

Significant encroachment would occur in the FIA flood hazard area along the Northwest Branch between Chillum and Ager Roads, where the alignment is at grade, but not between Ager Road and East-West Highway, where the alignment is on aerial structure.

The alignment would be highly visible where it crosses the Northwest Branch, due to the area's open and natural character; in this location it would be difficult to screen the view of the alignment to park users except through the use of a sensitive landscape scheme.

A large stand of woods, located near the Northwest Branch, would be bisected by the alignment; this area cannot be restored after construction because the alignment is at grade. Also, the extent of a wooded stand located in Heurich Community Park would be reduced by the alignment, which passes through this area on aerial structure. This area cannot be completely restored after construction because only low-growing grasses or shrubs can be used to revegetate beneath aerial structures so as not to interfere with train operation.

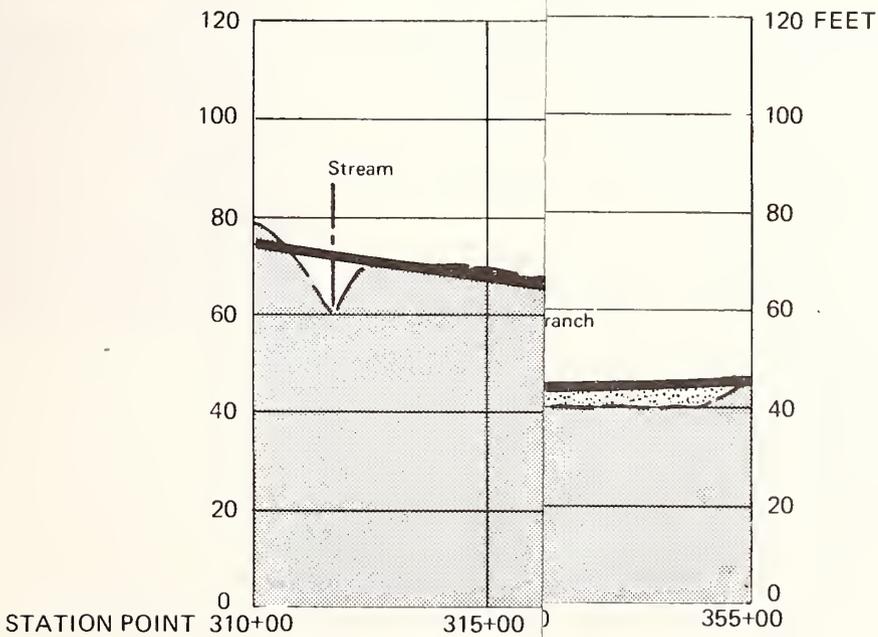
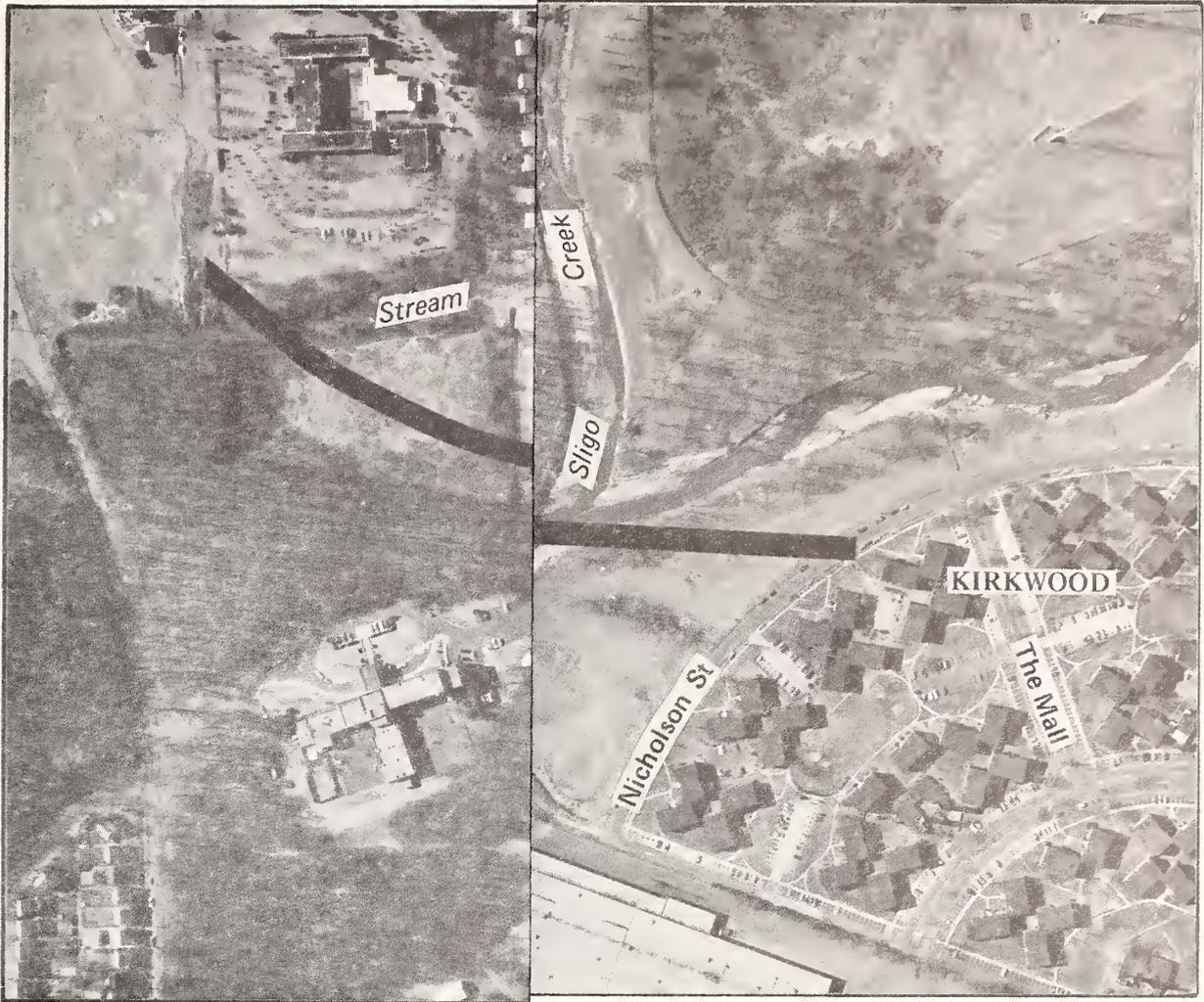
With the use of mitigation measures, noise levels due to train operation along the ARS Alignment would be acceptable at all noise sensitive sites except park areas crossed by the alignment, where noise would be somewhat above acceptable levels.

Station-generated traffic would create a minor national/state ambient air quality standard violation for carbon monoxide at the intersection of 16th Avenue and Chillum Road. During construction, dust and emissions from construction vehicles and traffic congestion may increase local levels of TSP (total suspended particulates) and carbon monoxide.

Transportation Impacts

The Chillum Road/Queens Chapel Road intersection would operate at or near capacity during rush hours once the station begins operation. Traffic volumes along Chillum Road would increase considerably once the station begins opera-

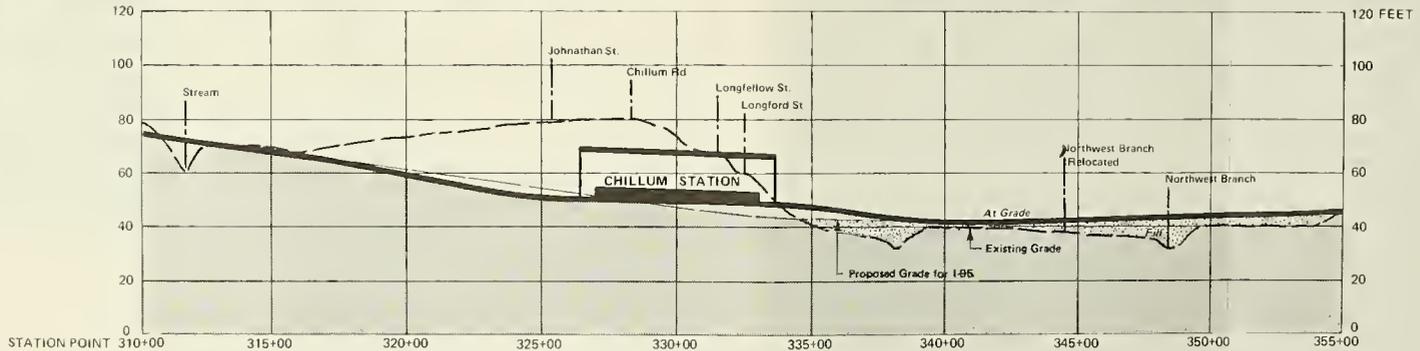
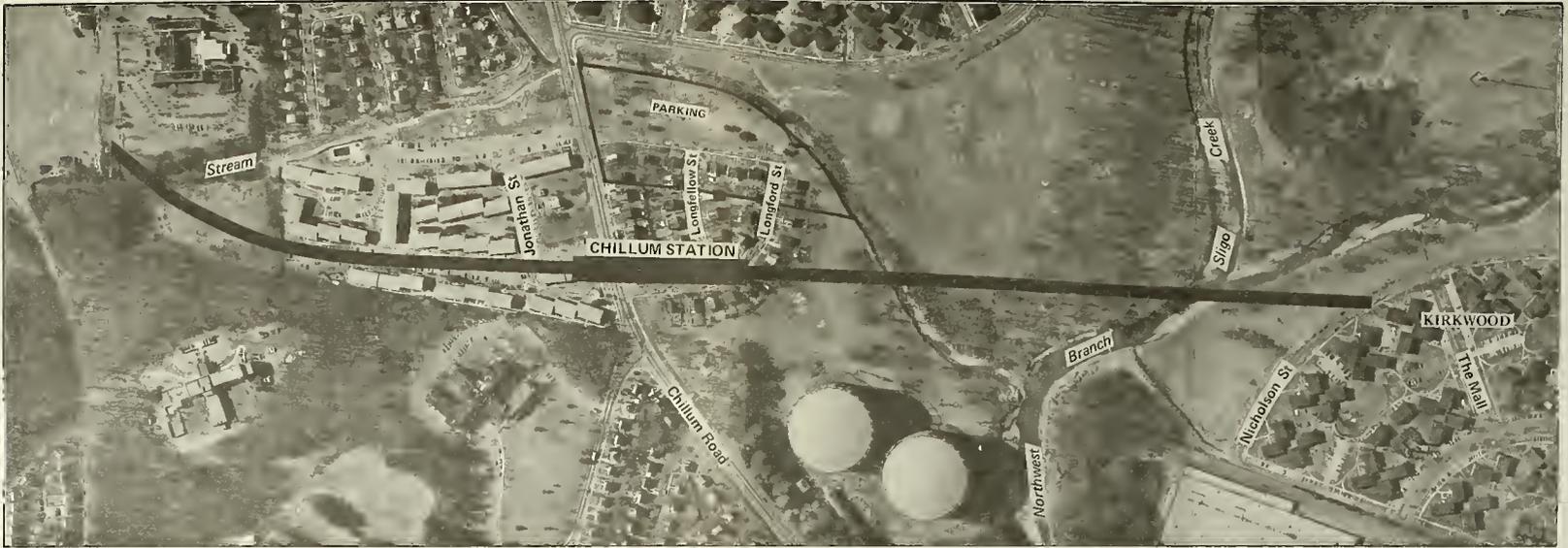
FIGURE 2.5a



ARS ALIGNMENT
GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



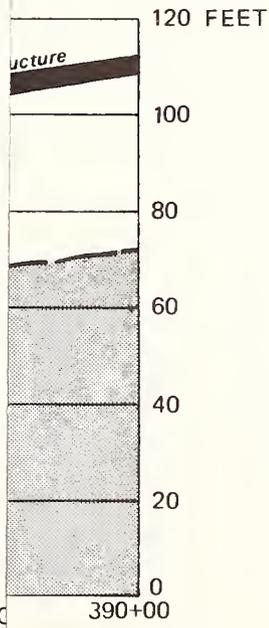
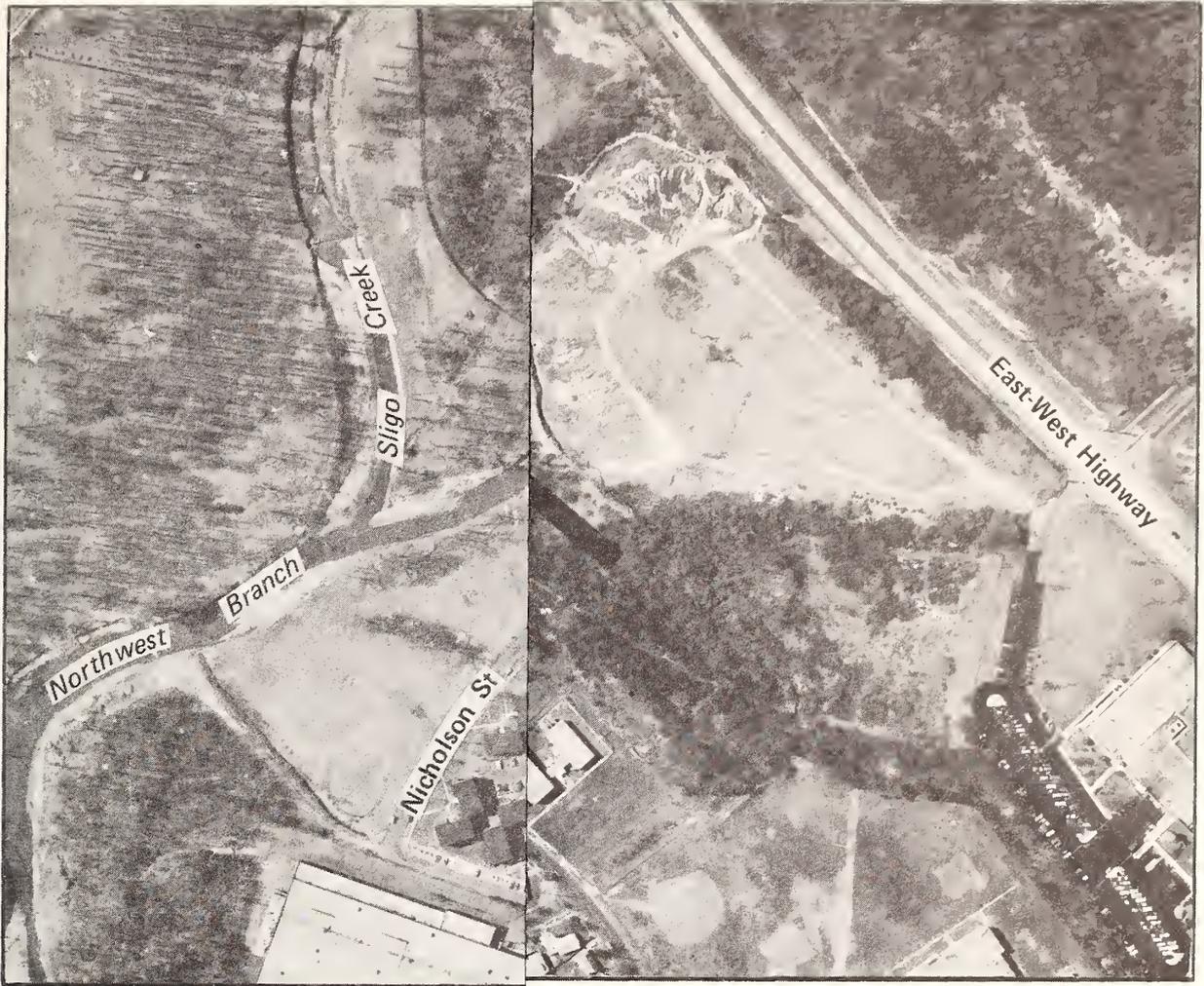
FIGURE 2.5a



ARS ALIGNMENT
 GREEN LINE (E ROUTE)
 WEST HYATTSVILLE SEGMENT



FIGURE 2.5b



STATION POINT

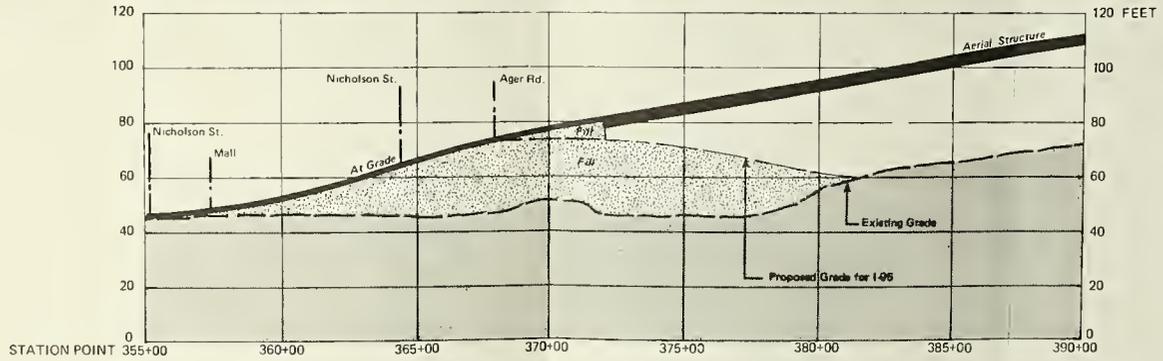
390+00

ARS ALIGNMENT

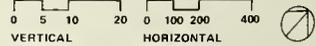
GREEN LINE (E ROUTE)

WEST HYATTSVILLE SEGMENT





ARS ALIGNMENT
 GREEN LINE (E ROUTE)
 WEST HYATTSVILLE SEGMENT



tion, possibly posing hazards to children walking to the Chillum Elementary School.

During the alignment's construction, some periods of traffic congestion may occur along roads intersected by the alignment.

Other Impacts

No property on or eligible for inclusion in the "National Register of Historic Places" would be affected by the construction or operation of the ARS Alignment.

Use of Northwest Branch Stream Valley Park, Chillum Community Park and Kirkwood Neighborhood Park would be permanently disrupted by the at-grade alignment. Use of Heurich Community Park, where the alignment is aerial, would be temporarily disrupted.

2.2.2 S-CURVE ALIGNMENT

1. Description

The S-Curve Alignment extends from Station Point 387+23 to Station Point 484 on General Plans dated April 1982.

The S-Curve Alignment is at grade near the District boundary, heading east (Figure 2.6a). Between Station Points 400 and 412 the alignment is below grade in cut-and-cover construction. After emerging from a portal east of the LaSalle Road/Russell Avenue intersection, the alignment turns northward on aerial structure over Chillum Road and the Northwest Branch (Figure 2.6b). The alignment is at grade south of Ager Road and crosses under Ager Road in cut-and-cover construction. North of Ager Road, the alignment returns to grade and turns eastward before ending 2,000 feet west of the Prince George's Plaza Station (Figure 2.6c).

The S-Curve Alignment's West Hyattsville Station is located at grade southwest of Ager Road near its intersection with Hamilton Street. The station's parking area contains 500 park-ride spaces, 75 kiss-ride spaces and 7 bus bays. Pedestrian access to the station mezzanine is available from the east and west.

The S-Curve Alignment is approximately 1.8 miles or 9,700 feet, in length. Approximately 1,450 feet of the alignment is above grade, 4,450 feet at grade and 3,300 feet below grade.

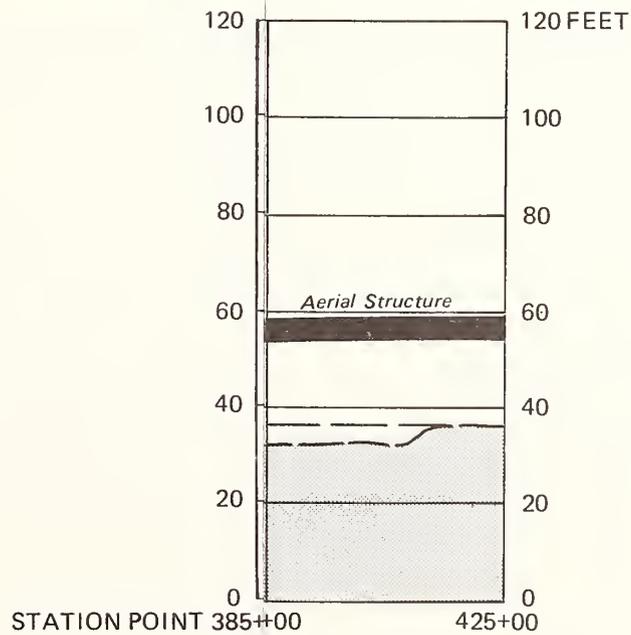
2. Summary of Impacts

A detailed discussion of probable environmental impacts of the S-Curve Alignment is included in Chapters 4 and 5 of this document. The following is a summary of those impacts:

Land Use Impacts

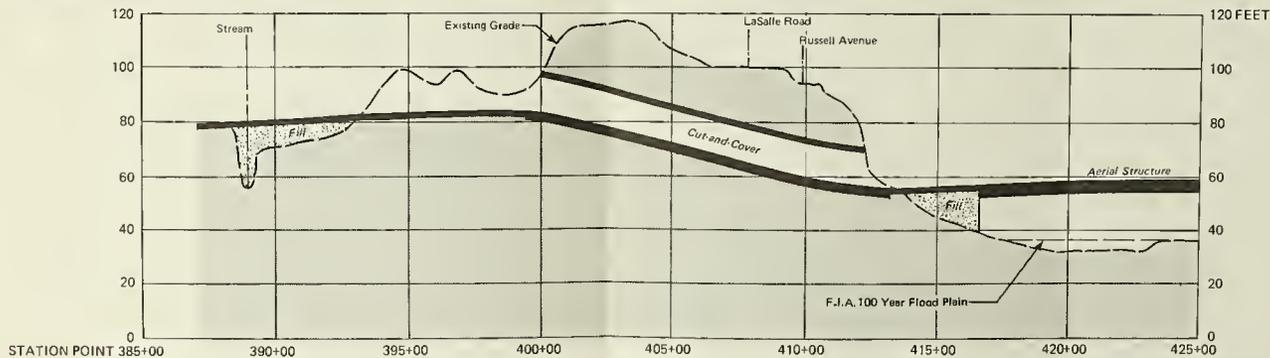
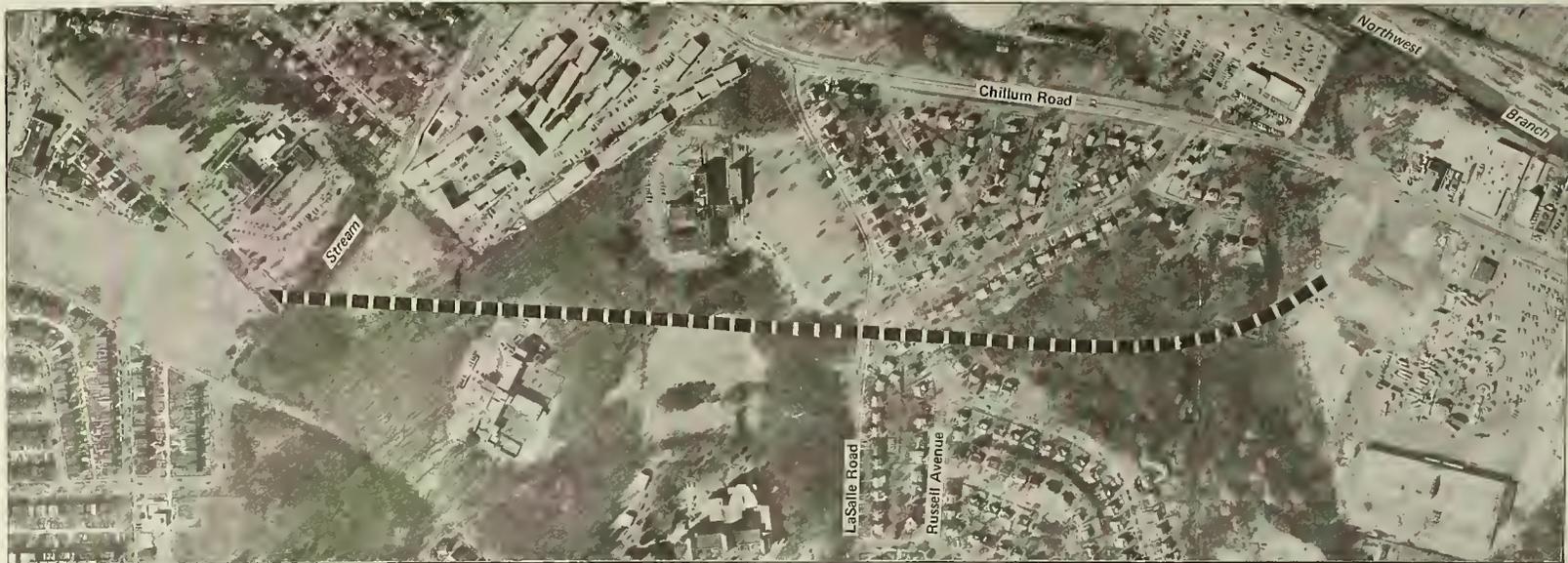
Most properties whose development potential for office, commercial and high-density residential uses will increase as a result of station construction are privately owned and under-utilized; generally, these intensive uses would be consistent with the existing land use pattern and with current land use plans for the area.

FIGURE 2.6a



S-CURVE ALIGNMENT
GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT





STATION POINT 385+00

390+00

395+00

400+00

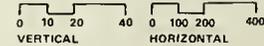
405+00

410+00

415+00

420+00

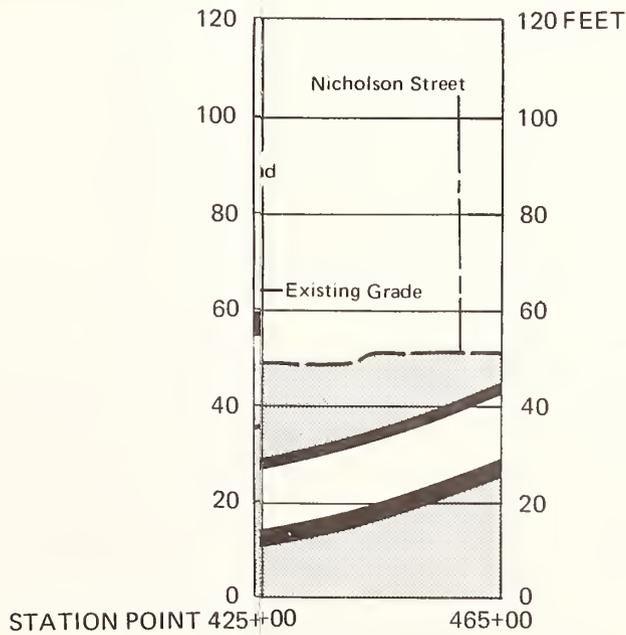
425+00



SCURVE ALIGNMENT
GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



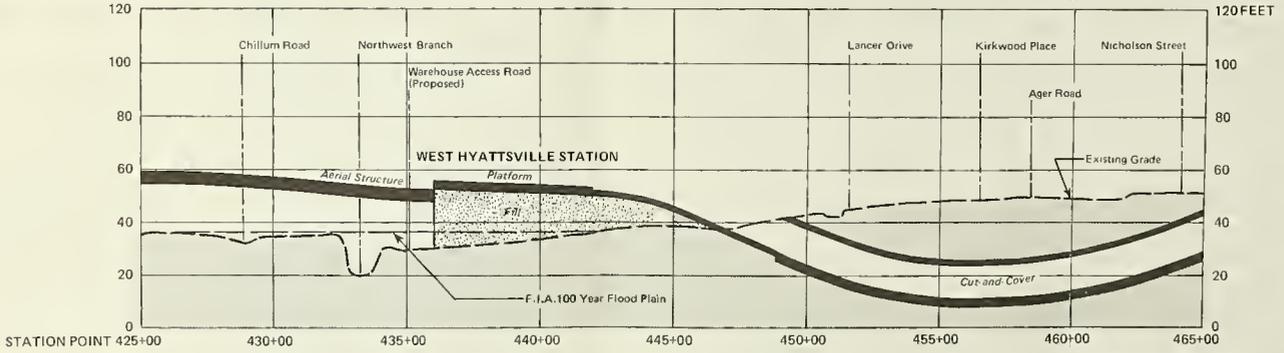
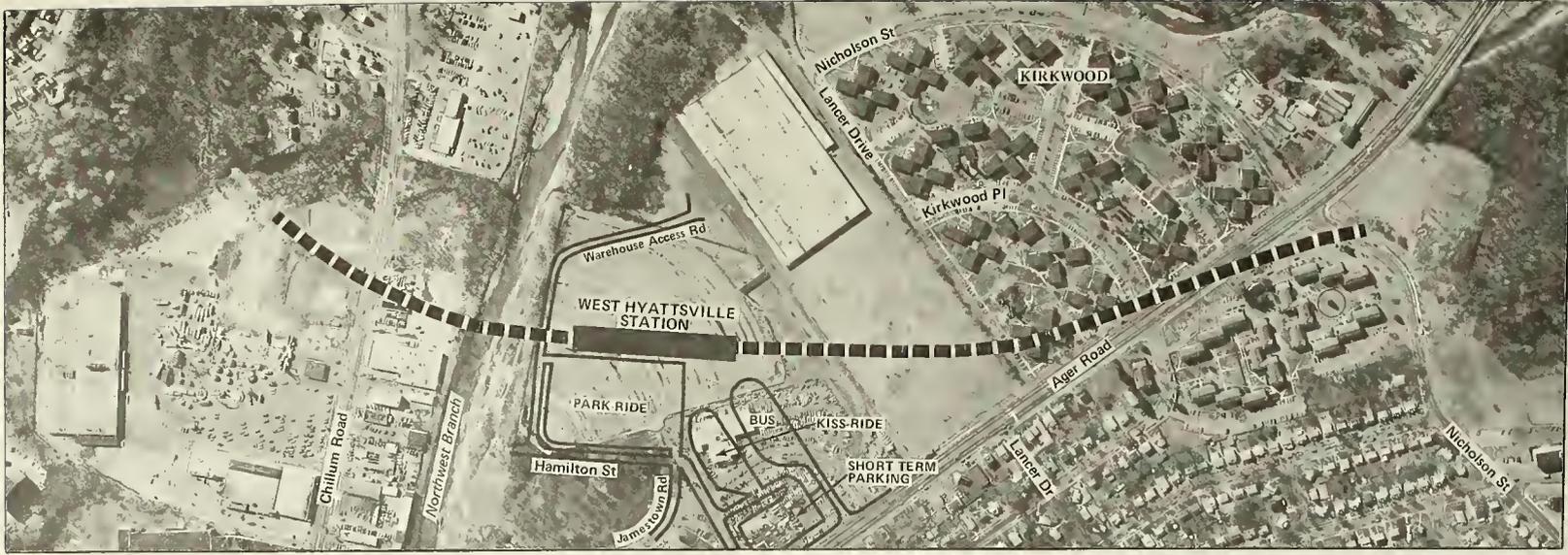
FIGURE 2.6b



S-CURVE ALIGNMENT

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT





S-CURVE ALIGNMENT
 GREEN LINE (E ROUTE)
 WEST HYATTSVILLE SEGMENT

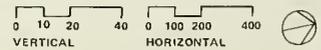
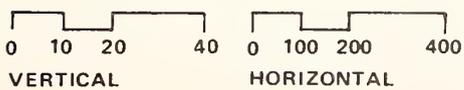
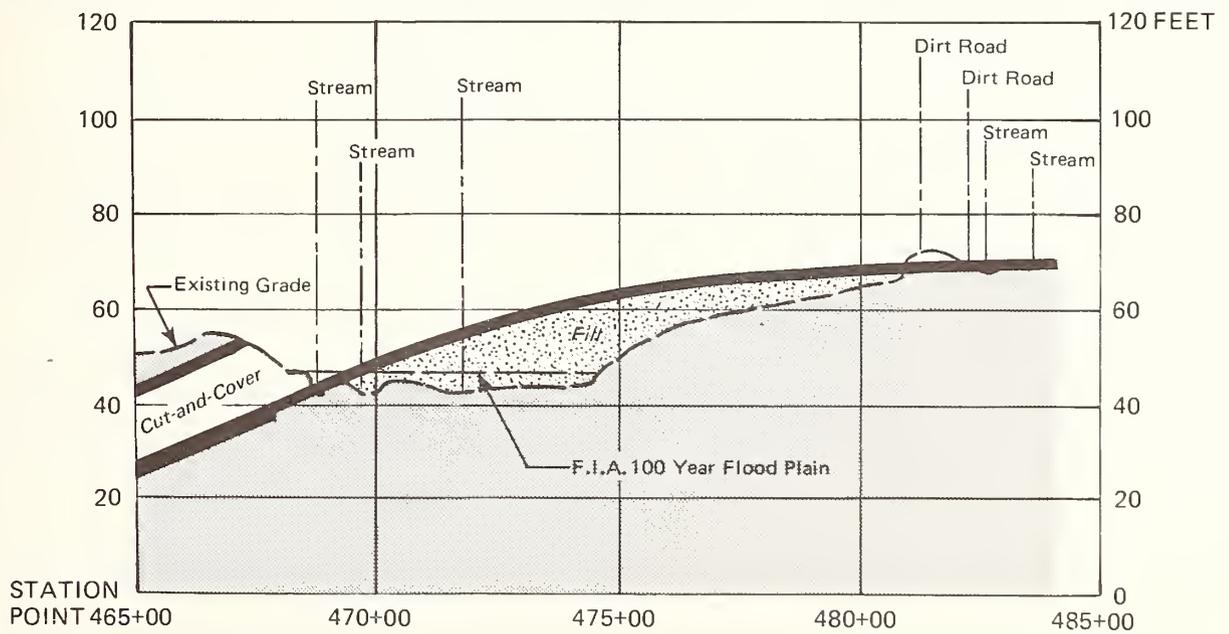
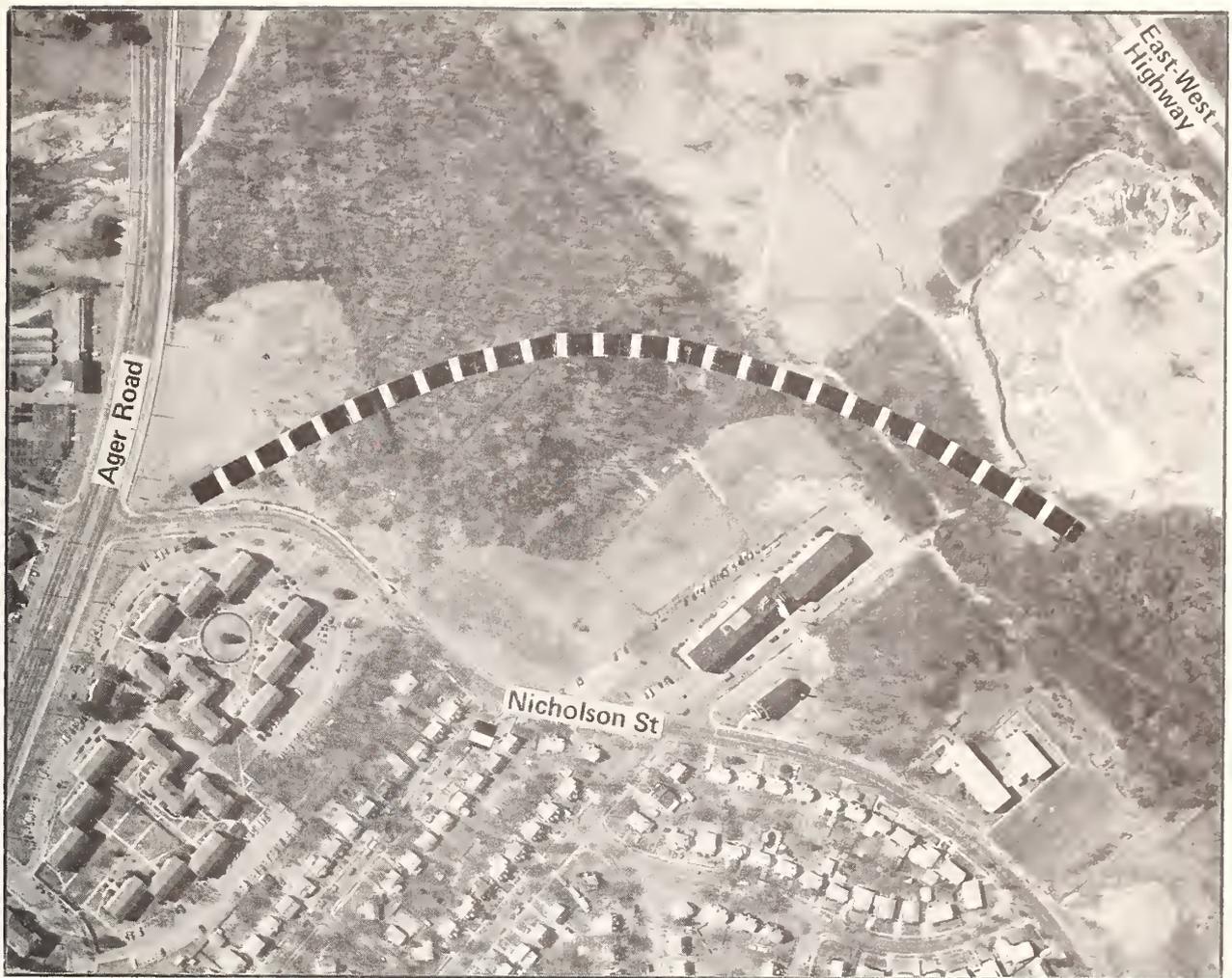


FIGURE 2.6c



GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Socio-Economic Impacts

Approximately 270 residents of the Kirkwood Village Apartments and three single family houses will be displaced because of the alignment. Five businesses will be displaced.

Natural Impacts

Encroachment of the flood hazard area along the Northwest Branch will occur near the existing drive-in theater. This encroachment is associated with West Hyattsville Station development. Another area of floodplain encroachment occurs between Ager Road and East-West Highway where the alignment emerges from the portal onto retained fill.

The alignment will be visible in natural areas southwest and north of Chillum Road and north of Ager Road.

Wooded uplands west of LaSalle Road will be disturbed during cut-and-cover construction, but will be restored when construction is completed.

With the use of noise mitigation techniques, noise levels due to train operations along the S-Curve Alignment will be acceptable at all noise sensitive sites.

Station-generated traffic will not create any national/state ambient air quality standard violations for carbon monoxide.

During construction, dust and emissions from construction vehicles and traffic congestion may increase local levels of TSP (total suspended particulates) and carbon monoxide.

Transportation Impacts

One intersection will decrease to Level of Service 'D' as a result of the addition of station-generated traffic. During the alignment's construction, some periods of traffic congestion may occur along roads intersected by the alignment.

Other Impacts

No property on or eligible for inclusion in the "National Register of Historic Places" will be affected by the construction or operation of the S-Curve Alignment.

Use of Chillum Road Neighborhood Park (undeveloped) and Heurich Community Park will be permanently disrupted to some extent by the alignment. Use of Avondale Neighborhood Park and Northwest Branch Stream Valley Park will be temporarily disrupted during the construction of the alignment.

2.2.3 GENERAL INFORMATION

The 1975 System-wide EIS described the general characteristics of the Metrorail System. The following information is a summary and update of that description.

1. Design and Construction

Three generalized construction types are being used to construct the Metrorail System: subsurface, surface and aerial. Design is undertaken according to the General Design Criteria developed for Metro.¹² These criteria provide for a safe, rapid, and comfortable transit system incorporating accepted engineering practices used in currently operating rapid transit and railroad systems.

a. Subsurface Construction

Subsurface alignments will be either in earth or rock tunnel sections, or rectangular cut-and-cover sections (Figure 2.7). Allowances have been calculated to provide an adequate clearance envelope around the dynamic outline of the vehicle.

Earth tunnel sections will be generally excavated by mechanical tunnel boring equipment. Temporary supports may be provided using steel ribs and wood lagging. Permanent support is generally reinforced concrete; steel plate liner may be used occasionally. Rock tunnelling will be done by mechanical tunnel-boring equipment or by conventional drill and blast methods. The rock walls and ceiling are supported as necessary by steel ribs, rock bolts or wire mesh fabric. Both earth and rock tunnels are finished with smooth concrete, except where cast iron or steel plate liners are used.

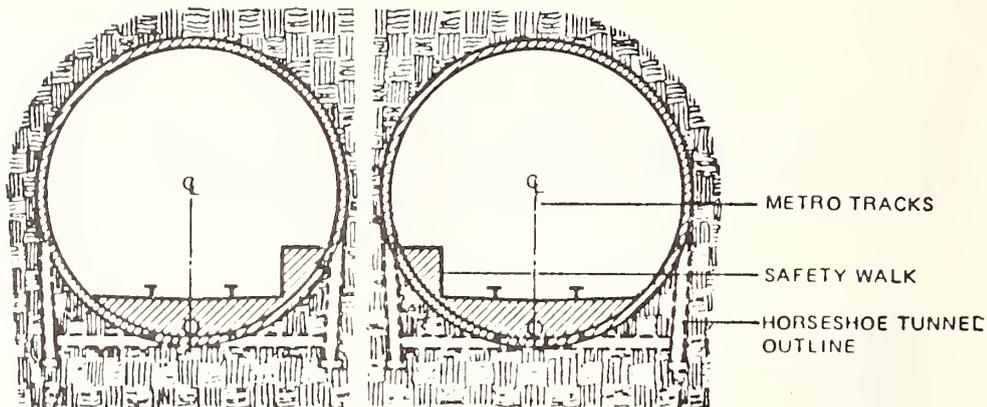
Cut-and-cover sections are constructed by cutting or digging a trench to the proper depth, constructing two single boxes or a double box and backfilling the trench.

b. Surface Construction

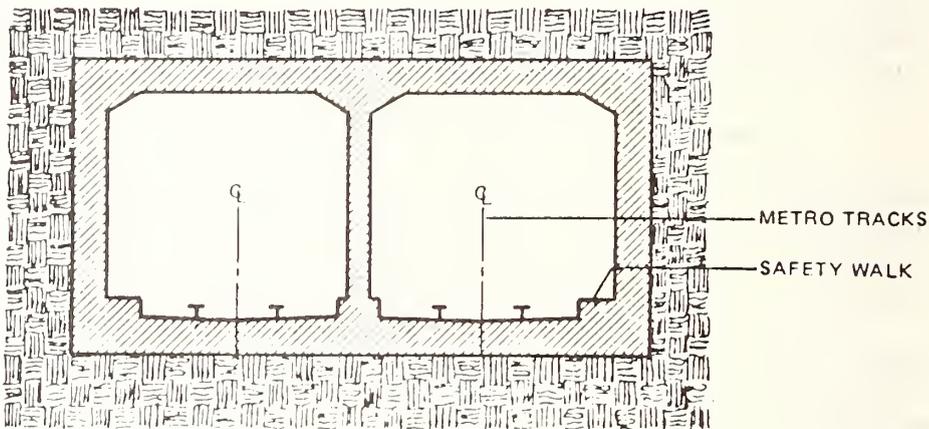
Surface sections of the alignment include at-grade sections on fill, open cut sections, retained cut sections, and retained fill sections (Figure 2.8). At-grade sections occur

¹²DeLeuw, Cather and Company. "WMATA Manual of Design Criteria". 1981.

EARTH TUNNEL



CUT-AND-COVER



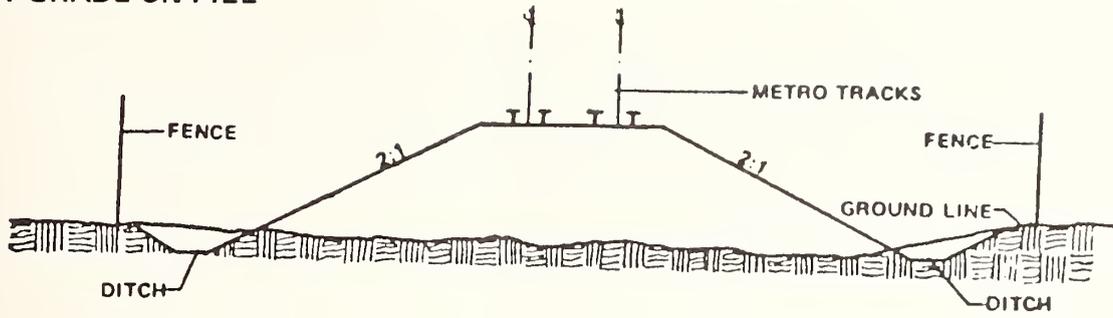
Red Line, outbound of the Dupont Circle Station, during construction through the Rock Creek Park west of Connecticut Avenue. A cut-and-cover section will connect with the twin earth tunnels in background, leading to the Woodly Park - Zoo Station (WMATA photo by Phil Portlock)

GENERALIZED SUBSURFACE SECTIONS

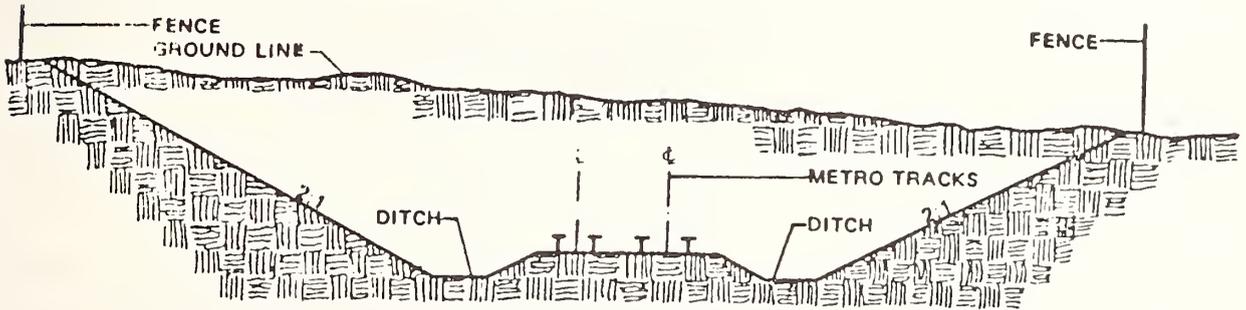


FIGURE 2.8

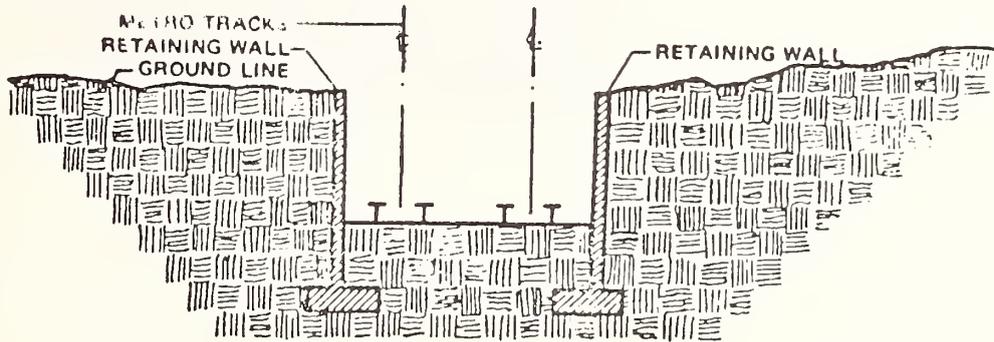
AT GRADE ON FILL



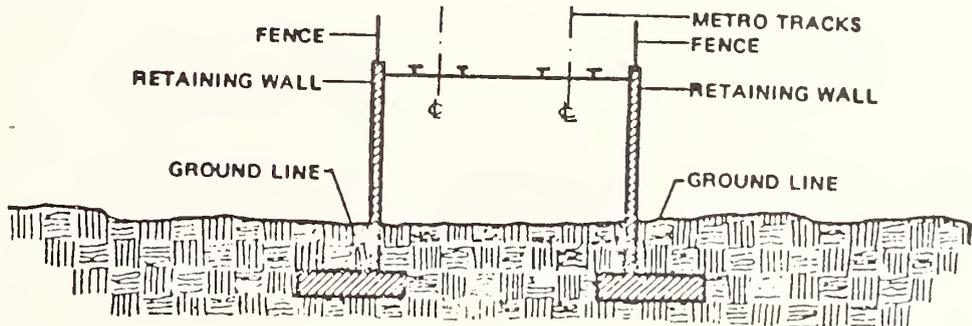
OPEN CUT



RETAINED CUT



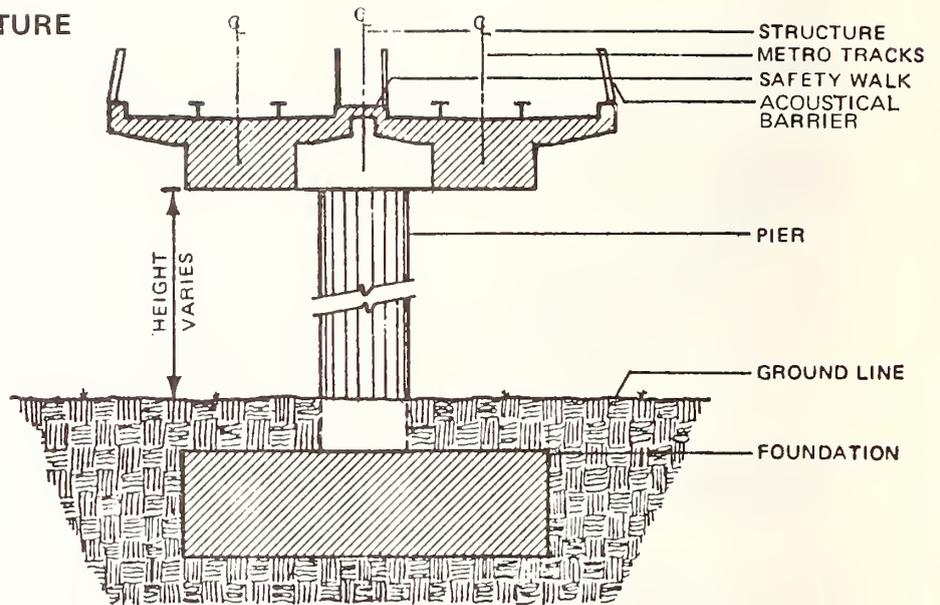
RETAINED FILL



GENERALIZED SURFACE SECTIONS



DOUBLE TRACK STRUCTURE



GENERALIZED AERIAL
SECTION



where the Metro alignment is close to the existing ground surface. In open cut sections, a sloped trench is dug to the proper depth. Retained cut sections are similar to open cut sections, except that retaining walls replace slopes along the sides. Retained fill sections are constructed above the existing grades on fill with retaining walls. As in subsurface sections, allowances have been calculated to maintain an adequate clearance envelope around the dynamic outline of the vehicle for all surface construction types.

c. Aerial Construction

Aerial structures consist of two single track structures or a double track structure constructed as a concrete or steel and concrete viaduct (Figure 2.9). Special design criteria will address specific considerations appropriate for bridge construction related to, among other things, wind velocities and temperature stresses. Piers are generally positioned at intervals of 80 to 120 feet.

2. Metrorail/Metrobus Interface

Prior to opening any given Metrorail station, the WMATA staff, in coordination with local jurisdiction staffs, will prepare a plan and program for the interface of Metrorail and Metrobus service. The plan will be designed to maximize ridership through use of the combined rapid rail and surface Metrobus systems.

In considering route changes, special emphasis will be given to:

1. Eliminating duplicate services where Metrorail would provide a speedier, more dependable, and more attractive service;
2. Providing bus-rail connections that would offer convenient transfer privileges;
3. Continuation of Metrobus routes where the rail system cannot adequately serve major destinations directly;
4. Provision for more frequent service to areas now served as well as extensions into communities where bus service is either non-existent or presently inadequate; and

5. Coordinatoin of Metrobus and Metrorail services so as to complement other modes of transportation being provided by private carriers, local jurisdictions, state, federal and other agencies.

3. Hours of Operation

Metro service currently operates on all days of the week. Metro operates between the hours of 6:00 a.m. and midnight on weekdays, between the hours of 8:00 a.m. and midnight on Saturdays, and between the hours of 10:00 a.m. and 6:00 p.m. on Sunday. On holidays, Metro operates on either Saturday or Sunday schedules.

Trains outbound of the Green Line's Mount Vernon Station are expected to run on 4 minute headways during peak hours and on 10 minute headways during off-peak hours.

4. Fares

Metro fares are currently based upon peak and off-peak periods, with special provisions made for senior citizens and handicapped persons.

a. Peak Period Fares

Peak periods of Metro operation occur between 6:00 a.m. and 9:30 a.m., and between 3:00 p.m. and 6:30 p.m., Monday through Friday, excluding National holidays. Peak period fares are based upon the distance traveled, defined as a "composite" distance representing the average of the straight-line distance and the actual track distance. Fares are determined through the following fare structure:

1. 65 cents for the first three composite miles of travel, plus 13 cents for each additional mile (all fares rounded to the nearest 5 cents);
2. All fares to and from stations in the District of Columbia which are east of the Anacostia River will be adjusted downward by 10 cents (the Government of the District of Columbia will reimburse the Authority for the revenue loss associated with the program);
3. Rail fares are equalized between the Rosslyn and Pentagon Stations and adjusted to and from Pentagon City, Crystal City, and National Airport Stations accordingly. This will continue

until such time that service is provide via the south river crossing (Yellow Line); and

4. There is a minimum peak period fare of 65 cents for trips between Virginia and the District of Columbia.

b. Off-Peak Period Fares

During all hours other than peak, off-peak fares are in effect, including all day on Saturday. All Metrorail trips during the off-peak period are purchased at a flat fare rate of 65 cents.

c. Fares for Senior Citizens and the Handicapped

Metrorail fares for senior citizens and handicapped persons during both peak and off-peak periods are half the corresponding peak period fare (rounded to the nearest 5 cents), with a maximum fare of 60 cents.

Metro fares are collected through a mechanical system requiring fare cards for entry to and exit from all Metro stations. Fares are determined from large Metro maps and fare information charts. Magnetically encoded farecards are purchased from farecard vending machines. Coins or one or five dollar bills are inserted into the appropriate slot, the value of the desired farecard set, and the card and change ejected. The passenger proceeds to the faregate and inserts the farecard. The point of entry is magnetically encoded on the farecard, the gate opens, and the card is returned to the rider.

After arriving at the Metro destination, the passenger proceeds to the exit faregate and inserts the farecard. The magnetic strip on the card is read to determine the entry point and to compute the price of the trip. If the trip cost is equal to or less than the value of the farecard, the exit gate opens. If the cost of the trip exceeds the value of the farecard, the passenger is directed to an addfare machine where the value of the card can be increased to permit exit. When the value remaining on a farecard is inadequate for an additional Metrotrip, the value can be increased on the farecard machine.

5. Safety and Security

Safety measures during train operation will include station platform signals indicating approaching trains, emergency intercom systems, and an automatic train control system with

capacity for manual operation during emergencies. Along edges of all station platforms a row of footlights, embedded in a foot-wide strip of granite, pulsates to signal the imminent arrival of all trains. Each car is equipped with an emergency intercom system to provide communication with the train operator.

Trains are operated by an Automatic Train Control (ATC) system comprised of three subsystems. An Automatic Train Supervision (ATS) system is programmed to "operate" trains on a fixed, predetermined schedule. ATS commands are monitored by an Automatic Train Protection (ATP) system. ATS and ATP operate simultaneously and independently and transmit orders to the Automatic Train Operation (ATO) system. In the event of ATC failure, trains are operated manually and in accordance with visual speed indications subject to over-speed controls. When both the ATP and ATO systems are ineffective, trains operate at speeds of less than 15 mph, under the direction of the Train Control Supervisor.

An electrically supervised, selective coded, closed circuit burglar/fire alarm system is provided at all points in substations, and train control and communication buildings requiring protection against unauthorized entry. Stations and substations are monitored by a closed circuit television surveillance system viewed from Central Control.

A Metro security force, in coordination with appropriate law enforcement agencies and organizations, is responsible for providing suitable protection and security for the patrons, employees, properties, equipment, and revenue of the transit system. Memoranda of Understanding with each local police department along the alignment have been developed. In the agreements, the Metro Transit Police have assumed primary enforcement responsibility on the trains, tunnels, and fund-generating WMATA-owned property, while local police have assumed responsibility for stations and Metro parking lots.

In the event of emergency, all Metro alignments are equipped with emergency systems. Metro is equipped with emergency lighting and rechargeable emergency batteries for all stations and tunnel sections, designed to provide power for the full emergency lighting load for a continuous period of three hours. At emergency stations and other track locations, a party-line, common battery, emergency telephone system provides communication with Metro Central Control. The Metro fire protection system consists of a closed circuit signaling system with ionization and temperature sensors at all passenger stations, substations, public buildings, yards,

shops, and other readily accessible locations. Alarms are provided in station kiosks and at Central Control. Fire fighting equipment is located in all stations. Emergency access or egress from subsurface operation sections is provided from tunnel safety walks to either stations or access shafts at distances such that no point in the subway system is over 1,250 feet from a point of access or egress.

2.3 EVALUATION OF ALTERNATIVES

Table 2.1 summarizes and compares the impacts of the ARS Alignment and the S-Curve Alignment. There are three major differences between these two alternatives.

The first major difference is the extent of residential displacement. The ARS Alignment requires the displacement approximately 425 more residential units than the S-Curve Alignment.

The second major difference is the extent of parkland disruption. The ARS Alignment crosses over 40 percent more 4(f) parkland than the S-Curve Alignment.

The third major difference is the extent of floodplain encroachment. The ARS Alignment crosses nearly 70 percent more of the FIA flood hazard area at grade than the S-Curve Alignment.

Projected construction costs, in September 1985 dollars, are \$8.6 million greater for the ARS Alignment than for the S-Curve Alignment. Projected real estate costs, which include acquisition, administration, relocation and demolition costs in June 1984 dollars, are \$13.1 million greater for the ARS Alignment than for the S-Curve Alignment.

TABLE 2.1: COMPARISON OF ALTERNATIVES

Impacts	ARS Alignment	S-Curve Alignment
LAND USE	Station would not be located adjacent to a commercial area.	Station would be located within a commercial area.
SOCIO-ECONOMIC	<p>Would displace 515 residential units and 2 businesses.</p> <p>Would separate two residential areas from each other by displacement of interlying residential development.</p>	<p>Would displace 90 residential units and 5 businesses.</p> <p>Would not disrupt visual and physical continuity within any residential area.</p>
NATURAL	<p>Would encroach upon the base floodplain for 4,400 l.f., of which 3,100 l.f. is at grade.</p> <p>Would be visible for 7,000 l.f. through natural and residential areas.</p> <p>Would bisect wooded stands for 2,100 l.f.</p> <p>Non-acceptable train operation noise would be easily mitigated except in four parks.</p> <p>Would cause one minor violation for carbon monoxide, but generally would not cause severe air quality problems.</p>	<p>Would encroach upon the base floodplain for 2,600 l.f., 600 l.f. of which is in retained cut or at grade.</p> <p>Would be visible for 4,300 l.f. through natural and residential areas.</p> <p>Would bisect wooded stands for 3,100 l.f.</p> <p>Non-acceptable train operation noise would be easily mitigated except in one park.</p> <p>Would not cause severe air quality problems.</p>
TRANSPORTATION	Station traffic would decrease level of service at one intersection operating above capacity.	Station traffic would decrease level of service at one intersection to level of service "D".
OTHER	<p>Would not affect any known historic sites but would disrupt an area having a high probability of prehistoric sites.</p> <p>Would cross 3,000 l.f. in four 4(f) parklands: 2,000 l.f. at grade and 1,000 l.f. aerial.</p>	<p>Would not affect any known historic or prehistoric sites.</p> <p>Would cross 2,300 l.f. in four 4(f) parklands: 1,000 l.f. at grade, 900 l.f. aerial, 300 l.f. cut-and-cover and 100 l.f. retained cut.</p>
CONSTRUCTION COST	Would cost \$110.3 million in September 1985 dollars.	Would cost \$101.7 million in September 1985 dollars.
REAL ESTATE COST	Would cost \$22.5 million in June 1984 dollars.	Would cost \$9.4 million in June 1984 dollars.

Note: l.f. = linear feet

2.4 SELECTION OF THE LOCALLY PREFERRED ALTERNATIVE

The search for an alternative to the West Hyattsville Segment of the ARS was initiated when the inner-Beltway portion of I-95 was deleted. At that time, it was anticipated that an alignment could be identified which would have fewer potential adverse effects than the ARS Alignment.

The S-Curve Alignment has been proposed to replace the ARS Alignment. Studies have indicated that there are trade-offs between the ARS and S-Curve Alignments, some negative and some beneficial. As summarized in the preceding section, however, when the overall effects of the ARS and S-Curve Alignments are balanced, the S-Curve Alignment is preferred by WMATA and Prince George's County because it would require fewer displacements and disrupt less parkland than the ARS Alignment.

Chapter 3

AFFECTED ENVIRONMENT

3.1 LOCATION

The West Hyattsville Segment is located seven miles from downtown Washington in Prince George's County, Maryland.

The study area for this analysis is delineated as the composite of the service areas for the ARS Alignment's Chillum Station and the S-Curve Alignment's West Hyattsville Station (Figure 3.1). The study area includes the following incorporated municipalities and unincorporated areas:

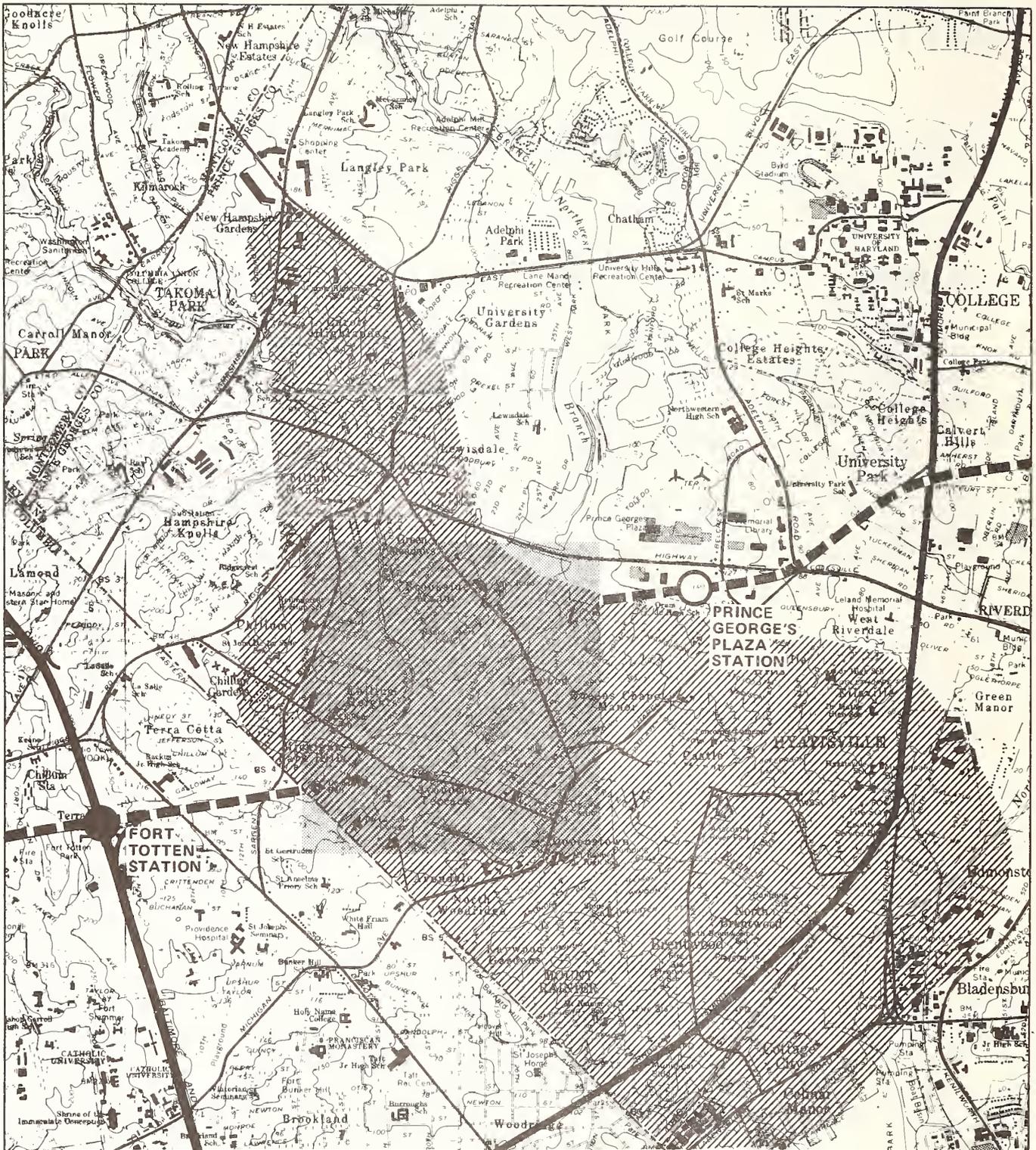
1. Incorporated Municipalities

Brentwood
Cottage City
Colmar Manor
Edmonston
Hyattsville
Mount Rainier
North Brentwood
Riverdale
Takoma Park

2. Unincorporated Areas

Avondale
Avondale Terrace
Brookside Manor
Carole Highlands
Chillum
Chillum Heights
Chillum Manor
Green Meadows
Kirkwood
Lewisdale
Michigan Park Hills
North Woodridge

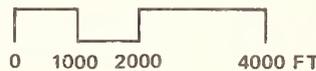
FIGURE 3.1



-  STUDY AREA
-  FRAME OF REFERENCE FOR ALTERNATIVES

REGIONAL CONTEXT

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



3.2 LAND USE CHARACTERISTICS

3.2.1 LAND USE AND ZONING

The West Hyattsville Segment study area is suburban in character. The few undeveloped sites which remain in the area are located where severe development constraints exist or where land is either publicly or institutionally owned.

The most eastern and most western portions of the study area were intensively developed between 1850 and the early 1900's when B&O Railroad and Washington Railway and Electric Company commuter service to downtown Washington became available. Most development in the central portion of the study area occurred between 1940 and 1950 when military personnel and World War II veterans were seeking housing in the Washington area.

Land use near the alternative alignments closely corresponds to current zoning (Figure 3.2). The most prevalent land uses are residential and commercial (Figure 3.3). Parks and institutions provide buffers between densely developed residential and commercial areas (Figure 3.4).

The most intensively developed residential areas are comprised of garden (LaSalle Park, Chillum Heights, Overlook, Kirkwood, Ager Terrace and Queens Chapel) and mid-rise (Prince George's Tower) apartment complexes. Less intensively developed residential areas are comprised of duplex and single family subdivisions.

Three locally-oriented commercial areas (Chillum Manor, Chillum Heights and Queenstown) and one regionally-oriented commercial area (Queens Chapel) are located around major road intersections. Prominent physical landmarks include a radio broadcasting facility (WRC) on Ager Road, a drive-in theater on Jamestown Road, and the Washington Gas Light Company facility on Chillum Road.

Institutions near the alignments include:

1. The Seminary and Residence for Priests;
2. The St. Ann's Infant Home;
3. The Catholic Seminary Retreat and Carroll Manor Home for the Elderly;
4. The U.S. Department of Interior Bureau of Mines' Avondale Research Center;

FIGURE 3.2



 COMMERCIAL

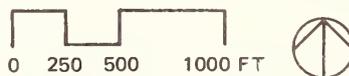
- C-1 Local
- C-2 General
- C-O Office
- C-M Miscellaneous

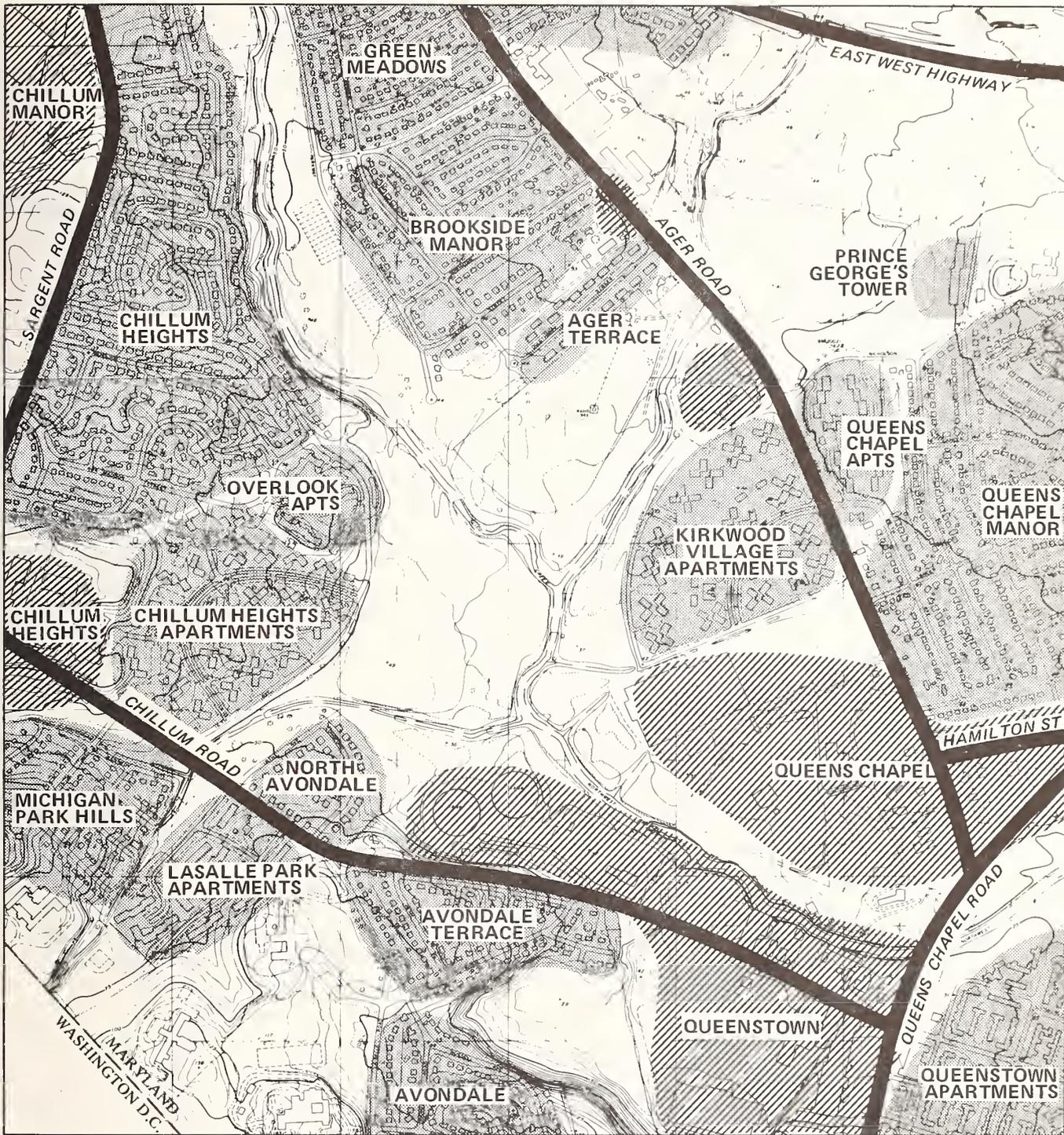
 RESIDENTIAL

- R-R Rural
- R-55 One-family detached
- R-30 Multiple family low density
- R-18 Multiple family medium density
- R-10 Multiple family high density

ZONING, 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT





RESIDENTIAL & COMMERCIAL AREAS, 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT

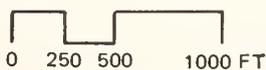
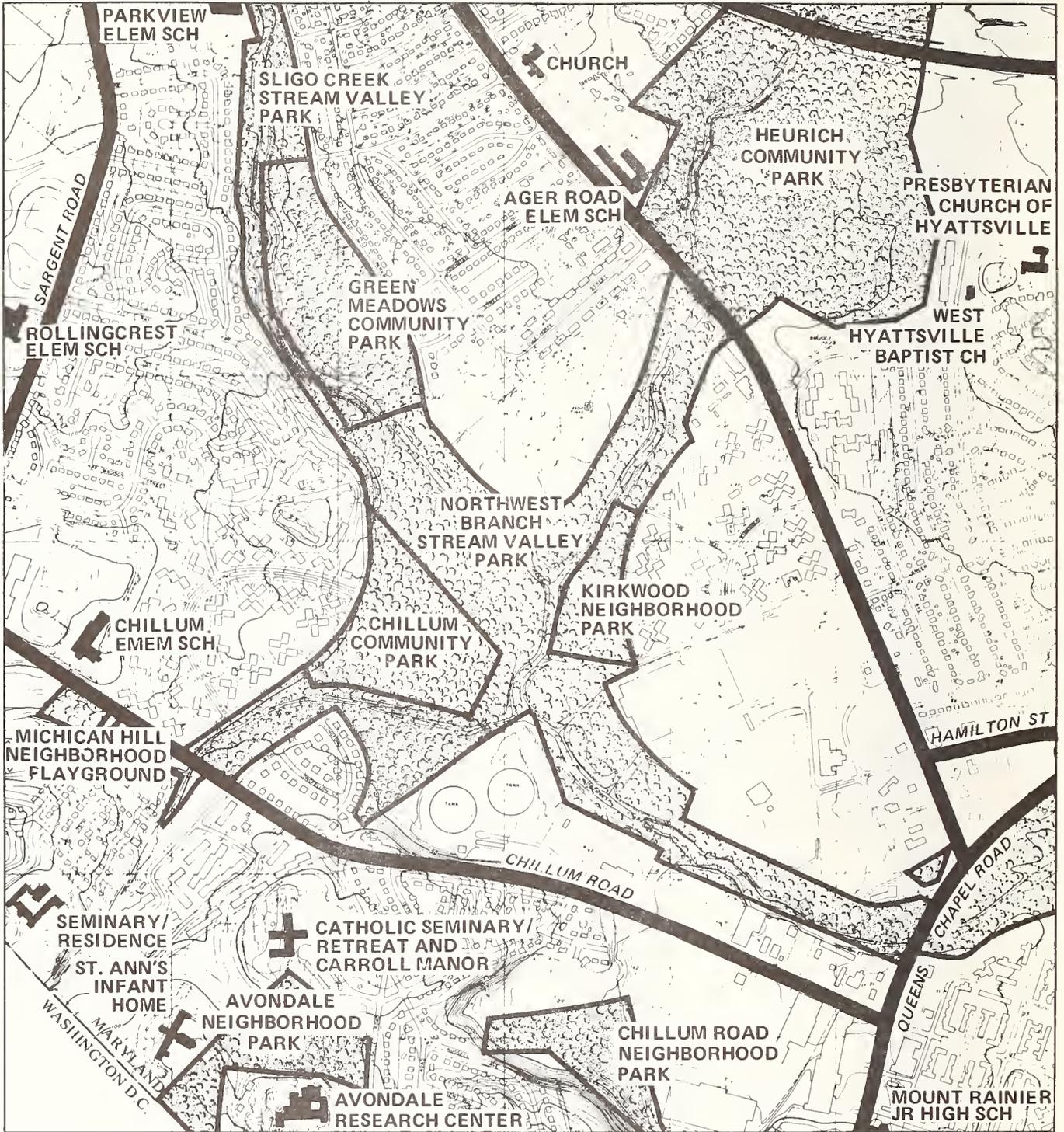


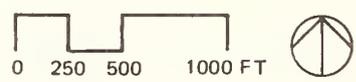
FIGURE 3.4



-  INSTITUTION
-  PARKLAND (BOUNDARY APPROXIMATE)

INSTITUTIONS & COMMUNITY FACILITIES, 1980

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



5. The West Hyattsville Baptist Church;
6. The Presbyterian Church of Hyattsville;
7. Chillum Elementary School; and
8. Ager Road Elementary School (closed).

Public parks near the alignments, all of which are owned and operated by M-NCPPC (Maryland-National Capital Parks and Planning Commission) include:

Avondale Neighborhood Park

Avondale Neighborhood Park, located at 4910 LaSalle Road in Avondale, includes 11.26 acres of parkland. Park facilities include one volleyball court, one softball field, two tennis courts, two basketball courts, and six handball courts. Recent park improvements include a parking area and vehicular entrance on LaSalle Road.

Chillum Road Neighborhood Park

Chillum Road Neighborhood Park is a recent M-NCPPC acquisition consisting of 7.42 acres located between Russell Avenue and Ingraham Street. Access to the park from Russell Avenue is a dedicated but unimproved cul-de-sac, Avondale Place. The park is presently undeveloped and under a ten-year lease to the Chillum Boys and Girls Club.

Northwest Branch Stream Valley Park

Northwest Branch Stream Valley Park is a linear, multi-use park facility consisting of 497.99 acres located in the West Hyattsville area. The park was acquired through the Capper-Cramton Act with federal funds.

Except for Chillum Community Park and Kirkwood Neighborhood Park, which are discussed separately, Northwest Branch Stream Valley Park between Queens Chapel Road and Ager Road is unimproved and used for passive forms of recreation. A hiker/biker/equestrian trail is proposed along the east bank of the Northwest Branch within the park. This proposed trail will eventually extend from Peace Cross north to the Montgomery County Line and is expected to function as a commuter route to the University of Maryland, recreation, shopping and intercommunity travel, with links to future Metro stops and bus lines.¹

¹Maryland-National Capital Parks and Planning Commission.
"Adopted and Approved Countywide Trails Plan for
Prince George's County, Maryland." July 1975.

Chillum Community Park

Chillum Community Park encompasses 40 acres located at 5701 16th Avenue in Chillum. The park is within the Northwest Branch Stream Valley Park system, acquired through the Capper-Cramton Act with federal funds. Park facilities include a picnic and play area, three softball fields with football overlays, two tennis courts, two horseshoe pits, and a basketball court.

Kirkwood Neighborhood Park

Kirkwood Neighborhood Park consists of 15 acres and is located at 2600 Nicholson Street in Hyattsville. The park is within the Northwest Branch Stream Valley Park system, acquired through the Capper-Cramton Act with federal funds. Park facilities include a picnic area, playground equipment, one softball field, one basketball court, and three horseshoe pits.

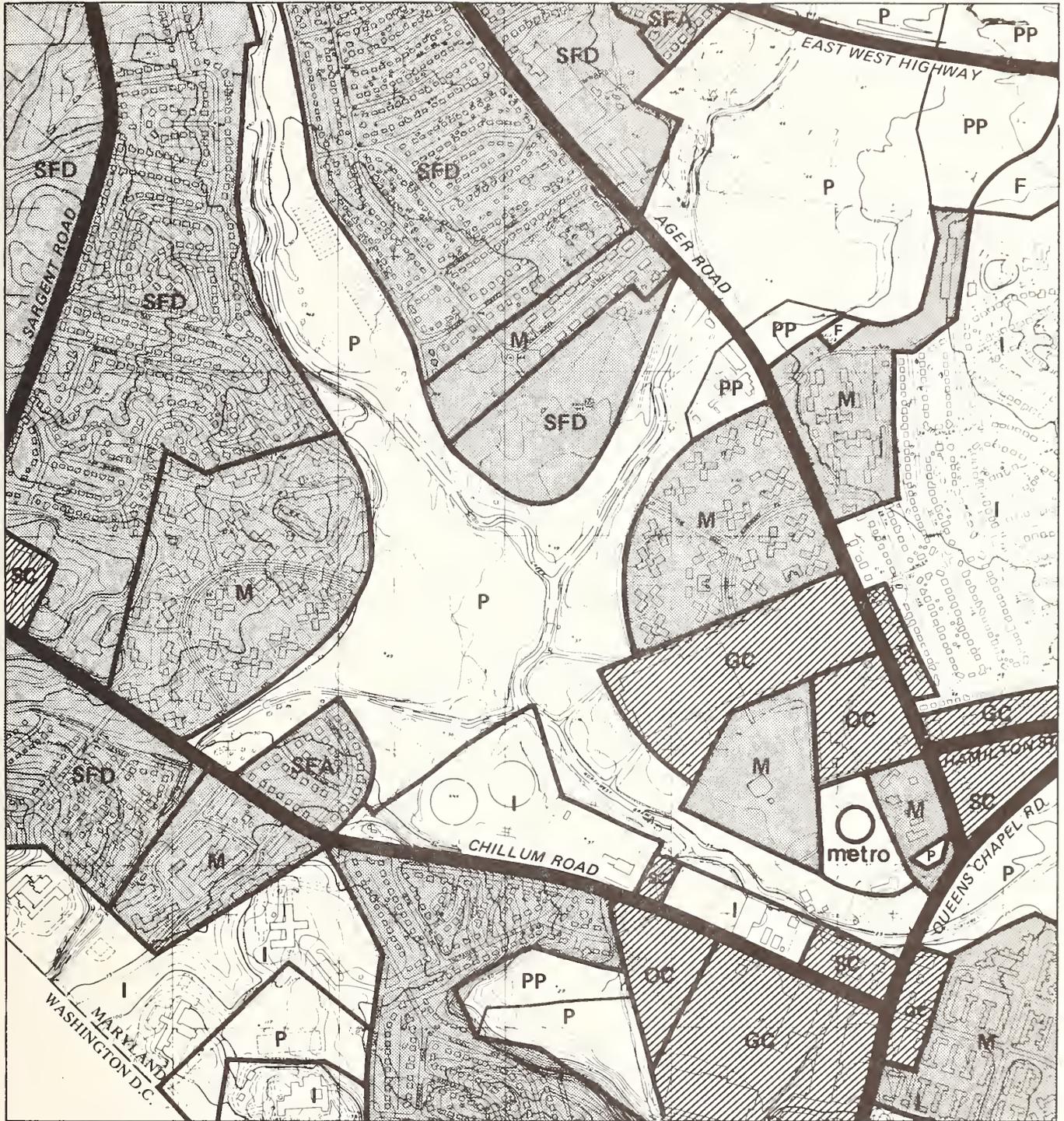
Heurich Community Park

Heurich Community Park is a multi-use facility located at 6001 Ager Road. The park has frontage on two roadways, Ager Road and East-West Highway. The park is within the Northwest Branch Stream Valley Park system, acquired through the Capper-Cramton Act with federal funds. Park facilities include two softball fields, one baseball field and one football field on the east side of Northwest Branch, and a playground, picnic area and parking area on the west side of Northwest Branch. The eastern and western portions of the park are connected by a pedestrian bridge over the Northwest Branch.

3.2.2 LAND USE PLANS

M-NCPPC is the lead planning agency in the study area. Three M-NCPPC plans apply to the study area:

1. "...on Wedges and Corridors." January 1964.
2. "Master Plan of Takoma Park - Langley Park Planning Area." October 1963.
3. "Adopted and Approved Master Plan for Planning Area 68." October 1974.

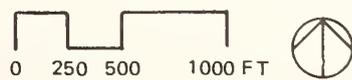


-  COMMERCIAL
-  RESIDENTIAL
-  PUBLIC AND QUASI-PUBLIC

- SC Service
- GC General
- OC Office
- SFD Single family detached
- SFA Single family attached
- M Multi-family
- I Institution
- F Floodplain soils area
- P M-NCPCC Park
- PP M-NCPCC Park (proposed)

LAND USE PLAN, 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



The plan "...on Wedges and Corridors" is the general plan for Montgomery and Prince George's Counties. It encourages growth in four corridors radiating from downtown Washington. The study area lies within the corridor which radiates in the direction of Baltimore. This plan is currently being revised.

The second and third plans are based upon "...on Wedges and Corridors". Near the alignment, these plans proposed that a Metro station, surrounded by commercial and multi-family residential development, be located in the Queens Chapel area (Figure 3.5).

The M-NCPPC has designated the Queens Chapel area as a transit development area in order to permit a mixture of uses which serve a regional residential market or to provide concentrated employment arranged to allow easy pedestrian access between uses.² In anticipation of a sectional map amendment, the M-NCPPC is presently involved in a market analysis of the area.³

²Stouten, A.B., Maryland-National Capital Parks and Planning Commission. Personal Communication with WRT. March 21 1980.

³Davidson, E.B., Maryland-National Capital Parks and Planning Commission. Personal Communication with WRT. March 21 1980.

3.3 SOCIO-ECONOMIC CHARACTERISTICS

3.3.1 POPULATION CHARACTERISTICS

The study area lies within Prince George's County Election Districts 16 and 17. The population of these two districts decreased by 9.3% between 1970 and 1980 to 83,411 individuals. During the same period, the population of Prince George's County decreased by 0.5%.⁴

The 1980 population of the study area was approximately 44,600.⁵ Approximately 40% of individuals in the study area were non-white.⁶ In 1970, approximately 10% of individuals in the study area were non-white.⁷

3.3.2 HOUSING CHARACTERISTICS

The number of housing units in Election Districts 16 and 17 increased by 2.4% between 1970 and 1980 to 34,369 units. During the same period, the number of housing units in Prince George's County increased by 17.9%.⁸

⁴Maryland-National Capital Park and Planning Commission, Research and Special Studies Division. 1980 Census Information Bulletin #1: Final 1980 Census of Population and Housing for Prince George's County. March 1981.

⁵Maryland-National Capital Park and Planning Commission, Research and Special Studies Division. 1980 Census Population Distribution. March 1982.

⁶U.S. Department of Commerce, Bureau of the Census. "1980 Census of Population and Housing, Census Tracts Final Report for the Washington, DC-Maryland-Virginia SMSA (STF 1 Tape Data Supplied by Washington Council of Governments)."

⁷U.S. Department of Commerce, Bureau of the Census. "1970 Census of Population and Housing, Census Tracts Final Report for the Washington, DC-Maryland-Virginia SMSA (PHC1-226)."

⁸Maryland-National Capital Park and Planning Commission, Research and Special Studies Division. 1980 Census Information Bulletin #1: Final 1980 Census of Population and Housing for Prince George's County. March 1981.

Approximately 3.6% of the housing stock in the study area was not occupied in 1980. Of the occupied units, approximately 44% were owner-occupied and 56% were renter-occupied. The median value of owner-occupied units was \$70,530.⁹ The median contract rent of renter-occupied units was \$342.⁹

According to WashCOG, the 1979 average monthly rent for a two-bedroom unit was \$282 within Prince George's County and \$312 within the entire Washington area. In general, the County's multi-family housing has the lowest average monthly rents in the metropolitan area.¹⁰

WashCOG reported a 4.6% apartment vacancy rate for Prince George's County in January 1979 and Prince George's County estimated a 6.0% vacancy rate for November 1979.¹¹ Apartment vacancy rates for Prince George's County, however, may not be a reliable indicator of vacancy rates for low- and moderate-income rental housing units in the study area. A survey limited to the Chillum-West Hyattsville area indicated that the vacancy rate for these units may be as low as 0.8%.¹²

3.3.3 TRANSPORTATION, EMPLOYMENT AND INCOME CHARACTERISTICS

Approximately 55% of individuals residing in the study area were employed during 1980. Of these employed individuals, approximately 38% worked in the District of Columbia and 68% traveled to work by automobile.¹³

⁹U.S. Department of Commerce, Bureau of the Census. "1980 Census of Population and Housing, Census Tracts Final Report for the Washington, DC-Maryland-Virginia SMSA (STF 1 Tape Data Supplied by Washington Council of Governments)."

^{10,11}Prince George's County, Maryland. "A Community Development Block Grant Housing Strategy for Prince George's County," p.9. November 1979.

¹²Neighborhoods Uniting Project, Inc. "Apartment Vacancy Study." February 1980.

¹³U.S. Department of Commerce, Bureau of the Census. "1980 Census of Population and Housing, Census Tracts Final Report for the Washington, DC-Maryland-Virginia SMSA (STF 3 Tape Data supplied by Maryland-National Capital Parks and Planning Commission, Research and Special Studies Division)."

Individuals between age ten and sixteen, individuals over sixty-five, households with incomes below three times the poverty level and households without access to an automobile are generally more transit dependent than the average. An analysis of transit dependency within the study area indicated that the most transit dependent area within the study area is Mount Rainier.¹⁴

¹⁴WMATA. "Environmental Impact Study: Greenbelt/E Route, Section E-3 through E-5," Part 2, p. 87. December 1974.

3.4 NATURAL CHARACTERISTICS

3.4.1 GEOLOGY AND SOILS

The study area is underlain by the Patuxent and Wicomico Formations of the Potomac Group of coastal plain deposits, which dip with increasing thickness toward the southeast. These formations are composed primarily of unconsolidated sands, gravels, silts and marine clays, intermixed in a complex and often unpredictable fashion. Concentrations of sands and gravels in Prince George's County are important mineral resources; however, no active extraction operations are located in the study area.¹⁵

Except for recent alluvium near the Northwest Branch, the subsoils are moderately to highly compact and preconsolidated throughout. The recent alluvium has been determined to be generally unsatisfactory for supporting structures and difficult to excavate because of its softness and high water table.¹⁶

The soils in the study area are primarily derived from these unconsolidated sediments and are generally moderate to poorly drained sandy and clayey soils. Codorus, Hatboro and Iuka soils, located near the Northwest Branch, are poorly drained, have a high water table and are somewhat susceptible to erosion. Elsinboro, Keyport and Sandy/Clayey soils, located in non-urbanized upland areas, have low bearing capacity.¹⁷

3.4.2 GROUNDWATER AND SURFACE WATER HYDROLOGY

The major aquifer in the study area is the Patuxent Formation, which crops out to the north in less urbanized areas.

¹⁵Maryland Department of Natural Resources, Geological Survey. "Mineral Resources and Mined Land Inventory, Prince George's County, Maryland." 1980.

¹⁶Hsia, L.M., DeLeuw, Cather and Company, Inc. Personal Communication with WRT. August 1981.

¹⁷U.S. Department of Agriculture, Soil Conservation Service. "Soil Survey for Prince George's County, Maryland." April 1967.

The urban character of the study area currently precludes significant local inputs to this groundwater resource.

The study area lies entirely within the drainage basin of Northwest Branch, a tributary of the Anacostia River. At its intersection with Queens Chapel Road, the Northwest Branch has a drainage area of 49.4 square miles, most of which is urbanized. Sligo Creek, with a drainage area of 11.4 square miles, and unnamed tributary join the Northwest Branch in the center of the study area.

The Northwest Branch, Sligo Creek and their tributaries are classified by the Maryland Department of Natural Resources as Class I waters. Water quality standards for Class I waters, listed below, are appropriate for water contact recreation and the maintenance and enhancement of aquatic and terrestrial wildlife.

1. No sources of pollution; fecal coliform shall not exceed a log mean of 200/100 ml.
2. Daily average dissolved oxygen level must not be less than 5.0 mg/l except where lower values occur naturally.
3. Thermal effects due to effluent shall be limited and controlled so as to prevent adverse effects on aquatic life and spawning success and shall not present barriers to fish migration.
4. pH range shall be between 6.5 and 8.5 at all times except where other values occur naturally.
5. Turbidity of receiving water resulting from any discharge shall not exceed levels detrimental to aquatic life nor exceed monthly mean of 50 JTU (Jackson Turbidity Units) nor exceed 150 JTU at any time.

The water quality of streams in the study area is affected by stormwater runoff from nearby developed areas. Drainage from streets and parking lots contributes sediment and pavement washings to these streams.

Water quality sampling 30 feet upstream of Queens Chapel Road between 1973 and 1976 indicate that the Northwest Branch's quality was fair. More recent data from the Prince George's County/Montgomery County border area, located approximately 1 mile from the study area, also less densely developed, are compared in Table 3.1.

TABLE 3.1: NORTHWEST BRANCH WATER QUALITY DATA

Parameters	Northwest Branch Queens Chapel Rd. 1973-1976*	Montgomery/Prince George's County Border—1979 †	Maryland Water Resources Administration Standards **
Water Temperature	12.5°C	13.8°C	24.2°C (max. for trout streams)
Dissolved Oxygen	11.3 mg/l	9.5 mg/l	4.0 mg/l
pH	7.2	6.6	6.5-8.5
Total Coliform	106,078 MPN/100 ml	8611 MPN/100 ml	200 MPN/100 ml
Fecal Coliform	88,343 MPN/100 ml	1219 MPN/100 ml	200 MPN/100 ml
Turbidity	53.4 FTU††	18.4 FTU	50 JTU

*U.S. Environmental Protection Agency, "STORET Data for Station 80-A-4, Prince George's County Health Department." March 7, 1980.

†Montgomery County Department of Environmental Protection, Water Quality of Streams in Montgomery County, Maryland, 1979. December 1980.

**State of Maryland Water Resources Administration Water Pollution Control Regulations.

††Sampled at Montgomery/P.G. County Border from Montgomery County Department of Environmental Protection, Water Quality of Streams in Montgomery County, Maryland, 1979. December, 1980.

TABLE 3.2: SLIGO CREEK WATER QUALITY DATA

Parameters	Sligo Creek 1973-1975*	Sligo Creek 1979†	Maryland Water Resources Administration Standards**
Water Temperature	12.6°C	11.3°C	24.2°C
Dissolved Oxygen	11.0 mg/l	10.0 mg/l	4.0 mg/l
pH	7.4	6.9	6.5-8.5
Total Coliform	17,136 MPN/100 ml	7799 MPN/100 ml	200 MPN/100 ml
Fecal Coliform	1950 MPN/100 ml	1754 MPN/100 ml	200 MPN/100 ml
Turbidity	13.67 FTU††	16.51 FTU	50 JTU

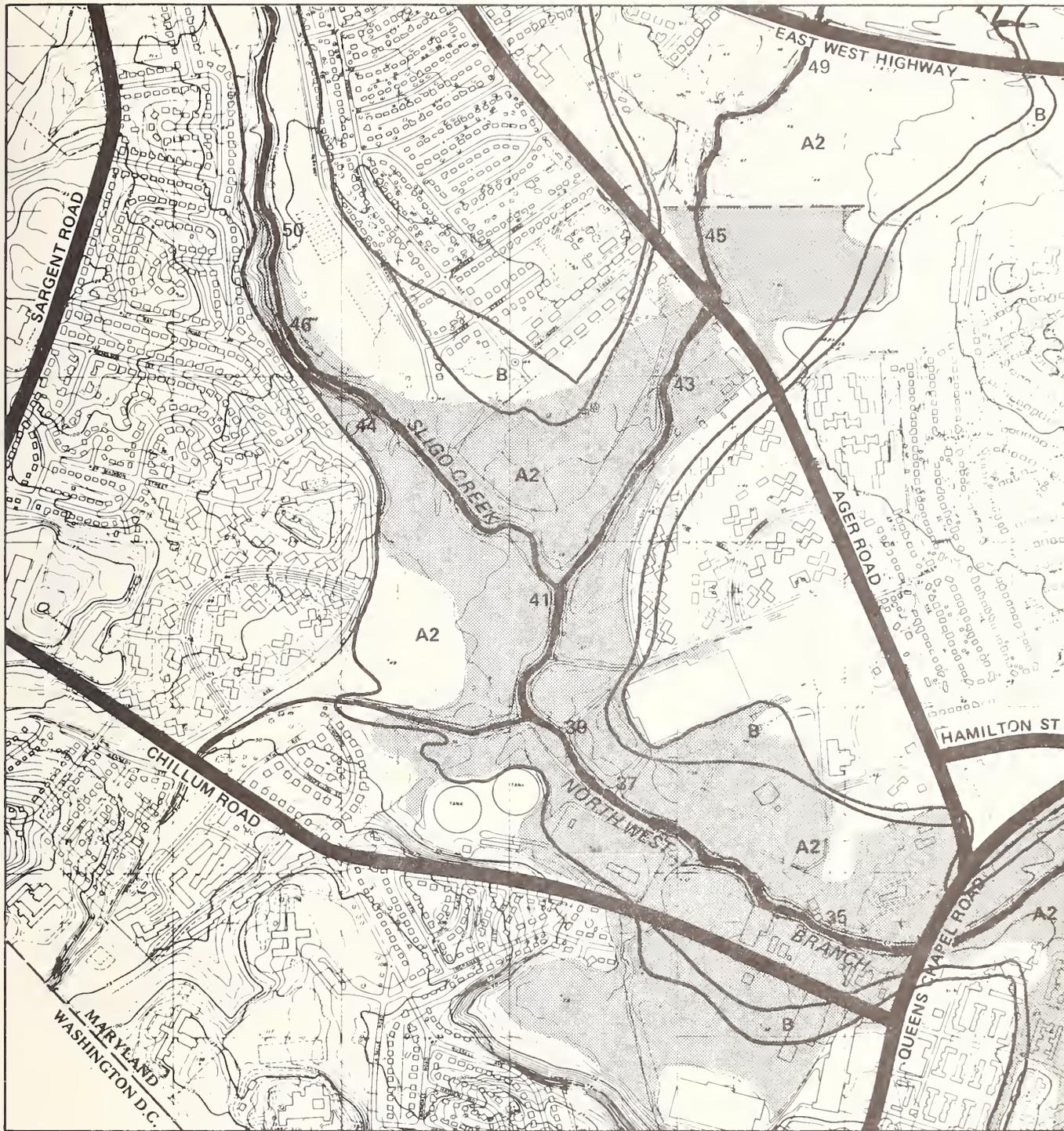
*U.S. Environmental Protection Agency, "STORET Data for Station 80-A-4, Prince George's County Health Department." March 7, 1980.

†Montgomery County Department of Environmental Protection, Water Quality of Streams in Montgomery County, Maryland, 1979. December 1980.

**State of Maryland Water Resources Administration Water Pollution Control Regulations.

††Sampled at Montgomery/P.G. County Border from Montgomery County Department of Environmental Protection, Water Quality of Streams in Montgomery County, Maryland, 1979. December, 1980.

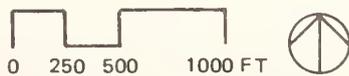
FIGURE 3.6



-  FLOOD HAZARD BOUNDARY - FIA Flood Insurance Rate Maps (last revised 1976)
-  A2: Areas at 100 year flood (base flood elevations indicated)
-  B: Areas between limits of 100 year flood and 500 year flood; areas of 100 year shallow flooding where depths less than 1 foot
-  GENERALIZED 100 YEAR FLOODPLAIN - DeLeuw, Cather and Company

FLOODPLAINS, 1982

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



The water quality of Sligo Creek generally improved between 1973 and 1979 as a result of decreases in total coliform concentrations. Proposed major sewer improvements for the Sligo Creek sub-basin, the subject of an environmental assessment in 1977,¹⁸ have not been constructed. Water quality data for Sligo Creek is presented in Table 3.2.

Both the Northwest Branch and Sligo Creek exhibit fair water quality; both are stressed by coliform loading from sewer malfunctions and overflows, and by sediment and pollutant-laden stormwater runoff from developed areas. Heavy silt deposits dominate the beds of these streams in many locations. The Washington Suburban Sanitary Commission is currently developing a facilities plan to improve the water quality of these watercourses.

The FIA (Federal Insurance Administration) most recently delineated flood hazard boundaries along the Northwest Branch and Sligo Creek in 1976 (Figure 3.6). WMATA's general engineering consultant, DCCO (DeLeuw, Cather and Company, Inc.) interpreted the 100-year floodplain in the study area in 1977 with the assistance of the Maryland Water Resources Administration, M-NCPPC, and the Prince George's County Department of Public Works and Transportation. DCCO refined its 1977 interpretation of the 100-year floodplain in the vicinity of the drive-in theater on Jamestown Road in 1982 (Figure 3.6).

3.4.3 VEGETATION

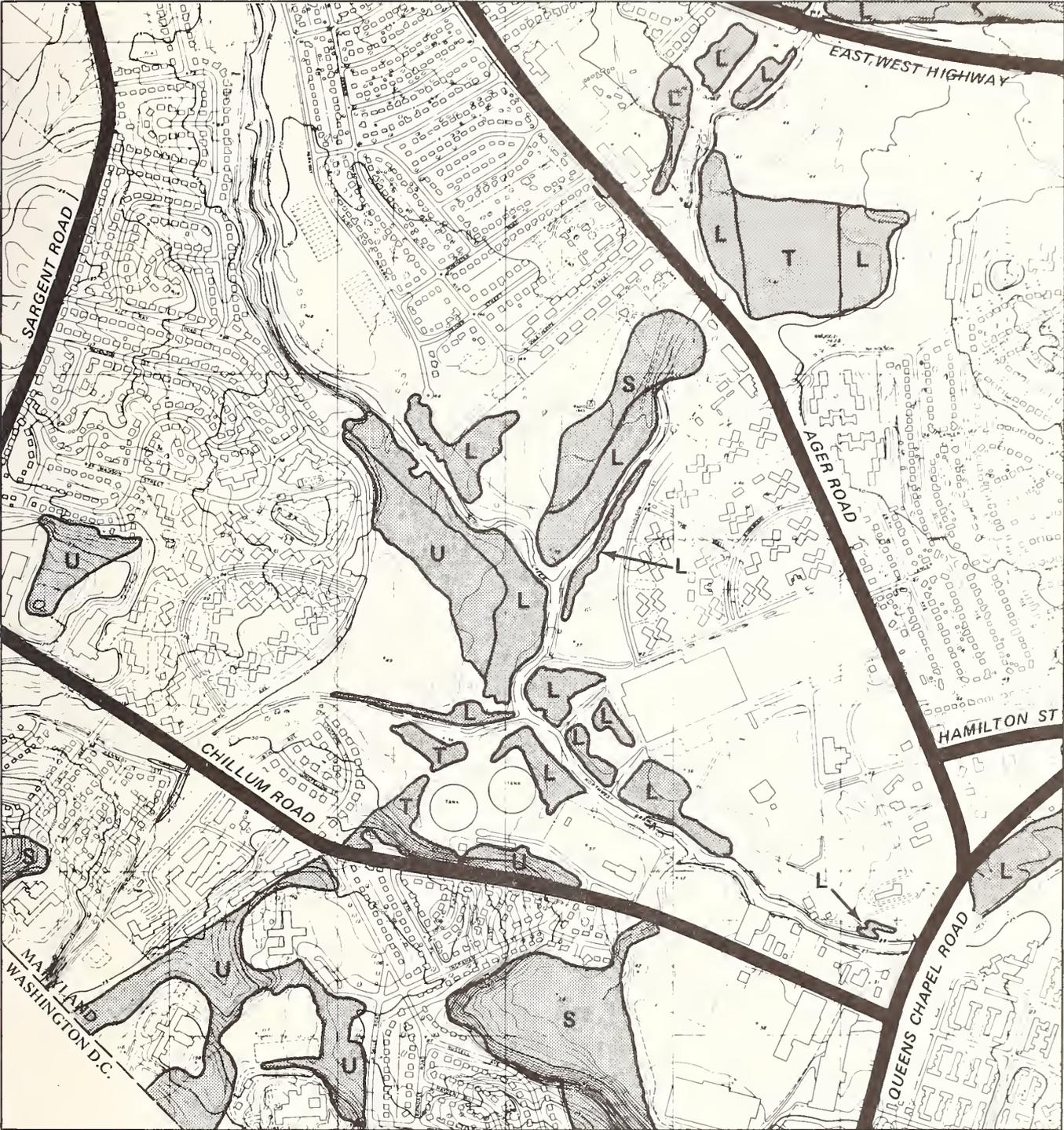
No plant species are known to occur in the project area which are on the U.S. Fish and Wildlife Service List of Endangered and Threatened Wildlife and Plants.¹⁹

All woody vegetation has value within the study area because of its limited extent. Wooded stands are almost exclusively limited to park areas and are typically oak-hickory forest associations (Figure 3.7). Depending upon topography and soil drainage conditions, dominant species are:

¹⁸Kamber Engineering, Inc. "Assessment of Environmental Effects: Sligo Creek Relief Sewer." November 1979.

¹⁹Green, J.D., U.S. Fish and Wildlife Service, Delmarva Area. Letter to WRT. July 14 1981.

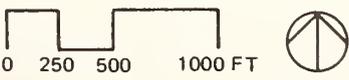
FIGURE 3.7



- L DECIDUOUS LOWLAND
- T DECIDUOUS TERRACE
- S DECIDUOUS SLOPE
- U DECIDUOUS UPLAND

VEGETATION, 1980

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



1. Deciduous Lowland

Sycamore	<u>Plantanus occidentalis</u>
Box Elder	<u>Acer negundo</u>
Sweetgum	<u>Liquidambar styraciflua</u>
Silver Maple	<u>Acer saccharinum</u>
Red Maple	<u>Acer rubrum</u>
Birch	<u>Betula spp.</u>
Elm	<u>Ulmus spp.</u>

2. Deciduous Terrace

Tulip Poplar	<u>Liriodendron tulipifera</u>
American Beech	<u>Fagus grandiflora</u>
Swamp White Oak	<u>Quercus bicolor</u>
Scarlet Oak	<u>Quercus coccinea</u>
Hickory	<u>Carya spp.</u>

3. Deciduous Upland

Black Oak	<u>Quercus velutina</u>
White Oak	<u>Quercus alba</u>
Northern Red Oak	<u>Quercus borealis</u>
Mockernut Hickory	<u>Carya tomentosa</u>
Tulip Poplar	<u>Liriodendron tulipifera</u>
Black Pine	<u>Pinus thunbergii</u>
White Pine	<u>Pinus strobus</u>

Understory growth is highly variable, depending upon maintenance and use. Understory species include flowering dogwood, sassafras, holly, spicebush, choke cherry, and black cherry with witch hazel, ironwood, mulberry and alders, found along the stream banks. In some areas, considerable vine growth of poison ivy, honeysuckle and wild grape is present.

These various plant associations offer good habitat for many species of terrestrial and avian wildlife, as the vegetation affords cover, nesting sites, forage and protection.

3.4.4 WILDLIFE

Wooded and grassy areas along the Northwest Branch, Sligo Creek and their tributaries provide habitat for numerous terrestrial and avian species. This vegetation also provides temporary habitat for transient wildlife and migratory

TABLE 3.3: LOCAL WILDLIFE**Mammals:**

Big Brown Bat
 Little Brown Bat
 Evening Bat
 Keen's Bat
 Red Bat
 Silver-haired Bat
 Beaver
 Eastern Chipmunk
 Eastern Cottontail
 White-tailed Deer
 Red Fox
 Eastern Mole
 House Mouse
 Meadow Jumping Mouse
 White-footed Mouse
 Muskrat Ondatra
 Opossum
 Eastern Pipistrelle
 Raccoon
 Norway Rat
 Short-tailed Shrew
 Skunk
 Fox Squirrel
 Gray Squirrel
 Southern Flying Squirrel
 Meadow Vole
 Pine Vole
 Long-tailed Weasel
 Woodchuck

Fish:

Blacknose Dace
 Bluegill
 Carp
 Pumpkinseeds
 Redbreast
 Sunfish
 White Sucker

Birds:

Redwing Blackbird
 Cardinal
 Catbird
 Carolina Chickadee
 Cowbird
 Brown Creeper
 Common Crow
 Mourning Dove
 Purple Finch
 Yellow-shafted Flicker
 Blue-grey Gnatcatcher
 American Goldfinch
 Grackle
 Grosbeak
 Red-shouldered Hawk
 Red-tailed Hawk
 Sparrow Hawk
 Hummingbird
 Blue Jay
 Slate-colored Junco
 Killdeer
 Kingfisher
 Mockingbird
 White-breasted Nuthatch
 Ovenbird
 Barn Owl
 Eastern Screech Owl
 Great Horned Owl
 Short-eared Owl
 Eastern Wood Pewee
 Eastern Phoebe
 Bobwhite Quail
 Redstart
 Robin
 House Sparrow
 Field Sparrow
 Song Sparrow
 Vesper Sparrow
 White-throated Sparrow
 Starling
 Scarlet Tanager
 Summer Tanager
 Brown Thrasher
 Gray-cheeked Thrush
 Swainson's Thrush
 Wood Thrush
 Tufted Titmouse
 Rufous-sided Towhee
 Veery
 Red-eyed Vireo
 Turkey Vulture
 Black and White Warbler
 Hooded Warbler
 Myrtle Warbler
 Whip-poor-will
 Woodcock
 Downy Woodpecker
 Hairy Woodpecker
 Pileated Woodpecker
 Red-bellied Woodpecker
 Carolina Wren
 House Wren

Amphibians and Reptiles:

Spotted Salamander
 Red-spotted Newt
 Northern Dusky Salamander
 Northern Red Salamander
 Eastern Mud Salamander
 Northern Two-lined Salamander
 Eastern Spadefoot Toad
 Bullfrog
 Green Frog
 Leopard Frog
 Tree Frog
 Chorus Frog
 Northern Spring Peeper
 Five-lined Skink
 Broad-headed Skink
 Northern Fence Lizard
 Six-lined Racerunner
 Blue-tailed Skink
 Eastern Garter Snake
 Eastern Hog-nosed Snake
 Green Snake
 Northern Copperhead
 Milk Snake
 Red Milk Snake
 Scarlet Snake
 Valeria's Snake
 Northern Water Snake
 Queen Snake
 Eastern Ribbon Snake
 Northern Black Snake
 Red Snake
 King Snake
 Brown King Snake
 Common Water Snake
 Red-bellied Turtle
 Spotted Turtle
 Eastern Painted Turtle
 Snapping Turtle
 Stinkpot
 Box Turtle

Sources:

1. James Mowrer, Maryland Department of Natural Resources, Tidal Fisheries Division. Personal communication. February 20, 1980.
2. Kamber Engineering for Washington Suburban Sanitary Commission. Assessment of Environmental Effects: Sligo Creek Relief Sewer. November, 1977.
3. Herbert Robinson, Chief Naturalist; Maryland National Capitol Park and Planning Commission. Personal communication. June 4, 1981.
4. John D. Green, Manager; U.S. Fish and Wildlife Service, Delmarva Area. Personal communication. July 14, 1981.

birds moving through the area. Except for several isolated natural areas, urban development has significantly reduced available habitat in the remainder of the study area.

Wildlife species observed or expected to occur in the general area of Sligo Creek Stream Valley Park and the Northwest Branch Stream Valley Park are listed in Table 3.3. Other than occasional transient individuals, no Federally listed or proposed endangered or threatened species under U.S. Fish and Wildlife jurisdiction are known to exist in the study area.²⁰

3.4.5. AIR QUALITY

The study area is located within a designated non-attainment area for CO (carbon monoxide). Applicable ambient air quality standards for CO are 35 ppm for CO-1 (1-hour maximum) and 9 ppm for CO-8 (8-hour maximum). The 1980 background CO-8 level in West Hyattsville was 2.4 ppm.²¹ Ambient CO levels in the study area during 1988 are projected to be 6.4 ppm for CO-1 and 2.1 ppm for CO-8.²²

Ambient TSP (total suspended particulate) levels for 1988 are projected to be 61 mg/m³ for the annual geometric mean and 113 mg/m³ for a 24-hour maximum.²³ National and Maryland primary ambient air quality standards for TSP are 75 mg/m³ for the annual geometric mean and 260 mg/m³ for a 24-hour maximum. The 1981 annual geometric mean for TSP in West Hyattsville was 52 mg/m³.²⁴

3.4.6 NOISE

A standard parameter for portraying the "average" noise in a community is L_{EQ}, which is calculated by converting the noise present during a given span of time to its energy equivalent and integrating over time. L_{EQ} represents the constant sound level, in decibels, which would give the same noise energy level as the fluctuating value during a given time period.

²⁰Green, J.D., U.S. Fish and Wildlife Service, Delmarva Area. Letter to WRT. July 14, 1981.

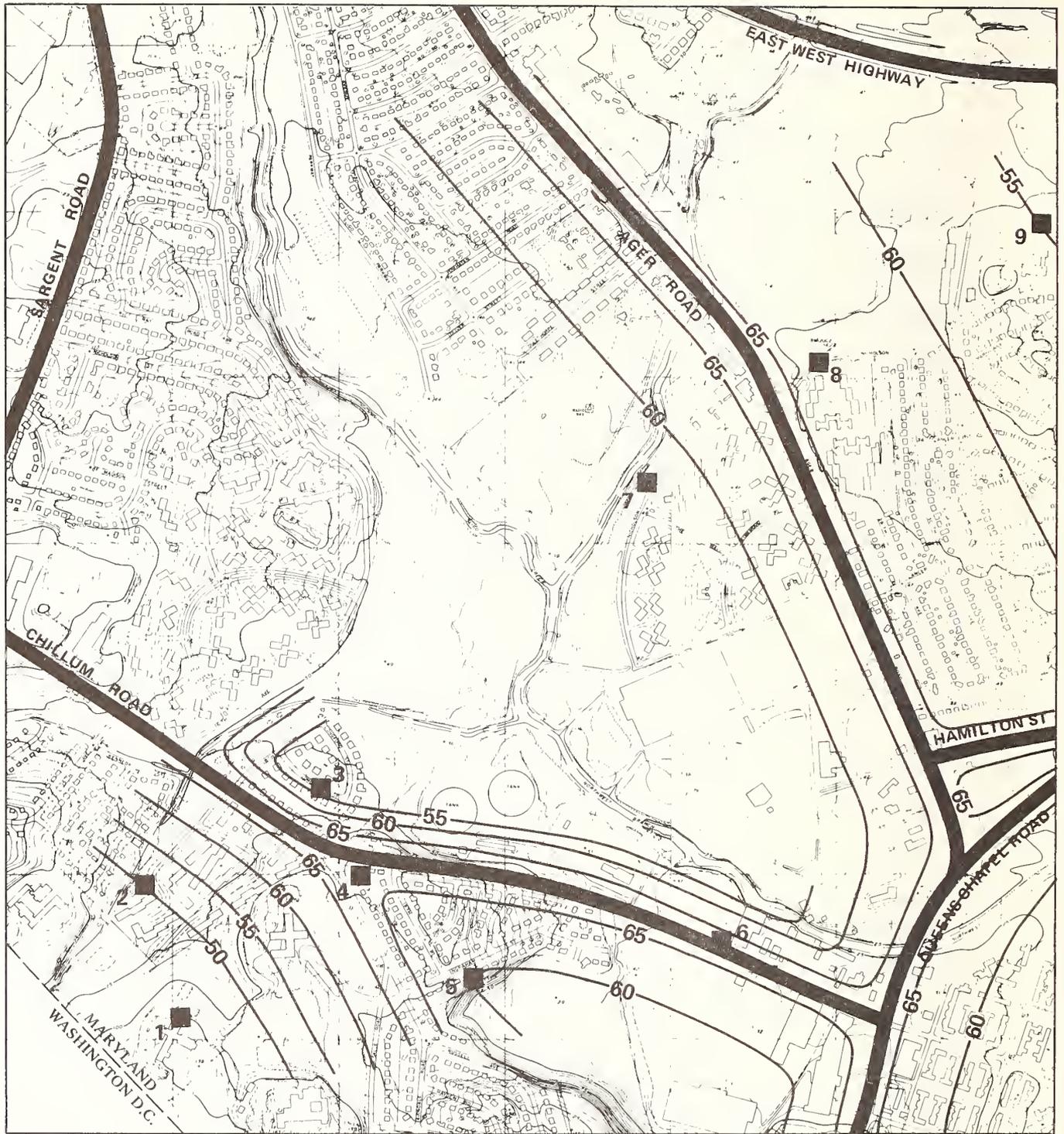
²¹Washington Council of Governments. Air Quality Plan. 1982.
^{22,23}Environmental Research and Technology, Inc. "Air Quality Assessment for the Proposed West Hyattsville Station, Metro Transit Route Segment E005." July 1980.

²⁴Maryland Department of Health and Mental Hygiene. Maryland Air Quality Data Report. 1981.

TABLE 3.4: NOISE DATA

	Monitoring Site								
	1	2	3	4	5	6	7	8	9
LEQ-24	59dBA	49	53	65	54	69	55	61	57
LEQ-Peak	54dBA	50	54	68	60	68	57	64	55
LEQ-Off-Peak	64 dBA	49	56	65	53	71	55	61	61
LEQ-Evening	49dBA	50	52	64	50	69	52	60	54
L _{Max.} *	76 dBA	60	68	77	68	80	70	74	65

*L₁ during noisiest portion of day.



 AM PEAK HOUR L_{EQ} CONTOURS
AT 5 dBA INTERVALS

 MONITORING SITE
(see TABLE 3.4)

AMBIENT NOISE, 1974 - 1975

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT

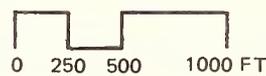
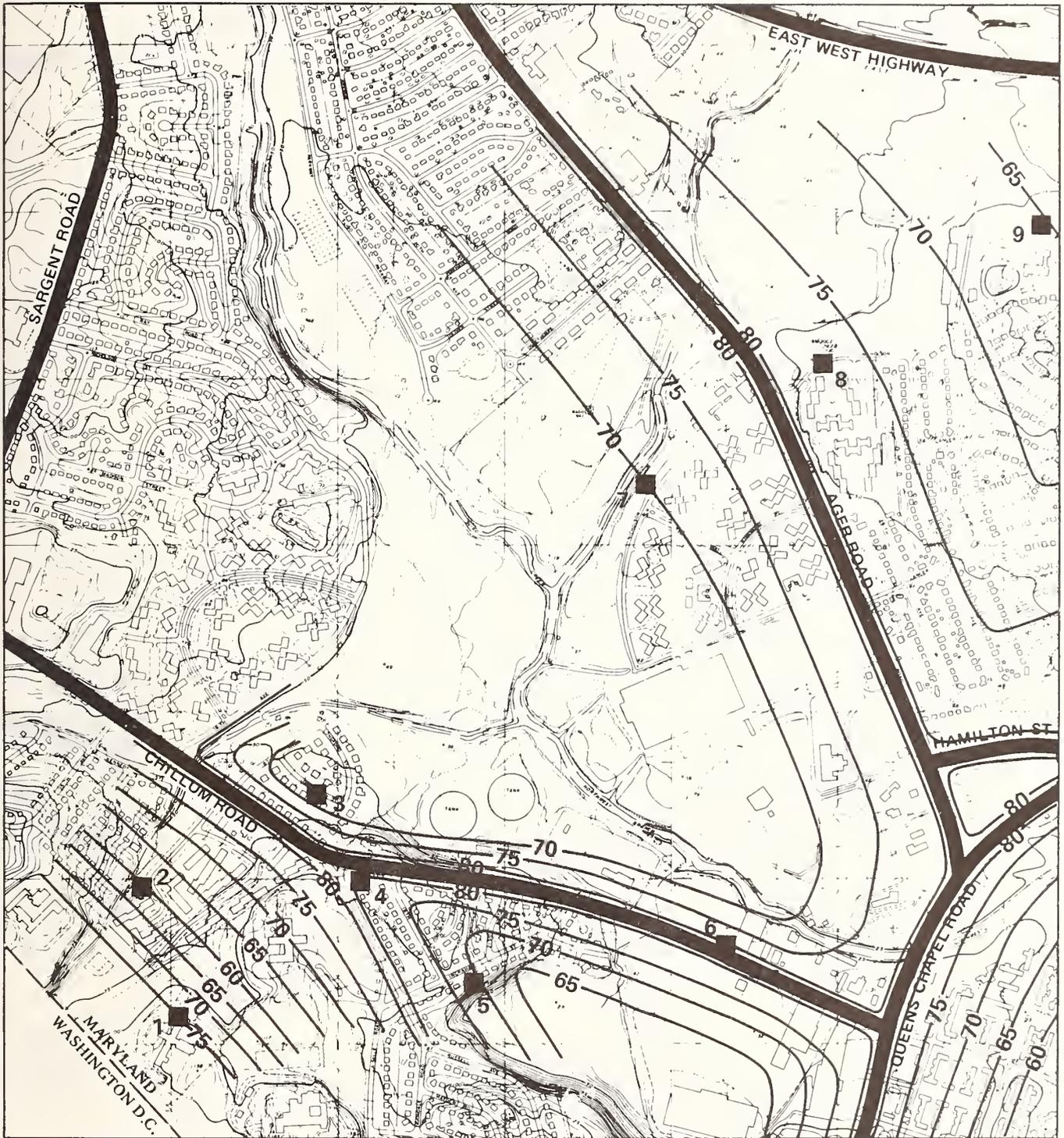


FIGURE 3.9



 L1 CONTOURS
AT 5 dBA INTERVALS

 MONITORING SITE
(see TABLE 3.4)

MAXIMUM NOISE, 1974 - 75

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT

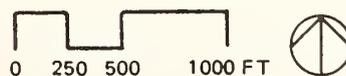
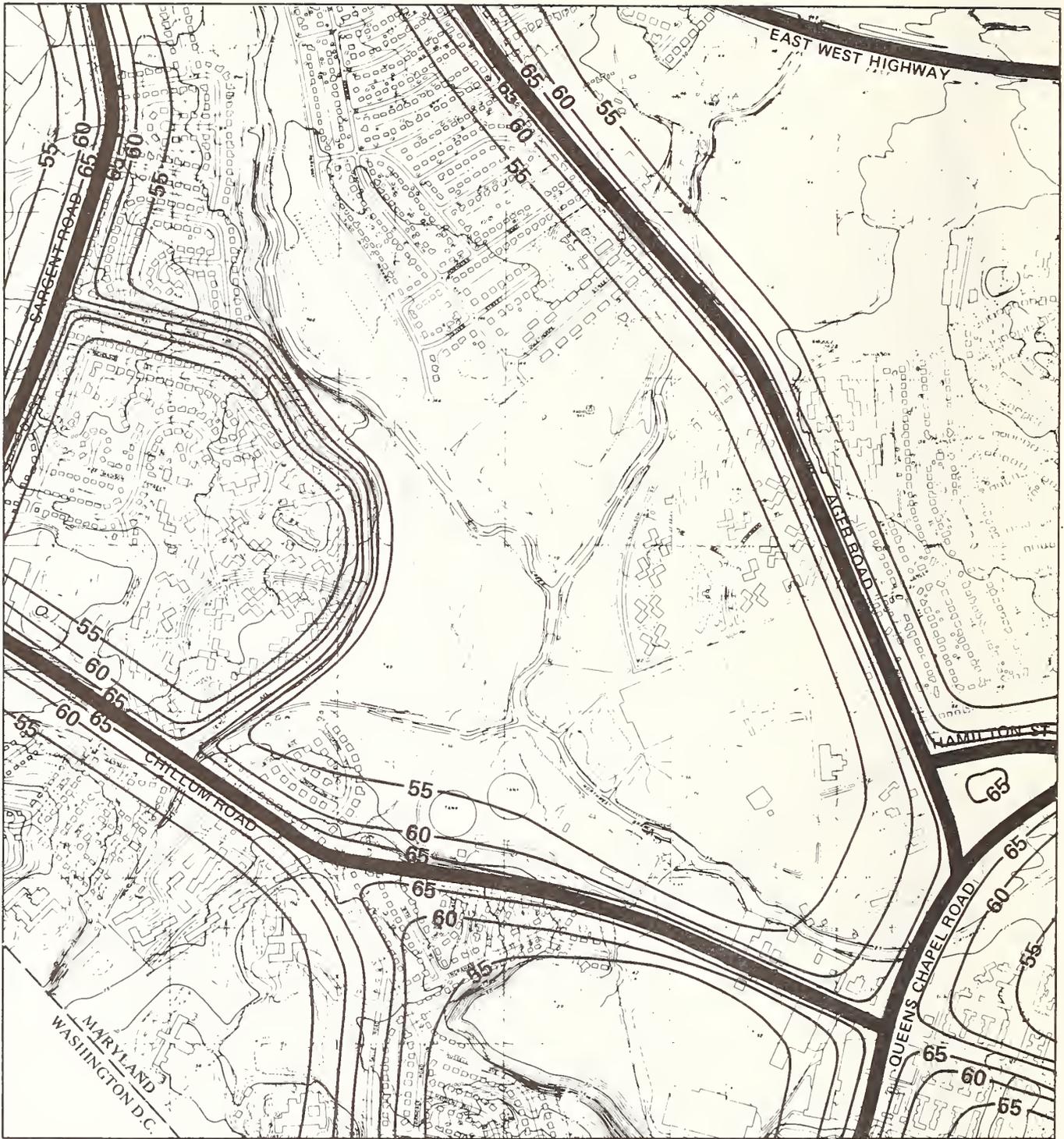


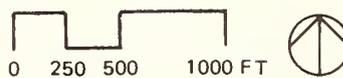
FIGURE 3.10



 AM PEAK HOUR L_{EQ} CONTOURS
AT 5dBA INTERVALS

PROJECTED AMBIENT NOISE

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Standard parameters for portraying the "maximum" noise in a community are L_1 and L_{max} . L_1 is the noise level which is equaled or exceeded 1% of the time at a given location. L_{max} is the maximum noise level encountered at a given location.

Table 3.4 presents data collection at nine noise monitoring stations in the study area during 1974 and 1975.²⁵ To characterize peak period noise conditions, readings were taken between 4 p.m. and 6 p.m.; to characterize off-peak period noise conditions, readings were taken between 10 a.m. and 2 p.m.; and to characterize evening period noise conditions, readings were taken between 7 p.m. and 10 p.m.

Noise levels at most of the monitoring stations were lower in the evening than during the day, presumably as a result of decreased traffic volumes during the later time period. The noisiest portion of the day varied between peak and off-peak hours, depending on the particular monitoring station.

Approximate a.m. peak hour L_{EQ} noise levels (Figure 3.8) and L_1 noise levels (Figure 3.9) in the study area have been mapped from data collected at the noise monitoring stations. Traffic on highways, roads and streets is apparently the major source of noise in the study area. Areas further from traffic corridors tend to have lower ambient noise levels than those areas near roads.

Approximate a.m. peak hour L_{EQ} in the study area has been projected for 1988 (Figure 3.10).²⁶ These projections were based on estimates of anticipated traffic counts,²⁷ traffic speeds, and the ratio of trucks and buses to cars.

²⁵Wilson, Ihrig and Associates, Inc. "Noise and Vibration Study." November 1974.

²⁶Wilson, Ihrig and Associates, Inc. "Supplementary Noise Analysis for WMATA Greenbelt Route." August 11 1980.

²⁷JHK and Associates, Inc. "Traffic Analysis of the Metro E Route Station Alternatives." April 1975.

3.5 TRANSPORTATION CHARACTERISTICS

3.5.1 ROAD NETWORK

ADT (Average Daily Traffic) counts, measuring the number of vehicles travelling in both directions during a typical 24-hour weekday, are indicators of the relative use of roads within a given area. 1974 and 1979 ADT's for roads within the study area indicate that the East-West Highway is an intermediate arterial and Queens Chapel Road, Ager Road, Chillum Road and Hamilton Street are major collector roads (Figure 3.11).

Traffic performance at an intersection is dependent upon the intersection's physical characteristics and the volume of traffic flow through it. LOS (Levels of Service), ranging from 'A' to 'F', are used to describe traffic performance through intersections:

1. LOS 'A'

Free traffic flow, low volumes and high speeds, little or no restriction on maneuverability due to presence of other drivers;

2. LOS 'B'

Stable flow, operating speed beginning to be restricted somewhat by traffic conditions, low probability of traffic flow being restricted;

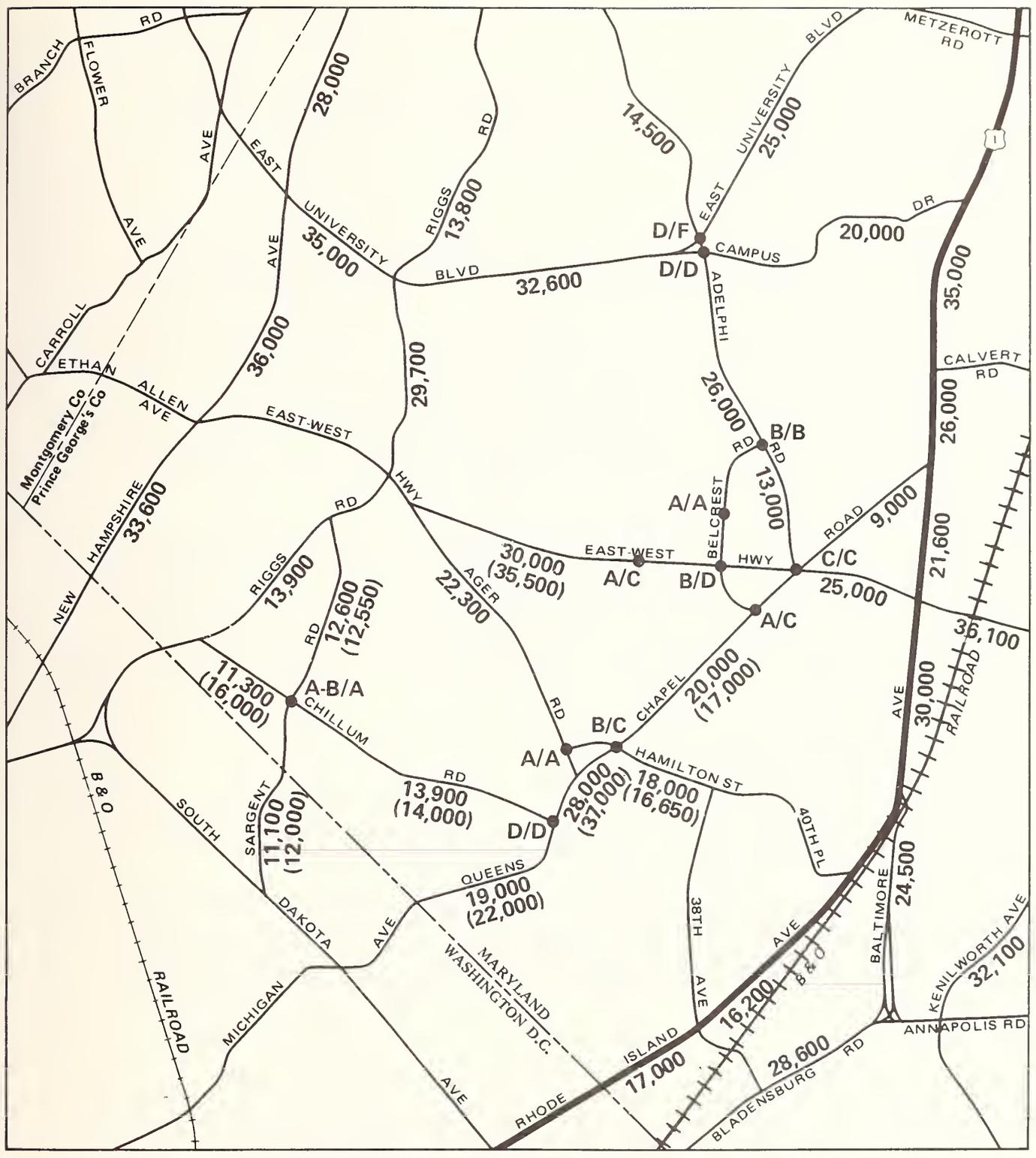
3. LOS 'C'

Stable flow, speeds and maneuverability more closely controlled by higher volumes, most drivers restricted in freedom to select speed, change lanes, or pass;

4. LOS 'D'

Approaches stable flow, drivers have little freedom to maneuver, comfort and convenience are low but conditions can be tolerated for very short period;

FIGURE 3.11

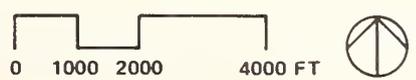


- A/A LEVEL OF SERVICE AT SIGNALIZED INTERSECTION AM/PM
- 30,000 DAILY TRAFFIC VOLUME 1974
- (30,000) DAILY TRAFFIC VOLUME 1979

TRAFFIC CONDITIONS, 1980

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**

Source: State Traffic Volume Maps, Bureau of Highway Planning & Program Development, Nov 24, 1980



5. LOS 'E'

Volumes at or near highway capacity, flow unstable, may be stoppages of momentary duration; and

6. LOS 'F'

Volumes are below highway capacity, speeds reduced substantially, may be stoppages for short or long periods because of downstream congestion.

LOS at four signalized intersections in the study area were calculated for both morning and evening rush hours.²⁸ Although these LOS assumed 1974 intersection physical characteristics and traffic volumes, the LOS are valid for existing conditions because the intersections have not been improved and because traffic volumes have neither increased nor decreased considerably.²⁹

The Chillum Road/Sargent Road intersection, the Ager Road/Hamilton Street intersection and the Queens Chapel Road/Hamilton Street intersection are operating at or above LOS 'C' for both morning and evening rush hours. The Chillum Road/Queens Chapel Road intersection is operating at LOS 'D' for both the morning and evening rush hours (Figure 3.11).

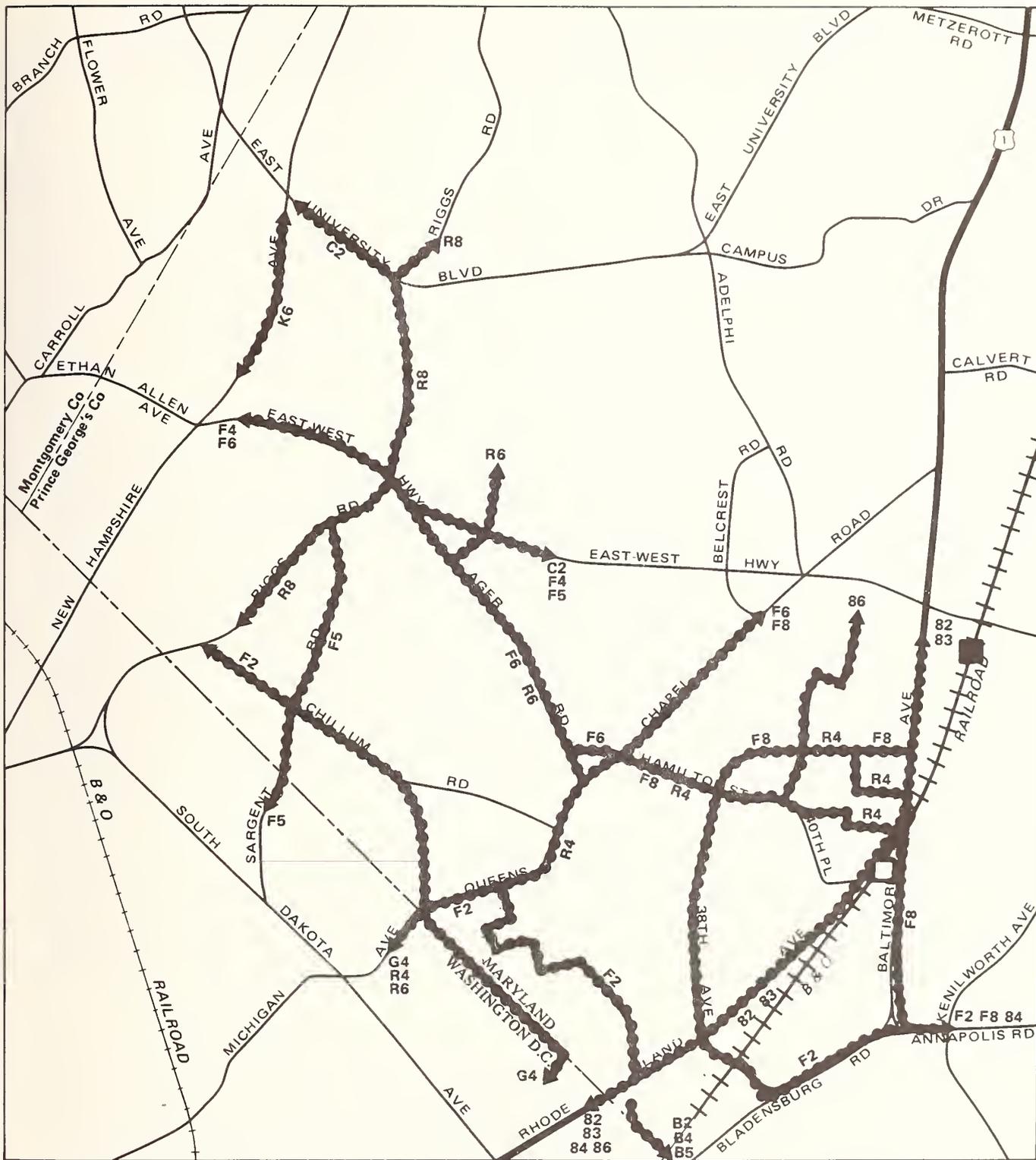
3.5.2 PUBLIC TRANSPORTATION

The study area is presently served by WMATA's Metrobus system (Figure 3.12). Several routes through the area (F2, F4, F5, R8) connect with operating Metro stations.

The B&O Railroad Commuter Line between Camden Station in Baltimore, Md. and Union Station in Washington, D.C. also transects the southeast corner of the study area. Trains from Hyattsville Station and the Riverdale Station run essentially on a peak hour, Monday-through-Friday schedule.

²⁸JHK and Associates, Inc. "Traffic Analysis of the Metro E Route Station Alternative." April 1975.

²⁹Coppage, D.G., Prince George's County Department of Public Works and Transportation. Letter to WRT. August 27 1980.

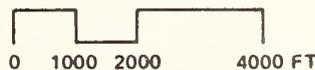


- BUS ROUTES**
- To Tacoma Station F2
 - To Fort Totten Station F5, R8
 - To Cheverly Station F2
 - To Silver Spring Station F4
 - To New Carrollton Station F4

-  RIVERDALE TRAIN STATION
-  HYATTSVILLE TRAIN STATION

COMMUTER RAIL STATIONS AND METROBUS ROUTES, 1980

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



Chapter 4

ENVIRONMENTAL CONSEQUENCES

4.1 LONG-TERM IMPACTS

4.1.1 DISPLACEMENTS

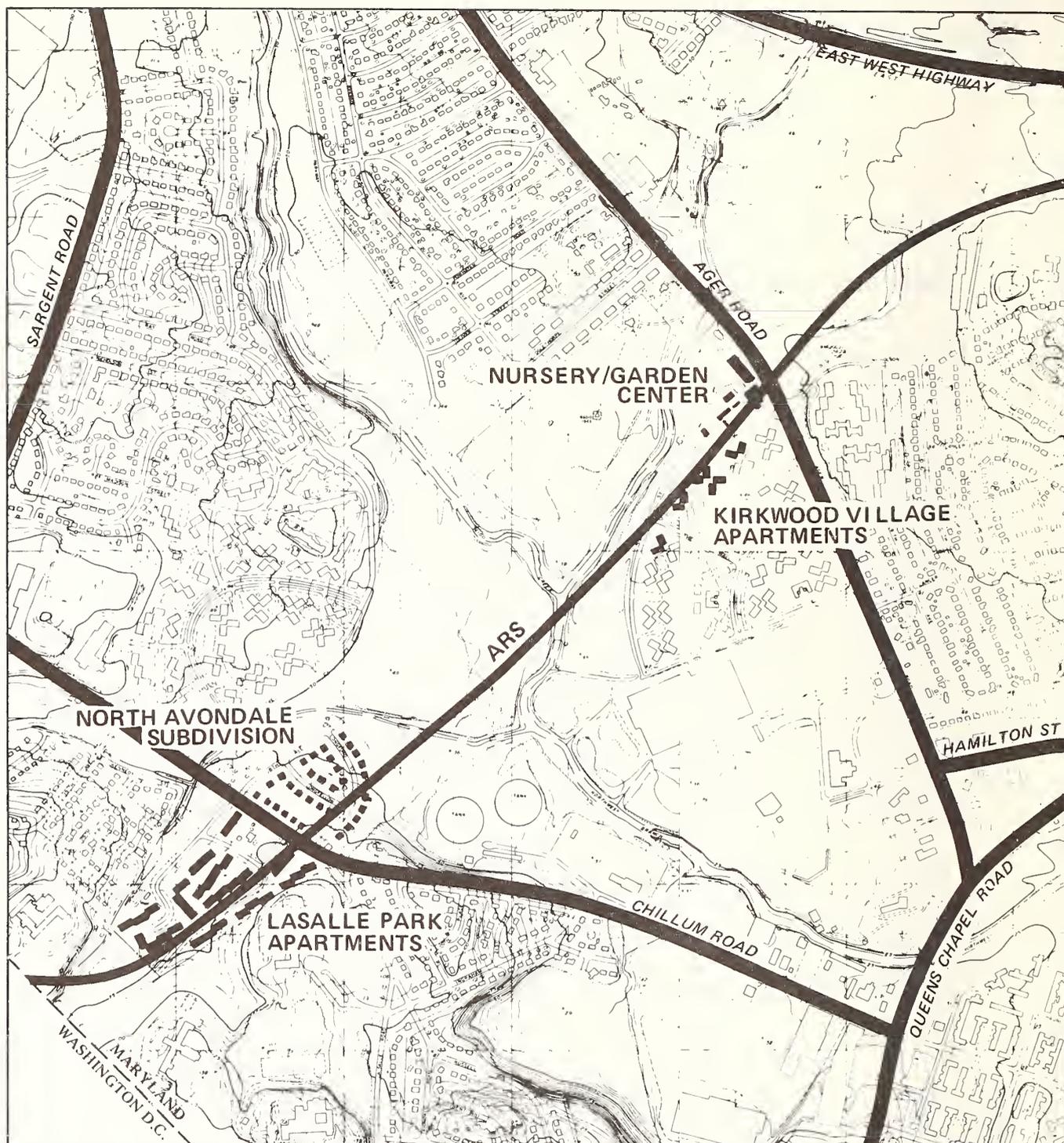
For any portion of the Metro system, permanent and temporary real property interests are required for the rail right-of-way, station facilities, ancillary facilities (such as electrical traction power substations) and construction sites. Locations of ancillary facilities and construction sites are not considered fixed until approximately 40 percent of final design is completed. Since final design has not begun, acquisitions and relocations specified for the alternatives under consideration are considered preliminary and subject to change. To apprise potentially affected property owners and tenants of WMATA's real estate requirements, notices for public hearing on general plans are generally posted in the area within 100 feet from proposed alignments. If the preliminary real estate requirements change after the public hearings, affected property owners and tenants are contacted promptly.

The real estate requirements described below for the ARS and S-Curve Alignments are therefore considered preliminary and subject to change. They do not include privately-owned property that might be required for ancillary facilities, construction sites, or in connection with the underpinning of existing buildings.

1. ARS Alignment

The 1975 System-wide EIS cited the potential dislocation of residences as an impact associated with the ARS Alignment. The alignment's construction would displace 515 dwelling units, 68 of which are single family homes (Figure 4.1). These displacements would involve an estimated maximum of 1,545 individuals.¹ In addition, the alignment would displace two businesses.

¹WMATA Office of Real Estate. Memorandum to WMATA Office of Engineering. March 12 1980.



RESIDENTIAL DISPLACEMENTS

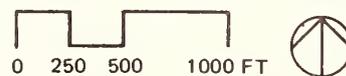
Owner-Occupied Units	
North Avondale Subdivision	68
Renter-Occupied Units	
LaSalle Park Apartments	353
Kirkwood Village Apartments	94

COMMERCIAL DISPLACEMENTS

Nursery/garden center	1
Other	1

DISPLACEMENTS BY ARS ALIGNMENT

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



The alignment would displace the following properties:

LaSalle Park Apartments

The ARS Alignment would displace the LaSalle Park Apartments between Station Points 318 and 328. Although not all of the structures which comprise the apartment complex would be within the alignment's right-of-way, the entire complex would be acquired by WMATA to prevent "uneconomic remnants" from being created.

The LaSalle Park Apartments are located on 18th Avenue, south of Chillum Road. The complex contains 353 one-, two-, and three-bedroom apartments distributed among eleven buildings. The average rent for a two-bedroom apartment is \$305 per month. On January 30 1980, four apartments were reported available.²

In 1970, approximately 75 percent of the residents of the LaSalle Park Apartments were non-white.³ The income level of LaSalle Park Apartment tenants is middle.

North Avondale Subdivision

The ARS Alignment would displace the North Avondale subdivision between Station Points 328 and 335. The subdivision contains 68 duplex units which were valued at approximately \$24,400 each in 1970. Recently, individual units have been sold for as much as \$52,000.

Kirkwood Village Apartments

The ARS Alignment would displace several buildings at the Kirkwood Village Apartments for the rail right-of-way between Station Points 355 and 364.

The Kirkwood Village Apartments are located southwest of Ager Road. The complex contains a total of 750 one- and two-bedroom apartments distributed among seventy buildings, sixty-six of which are semi-attached. The ARS Alignment would require the acquisition of 94 units distributed among ten buildings. One of the buildings to be acquired also contains a convenience grocery store.

²Neighborhoods Uniting Project, Inc. "Apartment Vacancy Study". February 1980.

³U.S. Bureau of the Census. "1970 Block Statistics for the Washington, DC-Maryland-Virginia Urbanized Area (HC3-44)."

A two-bedroom unit at Kirkwood currently rents for \$300 per month. On January 30 1980, five apartments were reported available (vacancy rate = .7%).⁴ Similar apartment complexes in the area include the Kaywood Apartments in Mount Rainier.

In 1970, two percent of the Kirkwood residents were non-white.⁵ The income level of the Kirkwood tenants is lower-middle.

Nursery/Garden Center

The ARS Alignment would displace a nursery/garden center between Station Points 364 and 369 for the rail right-of-way. This nursery/garden center, the second business which would be displaced by the ARS Alignment, is J.H. Burton and Sons, Inc., located at the corner of Ager Road and Nicholson Road.

2. S-Curve Alignment

a. Impacts

The S-Curve Alignment's construction will necessitate the displacement of 90 dwelling units, 3 of which are single family residences (Figure 4.2). An estimated 270 individuals will be affected.⁶ In addition, five businesses will be displaced.

The S-Curve Alignment will displace the following properties:

Single Family Homes

Three single family homes near the intersection of Russell Avenue and Ingraham Street will be displaced by the S-Curve Alignment between Station Points 408 and 412. These homes will need to be acquired for the right-of-way since this portion of the alignment is in cut-and-cover construction.

Gas Station

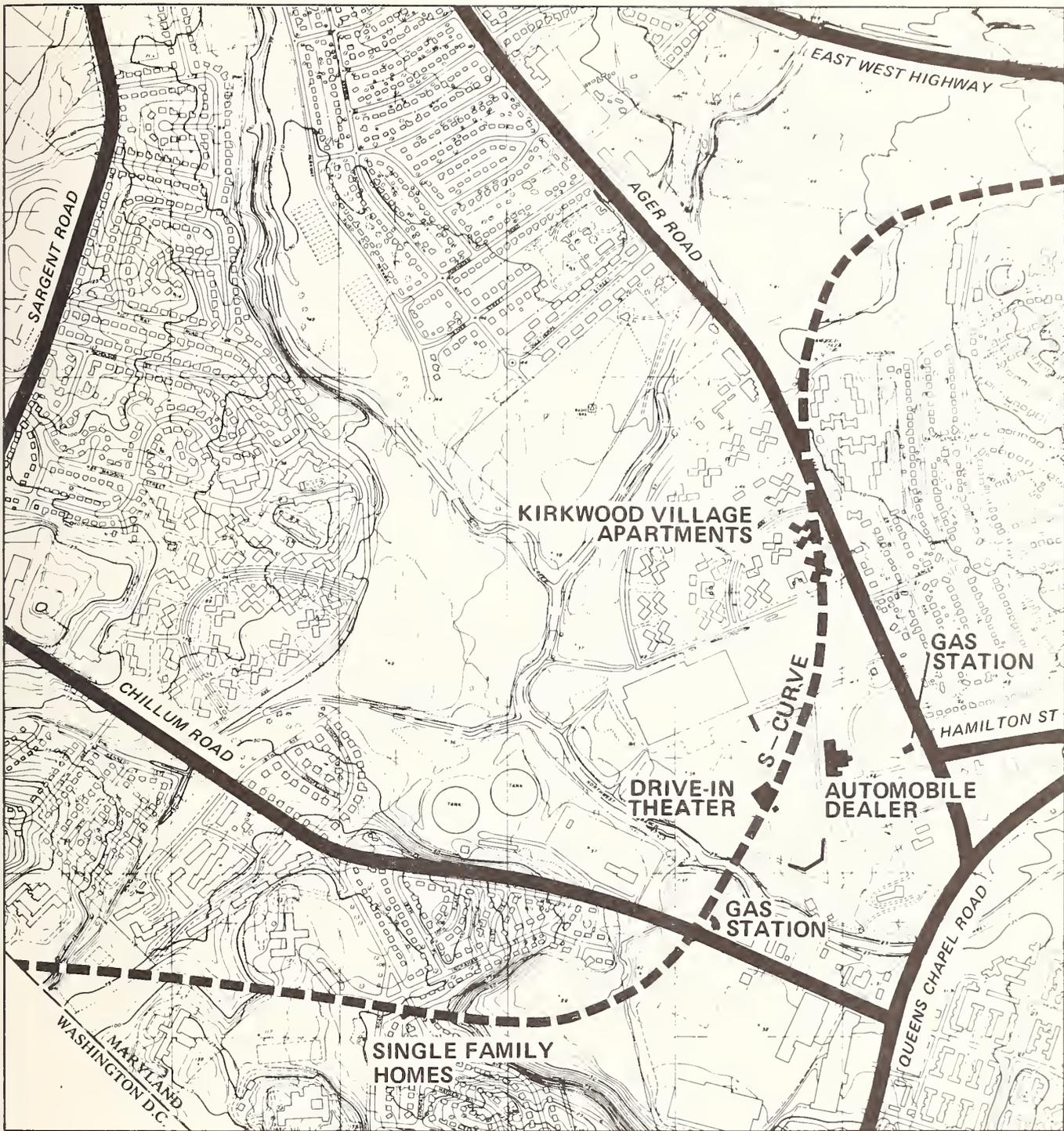
The S-Curve Alignment will displace the Texaco Station at 2222 Chillum Road near Station Point 430. The gas station is needed because it is located within the right-of-way of the alignment's aerial structure over Chillum Road.

⁴Neighborhoods Uniting Project, Inc. "Apartment Vacancy Study". February 1980.

⁵U.S. Department of Commerce, Bureau of the Census. "1970 Census of Population and Housing, Census Tracts Final Report for the Washington, DC-Maryland-Virginia SMSA (PHC-226)."

⁶WMATA Office of Real Estate. Memorandum to WMATA Office of Engineering. May 7 1982.

FIGURE 4.2



RESIDENTIAL DISPLACEMENTS

Owner-Occupied Units	
Single family homes	3
Renter-Occupied Units	
Kirkwood Village Apartments	87

COMMERCIAL DISPLACEMENTS

Gas stations	2
Drive-in theater	1
Automobile Dealer	1
Professional Office	1

DISPLACEMENTS BY S-CURVE ALIGNMENT

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



Drive-In Theatre

The Queens Chapel Theatre, a drive-in located near Ager Road and Hamilton Street will be displaced by the S-Curve Alignment between Station Points 435 and 445. This property is the proposed site of the West Hyattsville Station.

Automobile Dealership

The Palmer Ford, Inc. automobile dealership at 5520 Jamestown Road will be displaced by the S-Curve Alignment. The facility is located in the proposed West Hyattsville Station's bus and kiss-and-ride parking areas.

Gas Station

The Amoco Station at 5400 Ager Road will be displaced by the S-Curve Alignment. The gas station is located in the location of the proposed West Hyattsville Station's short-term parking area.

Kirkwood Village Apartments

The S-Curve Alignment will displace a portion of the Kirkwood Village Apartment complex, described above, between Station Points 451 and 457. 87 one- and two-bedroom apartment units distributed among four buildings, and one professional office, will be displaced by the cut-and-cover tunnel to be located directly under these four buildings.

b. Mitigation

Requirements pertaining to land acquisition and relocations for projects funded by the Urban Mass Transportation Administration are described in UMTA Circular C4530.1.⁷ The manual contains guidelines relating to the necessity for, and means of preparation of:

1. The appraisal and acquisition of real property;
2. Rendering relocation services;
3. Moving, relocation and replacement housing payments; and
4. Other expense payments when land acquisition and/or relocation is involved.

⁷UMTA. "Land Acquisition and Relocation Assistance under the Urban Mass Transportation Act of 1965, as amended (Circular C4530.1)." March 1978.

General WMATA guidelines pertaining to land acquisition and relocations are included in WMATA's "Relocation Guide for Business Concerns and Non-Profit Organizations"⁸ and the "Relocation Guide for Families and Individuals."⁹ These general guidelines are subject to more specific regulations, described in the "WMATA Policy and Procedure Manual of the Office of Real Estate."

Businesses

The displacement of five businesses by the S-Curve Alignment will occur in conformance with the following guidelines.

1. WMATA will assist property owners in finding vacant properties to meet owners' needs.
2. Loans from the Small Business Administration will be available for certain businesses at low-interest, long-term rates.
3. Business owners will be eligible for moving expense payments and relocation payments.
4. In the case of an owner intending to cease operation of his/her business, he/she may be eligible for reimbursement due to the actual direct loss of property.

The WMATA Office of Real Estate does not anticipate difficulty relocating any of the businesses displaced. While the geographic restrictions of auto dealership franchises sometimes make availability of suitable relocation sites limited, WMATA has been successful in relocating such franchises both in Maryland and Virginia. In addition to providing relocation moving expenses, payment for certain losses of personal property, payment for certain expenses in searching for suitable relocation sites, and provision for a payment in lieu of moving expenses, WMATA will offer Palmer Ford relocation counseling to facilitate this relocation to a suitable site.

⁸WMATA Office of Real Estate. "Relocation Guide for Business Concerns and Non-Profit Organizations." 1971.

⁹WMATA Office of Real Estate. "Relocation Guide for Families and Individuals." 1971.

Families and Individuals

The displacement of up to 90 families, or 270 individuals, by the S-Curve Alignment will occur in conformance with the following guidelines:

1. WMATA will assist homeowners with help in purchasing a new home, rental house, or apartment.
2. Relocation payments (expenses) will be available to those persons eligible.
3. Homeowners displaced by WMATA may receive Relocation Housing Payments if the amount received as compensation for their homes is less than the cost of a comparable dwelling.
4. Tenants will be entitled to certain payments for relocation to comparable housing.

The Washington Metropolitan Area Transit Authority is constructing the Metro Rapid Rail Transit System in accordance with Public Law 91-646, The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.¹⁰ Under this law, persons who would be displaced from their homes as a result of such construction may not be required to move unless the agency head is satisfied that suitable replacement housing is available to such persons, as set forth in the following excerpts from the law, so that adequate replacement housing will be assured for all displaced persons.

Public Law 91-646, Section 210 (3) provides that

the head of a Federal agency shall not approve any grant to, or contract agreement with, a State agency, under which Federal financial assistance will be available to pay all or part of the cost of any program or project which will result in the displacement of any person on or after the effective date of this title, unless he receives satisfactory assurances from such State agency that...within a reasonable period of time prior to displacement, decent, safe, and sanitary replacement dwelling will be available to displaced persons in accordance with Section 205 (c) (3).

¹⁰WMATA Office of Real Estate. Memorandum to WMATA Office of Engineering. March 12 1980.

Public Law 91-646, Section 205 (c)(3) provides that

each relocation assistance advisory program required by subsection (a) of this section shall include such measures, facilities or services as may be necessary or appropriate in order to....assure that, within a reasonable period of time, prior to displacement there will be available in areas not generally less desirable in regard to public utilities and public and commercial facilities and at rents or prices within the financial means of the families and individuals displaced, decent, safe and sanitary dwellings as defined by such Federal agency head, equal in number to the number of and available to such displaced persons who require such dwellings and reasonably accessible to their places of employment, except that the head of that Federal agency may prescribe by regulation situations where such assurances may be waived.

Under this law the General Manager of the Washington Metropolitan Area Transit Authority directs the Office of Real Estate to make studies of available housing to provide the basis for assurance that the requirements of the law will be met to assure the relocation of all displaced persons into decent, safe, and sanitary replacement housing as defined in the law.

This assurance for displacements along the S-Curve Alignment will be determined and given by the General Manager sufficiently in advance of the acquisition and displacement of families and individuals from the right-of-way selected to minimize the possibility of subsequent need to rely upon the following authority contained in Section 206(a) in order to comply with Section 206(b):

Section 206(a) - If a Federal project cannot proceed to actual construction because comparable replacement sale or rental housing is not available, and the head of the Federal agency determines that such housing cannot otherwise be made available, he may take such action as is necessary or appropriate to provide such housing by use of funds authorized for such project.

Section 206(b) - No person shall be required to move from his dwelling on or after the effective date of this title, on account of any Federal project, unless the Federal agency head is satisfied that replacement housing, in accordance with Section 205 (c)(3), is available to such person.

The WMATA Office of Real Estate does not anticipate difficulty relocating any of the families or individuals displaced from either the three single family homes near the intersection of 19th and Ingraham Streets or from the 87 one- and two-bedroom apartments at Kirkwood. A housing analysis and preliminary relocation plan for residents of the three single family homes and 257 apartments at Kirkwood in October 1980 indicated that a sufficient number of replacement housing units would become available to accommodate residents displaced by the S-Curve Alignment during the relocation period, which would last for at least two years.

This analysis was based on interviews with current residents and appraisals of existing vacancy rates and housing values/rents, used to project the number and housing requirements of individuals which could be affected, and the projected availability of comparable public and private housing in the area, as determined through consultation with the Prince George's County Housing Authority and other knowledgeable public agencies.

Displaced persons desiring relocation to other communities in the metropolitan area will be offered relocation assistance. Since it is anticipated that monies for acquisition of real estate required for right-of-way will be available about two years prior to construction, providing notice to potential displaced persons of a need to relocate will probably be possible as much as 18 months in advance of the actual relocation date which must be met to avoid slippage in construction schedules. The Relocation Law requires that a written notice of at least ninety days be provided. As a matter of practice, extension of relocation dates are granted when construction schedules are delayed for other reasons.

4.1.2 COMMUNITY DISRUPTION

1. ARS Alignment

Community cohesion and stability impacts of the ARS Alignment would be limited to the residential areas which surround the Chillum Station. The alignment would create a physical barrier between the Chillum Heights/Michigan Park Hills neighborhoods and the Avondale Terrace neighborhood. Increased traffic on Chillum Road would have the effect of separating the neighborhoods of Chillum Heights and Michigan Park Hills. None of these neighborhoods would be completely isolated because of this alignment, however, because all are adjacent to other residential areas.

2. S-Curve Alignment

The S-Curve Alignment will not disrupt the visual and physical continuity within any residential area. Where the alignment transects residential areas, the alignment follows existing neighborhood boundaries. The alignment intersects the link between Avondale and Avondale Terrace underground in cut-and-cover construction beneath the intersection of LaSalle Road, Russell Avenue and Ingraham Street. Between Kirkwood Apartments and Queens Chapel Manor Apartments, the alignment is underground in cut-and-cover beneath Ager Road.

4.1.3 SECONDARY DEVELOPMENT

The development of the Metro system as an operating success has begun to have a major impact upon private investment decisions in the National Capital area.¹¹ Even though only 30 percent of the system has been built, more than \$970 million worth of private development has already been completed or placed under construction in the vicinity of existing or proposed Metro stations, and nearly \$5 billion more is contemplated, assuming that the full system is funded and constructed.

Such development represents working space for more than 260,000 office, retail and service employees, and living space for more than 40,000 residents.

It also means millions of dollars of local revenues: both directly - in the form of fares paid by persons using the Metro system to travel to and from work, and for shopping or visiting; and indirectly - in the form of property, sales and income taxes resulting from the new development and its associated users. For example, by 1985 within the District of Columbia alone, more than \$50 million in new local revenues (not including income taxes) may be expected as a result of Metro-related development. Similarly, new development around Metro stations in the suburban jurisdictions would also generate tax income for state and local governments.

1. ARS Alignment

The ARS station would be located within an area which is residential in character. Few, if any, potential sites for development are located near the station since remaining open space is either publicly-held parkland or privately-owned institutional property.

The nearest regional commercial center is currently located 3,000 feet east of the station location on Chillum Road. This center, Queenstown, is physically separated from the station location by a natural gas storage facility and the Avondale Terrace neighborhood. A small community shopping plaza is located 3,000 feet west of the station on Chillum Road.

¹¹Federal City Council. "Metro-Related Private Investment." July 1979.

2. S-Curve Alignment

The Queenstown commercial area contains several sites which could accommodate more intensive uses. The location of the West Hyattsville Station within this area will provide a stimulus for the necessary private investment. In order to avoid the strip commercialization of Ager Road north of the station site, the Northwest Branch Park frontage should be established as the edge of the transit development area.

Direct pedestrian access between the West Hyattsville Station and the existing businesses located near the Hamilton Street/Ager Road intersection is facilitated by revised station site plans, which provide for a walkway to the intersection of Hamilton Street and Jamestown Road.

4.1.4 FLOODPLAIN ENCROACHMENT

1. ARS Alignment

The ARS Alignment would constitute an encroachment as defined by Department of Transportation Order 5650.2 "Floodplain Management and Protection", dated April 23 1979. Approximately 4,400 feet of the alignment would traverse flood hazard areas delineated on FIA (Federal Insurance Administration) flood insurance rate maps. Of these 4,400 feet, approximately 3,100 were designed to be at grade on fill in the I-95 median. The tracks would be at least 2-3 feet above the base flood level to permit operation of the transit system during floods.

The ARS Alignment would constitute a significant encroachment as defined by DOT Order 5650.2 because it would adversely affect such natural and beneficial floodplain values as the natural moderation of floods, open space, natural beauty and potential for outdoor recreation.

The ARS Alignment could be expected to directly or indirectly encourage, allow, serve or otherwise facilitate additional development in the base floodplain on privately-owned land east of the station on Chillum Road. Floodplain areas adjacent to the station are owned by M-NCPPC (Maryland-National Capital Parks and Planning Commission), and are therefore not considered available for development.

2. S-Curve Alignment

a. Impacts

The S-Curve Alignment constitutes an encroachment as defined by DOT Order 5650.2. The alignment traverses two flood hazard areas delineated on FIA flood insurance rate maps for a total linear distance of approximately 2,600 feet.

Inbound of the station, the alignment traverses the base floodplain on aerial structure. The bottom of the aerial structure will be at least 10 feet above the base flood level to permit operation of the transit system during floods. Piers supporting the structure will be spaced at intervals of from 80 to 100 feet so as not to impede floodwater movement.

Approximately 8.1 acres of the present base floodplain will be used for station facilities and the extension of Hamilton Street. Most of this area is presently occupied

by a drive-in movie theater and is imperviously surfaced. Following construction, 5.3 acres of imperviously surfaced land at the drive-in site not required for station facilities will be restored.

The station platform and substation will be constructed in the base floodplain above the base flood level. Berms and retaining walls will be used at station entrances to prevent inundation of the mezzanine level. Flood storage volume displaced by fill required beneath these facilities will be replaced so that flood elevations and the timing of watershed flooding characteristics will not be adversely affected.

Approximately 2.8 acres, consisting of 2.1 acres of the park-ride lot and 0.7 acres of the warehouse access road, will be in the base floodplain below the base flood level. The presence of these facilities will not adversely affect the storage or movement of floodwater because they will be at grade.

Approximately 600 linear feet of the alignment will intersect the flood hazard area north of Ager Road in retained cut and at grade on fill. A wall around the retained cut will be built which is at least 5 feet higher than the level of the base flood to prevent floodwater from entering the tunnel under Ager Road. Fill material is required where the alignment is at grade because the alignment is not sufficiently above the existing grade to be placed on aerial structure. A culvert will be installed under the tracks to permit floodwater exchange to and from 2.8 acres of floodplain which will be on the outbound side of the alignment.

The encroachments described above are not considered to be significant as defined by DOT Order 5650.2. General plans for the alignment indicate that there is little probability that loss of human life or damage to property will occur in the event of flooding, that there will be damage to the facility or interruption of service in the event of flooding, or that natural and beneficial floodplain values will be notably affected by the proposed encroachments.

The S-Curve Alignment will neither directly nor indirectly encourage, allow, serve or otherwise facilitate additional development in the floodplain. Although the West Hyattsville Station is expected to stimulate some new residential, office and commercial development nearby, floodplain areas near the station would be precluded from this type of development because they either have severe natural constraints, are already developed to zoned capacity, or are held in public ownership.

b. Mitigation

The amount of space in the floodplain consumed by piers, access roads, fill material and station development will be kept minimal and will be in compliance with DOT Order 5650.2, Executive Order 11988 "Floodplain Management", FEMA regulations and Maryland Water Resources Administration Waterway Construction Permit requirements. WMATA will complete required hydrologic analyses during final design. The S-Curve's encroachments will not affect any U.S. Army Corps of Engineers flood control project.

c. Alternatives to Avoid Floodplain Encroachment

Other than the pylons used to support the aerial structure as it crosses the Northwest Branch, floodplain encroachments associated with the S-Curve Alignment are limited to the West Hyattsville Station and the alignment when it returns to grade north of Ager Road.

The station has been sited on fill in the floodplain to enable the required number of residential displacements at Kirkwood to be reduced by approximately 173 units. Previously, the station platform was located at grade outside of the base floodplain. The present station cannot be supported by pylons because the station platform is not sufficiently above existing grade. The profile cannot be raised if the alignment is to pass beneath Ager Road. It has been estimated that locating the station below grade would increase the cost of the alignment by \$40-\$50 million. Station locations closer to or beneath Ager Road are not possible because the tracks in the vicinity of the station platforms need to be straight and nearly level.

The alignment north of Ager Road cannot be shifted southeast to avoid the floodplain because the curve radius is dictated by the locations of the West Hyattsville Station and the Prince George's Plaza Station. The profile of the alignment cannot be raised enough to enable use of an aerial structure due to limitations imposed by Ager Road. Locating the alignment below grade by cut-and-cover methods would increase the cost of the alignment by about \$20 million. Locating the alignment below grade in tunnel would increase the cost of the alignment by about \$30 million.

4.1.5 VISUAL INTRUSION

Metro will be visible wherever the alignment is at or above grade. Captioned photographs of several constructed portions of the Metro system appear on Figure 4.3.

1. ARS Alignment

The ARS Alignment would be visible within three residential and natural areas (Figure 4.4). The length of the visible portion of the alignment is about 7,000 feet. Areas within approximately 250 feet of major roads were not included (Table 4.1).

2. S-Curve Alignment

a. Impacts

The S-Curve Alignment will be visible within four residential and natural areas. The length of the visible portion of the alignment is about 4,300 feet. Areas within approximately 250 feet of major roads were not included (Table 4.1).

b. Mitigation

WMATA is concerned that the Metro system be visually attractive. In its resolution modifying general plans to include recent modifications to the S-Curve Alignment, the WMATA Board specified that fencing of the right-of-way shall be placed in a manner that is not visually objectionable to the community, and that measures such as landscaping to soften the effect of long stretches of chain-link fencing or placement mid-way instead of at the top of slopes shall be utilized.¹²

¹²WMATA Board of Directors. Resolution. April 9 1981.

FIGURE 4.3

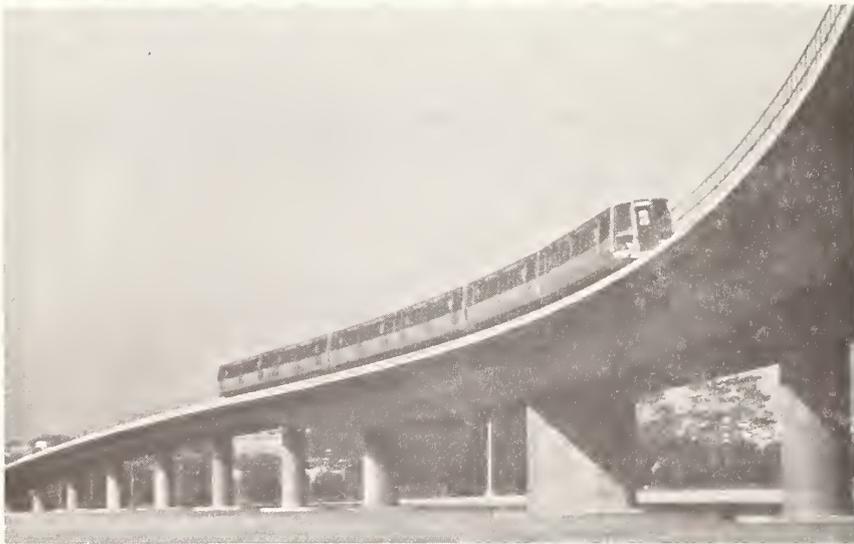
Red Line, outbound of the Rhode Island Avenue Station, emerging from a portal in retained cut and proceeding towards the Brookland-CUA Station.

(WMATA photo by Phil Portlock)



Orange/Blue Line, outbound of the Stadium-Armory Station, crossing the RFK Stadium parking area on a double-track aerial structure.

(WMATA photo by Paul Myatt)



Red Line crossing Rockville Pike near the Grosvenor Station on an aerial structure. Alignment continues through portal at center of photo towards the Medical Center Station.

(WMATA photo by Paul Myatt)

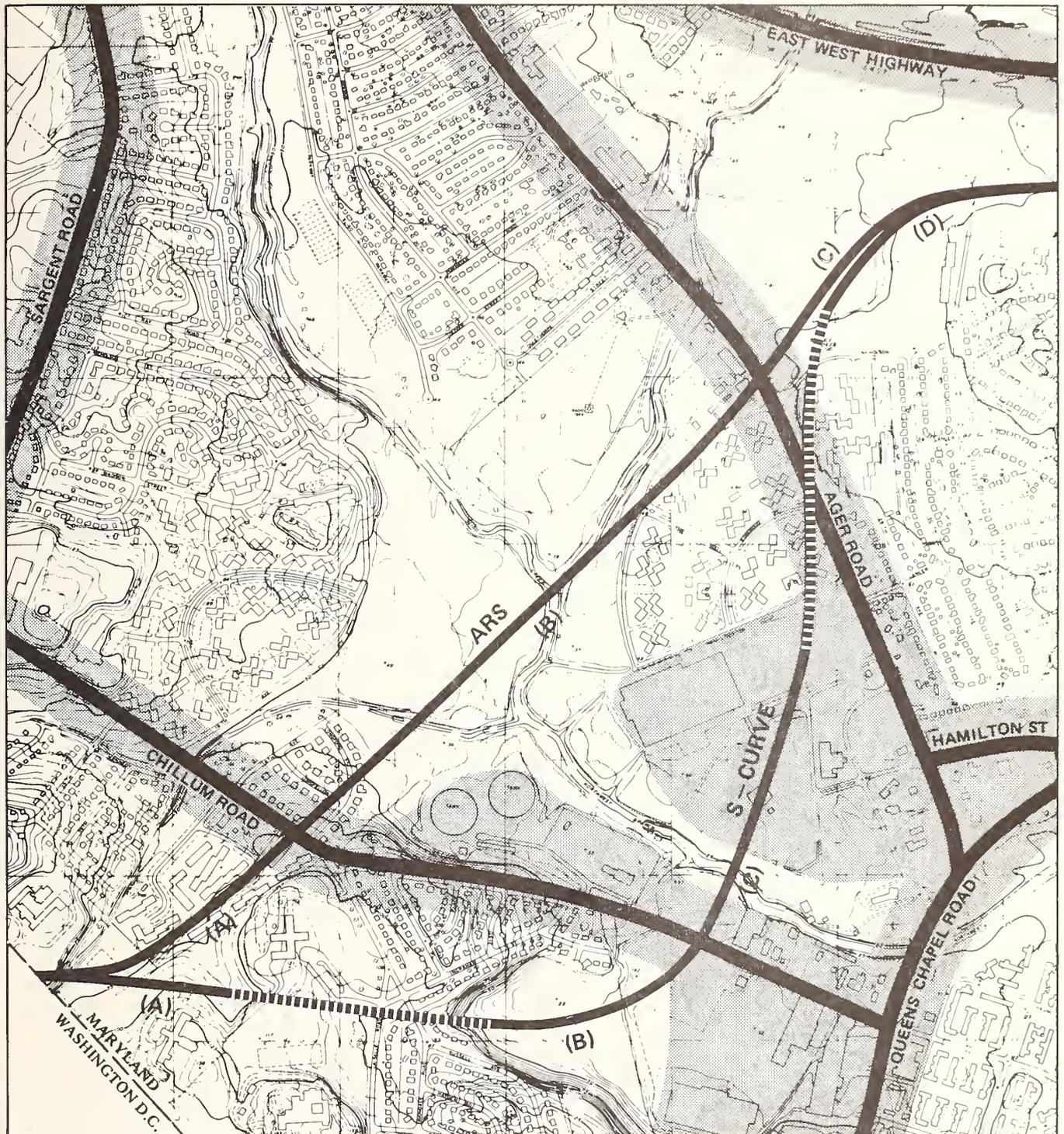


REPRESENTATIVE VIEWS OF METRO

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



FIGURE 4.4



-  ABOVE GROUND IN NATURAL OR RESIDENTIAL AREA (See Table 4.1)
-  UNDERGROUND IN NATURAL OR RESIDENTIAL AREA
-  ABOVE GROUND NEAR MAJOR TRANSPORTATION CORRIDOR OR IN COMMERCIAL/INDUSTRIAL AREA
-  UNDERGROUND NEAR MAJOR TRANSPORTATION CORRIDOR OR IN COMMERCIAL/INDUSTRIAL AREA

VISIBILITY OF ALIGNMENTS

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**

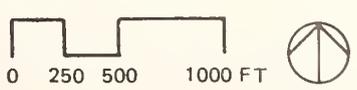


TABLE 4.1: VISIBILITY OF ALIGNMENTS

	Areas Affected	Length Visible (feet)			Total
		Winter Only	Year-Round		
ARS	A Michigan Park Hills, Carroll Manor	0 feet	1,600 feet		1,600 feet
	B Chillum Heights, Overlook Apartments, Kirkwood Apartments, Parkland	700	2,700		3,400
	C Queens Chapel Apartments, Prince George's Tower, Parkland	0	2,000		2,000
S-Curve	A St. Ann's Infant Home, LaSalle Park Apartments, Carroll Manor	800	300		1,100
	B Avondale, Avondale Terrace	1,000	300		1,300
	C Parkland	0	300		300
	D Prince George's Tower, Parkland	1,400	200		1,600

4.1.6 VEGETATION AND WILDLIFE DISTURBANCE

1. ARS Alignment

The ARS Alignment would remove a considerable amount of deciduous vegetation, most of which is located in lowland areas. This riparian floodplain vegetation is an important source of wildlife habitat. Approximately 2,100 feet of the alignment would transect wooded stands. Since the alignment is at or above grade, the area transected cannot be revegetated.

The loss of this vegetation is considered significant due to the limited extent of woody flora within the study area. This vegetation is valued in the study area because it provides wildlife habitat, stabilizes slopes, moderates climate and is aesthetically attractive.

The construction of the alignment would result in a significant reduction of available wildlife habitat that cannot be replaced within the study area, and would have severe adverse environmental effects on vegetation and wildlife resources.

2. S-Curve Alignment

a. Impacts

The S-Curve Alignment will also remove a considerable amount of deciduous vegetation. 3,100 linear feet of the alignment will transect wooded stands. Since the impact corridor is generally defined as being 100 feet wide along the alignment, approximately 7 acres of deciduous vegetation could be affected.

The construction of the West Hyattsville Station, located at a site which is presently a drive-in theater, will not result in a substantial loss of vegetation.

The loss of vegetation is considered significant due to the limited extent of woody flora within the study area. All vegetation is valued in the study area because it provides wildlife habitat, stabilizes slopes, moderates climate and is aesthetically attractive.

Construction of the Metro facility will force some wildlife species to seek undisturbed habitat in adjacent areas. Some species will return to the area at the completion of construction; however, some species may not repopulate the area. Some loss of migratory birds may occur, with replace-

ment by more urban species. Erosion and sedimentation resulting from earth-moving and construction could impact fish and other aquatic species. Noise impacts due to operation may prevent repopulation by some wildlife species.

b. Mitigation

WMATA is committed to replanting and restoring the vegetation in the areas affected by the construction of the alignment, and will restore these areas, where possible, to their original condition. In several cases, relandscaping by Metro will improve the appearance and value for wildlife of existing vegetation.

Areas will be replanted with species similar to, or of a higher quality than those already present, with consideration given to aesthetics, noise buffering capability, soil stabilization and habitat potential. Revegetation efforts will provide a diversity of plant species composition and structure, including good sources of wildlife forage and cover.

Replanting of trees will not be done directly under aerial sections or directly over sections constructed cut-and-cover for safety and maintenance reasons. These areas will be restored as lawn, often with small-scale plantings.

Sedimentation and erosion control measures required by the Maryland Water Resources Administration will be employed to prevent soil loss and sediment loading into streams near construction sites. Strict adherence to provisions regarding soil erosion, sedimentation and pollution during Metro construction and operation will limit the likelihood of significant long-term impact on the water quality of either Sligo Creek, Northwest Branch or the unnamed tributary.¹³

During final design, WMATA's section designer will develop detailed plans and programs for restoration. These plans will be subject to review by local jurisdictions, including the NCPC (National Capital Planning Commission) and the M-NCPPC (Maryland-National Capital Parks and Planning Commission), where appropriate. The NCPC and M-NCPPC must approve plans for the restoration of parklands under their jurisdiction before these parklands can be used. Replacement land provided as compensation for parkland use could mitigate vegetation and wildlife disturbance.

¹³Green, J.D., U.S. Fish and Wildlife Service, Delmarva Area. Letter to WRT. July 14 1981.

Also, the return of a portion of the drive-in site to a natural condition during construction of the West Hyattsville Station may reduce the overall effect of vegetation and wildlife disturbance in other locations, particularly since the site is adjacent to Northwest Branch Stream Valley Park.

4.1.7 TRAFFIC CONGESTION

1. ARS Alignment

Transportation impacts associated with the ARS Alignment include those related to transit ridership and those related to station-oriented traffic flow, particularly at intersections.

Projected ridership forecasts for the Chillum Road Station indicate that 20,684 trips would originate or terminate at the station daily in 1990.¹⁴ 2,116 individuals would board during the peak morning hour.

The area which would be within a 5-minute automobile trip of the station is delineated on Figure 4.5 and the area which is the programmed service area for the station is delineated on Figure 4.6. The most transit dependent portion of the service area would not have convenient access to the station.

Levels of service are defined in 3.5.1. As a result of station-oriented traffic, the level of service at the Chillum/Queens Chapel Roads intersection would be decreased from 'D' to 'E' during the afternoon peak hour. The Hamilton/Queens Chapel Roads intersection would be decreased from 'B' to 'D' during the morning peak hour and from 'C' to 'D' during the afternoon peak hour. The Chillum/Sargent Roads intersection would be decreased from 'A-B' to 'C' during the morning peak hour and from 'A' to 'C' during the afternoon peak hour.

2. S-Curve Alignment

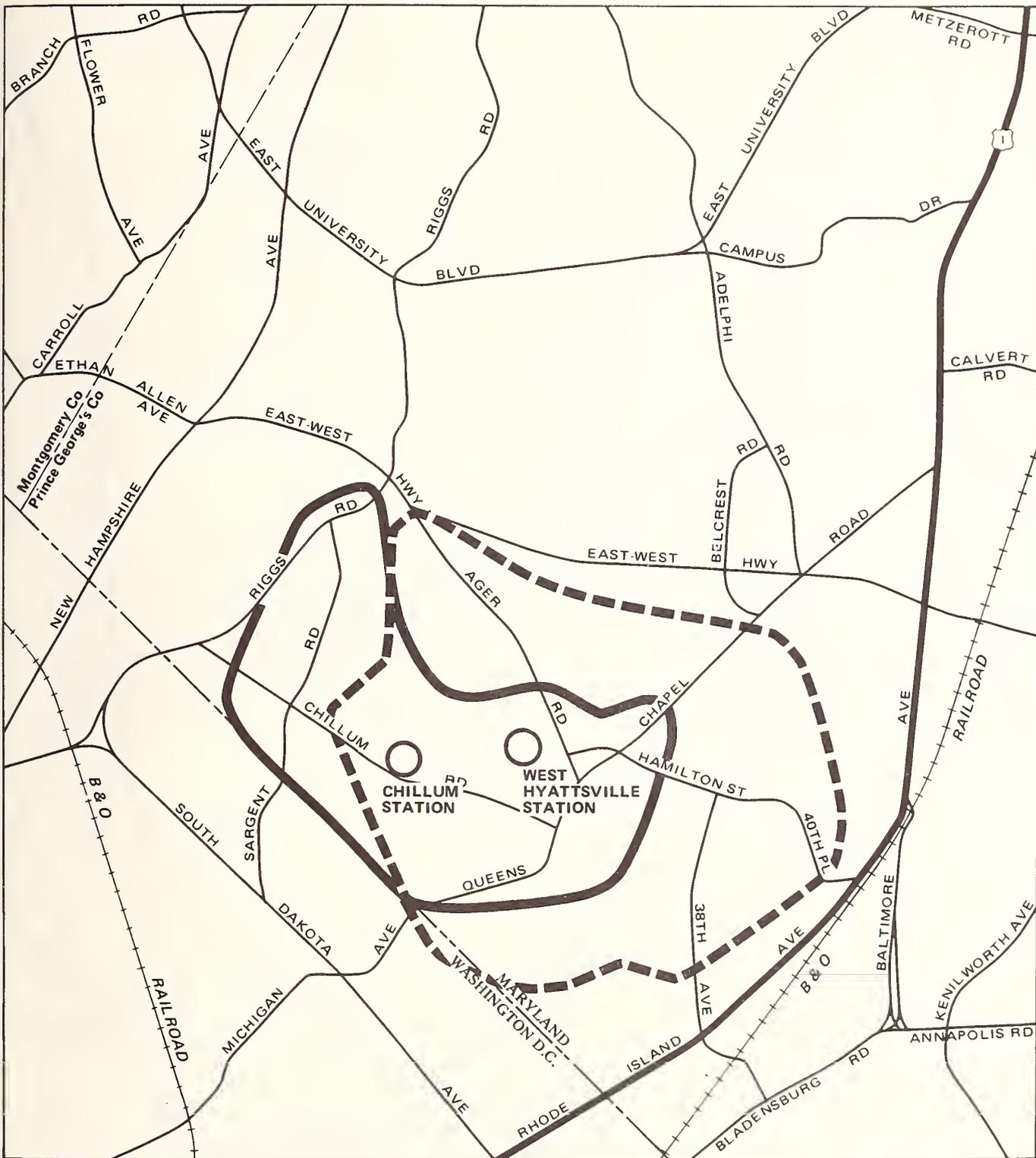
a. Impacts

Projected ridership forecasts for the West Hyattsville Station indicate that 21,322 trips will originate or terminate at the station daily in 1990. 2,330 individuals will board during the peak morning hour.¹⁵

The area which will be within the 5-minute automobile trip of the station is delineated on Figure 4.5 and the area which is the programmed service area for the station is de-

^{14,15}WMATA. "Preliminary Data Sheet for West Hyattsville Station." March 4 1980.

FIGURE 4.5

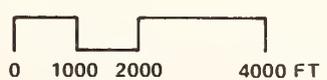


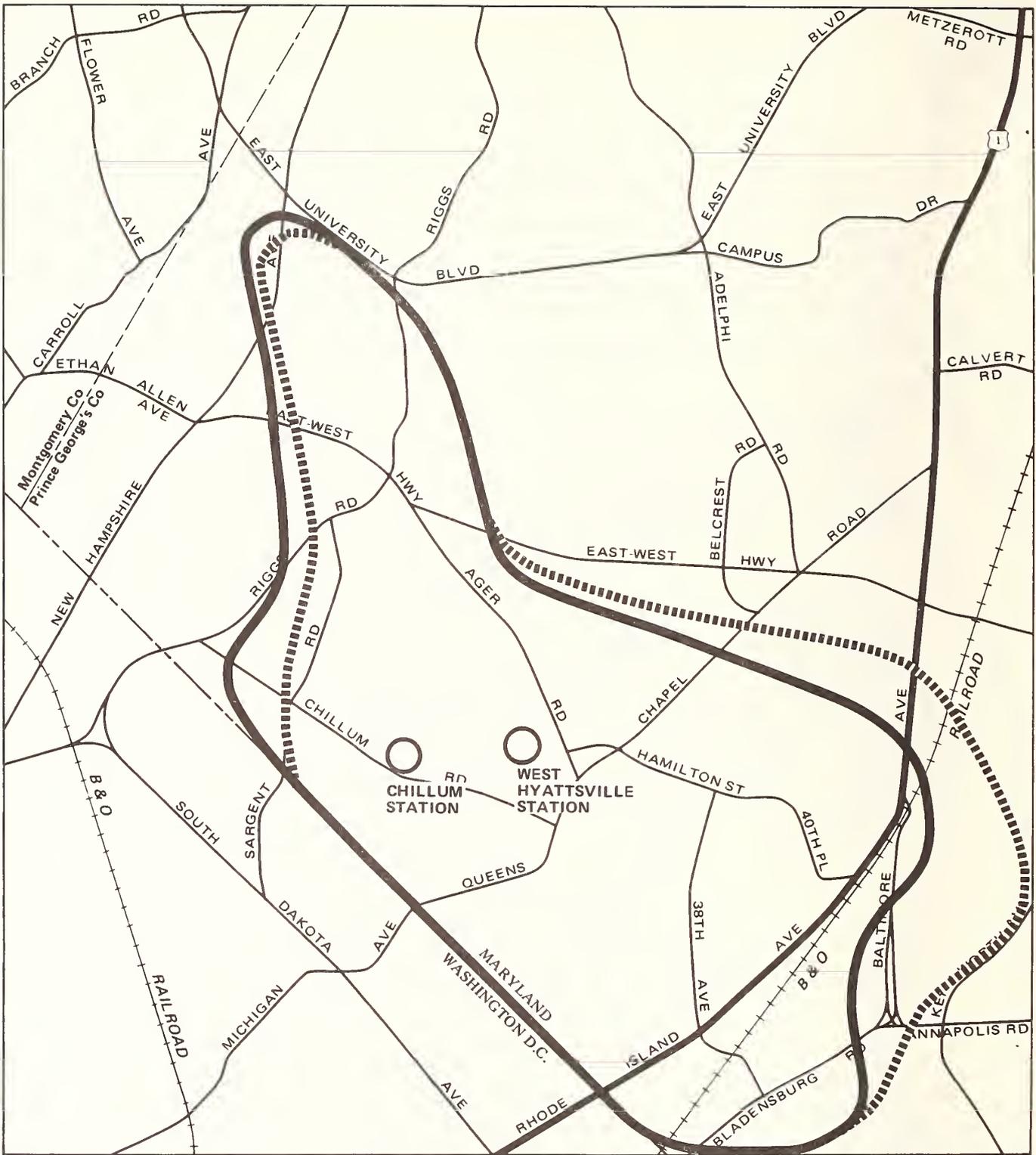
 5 MINUTE DRIVE TO CHILLUM STATION

 5 MINUTE DRIVE TO WEST HYATTSVILLE STATION

STATION ACCESSIBILITY

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



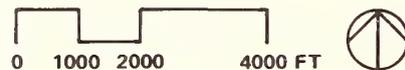


-  CHILLUM STATION SERVICE AREA
-  WEST HYATTSVILLE STATION SERVICE AREA

STATION SERVICE AREAS

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**

Note: Service Area delineation assumed that the PG Plaza Station would be located approximately 500 feet north of the ARS location.



linedated on Figure 4.6. The most transit dependent portion of the service area will have convenient access to the station.

Intersections near the station will experience minor reductions in their level of service as a result of station-oriented traffic. Only the Hamilton/Queens Chapel Roads intersection level of service will be decreased to level of service 'D' during the afternoon peak hour.

b. Mitigation

Potential traffic improvements in the vicinity of the proposed West Hyattsville Station were analyzed in 1975 for the Maryland Department of Transportation.¹⁶ Improvements for the Hamilton Street/Queens Chapel Road and Chillum Road/Queens Chapel Road intersections were studied, in addition to plans for the extension of Hamilton Street.

WMATA has planned the West Hyattsville Station to provide for the extension of Hamilton Street by others. WMATA's Master Agreements with Prince George's County (MA-024) and MDOT (Maryland Department of Transportation) specify that traffic improvements required as a result of station-oriented traffic will be designed and constructed at the County and State's expense. WMATA will conduct traffic studies for the West Hyattsville Station during final design to determine which improvements are necessary.

¹⁶JHK Associates. "Traffic Analysis of the Metro E Route Station Alternatives." April 1975.

4.1.8 NOISE

Noise levels resulting from the operation of the West Hyattsville Segment have been projected for 1988, which was until recently the year during which the West Hyattsville Station was scheduled to open.¹⁷ The station is not currently scheduled to open before late 1990.

Maximum wayside noise levels (L_{max}) resulting from Metro passbys have been projected at noise sensitive sites. Noise sensitive sites include residences (Figure 3.3), institutions and parklands (Figure 3.4). Noise from Metro passbys would be expected to be disruptive at sites where the projected L_{max} exceeds criteria established by WMATA's acoustical consultants. The criteria are based on activities of the occupants and ambient noise levels.¹⁸

Average ambient noise levels (L_{EQ}) resulting from Metro passbys and traffic have also been projected. These projections include noise generated by non-Metro traffic (Figure 3.10).

1. ARS Alignment

Projected maximum noise levels resulting from train operation along the ARS Alignment are shown in Table 4.2 and Figure 4.7.¹⁹

Without mitigation measures, it is projected that maximum noise levels would exceed established criteria at the parkland adjacent to the Northwest Branch, Kirkwood Village Apartments, Prince George's Tower and Heurich Community Park.

With standard sound barrier walls, noise could be brought to acceptable levels at Kirkwood and Prince George's Tower. In the parkland, passby noise would be acceptable 150 feet from the alignment.

¹⁷WMATA. "Preliminary Data Sheet for the West Hyattsville Station." March 4 1980.

¹⁸Wilson, Ihrig and Associates, Inc. "Criteria used for Supplementary Noise Analysis for WMATA Greenbelt Route." September 9 1980.

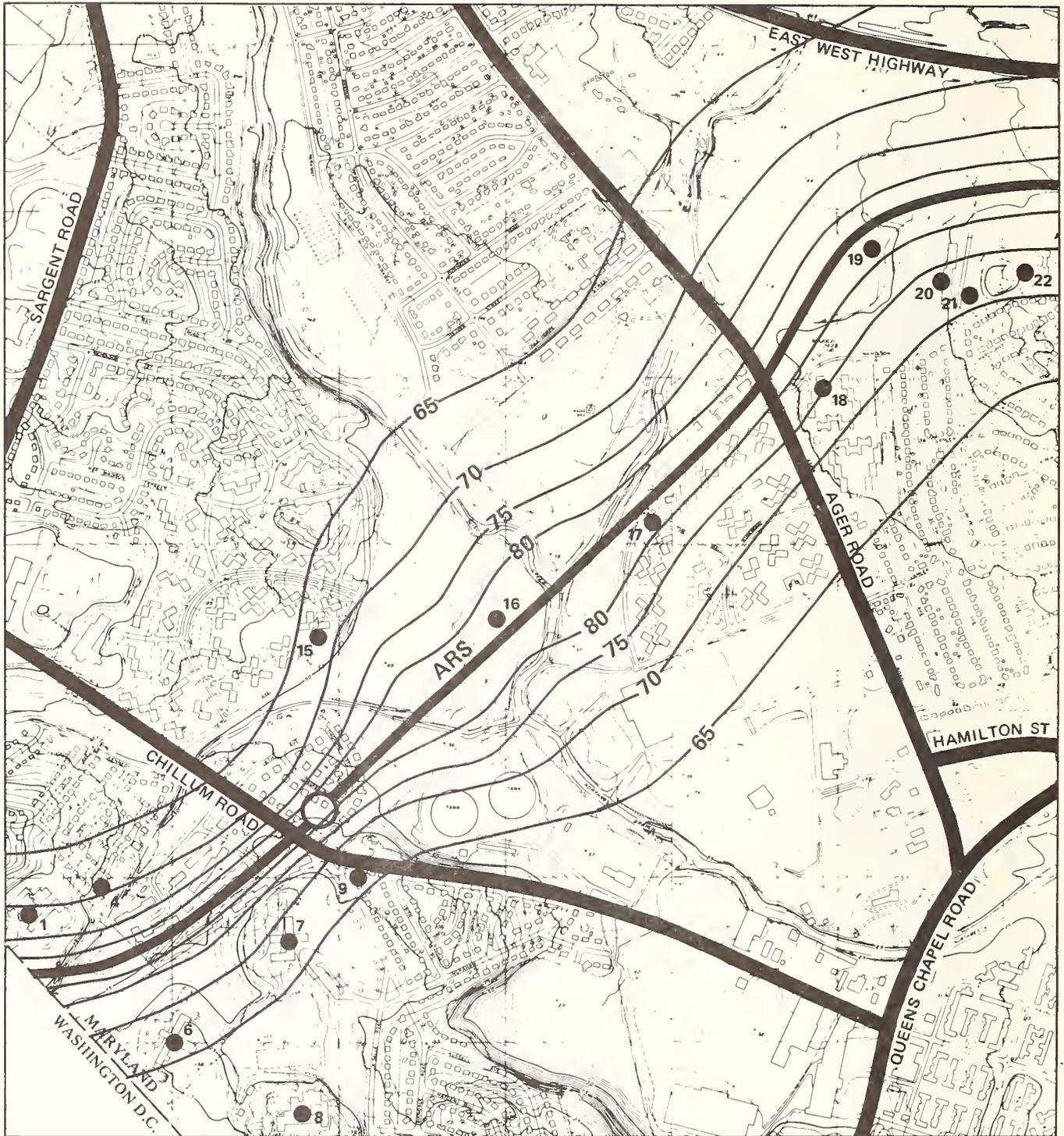
¹⁹Wilson, Ihrig and Associates, Inc. "Supplementary Noise Analysis for WMATA Greenbelt Route." August 11 1980.

TABLE 4.2: MAXIMUM NOISE FROM ALIGNMENTS

(Projected 1988)

Noise Sensitive Site	Criteria for Allowable Levels	ARS Alignment		S-Curve Alignment	
		Maximum Noise without Mitigation Measures	73 dBA	Maximum Noise without Mitigation Measures	78 dBA
1. DeSales Hall	75 dBA	73 dBA	78 dBA	74 dBA	74 dBA
2. Gallatin Street Residence	75	-	73		
3. Gallatin Street Residence	75	-	74		
4. Michigan Park Hills Residence	75	68	-		
5. LaSalle Park Apartments	75	-	78		74
6. St. Ann's Infant Home	75	70	81		71
7. Carroll Manor	75	69	75		
8. Avondale Research Center	80	62	-		
9. Avondale Terrace Residence	75	66	-		
10. Avondale Terrace Residence	75	-	73		74
11. Avondale Terrace Residence	75	-	78		68
12. Avondale Residence	75	-	77		
13. Avondale Residence	75	-	73		
14. Chillum Park	75	-	87		74
15. Chillum Heights Apartments	75	65	-		76
16. Northwest Branch Park	75	92	91		
17. Kirkwood Village Apartments	75	84	-		
18. Queens Chapel Apartments	75	74	-		
19. Heurich Community Park	75	86	83		74
20. Prince George's Tower	75	76	75		
21. West Hyattsville Baptist Church	75	69	70		
22. Presbyterian Church of Hyattsville	75	75	71		

FIGURE 4.7

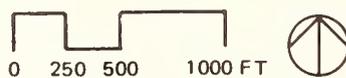


 L_{MAX} CONTOURS AT 5dBA INTERVALS WITHOUT NOISE MITIGATION MEASURES

 NOISE SENSITIVE SITE (see TABLE 4.2)

MAXIMUM NOISE FROM ARS ALIGNMENT

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**

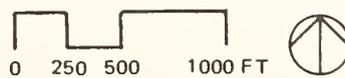




 AM PEAK HOUR LEQ CONTOURS AT 5dBA INTERVALS WITHOUT NOISE MITIGATION MEASURES

AMBIENT NOISE WITH ARS ALIGNMENT

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Projections of a.m. peak hour L_{EQ} , including noise from train operation and vehicular traffic, are shown in Figure 4.8.²⁰ Noise from train operation constitutes the principal contribution to a.m. peak hour noise. The noise impact from the anticipated change in vehicular traffic on major roads is negligible when compared with the contribution from transit train operations.

2. S-Curve Alignment

a. Impacts

Projected maximum noise levels from train operation along the S-Curve Alignment are shown in Table 4.2 and Figure 4.9.²¹

Without the employment of mitigation measures, it is projected that maximum noise levels will exceed established criteria at DeSales Hall, LaSalle Park Apartments, St. Ann's Infant Home, several residences in Avondale and Avondale Terrace, Chillum Road Neighborhood Park, Northwest Branch Stream Valley Park, and Heurich Community Park.

With the use of standard sound barrier walls having a height of at least 3.3 feet above the top-of-rail and located within 10 feet of the track centerline, wayside noise levels produced by Metro passbys would meet the criterion of 75 dBA at all locations along the S-Curve Alignment except at Chillum Road Neighborhood Park and at Northwest Branch System Valley Park.

Use of 6-foot (height above the top-of-rail) sound barrier walls along both inbound and outbound tracks would achieve the criterion at Chillum Park. At Northwest Branch Park, use of high sound barrier walls along both inbound and outbound tracks and a 3-foot absorptive center screen or barrier near the double crossover, where higher noise levels are anticipated as a result of trains crossing rail discontinuities, would bring noise levels to 76 dBA. Although this noise level is 1 dBA greater than the 75 dBA criterion, it is thought to be acceptable because it takes about a 3 dBA increase in level to be noticeable to the average observer.

²⁰Wilson, Ihrig and Associates, Inc. "Supplementary Noise Analysis for WMATA Greenbelt Route." August 11 1980.

²¹Wilson, Ihrig and Associates, Inc. "Supplementary Noise Analysis for WMATA Greenbelt Route, West Hyattsville Segment." April 21 1982.

Projections of a.m. peak hour LEQ , including noise from train operation and vehicular traffic are shown in Figure 4.10.²² Noise from train operation constitutes the principal contribution to a.m. peak hour noise. The noise impact from the anticipated change in vehicular traffic on major roads is negligible when compared with the contribution from transit train operations.

Projections were also made, and acceptable criteria established, for ground-borne noise along those portions of the S-Curve Alignment which are to be built in cut-and-cover section. Without mitigation measures, it is projected that ground-borne noise levels will exceed established criteria at 4 single-family residences in Avondale and 3 single-family residences in Avondale Terrace. With floating slab construction and other mitigating measures, ground-borne noise can be brought below acceptable levels at all noise sensitive sites.

b. Mitigation

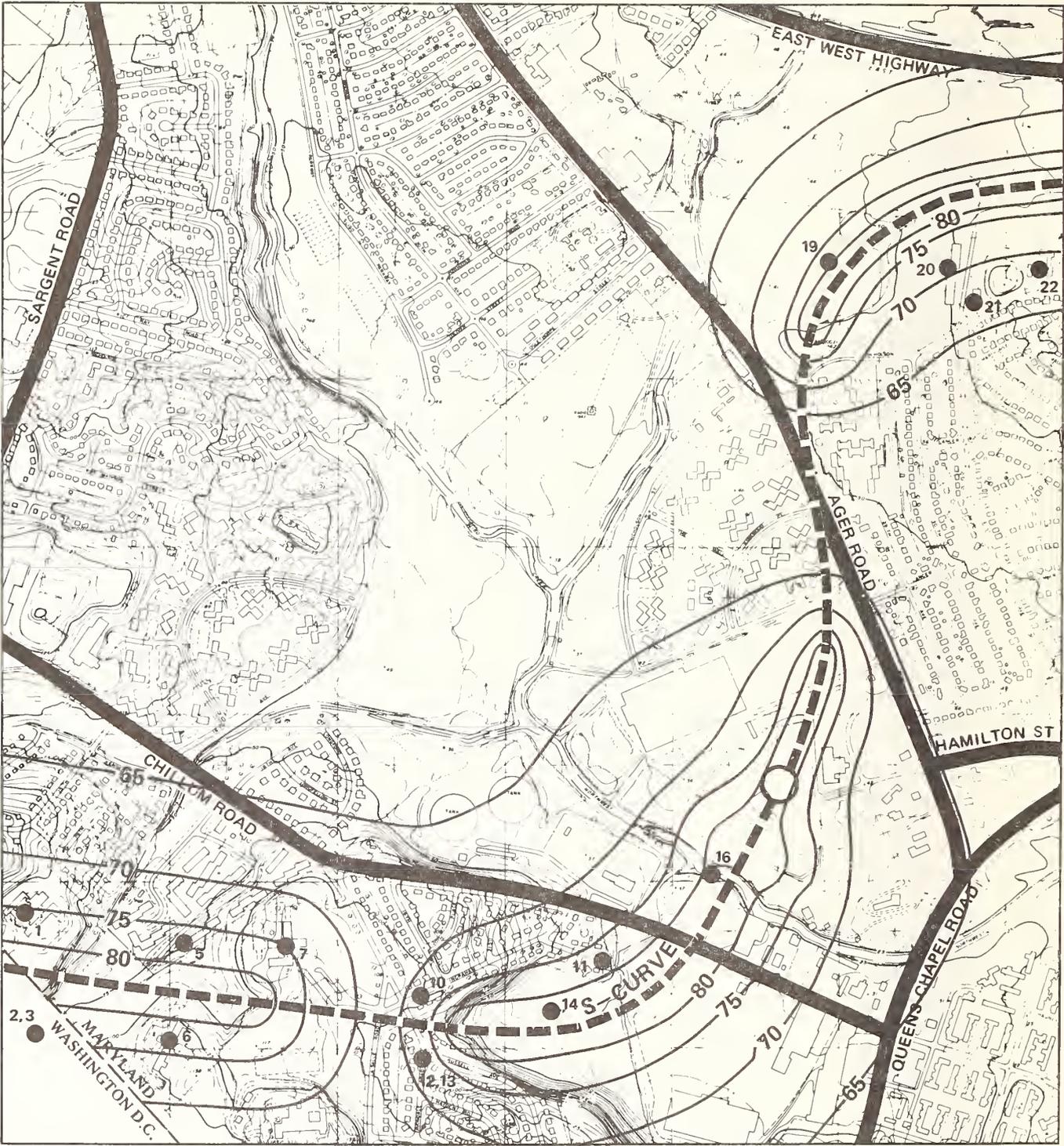
WMATA, through its acoustical consultant, analyzes each section of the system in detail during final design to determine which locations may have noise or vibration problems. The consultant examines in detail those areas where the introduction of the transit system may upset the ambient conditions. Airborne and ground-borne noise originating from transit sources are considered. If the consultant determines that portions of the system will create noise and/or vibration levels above the established criteria, the consultant recommends the preventive action to be taken.

Based on preliminary 1981 engineering plans for the S-Curve, WMATA's acoustical consultant has recommended the use of standard sound barrier walls at six locations and high sound barrier walls at two locations (Figure 4.11).²³ The top of the high sound barriers will be just below the bottom of the train windows and will have no aesthetic or other effect on passengers in the trains. These barriers could be constructed of cast-in-place concrete, pre-cast concrete, concrete blocks, lightweight masonry blocks, metal panels, plywood panels or transite panels.

Also based upon these plans, the use of 3-foot high central absorptive screens or barriers has been recommended at one location (Figure 4.11).²⁴ This type of barrier could have a

^{22,23,24}Wilson, Ihrig and Associates, Inc. "Supplementary Noise Analysis for WMATA Greenbelt Route, West Hyattsville Segment." April 21 1982.

FIGURE 4.9



 LMAX CONTOURS AT 5 dBA INTERVALS WITHOUT NOISE MITIGATION MEASURES

 NOISE SENSITIVE SITE (see TABLE 4.2)

MAXIMUM NOISE FROM S-CURVE ALIGNMENT

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT

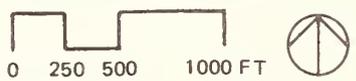
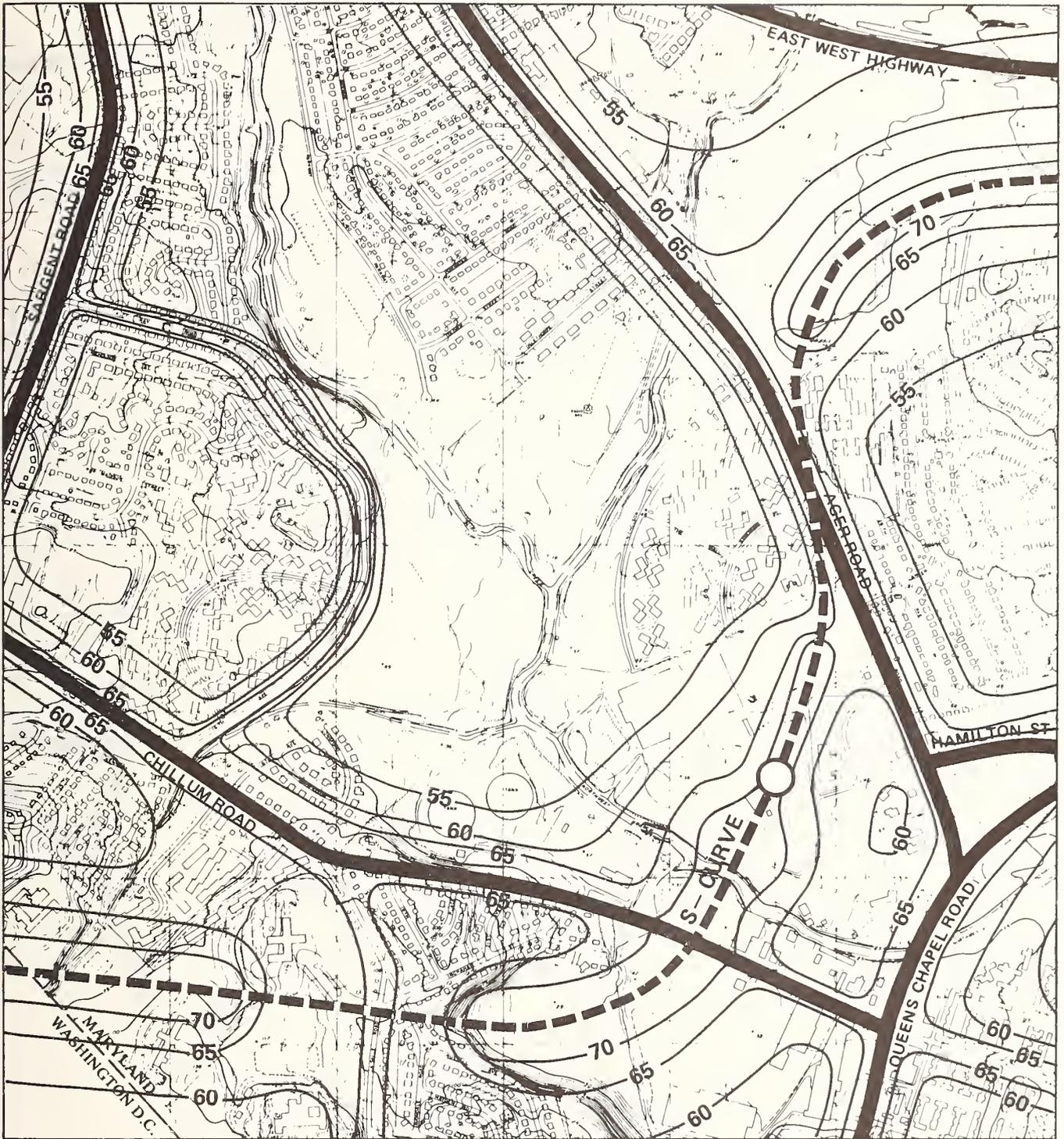


FIGURE 4.10



AM PEAK HOUR L_{EQ} CONTOURS AT 5dBA INTERVALS WITHOUT NOISE MITIGATION MEASURES

AMBIENT NOISE WITH S-CURVE ALIGNMENT

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT

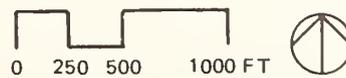
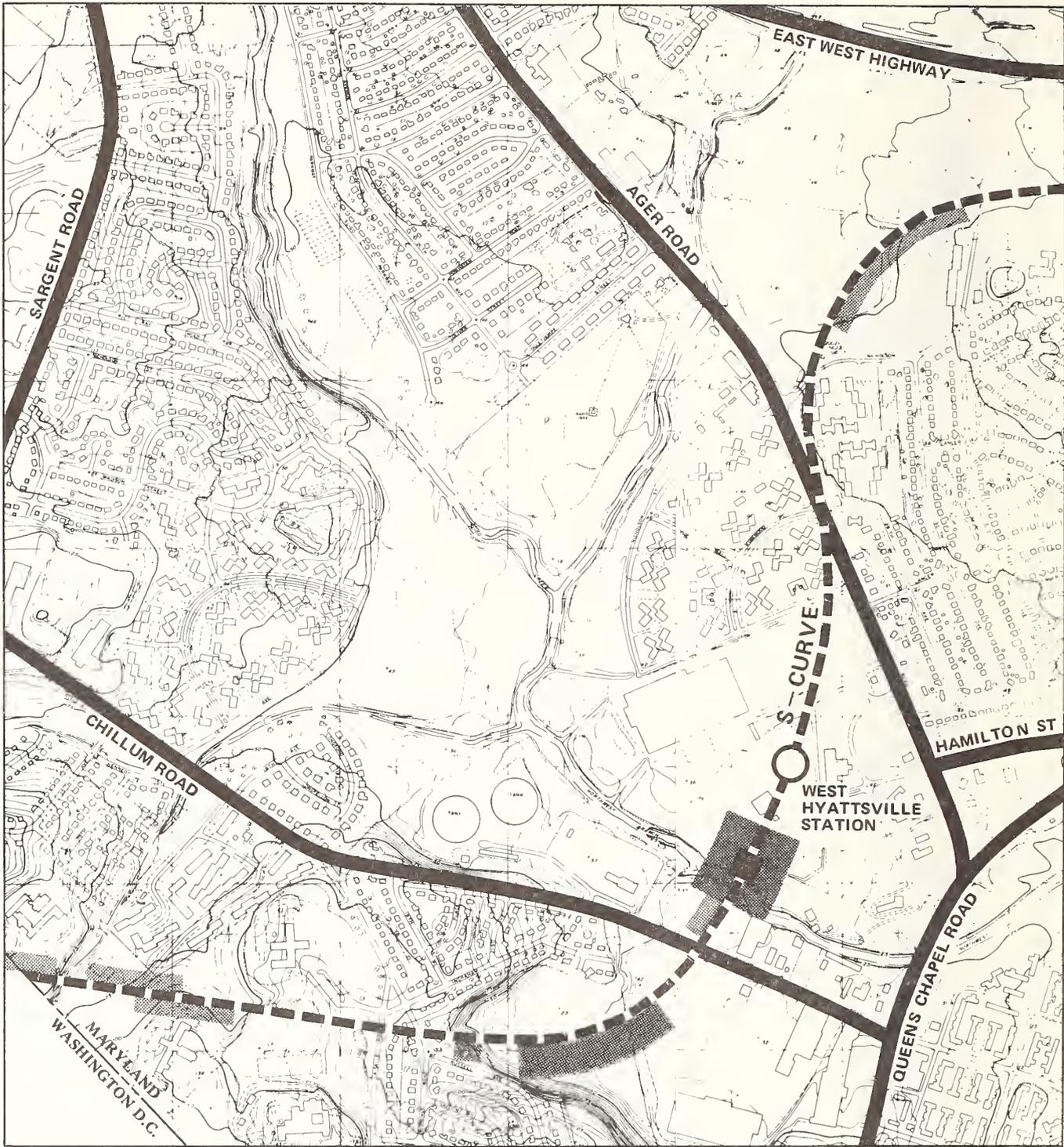


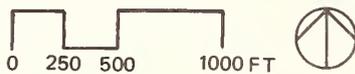
FIGURE 4.11



-  STANDARD SOUND BARRIER
-  HIGH SOUND BARRIER
-  CENTER SCREEN

PROPOSED NOISE MITIGATION MEASURES FOR S-CURVE ALIGNMENT

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



fiberglass core covered by protective layers of plastic and perforated sheet metal and be attached to the pipe railings between the inbound and outbound tracks.

During final engineering design, WMATA's acoustical consultant will reanalyze the West Hyattsville Segment to confirm these recommendations. WMATA will install sound barriers to reduce single event passby noise levels to comply with the 75 dBA criterion at locations where it is determined that the 75 dBA criterion would otherwise be exceeded. WMATA will also use floating slab construction where necessary to insure that ground-borne noise levels will be within established criteria.

4.1.9 AIR QUALITY

A 1974 analysis of air quality impacts of the E Route indicated that the only potential impacts resulting from a particular segment would be increased ambient TSP and CO levels.²⁵ The analysis considered local air quality impacts related to construction, effluent from tunnel vents and fan shafts, and station-generated traffic in addition to the system's impact on regional air quality. CO levels have been projected for 1988, which was until recently the year during which the West Hyattsville Station was scheduled to open.²⁶ The station is not currently scheduled to open before 1990.

1. ARS Alignment

Air quality impacts resulting from increases in TSP, direct emissions from construction vehicles, and roadway congestion induced by construction would occur locally during the construction of the ARS Alignment's station and tracks.²⁷ Increases in TSP would be short-term, and it is unlikely that violations of the annual standard would result. Impacts to the 24-hour maximum TSP standard can be mitigated using dust-control construction techniques.

Projected 1988 CO levels at six receptor sites in the study area are presented in Table 4.3.²⁸ ARS station-generated traffic would create a minor national/state ambient air quality standard violation for CO-1 and CO-8 at receptor site 1, which is located near the intersection of 16th Avenue and Chillum Road (Figure 4.12).

2. S-Curve Alignment

Air quality impacts resulting from increases in TSP, direct emissions from construction vehicles, and roadway congestion induced by construction will occur locally during the construction of the S-Curve's station and tracks.²⁹ Increases in TSP will be short-term, and it is unlikely that violations of the annual standard will result. Impacts to the 24-hour maximum TSP standard will be mitigated using dust-control construction techniques.

²⁵Environmental Research and Technology, Inc. "Air Quality Analysis of Metro E Route, Section E2 to E6." November 1974

²⁶WMATA. "Preliminary Data Sheet for the West Hyattsville Station." March 4, 1980.

²⁷Environmental Research and Technology, Inc. "Air Quality Assessment for the Proposed West Hyattsville Station: Metro Transit Route Segment E005." July 1980.

^{28,29}Environmental Research and Technology, Inc. "Amendment to Air Quality Assessment for the Proposed West Hyattsville Station: Metro Transit Route Segment E005." June 1981.

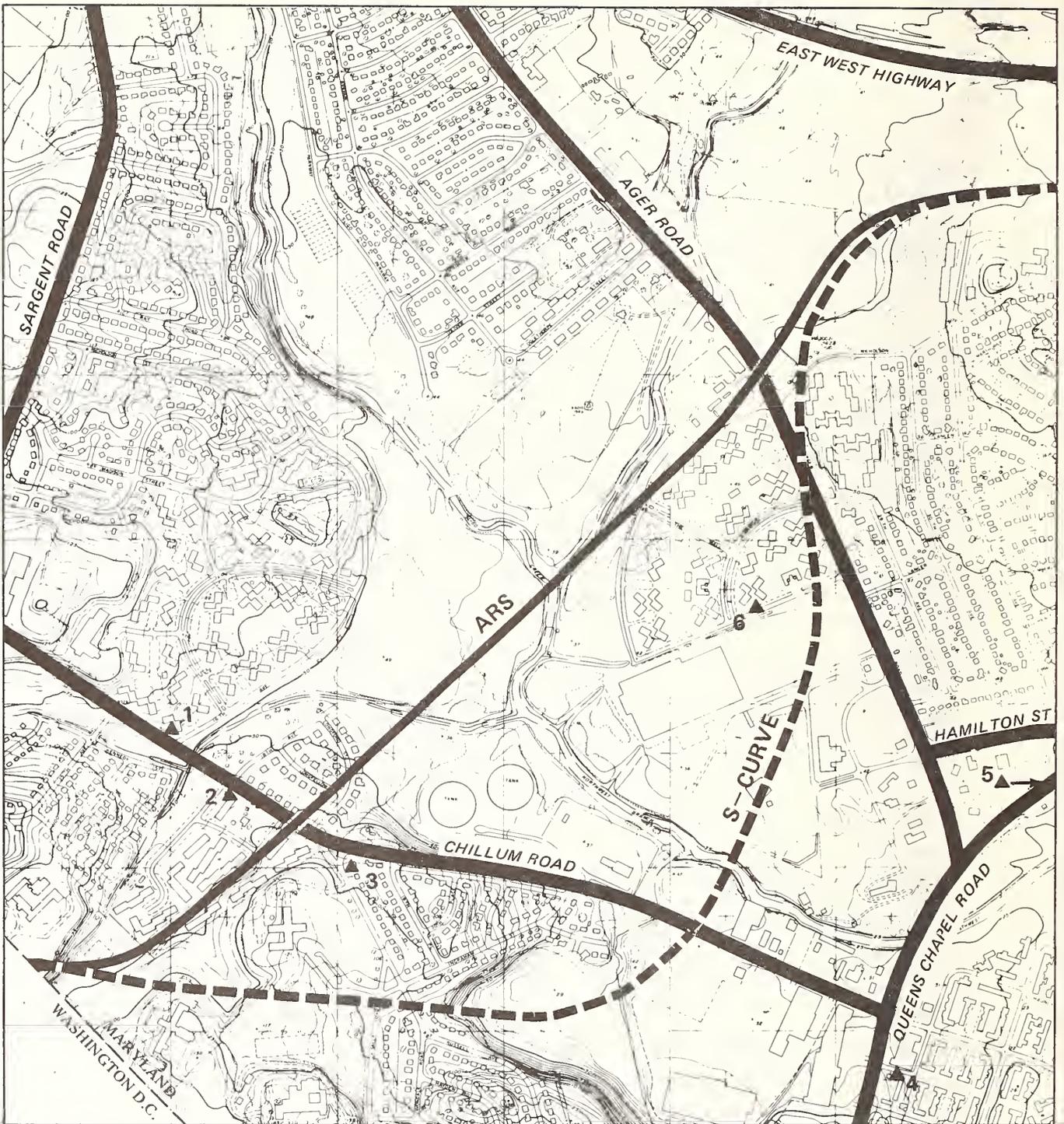
TABLE 4.3: CARBON MONOXIDE LEVELS WITH ALIGNMENTS
(Projected 1988)

	Receptor Sites					
	1	2	3	4	5	6
ARS:						
Maximum 1-Hour (CO-1)†						
Background	6.4 ppm	6.4	6.4	6.4	6.4	6.4
Metro Traffic Contribution	1.7 ppm	1.6	2.0	13.2	0.7	—
Other Traffic Contribution	3.0 ppm	1.6	1.9	15.8	6.9	—
Total	11.1 ppm	9.6	10.3	35.4*	14.0	6.4
Maximum 8-Hour (CO-8)††						
Background	2.1 ppm	2.1	2.1	2.1	2.1	2.1
Metro Traffic Contribution	0.2 ppm	0.2	0.5	1.2	0.1	—
Other Traffic Contribution	1.5 ppm	0.7	0.6	5.9	4.1	—
Total	3.8 ppm	3.0	3.2	9.2*	6.3	2.1
S-CURVE:						
Maximum 1-Hour (CO-1)†						
Background	6.4 ppm	6.4	6.4	6.4	6.4	6.4
Metro Traffic Contribution	0.8 ppm	0.5	0.4	1.7	2.3	0.7
Other Traffic Contribution	3.0 ppm	1.6	1.9	15.8	6.9	—
Total	10.2 ppm	8.5	8.7	23.9	15.6	7.1
Maximum 8-Hour (CO-8)††						
Background	2.1 ppm	2.1	2.1	2.1	2.1	2.1
Metro Traffic Contribution	0.1 ppm	0.1	0.2	0.2	0.3	0.1
Other Traffic Contribution	1.5 ppm	0.7	0.6	5.9	4.1	—
Total	3.7 ppm	2.9	2.9	8.2	6.5	2.2

†National/State Ambient Air Quality Standard: 35.0 ppm

††National/State Ambient Air Quality Standard: 9.0 ppm

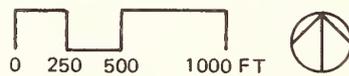
*Exceeds National/State Ambient Air Quality Standard



▲ see TABLE 4.3

AIR QUALITY RECEPTOR SITES NEAR ALIGNMENTS

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



Projected 1988 CO levels at six receptor sites in the study area are presented in Table 4.3.³⁰ S-Curve station-oriented traffic will not create any violation for the CO-1 or CO-8 national/state ambient air quality standards at receptor sites. The receptor sites were placed at those locations where the impact would be the most severe.

No noticeable change in air quality is expected as a result of the proposed fan shaft location west of LaSalle Road.

The local Air Pollution Control Agency, the Washington Council of Governments (WashCOG), has determined that the planning and design of the West Hyattsville Station is compatible with existing air quality planning and management. The project has been included in annual elements of the Transportation Improvement Program (TIP) for the National Capital Region which have been found to be in conformance with Maryland's State Implementation Plan (SIP). Once construction funds are allocated, the project itself will be included in the TIP for that year and evaluated for conformity with the SIP along with all other projects included in the TIP.³¹

³⁰Environmental Research and Technology, Inc. "Amendment to Air Quality Assessment for the Proposed West Hyattsville Station: Metro Transit Route Segment E005." June 1981.

³¹Bailey, K. Washington Council of Government's Department of Environmental Programs. Letter to WRT. November 15, 1982.

4.1.10 PARKLAND DISRUPTION

1. ARS Alignment

The West Hyattsville Segment of the ARS Alignment passes through four public parks, all of which are owned and operated by the M-NCPPC (Maryland-National Capital Parks and Planning Commission). These parks, identified on Figure 4.13, are:

1. Northwest Branch Stream Valley Park;
2. Chillum Community Park;
3. Kirkwood Neighborhood Park; and
4. Heurich Community Park.

The impacts for each of these parks are discussed below.

Northwest Branch Stream Valley Park

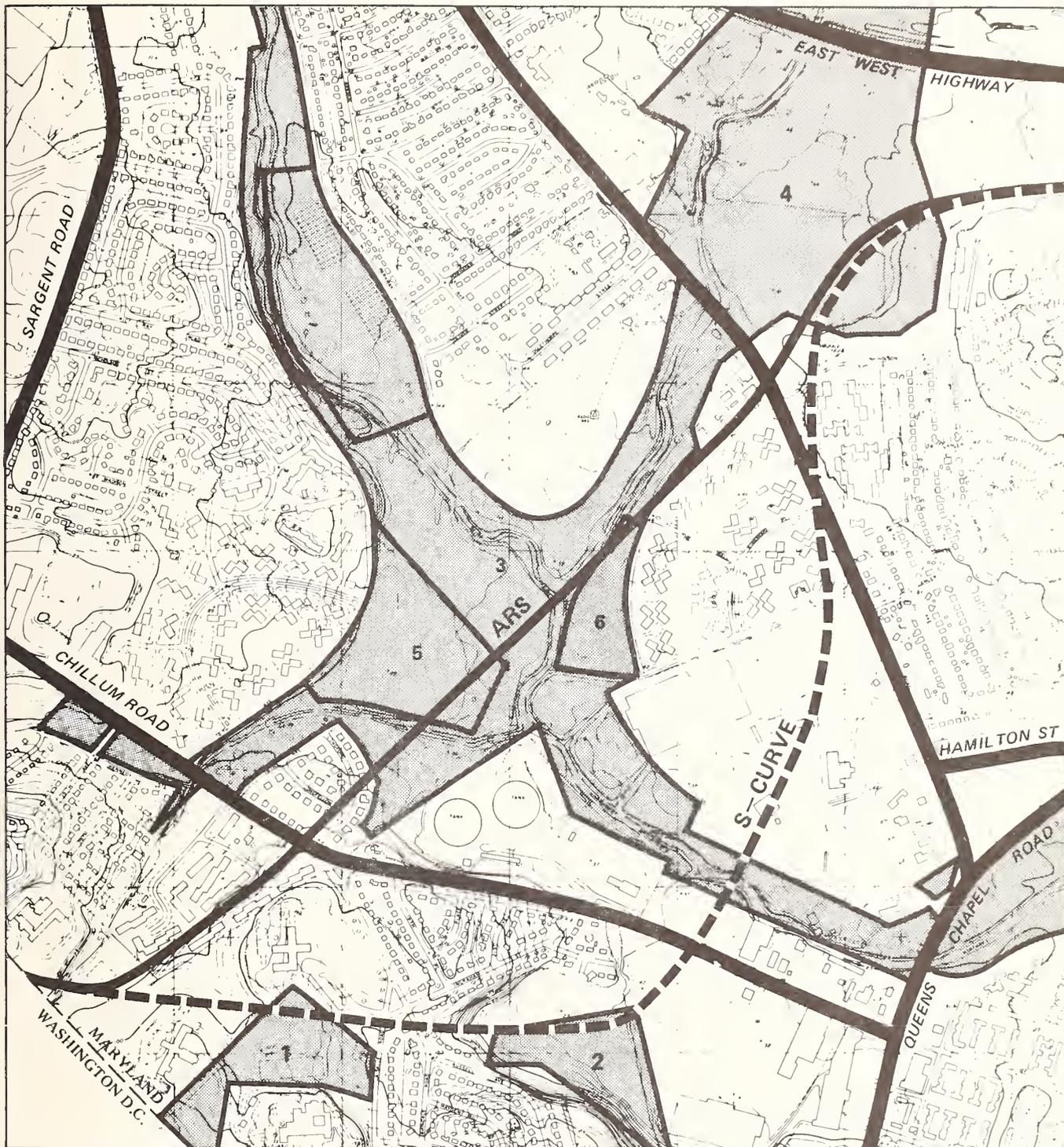
Approximately 900 feet of the ARS Alignment passes through Northwest Branch Park. The alignment enters the park approximately 700 feet northeast of the Chillum Station, crosses over Sligo Creek, exits to pass through Chillum Community Park, re-enters Northwest Branch Park, crosses Northwest Branch, and then exits into Kirkwood Neighborhood Park. Construction would be in at-grade section. Approximately 3.2 acres of parkland would be directly affected.

Construction access to the Metro right-of-way would require disturbance to a 150-foot wide strip of vegetation along the alignment. This would affect approximately 1.2 acres of deciduous upland forest (oak-hickory association), 0.2 acres of deciduous lowland forest (sycamore-box elder-sweetgum association), and 1.8 acres of open field vegetation.

Clearing would be required to permit movement of construction vehicles and at-grade construction. Associated disturbance to the ground surface would increase erosion hazard. Because of proximity to both Sligo Creek and Northwest Branch, erosion and stormwater control measures would be required to avoid increased sedimentation of both streams. No construction activity would occur in the stream channel. Construction vehicles would increase local noise and airborne dust levels.

At-grade construction would result in a permanent pedestrian barrier through the park. Permanent floodplain encroachment would include approximately 550 linear feet of at-grade right-of-way berm, generally 100 feet in width. Metro facilities would be partially hidden from view by adjacent vegetation during the late spring and summer months; a 100-

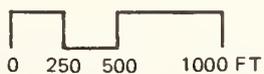
FIGURE 4.13



- 1 AVONDALE NEIGHBORHOOD PARK
- 2 CHILLUM ROAD NEIGHBORHOOD PARK
- 3 NORTHWEST BRANCH STREAM VALLEY PARK
- 4 HEURICH COMMUNITY PARK
- 5 CHILLUM COMMUNITY PARK
- 6 KIRKWOOD NEIGHBORHOOD PARK

PARKLAND AFFECTED BY ALIGNMENTS

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



foot portion of the alignment in an unforested area at the western edge of the park would be visible year round. Passby noise from Metro operations would intermittently increase noise levels.

Chillum Community Park

The ARS Alignment passes through Chillum Community Park for approximately 600 feet. The alignment passes through the southern portion of the park between an outer softball field and the wooded area along the southern park boundary. Construction would be in at-grade section. Approximately 1.7 acres of parkland would be used. Construction access to the Metro right-of-way would require disturbance to approximately 0.3 acres of upland forest (oak-hickory association). Approximately 450 feet of the alignment would pass through parkland now maintained as open field vegetation. Clearing would be required to permit movement of construction vehicles. Associated disturbance to the ground surface would increase erosion hazard. Because of proximity to Sligo Creek, erosion and stormwater control measures would be required.

At-grade construction would create a permanent pedestrian barrier, blocking access from Chillum Community Park to portions of Northwest Branch Stream Valley Park. Permanent floodplain encroachment would include approximately 600 linear feet of at grade right-of-way berm generally 100 feet in width. Metro facilities would be visible from 16th Avenue and most of the park's active recreation facilities. Metro passby noise would be audible primarily to users of the three softball fields.

Kirkwood Neighborhood Park

Approximately 600 feet of the ARS Alignment passes through Kirkwood Neighborhood Park. The alignment enters the park from Northwest Branch Stream Valley Park and exits into the Kirkwood Apartment complex. Construction would be in at-grade section, cutting diagonally through the center of the park property. Approximately 2.0 acres of parkland would be used.

Construction access to the Metro right-of-way would require disturbance to approximately 1.4 acres of lowland vegetation (sycamore-box elder-sweetgum association) and 0.6 acres of open field vegetation. Clearing would be required to permit movement of construction vehicles. Associated disturbance to the ground surface would increase erosion hazard. Because of proximity to Northwest Branch, erosion

and stormwater control measures would be required. During construction, park use would be disrupted by construction equipment. Safety precautions would disrupt park circulation, severing the park area.

Circulation within the park would be severed, separating the softball field from other park facilities; the playground equipment, basketball court, picnic area, horseshoe pits, and portions of the proposed hiker/biker trail would be rendered inaccessible to park and trail users from the southeast. Permanent floodplain encroachment would include approximately 600 linear feet of at-grade right-of-way berm, generally 100 feet in width. Metro facilities would be visible to most park users and from Nicholson Road and the Kirkwood Apartments. Metro passby noise would be audible to park users.

Heurich Community Park

Approximately 960 feet of the ARS Alignment passes through Heurich Community Park. The alignment enters the park from Ager Road and exits into an undeveloped area north of Nicholson Road. Construction would be in aerial section. Approximately 2.2 acres of parkland would be used.

Construction access to the Metro right-of-way would require partial disturbance to a 100-foot wide strip of vegetation along the alignment. This would affect approximately 1.1 acres of deciduous terrace vegetation, and 1.1 acres of deciduous upland vegetation (oak-hickory association). Clearing would be required to permit movement of construction vehicles; total clearing would not be required due to aerial design of the alignment. Associated disturbance to the ground surface would increase erosion hazard.

Permanent floodplain encroachment would include aerial support structures along approximately 650 feet of the alignment. Metro facilities and operations would generally be hidden from view by vegetation; the alignment would be visible where it passes the edge of the park's most southern softball field. Metro passby noise would be audible primarily to users of the softball fields.

2. S-Curve Alignment

a. Impacts

The West Hyattsville Segment of the S-Curve Alignment passes through four public parks, all of which are owned and operated by M-NCPPC (Figure 4.13):

1. Avondale Neighborhood Park;
2. Chillum Road Community Park;
3. Northwest Branch Stream Valley Park; and
4. Heurich Community Park.

The impacts for each of these parks are discussed below.

Avondale Neighborhood Park

Approximately 300 feet of the proposed S-Curve Alignment will intersect the northern corner of Avondale Neighborhood Park in cut-and-cover construction. When constructed the alignment will be 25 feet beneath the park's ground surface in a double box structure.

The impact corridor of the alignment includes approximately 1.4 acres of parkland, half of which is wooded and half of which is open. A portion of the parking area is located within the impact corridor, but is 60 feet from the alignment at its nearest point.

The only long-term effect upon the park associated with the alignment will result from the removal of mature trees during construction. The removal of this vegetation will affect the degree to which the park is visually and acoustically screened from adjacent land uses.

During the construction period, the use of the parking area and vehicular access to the park may be disrupted. Pedestrian access to all park facilities except the softball field, which will probably need to be closed temporarily, can be maintained throughout the construction period. Local noise and dust levels, particularly during removal of spoil material from the construction site, and the hazard of erosion will be temporarily increased during construction.

Chillum Road Neighborhood Park

Approximately 800 feet of the proposed S-Curve Alignment will intersect the northern portion of Chillum Road Neighborhood Park. The alignment emerges from a portal 200 feet west of Chillum Road Neighborhood Park, enters the park's northwest corner on retained fill and after 100 feet curves northeast on aerial structure to the park's northeast corner. The bottom of the aerial structure is between 10 and 20 feet above grade within the park.

The impact corridor of the alignment includes approximately 2.9 acres of parkland, most of which is wooded. Construc-

tion access to this corridor may require clearing a strip of vegetation 100 feet wide through the park. Long term effects of the proposed alignment upon the park will include the removal of mature trees, visual and acoustical encroachment and the physical encroachment of the aerial structure upon future ballfield sites within the park.

During the construction period, local noise and dust levels, particularly during grading from the retained fill section, and the hazard of erosion, will temporarily be increased.

Northwest Branch Stream Valley Park

The proposed alignment intersects the Northwest Branch Stream Valley Park approximately 1,100 feet west of Queens Chapel Road. The alignment enters the park behind the Texaco service station on Chillum Road, proceeds through the park in aerial structure across the Northwest Branch, and leaves the park into the drive-in movie theater site, which is proposed as the location for the West Hyattsville Station. The total length of the proposed alignment through the park is 300 feet. The height of the bottom of the structure will be approximately 10 feet above ground level on the south bank of the Northwest Branch and approximately 15 feet above ground level on the north bank.

The impact corridor of the alignment includes approximately 1.0 acres of parkland. The alignment would enter the park through an existing opening in the wooded area along the south bank, and would cross the north bank in a predominantly open area.

Long term effects of the proposed alignment upon the park will include visual and acoustical encroachment, and physical encroachment of the aerial structure across a proposed trail. During construction, some clearing of vegetation could be necessary, and use of the existing footpath could be disrupted. Local noise and dust levels and the hazard of erosion could also be increased during construction of the alignment and nearby station facility.

Heurich Community Park

Approximately 900 feet of the proposed alignment will intersect Heurich Community Park. Emerging from a portal approximately 100 feet south of the park boundary, and entering the park in retained cut, the alignment curves east below grade for 300 feet before approaching grade. Permanent floodplain encroachment will result from the retaining wall around this

cut and a strip of fill approximately 300 feet long required for the alignment to be at grade. Near Prince George's Tower, the at-grade alignment is in retained cut on the southeast side of the alignment. Existing pedestrian access to the park from Queens Chapel will be replaced.

The impact corridor of the alignment includes approximately 2.0 acres, nearly all of which is wooded (sycamore-box elder-sweetgum association). The removal of vegetation in this corridor will affect the degree to which the park facilities are visually and acoustically screened from adjacent land uses.

Long-term effects of the proposed alignment upon the park will include visual and acoustical encroachment. During construction, the use of the baseball field and pedestrian access to the other park facilities from the southeast may be disrupted. Pedestrian access to all park facilities except the baseball field can be maintained throughout the construction period from the parking area and Ager Road. Local noise and dust levels, particularly during removal of spoil material from the construction site, and the hazard of erosion will be temporarily increased during construction.

b. Mitigation

Section 4(f) of the Department of Transportation Act of 1966 declares that it is a national policy to make a special effort to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and any historic sites. Section 4(f) permits the Secretary of Transportation to approve a project requiring the use of such lands of national, state, or local significance only where it is shown that:

1. There is no feasible and prudent alternative to the use of such land; and
2. Such project includes all possible planning to minimize harm to the Section 4(f) land resulting from such use.

A Section 4(f) evaluation for the four parks used by the S-Curve Alignment has been included in Chapter 5 of this document. The Section 4(f) evaluation describes planning to minimize harm to these lands.

4.1.11 SURFACE WATER QUALITY DEGRADATION

1. ARS Alignment

The ARS Alignment would have severe hydrologic impacts. The alignment requires two at-grade crossings of an unnamed tributary of Northwest Branch and one at-grade crossing and channel relocation of the Northwest Branch itself. Construction associated with these crossings would be likely to disrupt stream flow, encroach on the floodplain, and create sedimentation and erosion problems resulting in water quality degradation and the destruction of aquatic habitats.

These three crossings would require COE (U.S. Army Corps of Engineers) Section 404 Permit review and MWRA (Maryland Water Resources Administration) Waterway Construction Permit and MWRA Sedimentation/Erosion Control Permit reviews.

2. S-Curve Alignment

a. Impacts

The S-Curve Alignment requires two stream crossings but will not have a significant short or long-term effect on surface water quality. The Northwest Branch is crossed on aerial structure, and an unnamed tributary of Northwest Branch is crossed on fill. The COE has regulatory authority for both of these waterways under Section 404 of the Clean Water Act.

The COE has determined that the proposed crossing of Northwest Branch will not require COE authorization inasmuch as it does not involve construction or placement of dredged or fill material in the waterway.³²

The COE has determined that the proposed crossing of the unnamed tributary of Northwest Branch is a "minor road crossing fill," authorized under the provisions of a Department of the Army Nationwide Permit.³³ The S-Curve Alignment will cross an 80-foot section of the waterway near the District of Columbia boundary at Station Point 389. Since the alignment is at grade, the section of the waterway needs to be placed in a culvert and the stream channel filled.

^{32,33}Roeseke, D.W., U.S. Department of the Army, Corps of Engineers, Baltimore District, Regulatory Functions Branch. Letter to WRT. July 24, 1981.

The culvert is proposed to be a 10x20-foot concrete box. The work will adhere to conditions, which must be satisfied for the purposes of Section 404 of the Clean Water Act, and management practices required by the COE. These requirements are listed below.

State and local approvals will be obtained before work is started near these two waterways. Both MWRA Waterway Construction Permit and MWRA Sedimentation/Erosion Control Permit reviews will be required.

b. Mitigation

In crossing the unnamed tributary of the Northwest Branch, WMATA will adhere to the following general conditions required by the COE.

1. That the discharge will not be located in the proximity of a public water supply intake.
2. That the discharge will not occur in areas of concentrated shellfish production.
3. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.
4. That the discharge will not disrupt the movement of those species of aquatic life indigenous to the waterbody.
5. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities.
6. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution.
7. That the discharge will not occur in a component of the National Wild and Scenic River System or in a component of a State Wild and Scenic River System.

In crossing the unnamed tributary of the Northwest Branch, WMATA will also adhere to the following general management practices required by the COE.

1. Discharge of dredged or fill material into waters of the United States should be avoided or minimized through the use of other practical alternatives.

2. Discharges in spawning areas during spawning seasons should be avoided.
3. Discharges should not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the waters (unless the primary purpose of the fill is to impound waters).
4. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow, should be minimized.
5. Discharges in wetlands areas should be avoided.
6. Heavy equipment working in wetlands should be placed on mats.
7. Discharges into breeding and nesting areas for migratory waterfowl should be avoided.
8. All temporary fills should be removed in their entirety.

4.2 SHORT-TERM IMPACTS

4.2.1 REGIONAL INCONVENIENCES

1. ARS Alignment

The construction of the ARS Alignment would occasionally result in periods of traffic congestion. No arterial streets would be closed at any time, however, to avoid detouring traffic through residential streets.

Temporary rerouting of traffic around construction activity may be necessary at Ager Road, where the alignment's aerial structure would be constructed and at Chillum Road, where a vehicular overpass would be constructed. Decking would be used to maintain traffic movement in the direction of the main flow during peak periods where the alignment would be constructed under an existing road surface.

2. S-Curve Alignment

The construction of the S-Curve Alignment will also occasionally result in periods of traffic congestion. No arterial streets will be closed at any time, however, to avoid detouring traffic through residential streets.

Temporary rerouting of traffic and construction activity may be necessary at LaSalle Road, Russell Avenue and Ager Road while cut-and-cover construction is underway. Decking would be used to maintain traffic movement in the direction of the main flow during peak periods where the alignment is constructed under existing road surfaces.

Temporary rerouting of traffic around construction activity may also be necessary at Chillum Road while the aerial structure is being constructed.

4.2.2 LOCAL INCONVENIENCES

1. ARS Alignment

The construction of the ARS Alignment might require the closing of some local park facilities and residential streets for short periods of time. Other inconveniences, such as noise and dust, are commonly encountered near construction sites while work is in progress.

Residents of Michigan Park Hills, Avondale Terrace, the Kirkwood Village Apartments, the Queens Chapel Apartments and Prince George's Tower would become susceptible to these inconveniences during a period of two and one-half years if the ARS Alignment were constructed.

2. S-Curve Alignment

a. Impacts

The construction of the S-Curve Alignment might also require the closing of some local park facilities and residential streets for short periods of time. Other inconveniences, such as noise and dust, are commonly encountered near construction sites while work is in progress.

Residents of Avondale, Avondale Terrace, the Kirkwood Village Apartments, the Queens Chapel Apartments and Prince George's Tower will become susceptible to these inconveniences during a period of two and one-half years while the S-Curve Alignment is constructed. A general discussion of measures used by WMATA to mitigate construction impacts is included below.

b. Mitigation

General Safety

Activities required for construction of the West Hyattsville Segment will result in localized traffic congestion, restriction of vehicle and pedestrian access, and other short-term conditions more hazardous than under existing conditions. To assure the utmost safety of persons utilizing facilities adjacent to the construction corridor, precautions will be taken during the construction phase as required by the "WMATA Safety Provisions".

Safety measures will generally include underpinning of structures and buildings, installation of street decking and fencing for pedestrian safety and traffic flow, rerouting of traffic where required, mitigation of noise, and dust control. Responsibility for safety measures lies with the contractor in accordance with requirements established by the WMATA section designer and the "WMATA Manual of Design Criteria", which generally require the following:

1. The contractor must adhere to rules, regulations and provisions of the local, County and State political subdivision, Metro and the Department of Labor, Occupational Safety and Health Administration;

2. A full-time Safety Superintendent shall be employed to administer regulations and supervise the persons working and the affected property;
3. At least two first-aid stations and a certified first-aid attendant shall be available at the work site during working periods;
4. The contractor shall erect and maintain fences, signs, barricades and pedestrian bridges, and provide a watchman to protect pedestrians, motorists, and adjacent property owners. Storage and work areas shall be inaccessible to children, animals and unauthorized adults;
5. The contractor shall furnish fences to fence off pedestrian sidewalks, and to enclose parking and work areas. Fences must be sound, neat, at least six feet high, and consist of specified materials. Permanent fences are to be left in first class condition;
6. Barricades are to be used to close off all openings not in regular use. Barricades must be substantial, neat, and of specified materials and size;
7. Pedestrian bridges shall be constructed of suitable materials with handrails and not less than six feet wide;
8. Watchmen shall be provided to safeguard the construction work site; and
9. The contractor shall assure the safety and integrity of all excavations and structures until completion and acceptance of the work. He shall utilize appropriate equipment and safety provisions at all times.

Accessibility to Jobs, Services, and Institutions

Provisions of the Master Agreement between WMATA and Prince George's County include those intended to reduce impacts on pedestrian and vehicular traffic as well as access to properties in areas of Metro construction. Specific land and street closures and impact areas to which these provisions apply have been detailed previously in this section as short-term impacts.

To maintain traffic flows on arterial streets, Metro construction will not be permitted during peak hours on arterial streets. Such construction will, however, be permitted in the case of an emergency, or when authorized by special permits issued by the Prince George's County Department of Public Works and Transportation, or when performed in tunnel or under street decking.

In all cases where excavation is required, street decking must be installed so that a planned number of lanes will be operative at all work stages. Construction and maintenance of pavement and patches must permit safe and continuous flow of pedestrian and vehicular traffic.

At all times during Metro construction, the WMATA contractor will be required to give special consideration to providing access to business establishments for pedestrians, deliveries, and fire fighting equipment. Access to properties and buildings will be maintained with temporary walkways at least six feet in width.

For all street closings required during Metro construction, the WMATA contractor will be subject to special County restrictions regarding signs, pavement markings, barricades, and scheduling of closings. In general, the WMATA contractor must provide the public one week advance notice of a street closing. Partial closing of arterial cross streets will be permitted only during non-peak hours and overnight traffic hours. When possible, streets will be closed only during weekends, from 6 p.m. Friday to 5 a.m. Monday.

Utilities

Provisions for the disturbance and relocation of public utilities affected by Metro construction are included in the "Master Agreement Between the WSSC (Washington Suburban Sanitary Commission) and the Washington Metropolitan Area Transit Authority". This sets forth conditions for maintaining utilities of the WSSC, including storm and wastewater sewer systems.

WMATA is required to maintain all facilities "complete in service" at the Authority's expense. All modifications to facilities or relocations will be executed in accordance with specified design criteria at the Authority's expense. Any modifications to facilities, resulting in an increase in capacity, shall be approved and financed by the WSSC.

4.3 UNAVOIDABLE ADVERSE IMPACTS

Long-term impacts of the construction and operation of the West Hyattsville Segment of the Green Line must be balanced against the benefits of the completion of the Metro system.

Construction of a Metro system to serve the Washington Metropolitan Area will greatly increase accessibility within the region, thereby increasing land values, employment opportunities, labor pool availability, and mobility within the region for those who do not or cannot drive. Metro will decrease dependency upon the automobile for travel between the central portion of the District and the outlying areas of the region. All of these effects can be characterized as enhancements of regional economic vitality, with accompanying social benefits. Environmental benefits will include improved air quality, reduced noise, and more efficient use of energy.

More specifically, major beneficial effects of the proposed system will include the following:

1. Regional rapid-rail transit service would become available to the West Hyattsville area, increasing the mobility of young, old and handicapped residents and reducing travel times and costs.
2. The number of motor vehicle miles traveled in the area would be decreased, increasing air and water quality and decreasing traffic congestion.
3. Reliance upon the direct use of petroleum based fuel for transportation would be lessened because Metro offers opportunities for using other energy sources.
4. The economy of the area within the station's service area would be stimulated as a result of improved accessibility to jobs and services.

The Metro system will both encourage and allow implementation of the wedges and corridors concept for future development in the region. Without such a system, this concept would be virtually impossible to implement.

1. ARS Alignment

Unavoidable adverse impacts of the ARS Alignment, which have already been discussed and are therefore, only summarized here, would include the following:

1. The displacement of 515 residential units and 2 businesses;
2. Separation of the Michigan Park Hills and Chillum Heights neighborhoods from the Avondale Terrace and Avondale neighborhoods;
3. Potential intrusion of commercial and high-density residential uses into low- and medium-residential areas;
4. Disruption of the Northwest Branch Stream Valley Park, Chillum Community Park and Kirkwood Neighborhood Park by the at-grade alignment;
5. Significant encroachment on the Northwest Branch base floodplain between Ager and Queens Chapel Roads;
6. A view of the rail line through residential and natural areas along 7,000 feet of the alignment;
7. A decrease in the level of service at one intersection operating above design capacity;
8. Noise somewhat above acceptable levels in parklands crossed by the alignment;
9. A minor air quality violation for carbon monoxide near the intersection of 16th Avenue and Queens Chapel Road; and
10. Extensive vegetation disturbance along 2,000 linear feet of wooded vegetation, none of which can be revegetated.

In addition, the following local and regional inconveniences would be expected to occur during the 30-month construction period:

1. Occasional traffic congestion near construction sites.
2. Moderate decrease in air quality by pollutants such as dust and carbon monoxide generated by construction activity and vehicular exhausts.
3. Increase in ambient noise levels as a result of construction activities and traffic congestion.

2. S-Curve Alignment

Unavoidable adverse impacts of the S-Curve Alignment, which have already been discussed and are therefore only summarized here, will include the following:

1. The displacement of 90 residential units and 5 businesses;
2. Potential change in use of some low- and medium-density residential areas to commercial and high-density residential;
3. Some long-term disruption of Chillum Road Neighborhood Park, Northwest Branch Stream Valley Park and Heurich Community Park;
4. Encroachment on the Northwest Branch base floodplain;
5. A view of the rail line through residential and natural areas along approximately 4,300 feet of the alignment;
6. A decrease in the level of service at one intersection to Level of Service 'D', unless traffic improvements are made;
7. Vegetation disturbance along 3,100 linear feet of wooded vegetation; and
8. Noise somewhat above acceptable levels in three parklands crossed by the alignment, with a significant impact in one park, unless noise mitigation measures are used.

In addition, the following local and regional inconveniences are expected to occur during the 30-month construction period:

1. Occasional traffic congestion near construction sites;
2. Moderate decrease in air quality by pollutants such as dust and carbon monoxide generated by construction activity and vehicular exhausts;
3. Increase in ambient noise levels as a result of construction activities and traffic congestion; and
4. Temporary disruption of use of local park facilities.

4.4 IRREVERSIBLE AND IRRETRIEVABLE RESOURCE COMMITMENTS

The construction and operation of the Metro system is an expensive and costly undertaking requiring an irretrievable commitment of certain natural and fiscal resources. Major resource commitments will include energy, land, money, construction materials and labor. Impacts of using these resources should, however, be weighed against the benefits accruing to the region and the consequences resulting from taking no action at all.

4.4.1 ENERGY

Energy used during system construction and operation will represent an irretrievable commitment of resources. Energy requirements for construction will include electricity and petroleum products. Demand during this period will be highly variable and dependent upon the schedule, levels of activity and types of construction underway at various times during the construction period.

Since Metro offers opportunities for using energy sources other than petroleum based fuel, Metro operation can reduce reliance upon the direct use of petroleum based fuel for transportation in the Washington metropolitan area.

In 1975, the Metropolitan Washington Council of Governments estimated that 1.2 billion kilowatt-hours (kwh), or 4,200 billion Btu, will be required annually for the operation of the Metro system in 1992.³⁴ During system operation, electrical energy is used for traction as well as for station and maintenance facilities. Electricity requirements for traction will increase as the system is extended and as frequency of service is increased. Fixed electricity requirements for stations and maintenance facilities will remain constant.

³⁴Metropolitan Washington Council of Governments. "Essential Air Quality and Energy Data to Analyze the Local and Regional Impacts of the WMATA Rapid Rail System." June 1975

1. ARS Alignment

Based upon the Metropolitan Washington Council of Governments' estimate for the entire Metro system, the operation of an 8,000 foot segment such as the ARS Alignment would require roughly 18.5 million kwh, or 65 billion Btu, annually. WMATA has estimated that the average daily energy expenditure for train operation along the ARS Alignment would be approximately 15,000 kilowatt-hours (51 million Btu).

2. S-Curve Alignment

The S-Curve Alignment is approximately 20% longer than the ARS Alignment. Therefore, the construction and operation of the S-Curve Alignment may potentially require the use of 20% more energy than the ARS Alignment. The operation of a 10,000 foot segment such as the S-Curve Alignment would require roughly 24.0 million kwh, or 85 billion Btu, annually.

WMATA has estimated that the power consumed for train operation along the S-Curve Alignment will be approximately 20% more than that estimated for the ARS Alignment. Thus, the average daily energy expenditure for train operation along the S-Curve Alignment will be approximately 19,700 kilowatt hours (67 million Btu).

4.4.2 LAND, CAPITAL, CONSTRUCTION MATERIALS AND LABOR

Land is one of the major irretrievable commitments made for the construction of the Metro system. Takings in the West Hyattsville area for the Green Line will occur where the alignment is at grade, in retained cut or on retained fill. Where the alignment is aerial, in cut-and-cover, or in earth tunnel, only a right-of-way easement will be required.

The capital invested in the construction of the Metro system will be irrevocably committed. While the commitment will be large, it is expected that over an extended period the initial investment should generate many times its original amount in expanded employment opportunities, increased mobility for the transit dependent, and user and non-user benefits through savings in both travel, time and money.

Construction materials irretrievably committed by Metro construction will include concrete aggregate, cement, lumber

and steel. Most of these materials will not be obtained locally, although aggregates may be available from small quarries within Prince George's County.

The labor commitment necessary for the construction of the Metro system is not one that would be made elsewhere if it were not made to Metro. A decision is not being made as to whether to use a given labor force to perform one major job or another; the decision is rather whether or not to assemble the labor force necessary to perform the work. Many of the skills needed are skills in which there is substantial or fluctuating unemployment. Such a commitment would therefore be beneficial by causing increased employment of people with these skills.

1. ARS Alignment

The ARS Alignment would require approximately 35.0 acres of land acquisition, 23.5 of which is in private ownership. The projected cost of real estate acquisition, administration, relocation and demolition for the ARS Alignment is \$22,462,000 in July 1984 dollars. July 1984 is when construction on the West Hyattsville Segment is expected to begin.

The ARS Alignment could not be constructed as designed because I-95 has not been built in the West Hyattsville area. The projected cost of constructing the ARS Alignment without I-95 would be \$110,341,000 in September 1985 dollars. September 1985 is the anticipated midpoint of the construction of the West Hyattsville Segment. Construction burdens, including administration, design, supervision, inspection and insurance, generally increase the projected cost of construction by 30%.

Major non-monetary costs of the alignment, previously identified, include residential and commercial displacements, community disruption, secondary development, floodplain encroachment, visual intrusion, vegetation disturbance, traffic congestion, and noise and air quality impacts. The major benefit of the alignment is that it would provide the West Hyattsville area with access to a regional rapid-rail transportation system.

2. S-Curve Alignment

The S-Curve Alignment will require approximately 42.0 acres of land acquisition, 37.0 of which is in private ownership. The projected cost of real estate acquisition, administration, relocation and demolition for the S-Curve Alignment is

\$9,364,000 in July 1984 dollars. July 1984 is when construction on the West Hyattsville Segment is expected to begin.

The projected cost of constructing the S-Curve Alignment is \$101,670,000 in September 1985 dollars. September 1985 is the anticipated midpoint of the construction of the West Hyattsville Segment. Attendant construction burdens, including administration, design, supervision, inspection and insurance, generally increase the cost of construction by 30%.

Major non-monetary costs of the alignment, previously identified, include residential and commercial displacements, community disruption, floodplain encroachment, visual intrusion, vegetation disturbance, and noise impacts. The major benefits of the alignment are that it would provide the West Hyattsville area with access to a regional rail rapid transportation system and would stimulate secondary development consistent with local plans.

The S-Curve Alignment is approximately 20 percent longer than the ARS Alignment. The S-Curve Alignment therefore requires roughly 20 percent more construction materials and labor than the ARS Alignment.

Chapter 5

HISTORIC PROPERTIES AND PARKLANDS ANALYSIS

5.1 SECTION 106 DETERMINATIONS

5.1.1 BACKGROUND

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and Executive Order 11593, "Protection and Enhancement of the Cultural Environment," Federal agencies are required to determine the effects that their actions, and any project receiving federal assistance or approval, may have on historic properties included in, or eligible for inclusion in the "National Register of Historic Places." Measures to minimize harmful effects and to mitigate unavoidable direct or indirect adverse effects may be required if such historic properties are identified within a project impact area. Compliance with these requirements is undertaken in consultation with the ACHP (Advisory Council on Historic Preservation) and the appropriate SHPO (State Historic Preservation Officer).

5.1.2 INVESTIGATIONS TO IDENTIFY HISTORIC PROPERTIES

The first step of the Section 106 process is to identify all properties that may be affected by the proposed project that are included in or eligible for listing in the "National Register of Historic Places."

The National Register was consulted in January 1980. No sites located within 1,000 feet of either the ARS Alignment or the S-Curve Alignment were listed as included or eligible for inclusion.¹

¹Department of the Interior, Heritage Conservation and Recreation Service. "National Register of Historic Places" (Federal Register, Vol. 44, No. 26, February 6 1979), updated by HCRS files. January 1980.

Prior to consultation with the Maryland SHPO concerning other properties potentially eligible for inclusion in the "National Register", two investigations were undertaken.

The first investigation entailed consulting the M-NCPPC (Maryland-National Capital Parks and Planning Commission), which maintains an historic sites inventory in conjunction with the SHPO.² This inventory identifies known properties or sites of national, state or local historical, architectural, archeological or cultural significance which are located within Prince George's County. Inspection of this inventory indicated that no listed properties are located within 1,000 feet of either the ARS Alignment or the S-Curve Alignment.

The second investigation entailed archival research to determine whether any other historically-significant buildings or sites or any known historic or prehistoric archeological sites are located near the two alignments.³ This research was performed in accordance with procedures established by the ACHP (Advisory Council on Historic Preservation) and included consultation with the Maryland State Archeologist and the Maryland Geologic Survey. This archival research confirmed that no historically-significant buildings or sites and no known historic or prehistoric archeological sites are located within 1,000 feet of either alignment.

The archival research did indicate, however, that the floodplain, terraces and immediately adjacent uplands of Sligo Creek and Northwest Branch have a high probability of containing prehistoric archeological sites. It was thought that shallow to deeply buried paleo-land surfaces, dating from the Late Pleistocene to the Late Holocene, and buried natural features such as oxbows, abandoned channels and springs containing micro and macro floral remains dating from these periods could be located in the floodplain area.

²Maryland-National Capital Parks and Planning Commission. "Historic Sites Inventory by Planning Areas for Prince George's County, Maryland." December 1976.

³Thunderbird Research Corporation. "Archeological, Geological and Pedological Archival Investigations of the Proposed Washington Metropolitan Area Transit Authority's Greenbelt Route in Prince George's County, Maryland." April 1980.



Maryland Historical Trust

July 22, 1981

Mr. Vernon K. Garrett, Jr.
 Director, Office of Engineering
 Washington Metropolitan Area Transit Authority
 600 Fifth Street, N.W.
 Washington, D.C. 20001

Re: E Route S-Curve Alignment
 Cultural Resources

Dear Mr. Garrett:

Thank you for submitting the copies of the archeological survey report dealing with the above-referenced route. In general we find the report by Soil Systems, Inc. to be a well-written, professional document suitable for the purposes intended. From the findings it contains, we can concur in the opinion that the S-curve alignment will have no impact on significant archeological remains. As stated in our letter of September 18, 1980, there are also no significant historic structures threatened by this route.

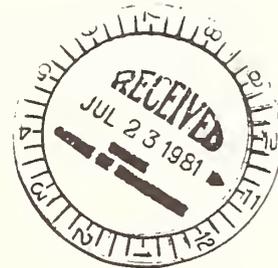
We wish to thank the WMTA and SSI for their cooperation in this effort to protect Maryland's cultural heritage.

Sincerely,

Nancy Miller
 Nancy Miller
 Deputy State Historic
 Preservation Officer

NAM/AHL/mf

cc: Mr. Tyler Bastian
 Ms. Amy Schlagel
 Mrs. Thomas B. Yewell
 Mr. James G. Boss
 Ms. Elizabeth W. Anderson



Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301)269-2212, 269-2438
 Department of Economic and Community Development

LETTER FROM MARYLAND SHPO

GREEN LINE (E ROUTE)
 WEST HYATTSVILLE SEGMENT



If these buried cultural deposits were located in association with key natural environmental features it would have been possible to find highly significant archeological sites. If buried archeological sites were present by themselves or in association with preserved micro and macro environmental data, it is likely that they would have been eligible for the "National Register of Historic Places."

The Maryland SHPO provided WMATA with a letter of concurrence in September 1980 which stated that the proposed route would have no effect on historic structures and agreed that an archeological investigation should be conducted to locate and determine the nature of sites within the impact area.

A third investigation, which included additional archival research and extensive field study, was performed for the S-Curve Alignment area in the spring of 1981. The field study included a walking survey of the complete alignment, auger tests, surface collection and stream bank profiles. The paleo-environmental reconstruction of the study area based on this investigation indicates that the area was poorly drained floodplain marsh, thus greatly reducing the area's potential for prehistoric archeological sites. Furthermore, the archeological survey did not uncover any evidence of prehistoric archeological sites within the S-Curve impact area.⁴

5.1.3 DETERMINATION OF EFFECT

In general, a proposed undertaking is deemed to have an effect if it would cause a change in the quality of a property's characteristics that qualify it for inclusion in the "National Register of Historic Places."

Section 106 consultations and investigations indicate that no property on or eligible for inclusion in the "National Register of Historic Places" will be affected by the construction or operation of the S-Curve Alignment. A letter of concurrence to this effect from the Maryland SHPO is included in this document (Figure 5.1).

⁴Soil Systems, Inc. "Historic and Prehistoric Archaeological Survey of the S-Curve Alignment Metrorail E Route, Prince George's County, Maryland." June 1981.

5.2 SECTION 4(f) STATEMENT

5.2.1 BACKGROUND

Section 4(f) of the Department of Transportation Act of 1966 declares that it is a national policy to make a special effort to preserve the natural beauty of the countryside, public park and recreation lands, wildlife and waterfowl refuges, and any historic sites. Section 4(f) permits the Secretary of Transportation to approve a project requiring the use of such lands of national, state, or local significance only where it is shown that:

1. There is no feasible and prudent alternative to the use of such land; and
2. Such project includes all possible planning to minimize harm to the Section 4(f) land resulting from such use.

This Section 4(f) evaluation contains supporting information required by the Secretary of Transportation to evaluate the S-Curve Alignment's use of Section 4(f) lands. Its purpose is to demonstrate that there is no feasible and prudent alternative to the alignment's use of these lands and that all possible planning to minimize harm to these lands has been included in planning for the alignment.

5.2.2 IMPACTS ON SECTION 4(f) LANDS

Four properties affected by the S-Curve Alignment have been identified which must be considered under Section 4(f).

Historic properties must be considered under Section 4(f) if they are listed in or eligible for inclusion in the "National Register of Historic Places". Section 106 consultations and investigations indicate that no property on or eligible for inclusion in the "National Register" will be affected by the construction or operation of the S-Curve Alignment.

The four properties identified (Figure 5.2) are public parks and recreation lands owned, operated, maintained and policed by the M-NCPPC (Maryland-National Capital Parks and Planning Commission). Impacts on these properties are discussed below.

1. Avondale Neighborhood Park

a. Description and Significance of Property

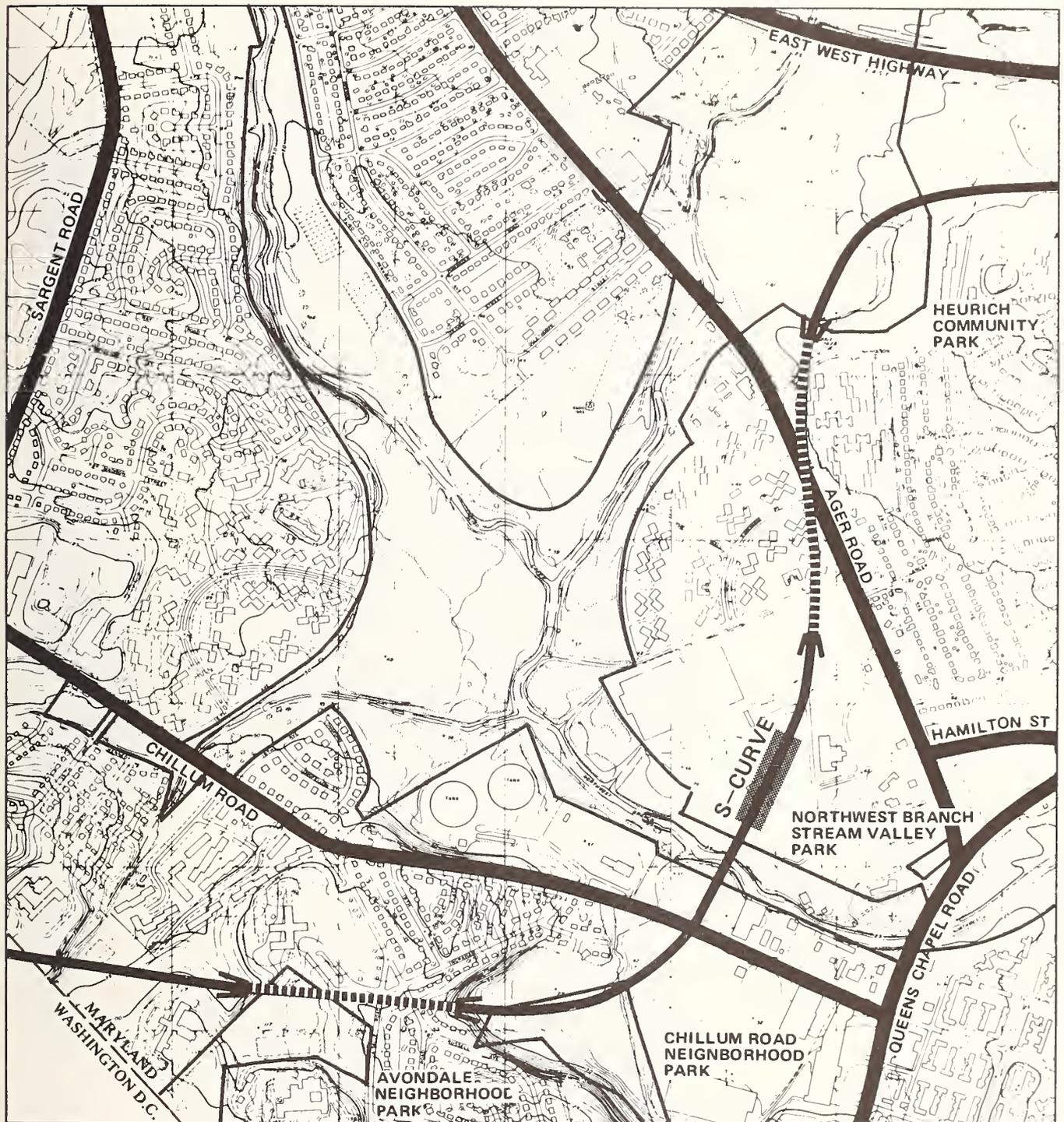
Avondale Neighborhood Park, located at 4910 LaSalle Road in Avondale, includes 11.26 acres of parkland. Park facilities include one volleyball court, one softball field, two tennis courts, two basketball courts, and six handball courts. Recent park improvements include a parking area and vehicular entrance on LaSalle Road (Figure 5.3).

Avondale Neighborhood Park is the only developed Commission park located in Avondale, a densely populated area where there is limited opportunity to provide additional parkland. The Commission's adopted and approved Master Plan for Parks, Recreation and Open Space (PROS) includes a comparative analysis of park and recreation service levels by community. According to the PROS Plan, the Avondale Neighborhood Park serves an area which is in the most needy range for parkland and in the moderate need range for outdoor residential facilities.

b. Proposed Use

Approximately 300 feet of the S-Curve Alignment will intersect the northern corner of Avondale Neighborhood Park in cut-and-cover construction. When constructed, the alignment will be 25 feet beneath the park's ground surface in a double box structure.

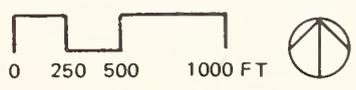
FIGURE 5.2

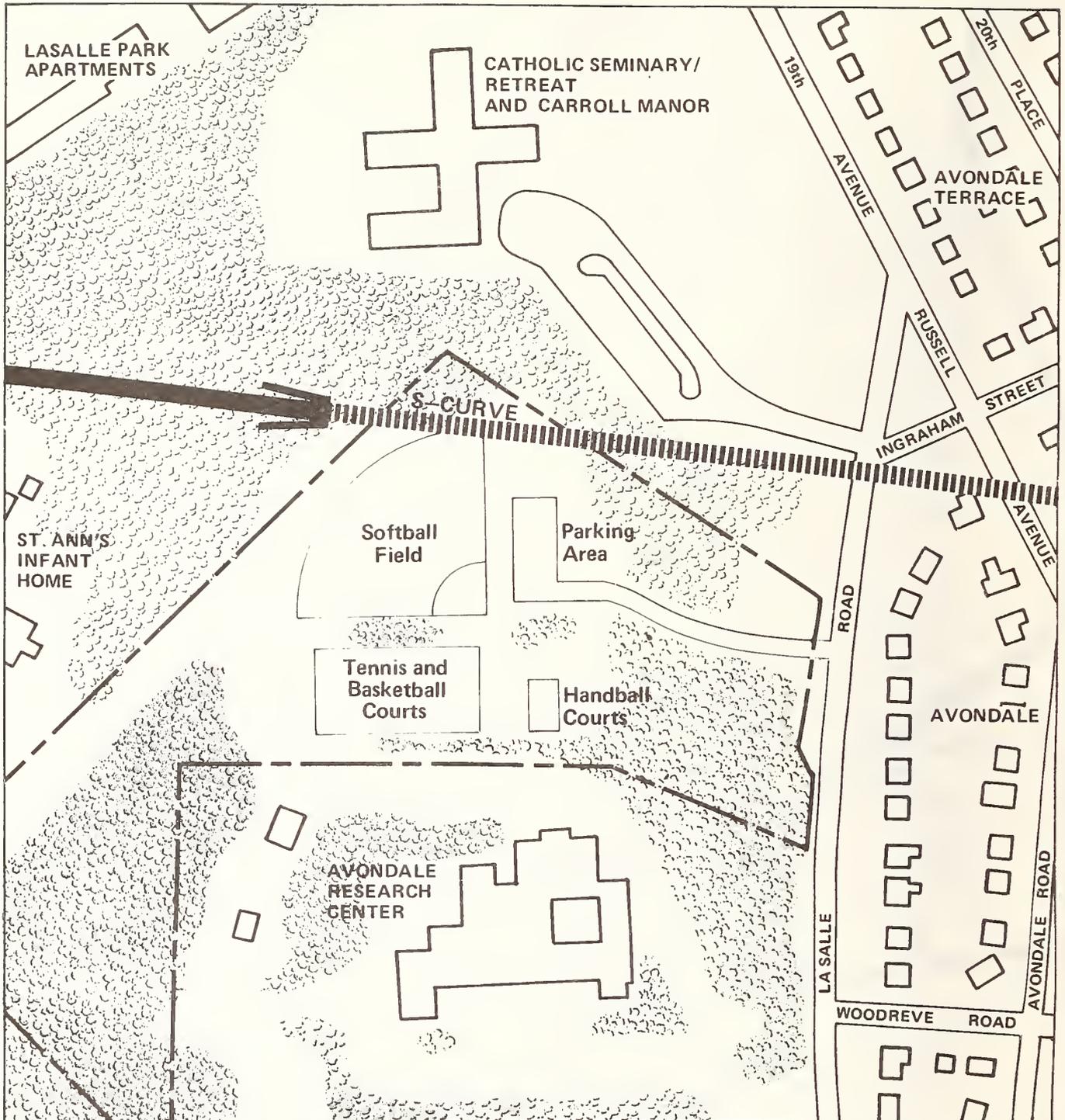


-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL
-  STATION PLATFORM

4 (f) PARKLAND AFFECTED BY THE S-CURVE ALIGNMENT

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**





-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL

AVONDALE PARK FACILITIES, 1981

GREEN LINE (E ROUTE)
WEST HYATTSSVILLE SEGMENT

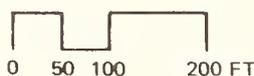


FIGURE 5.4



View northwest from parking area (under construction), with softball outfield in the midground. Proposed portal would be in the wooded area outside of the park and the alignment would enter the park underground.



View north from parking area. Proposed alignment would be underground, intersecting the park in the open area.



View northeast from parking area. Proposed alignment would be underground, intersecting the park in the open area and leaving the park through the wooded area on the right side of the frame.

REPRESENTATIVE VIEWS OF
AVONDALE PARK, 1981

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Assuming that construction impacts will be limited to an area extending 100 feet from both sides of the alignment, approximately 1.4 acres of parkland will be affected. Half of this area is wooded. A portion of the parking area is located in this area 60 feet from the alignment (Figure 5.4).

The construction of the alignment will require the removal of some vegetation, including several mature trees, which visually and acoustically screens the park from adjacent land uses.

During the construction period, the use of the parking area and vehicular access to the park may be disrupted. Pedestrian access to all park facilities except the softball field, which will probably need to be closed temporarily, can be maintained throughout the construction period. Local noise and dust levels, particularly during removal of spoil material from the construction site, will be temporarily increased during construction.

c. Mitigation

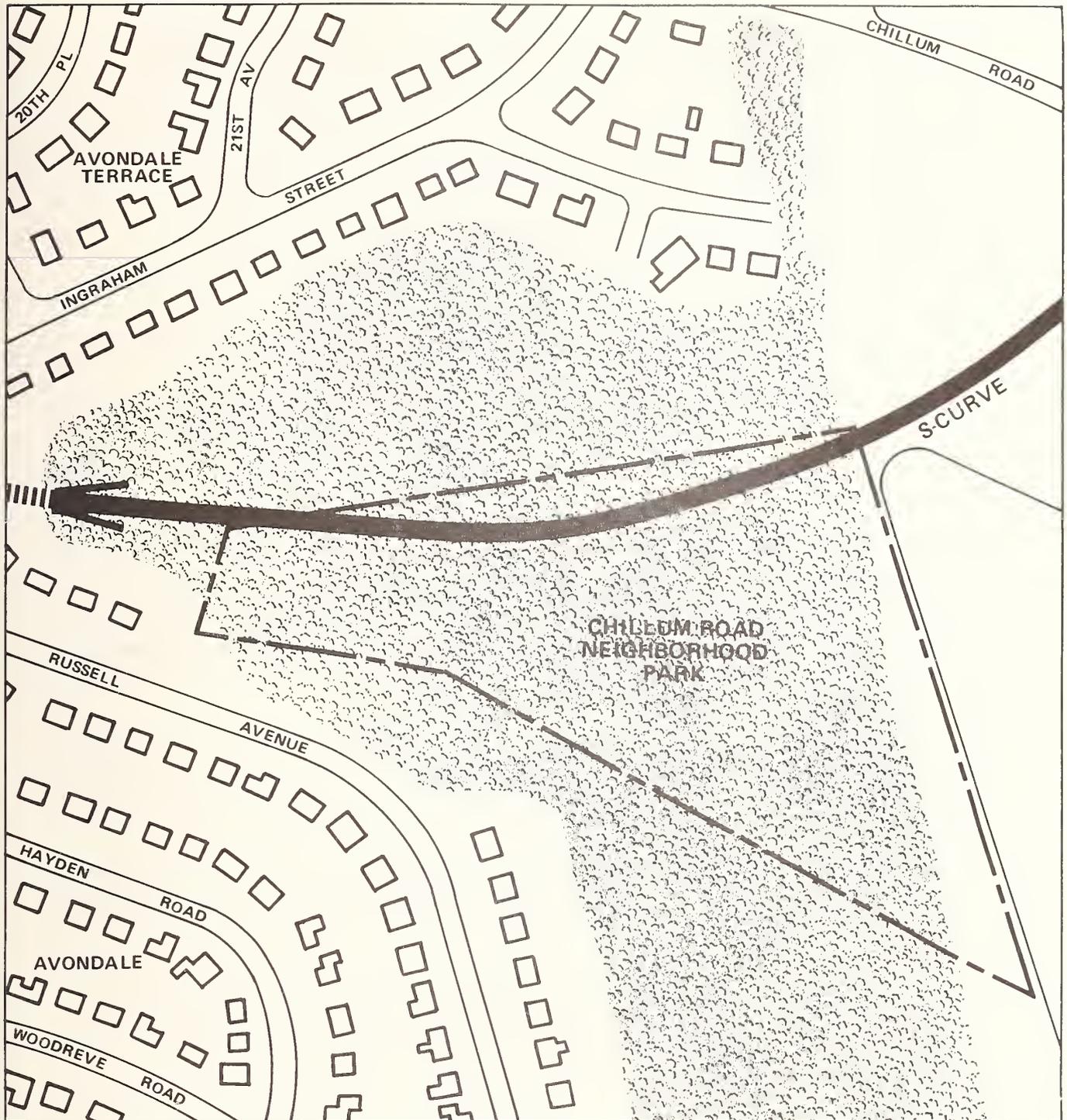
To mitigate impacts of the S-Curve Alignment on Avondale Neighborhood Park, WMATA will:

1. Control erosion during the construction period;
2. Minimize the amount of existing vegetation removed in the park vicinity during the construction period;
3. Maintain pedestrian access to park facilities from Avondale and Avondale Terrace during the construction period;
4. Minimize closing of the softball field during the construction period - it is assumed that the handball, tennis and basketball courts can remain open during the construction period; and
5. Grade and landscape areas within and adjacent to the park which are disturbed during construction to restore the park's aesthetic quality and noise and visual buffers.

2. Chillum Road Neighborhood Park

a. Description and Significance of Property

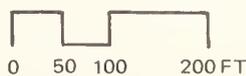
Chillum Road Neighborhood Park is a recent M-NCPPC acquisition consisting of 7.42 acres located between Russell



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL

CHILLUM ROAD PARK FACILITIES, 1981

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Avenue and Ingraham Street. Access to the park from Russell Avenue is via a dedicated but unimproved cul-de-sac, Avondale Place. The park is presently undeveloped (Figure 5.5).

The Chillum Boys and Girls Club has a ten-year lease on the park. The club also leases a parcel on Chillum Road where its ballfields are located. The club's lease on the Chillum Road parcel contains a clause requiring it to vacate the property within 30 days at the owner's discretion. The club has informed M-NCPPC that it intends to construct ballfields in the park to replace those on the other parcel.⁵

This park facility lies within the same PROS Plan Community as the Avondale Neighborhood Park, and has the same level of service. The park's ranking order is also the same, in the most needy range for parkland and in the moderate need range for outdoor recreational facilities.

b. Proposed Use

Approximately 800 feet of the S-Curve Alignment will intersect the northern portion of Chillum Road Neighborhood Park. The alignment emerges from a portal approximately 200 feet west of Chillum Road Neighborhood Park, enters the park's northwest corner on retained fill and after 100 feet curves northeast on aerial structure to the park's northeast corner. The bottom of the aerial structure is between 10 and 20 feet above grade within the park.

Assuming that construction impacts will be limited to an area extending 100 feet from both sides of the alignment, 2.9 acres of parkland will be affected. Most of this area is wooded. It is anticipated that a 100-foot wide strip will need to be cleared. Long-term effects of the alignment upon the park will include the removal of mature trees, visual and acoustical encroachment, and the physical encroachment of the aerial structure upon future ballfield sites within the park.

During the construction period, local noise and dust levels, particularly during grading for the retained fill section, and the hazard of erosion, will temporarily be increased.

⁵Arciprete, R.M., Maryland-National Capital Parks and Planning Commission. Letter to WRT. June 29 1981.

c. Mitigation

To mitigate impacts of the S-Curve Alignment on Chillum Road Neighborhood Park, WMATA will:

1. Control erosion during the construction period;
2. Minimize the amount of existing vegetation removed in the park vicinity during the construction period;
3. Position piers for the aerial structure such that any potential ballfield sites within the park remain intact;
4. Grade and landscape areas within the park which are disturbed during construction to restore the park's aesthetic quality; and
5. Ensure that noise mitigation along the alignment is adequate to keep noise levels resulting from operation of the Metro system within allowable criteria for park use.

3. Northwest Branch Stream Valley Park

a. Description and Significance of Property

Northwest Branch Stream Valley Park is a linear, multi-use park facility consisting of 497.99 acres located in the West Hyattsville area. The park was acquired through the Capper-Cramton Act with federal funds.

Northwest Branch Stream Valley Park between Queens Chapel Road and Ager Road is unimproved and used for passive forms of recreation. A hiker/biker/equestrian trail is proposed along the east bank of the Northwest Branch within the park. This proposed trail will eventually extend from Peace Cross north to the Montgomery County Line and is expected to function as a commuter route to the University of Maryland, recreation, shopping and intercommunity travel, with links to future Metro stops and bus lines.⁶ Presently, an intermittent footpath is located within the park along the north bank of the Northwest Branch.

b. Proposed Use

The alignment intersects the Northwest Branch Stream Valley Park approximately 1,100 feet west of Queens Chapel Road.

⁶Maryland-National Capital Park and Planning Commission.
"Adopted and Approved Countywide Trails Plan for Prince George's County, Maryland." July 1975.

FIGURE 5.6



View east from north bank of Northwest Branch. Proposed alignment would be in aerial structure, intersecting the park in the open area immediately behind the cluster of trees on the right side of the frame and leaving the park into the drive-in theater on the left side of the frame.



View west from north bank of Northwest Branch, with Washington Gas Light Company storage tanks in background. Proposed alignment would be in aerial structure, intersecting the park in the open area in front of the cluster of trees in the center of the frame.



View east of Northwest Branch. Proposed alignment would be in aerial structure across the stream entering the park through the opening on the stream's wooded southern bank, barely visible midway on the right side of the frame.

REPRESENTATIVE VIEWS OF
NORTHWEST BRANCH PARK, 1981

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



The alignment enters the park behind the Texaco service station on Chillum Road, proceeds through the park in aerial structure across the Northwest Branch, and leaves the park into the drive-in movie theater site, which is proposed as the location for the West Hyattsville Station (Figure 5.5). The total length of the alignment through the park is 300 feet. The height of the bottom of the structure will be approximately 10 feet above ground level on the south bank of the Northwest Branch and approximately 15 feet above ground level on the north bank.

Assuming that construction impacts will be limited to an area extending 100 feet from both sides of the alignment, approximately 1.0 acre of parkland will be affected. The alignment enters the park through an existing opening in the wooded area along the south bank and crosses the north bank in a predominantly open area.

Long-term effects of the alignment on the park will include visual and acoustical encroachment, and physical encroachment of the aerial structure across a proposed trail.

During construction, some clearing of vegetation could be necessary, and use of the existing footpath could be disrupted. Local noise and dust levels and the hazard of erosion could also be increased during construction of the alignment and nearby station facility.

c. Mitigation

To mitigate impacts of the S-Curve Alignment on Northwest Branch Stream Valley Park, WMATA will:

1. Control erosion during the construction period;
2. Minimize the amount of existing vegetation removed in the park vicinity during the construction period;
3. Position piers for the aerial structure such that pedestrian circulation along the north bank of the Northwest Branch within the park is not disrupted;
4. Grade and landscape areas within the park which are disturbed during construction to restore the park's aesthetic quality; and

5. Insure that noise mitigation along the alignment is adequate to keep noise levels resulting from operation of the Metro system within allowable criteria for park use.

4. Heurich Community Park

- a. Description and Significance of Property

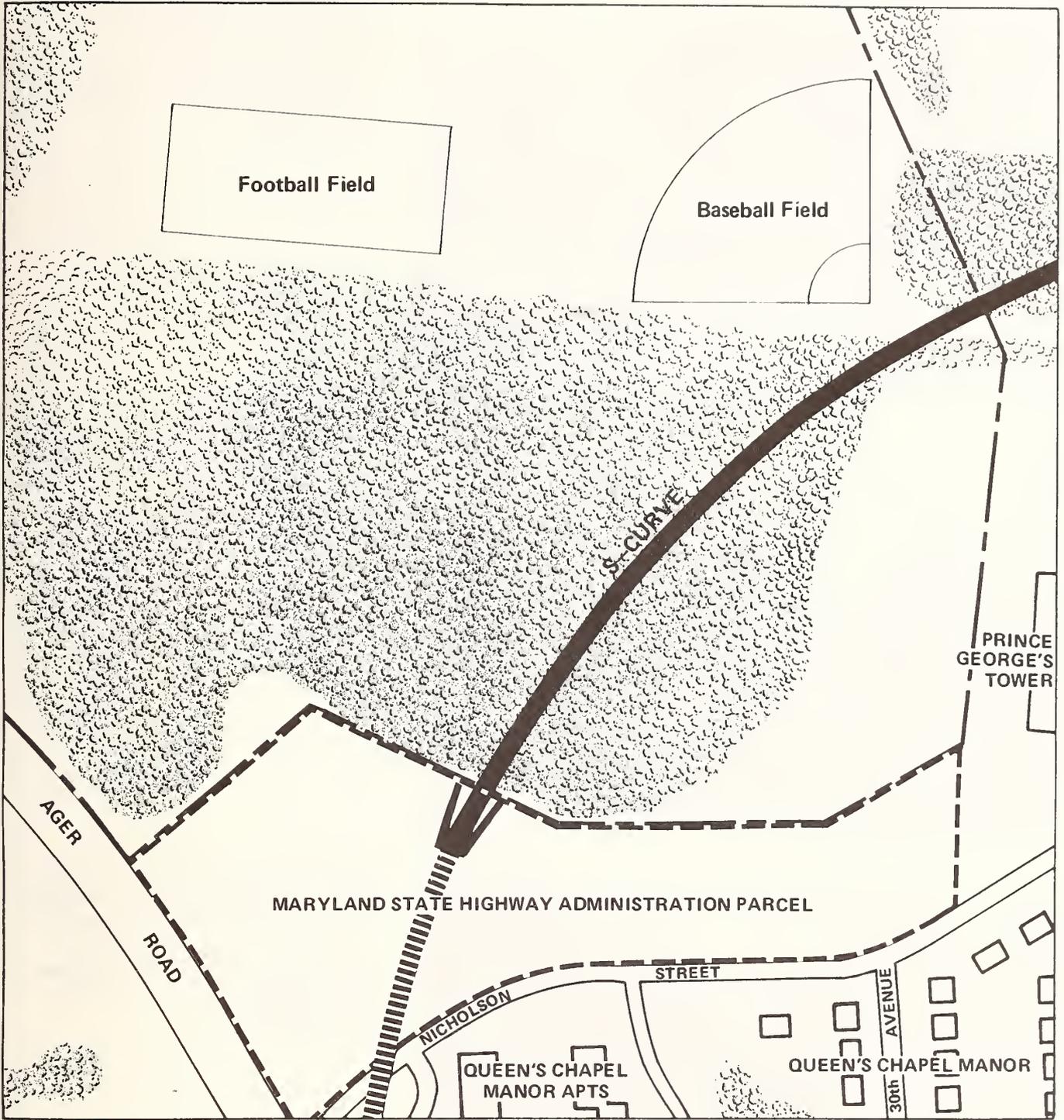
Heurich Community Park is a multi-use facility located at 6001 Ager Road. The park has frontage on two roadways, Ager Road and East-West Highway. The park is within the Northwest Branch Stream Valley Park system, acquired through the Capper-Cramton Act with federal funds. Park facilities include two softball fields, one baseball field and one football field on the east side of Northwest Branch, and a playground, picnic area and parking area on the west side of Northwest Branch (Figure 5.7). The eastern and western portions of the park are connected by a pedestrian bridge over Northwest Branch. Direct pedestrian access to the facilities in the western portion of the park is from the open area west of Prince George's Tower, Toledo Terrace (31st Street) west of Prince George's Tower, and Ager Road.

The park is located in an area with limited availability for park expansion. According to the Commission's PROS Plan, the park serves a community which is in the moderate need range for parkland and in the most needy range for outdoor recreational facilities.

- b. Proposed Use

Approximately 900 feet of the S-Curve Alignment will intersect Heurich Community Park. Emerging from a portal approximately 100 feet south of the park boundary, and entering the park in retained cut, and alignment curves east below grade for 300 feet before approaching grade (Figure 5.8). Permanent floodplain encroachment will result from the retaining wall around this cut and a strip of fill approximately 300 feet long required for the alignment to be at grade. Near Prince George's Tower, the at-grade alignment is in retained cut on the southeast side of the alignment.

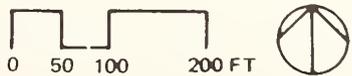
Assuming that construction impacts will be limited to an area extending 100 feet from both sides of the alignment, approximately 2.0 acres of parkland are affected. Most of this area is wooded (sycamore-box elder-sweetgum association). The removal of vegetation in this corridor will affect the degree to which the park facilities are visually and acoustically screened from adjacent land uses.



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL

HEURICH PARK FACILITIES, 1981

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT





View east on Maryland State Highway Administration parcel. Proposed portal would be at edge of wooded area, which is outside of the park, and enter the park in retained cut.



View northwest from open area west of Prince George's Tower. Proposed alignment would be at grade, intersecting the park through the wooded area on the left side, the open area in the center and the wooded area on the right side of the frame.



View southwest from baseball outfield. Proposed alignment would be at grade, intersecting the park through the wooded area on the right side and center of the frame, and leaving the park to the left of the backstop.

**REPRESENTATIVE VIEWS OF
HEURICH PARK, 1981**

**GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT**



Long-term effects of the alignment on the park will include visual and acoustical encroachment. During construction, the use of the baseball field and pedestrian access to the other park facilities from the southeast may be disrupted. Pedestrian access to all park facilities except the baseball field can be maintained throughout the construction period from the parking area and Ager Road. Local noise and dust levels, particularly during removal of spoil material from the construction site, and the hazard of erosion will be temporarily increased during construction.

c. Mitigation

To mitigate impacts of the S-Curve Alignment on Heurich Community Park, WMATA will:

1. Provide replacement land in the Queens Chapel area to compensate for parkland taken by Metro;
2. Control erosion during the construction period;
3. Minimize the amount of existing vegetation removed in the park vicinity during the construction period;
4. Maintain pedestrian access to park facilities from Queens Chapel during the construction period;
5. Minimize closing of the baseball field during the construction period - it is assumed that all other park facilities can remain open during the construction period;
6. Grade and landscape areas within the park which are disturbed during construction to restore the park's aesthetic quality; and
7. Insure that noise mitigation along the alignment is adequate to keep noise levels resulting from operation of the Metro system within allowable criteria for park use.

5.2.3 ALTERNATIVES TO AVOID USE OF SECTION 4(f) LANDS

Alternatives to the S-Curve Alignment have been evaluated to determine if there is a prudent and feasible alternative to the long-term use of 4(f) parkland.

Alternatives evaluated include the No Build Alternative, alternate alignments, horizontal movement of the alignment and vertical movement of the alignment.

1. No Build Alternative

The No Build Alternative would avoid both short- and long-term use of the four parks by terminating the Green Line in the District of Columbia. Metro service on the Green Line could commence at the Fort Totten Station through construction of a double crossover and tail tracks outbound of the station to permit train reversal and storage.

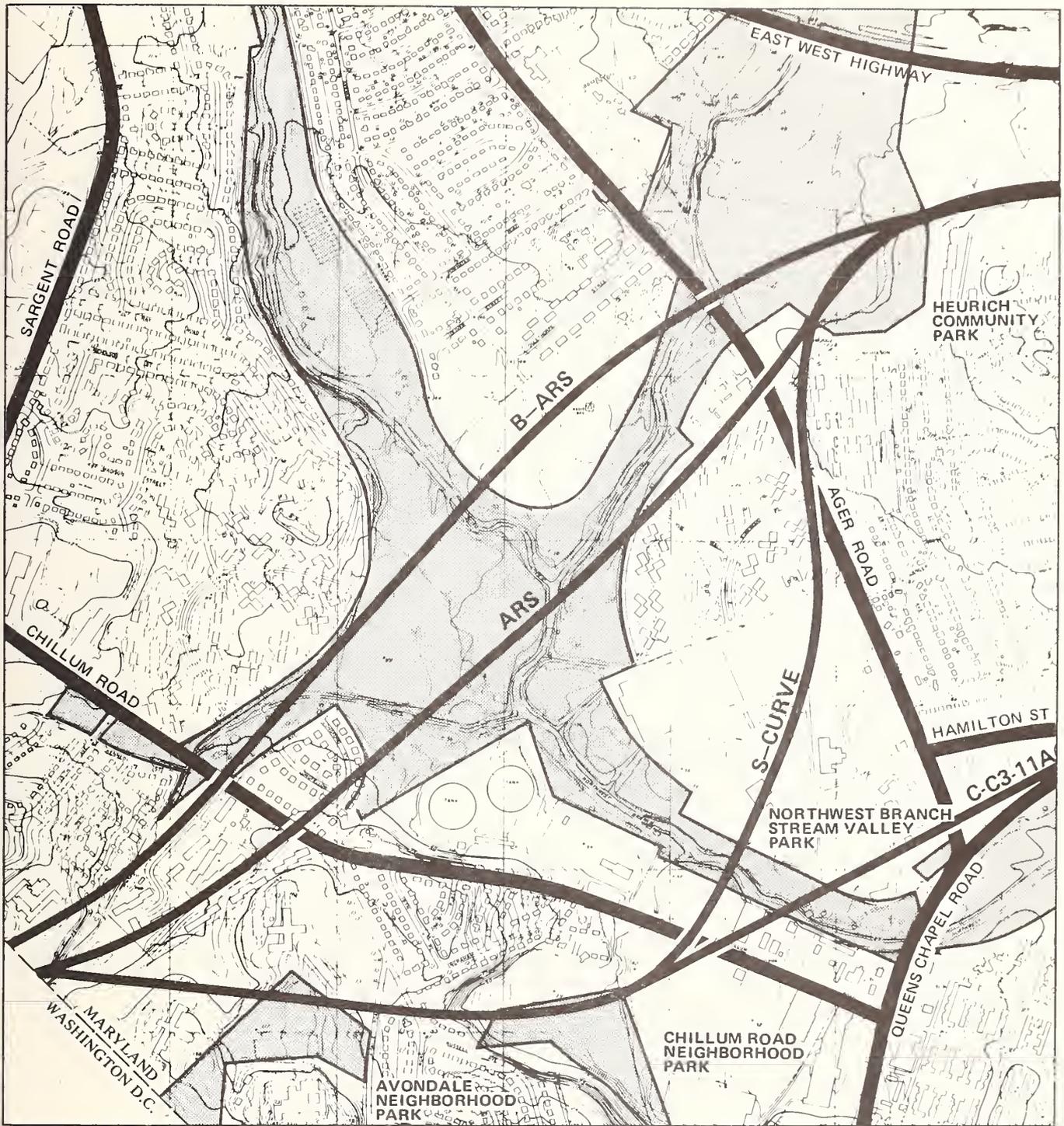
The No Build Alternative is considered less preferable than the proposed extension of the Green Line outbound of Fort Totten into Prince George's County despite long- and short-term impacts which would result from Metro construction and operation. Prince George's County residents within the Green Line's service area generally agree that the line should be built, and both Prince George's County and the Maryland Department of Transportation have recently endorsed plans for the construction of the Green Line between the Fort Totten Station and the Greenbelt Station and yards.^{7,8}

2. Alternate Alignments

The S-Curve Alignment is the preferred alignment between the Fort Totten Station and the Prince George's Plaza Station. Three alternative alignments have been analyzed: the ARS Alignment, the B-ARS Alignment and the C-C3-11A Alignment (Figure 5.9).

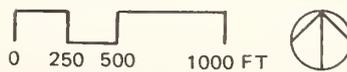
⁷County Council of Prince George's County, Maryland. Minutes of Legislative Day No. 8. March 17, 1981.

⁸O'Donnell, J.J., Maryland DOT. Letter to WMATA. June 3, 1981.



ALTERNATE ALIGNMENTS

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



The ARS Alignment was designed to be in the median strip of I-95, an interstate highway. Plans for I-95 through West Hyattsville were withdrawn in 1974 to provide substitution funds for the Metrorail System. WMATA considered a modified ARS Alignment, but determined that the alignment could not be built without I-95 because of the extraordinary magnitude of the residential displacements which would be required. The B-ARS Alignment, northwest of the ARS, was developed to reduce residential displacements associated with the ARS Alignment. The ARS and the B-ARS Alignments are not prudent alternatives to the S-Curve Alignment because both require substantial use of 4(f) parklands.

The C-C3-11A Alignment was proposed as an alternative to the ARS and B-ARS Alignments. The C-C3-11A Alignment reduced impacts on the Northwest Branch Stream Valley Park and avoided use of Heurich Community Park but positioned the West Hyattsville Station in the floodplain, positioned the Prince George's Plaza Station in an unfavorable position in relation to its service area and would have had impacts on two churches. The major reason that the C-C3-11A Alignment is not a prudent alternative to the S-Curve Alignment is that the increased costs which would result are of extraordinary magnitude. It was estimated in 1976 that the C-C3-11A Alignment would cost \$46.0 million more to construct than the S-Curve Alignment.

The alignments which have been analyzed follow the only feasible routes through the West Hyattsville Area. Other alignments which might be proposed would require substantial community disruption.

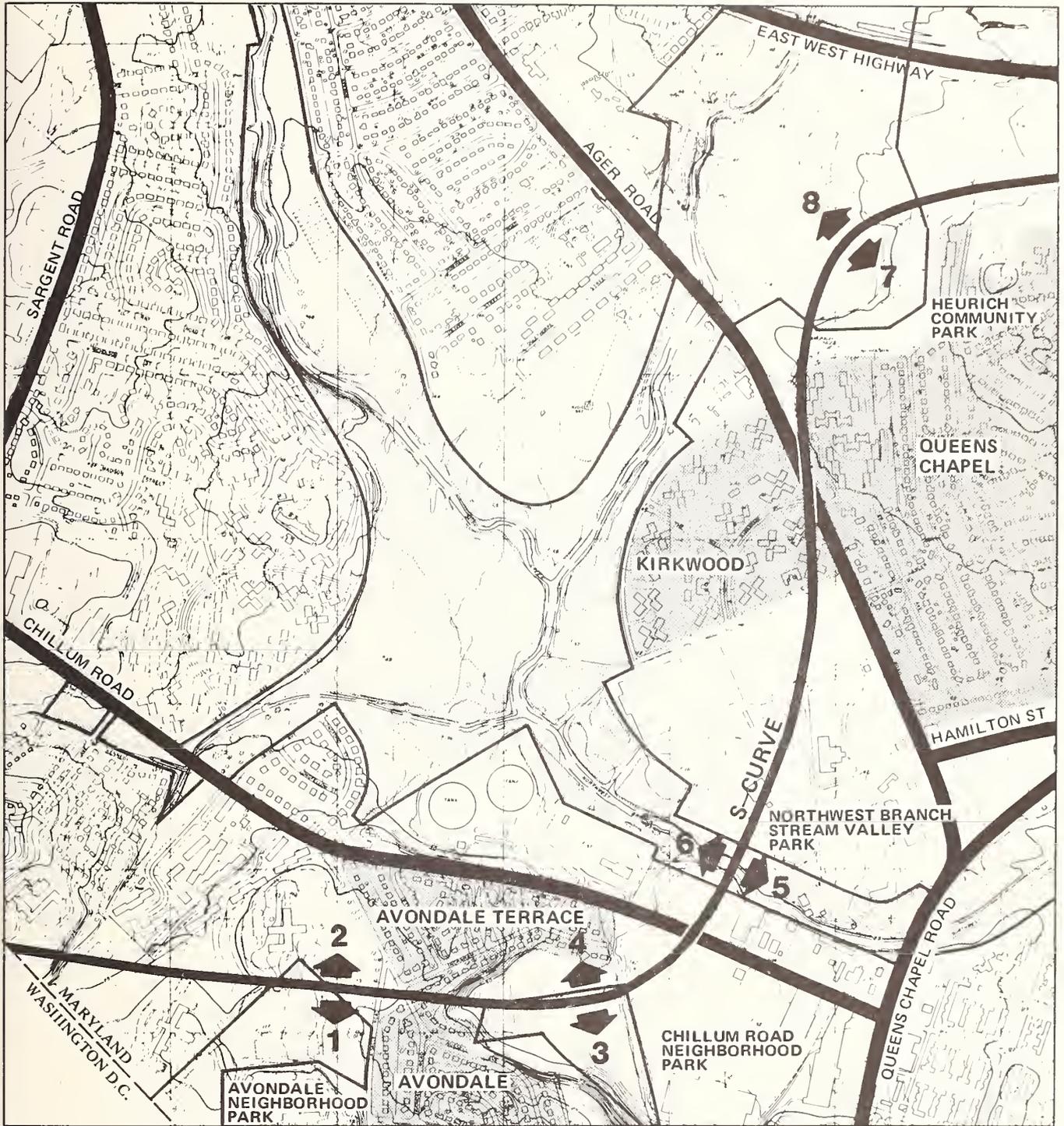
3. Horizontal Movement of the Alignment

The horizontal configuration of the S-Curve Alignment is dictated by the locations of four residential areas: Avondale, Avondale Terrace, Kirkwood and Queens Chapel (Figure 5.10). As proposed, the alignment requires three residential displacements in Avondale/Avondale Terrace and eighty-seven residential displacements at Kirkwood.

Avondale Neighborhood Park

Moving the alignment in Direction 1 to avoid Avondale Neighborhood Park is not feasible due to the extent of the park.

The park could be avoided by moving the alignment in Direction 2, but this alternative is not prudent because it would require at least ten additional residential displacements in Avondale Terrace.



HORIZONTAL ALIGNMENT MODIFICATIONS

GREEN/YELLOW LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Chillum Road Neighborhood Park

Moving the alignment in Direction 3 to avoid Chillum Road Neighborhood Park is not feasible due to the extent of the park.

The park could be avoided by moving the alignment in Direction 4.⁹ This alternative, identified as Alternative A (Figure 5.11), is not prudent because it involves significant floodplain encroachment.

Alternative A would shift the West Hyattsville Station approximately 100 feet north of its proposed location. Because of geometric constraints, the Alternative A station elevation is approximately four feet lower than the general plan station elevation. This decrease in elevation is a significant disadvantage since the station site lies in the Northwest Branch 100-year floodplain. The general plan station elevation is marginal and some facilities, such as the station service rooms and the Ginn's access road south of the station platform, are well below flood elevation. Lowering the station would make these situations worse and may require a complete station reconfiguration.

Although Alternative A alignment does not cross the current boundaries of Chillum Park, the Maryland-National Capital Park and Planning Commission's October 1974 Master Plan for this area proposes that the park be expanded northward to Ingraham Street in the future. If this expansion occurs, the Alternative A alignment would lie well inside the park boundaries and any long-term advantage would be negated.

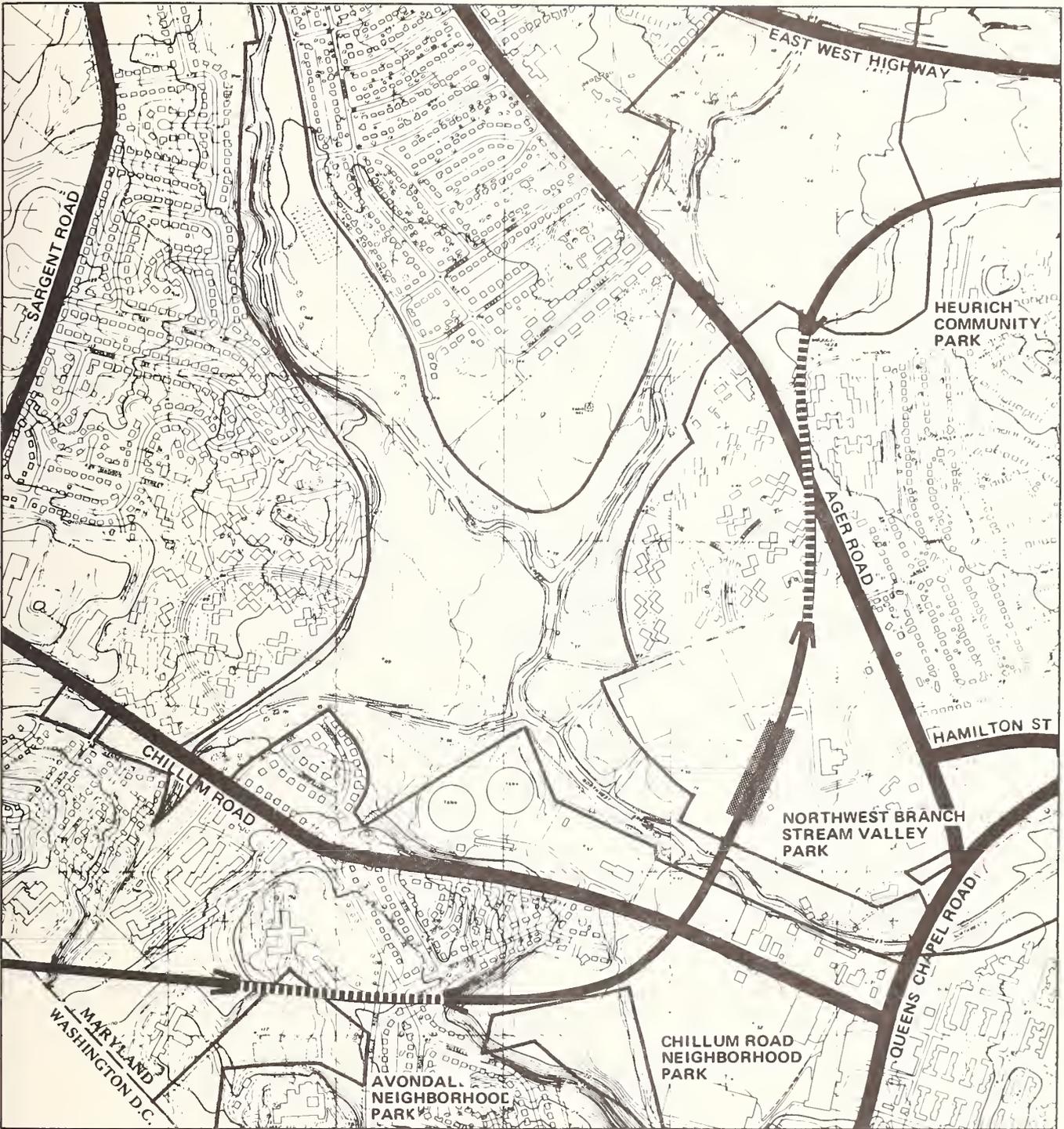
Shifting the alignment even further north, as much as 700 feet, to avoid the future limits of Chillum Park would substantially impact the Avondale residential neighborhood and require a major relocation of West Hyattsville Station.

An advantage of Alternative A is that it would require the acquisition of only one residence in the community of Avondale. The general plan alignment would take three homes.

In December 1985 dollars, Alternative A would cost approximately \$1.3 million less to construct than the S-Curve Alignment.

⁹Strahm, P.H., DeLeuw, Cather and Company. Letter to WMATA. May 11, 1982.

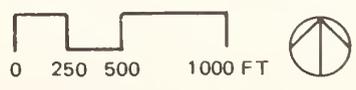
FIGURE 5.11



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL
-  STATION PLATFORM

ALTERNATIVE A

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Northwest Branch Stream Valley Park

Moving the alignment in either Directions 5 or 6 to avoid Northwest Branch Stream Valley Park is not feasible due to the extent of the park.

As discussed in Chapter 2, alignments which cross the park at other locations have been considered. The S-Curve Alignment disrupts the park less than other alternatives because it is located in the narrowest section of the park and avoids active recreation areas.

Heurich Community Park

Heurich Community Park could be avoided by moving the alignment in Direction 7. This alternative, identified as Alternative B (Figure 5.12), is not prudent because it would result in community disruption of extraordinary magnitude.

To avoid Heurich Park, Alternative B would need to curve eastward beginning at Ager Road with a 75-foot tangent which is the minimum prescribed for the Metro system. This curve would reduce train speeds in this area from 55 MPH to 40 MPH. Alternative B would most likely require displacement of at least twenty-four residential units at the Queens Chapel Apartments.

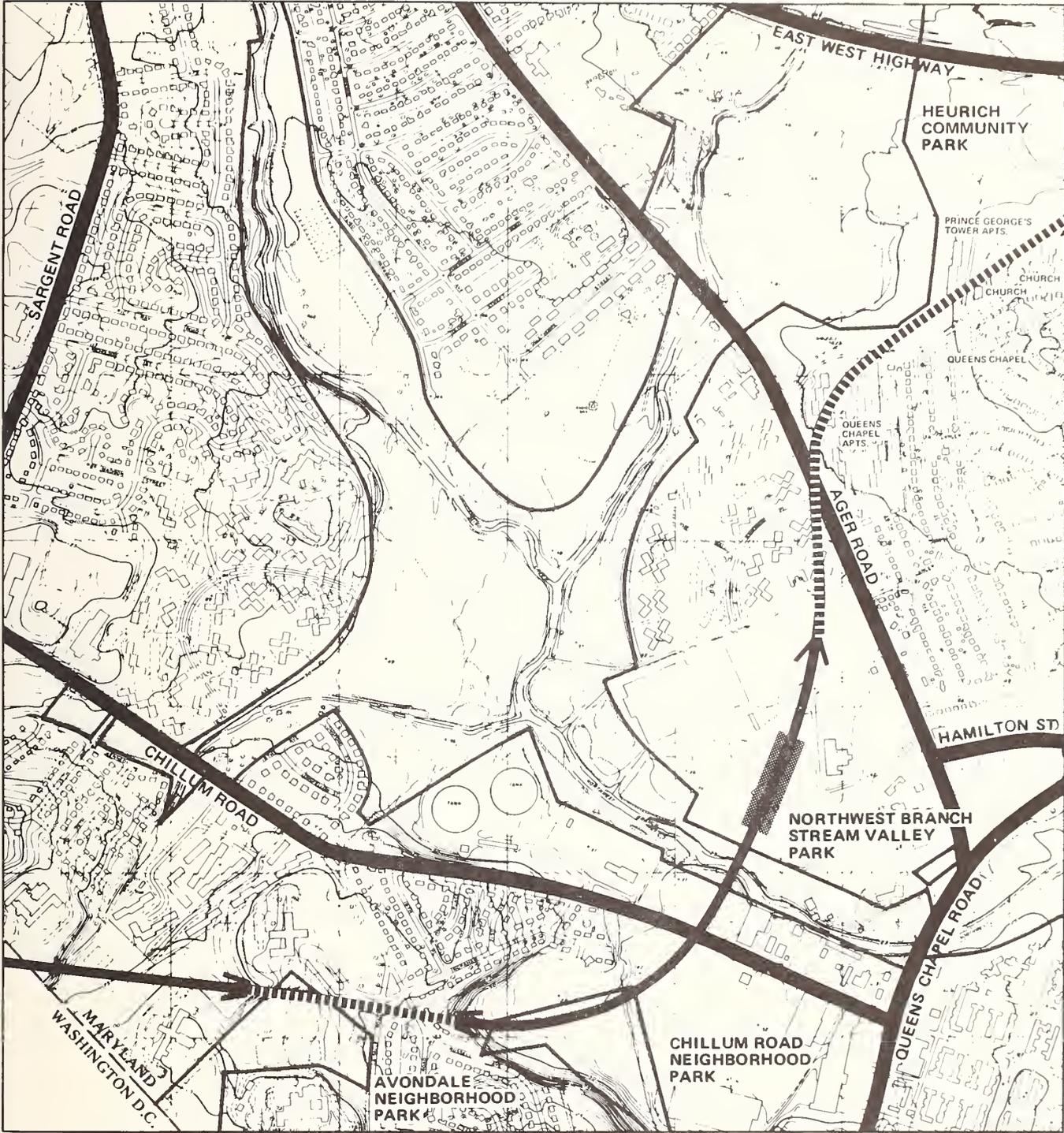
Beyond the Queens Chapel Apartments, Alternative B would require the displacement of the ninety-one residential units at the Prince George's Tower to avoid Heurich Park and return to Prince George's Plaza. If Alternative B could be modified to avoid Prince George's Tower as well, it would require the displacement of two churches on Nicholson Street. If Alternative B were modified to avoid the park, Prince George's Tower and the churches, it would require displacement at the Nicholas Orem Junior High School.

Moving the S-Curve Alignment in Direction 8 to avoid Heurich Park is not feasible due to the extent of the park.

4. Vertical Movement of the Alignment

The vertical configuration of the S-Curve Alignment is dictated by the topography and by the locations of LaSalle Road, Russell Avenue, Chillum Road, Northwest Branch and Ager Road, none of which can be crossed at grade.

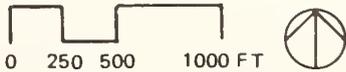
FIGURE 5.12



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL
-  STATION PLATFORM

ALTERNATIVE B

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



Avondale Neighborhood Park

The S-Curve Alignment is in cut-and-cover construction through Avondale Neighborhood Park and requires no long-term use of the park. For this reason, vertical movements of the alignment have not been evaluated.

Chillum Road Neighborhood Park

Long-term use of Chillum Road Neighborhood Park can be avoided by using either cut-and-cover construction, identified as Alternative C, or earth tunnel construction, identified as Alternative D, to cross the park (Figure 5.13).¹⁰ Neither of these alternatives is considered prudent because the increased costs which would result are of extraordinary magnitude.

For Alternative C, vertical alignment constraints (Chillum Road, Northwest Branch, and major underground utilities) force the use of cut-and-cover construction for West Hyattsville Station, substantially increasing the construction cost. In December 1985 dollars, Alternative C would cost approximately \$39.7 million more to construct than the S-Curve Alignment.

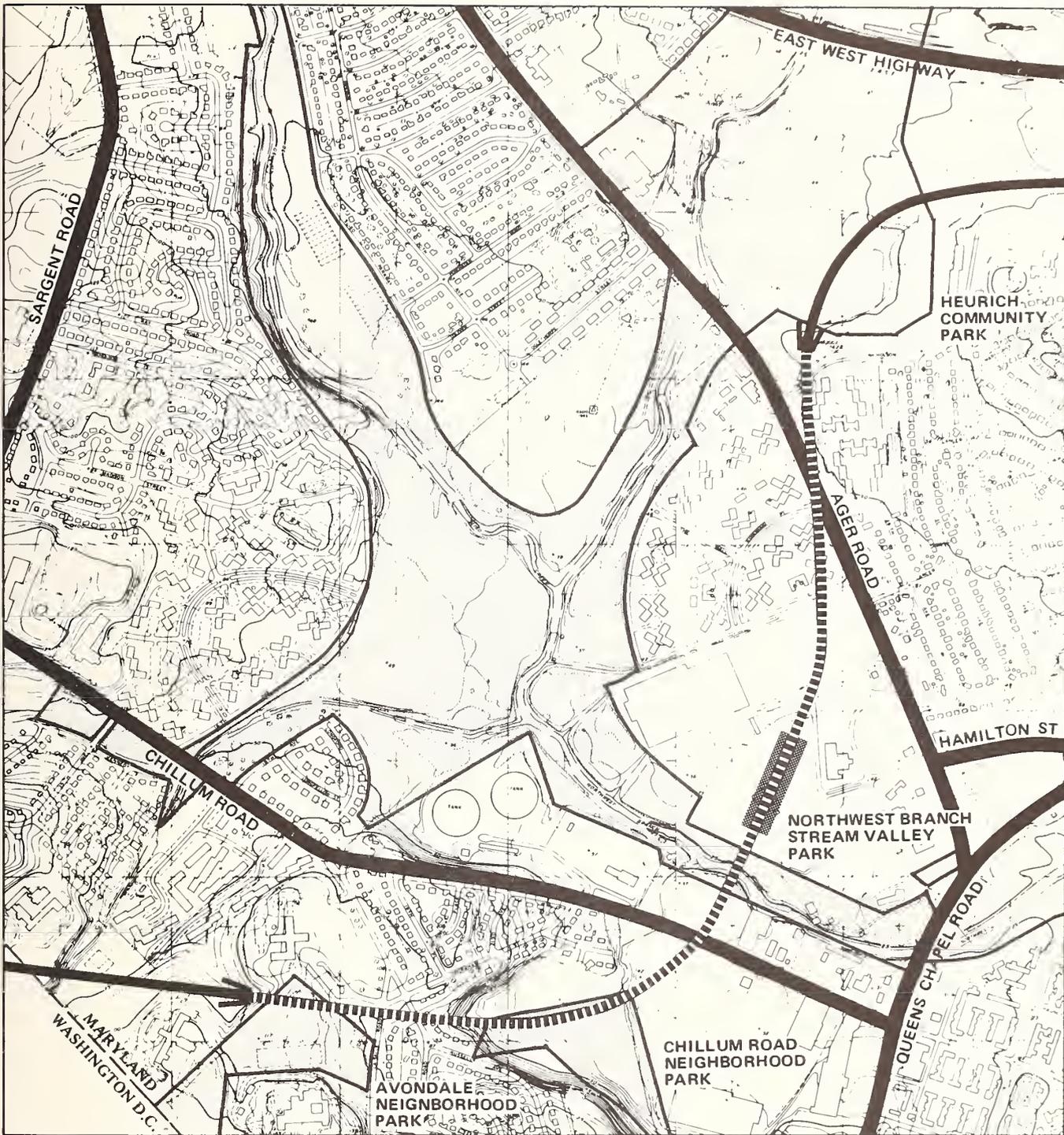
In addition, the speed of the curves through the park is reduced from 55 MPH to 50 MPH even though the curve radii are unchanged. This speed reduction results because allowable track super-elevation in underground structures is four inches compared to six inches for at-grade and aerial structures.

For Alternative D, as with Alternative C, vertical alignment constraints require the use of cut-and-cover construction for West Hyattsville Station. Likewise, curve speeds through the park are reduced from 55 MPH to 50 MPH. In December 1985 dollars, Alternative D would cost approximately \$49.5 million more to construct than the S-Curve Alignment.

Northwest Branch Stream Valley Park

Long-term use of Northwest Branch Stream Valley Park can be avoided by using earth tunnel construction, Alternative D, to cross the park (Figure 5.13).¹¹ However, the alternative

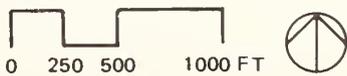
^{10,11}Strahm, P.H., DeLeuw, Cather and Company. Letter to WMATA. May 11 1982.



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL
-  STATION PLATFORM

ALTERNATIVES C AND D

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



is not considered prudent because the increased cost which would result is of extraordinary magnitude. In December 1985 dollars, Alternative D would cost approximately \$49.5 million more to construct than the S-Curve Alignment.

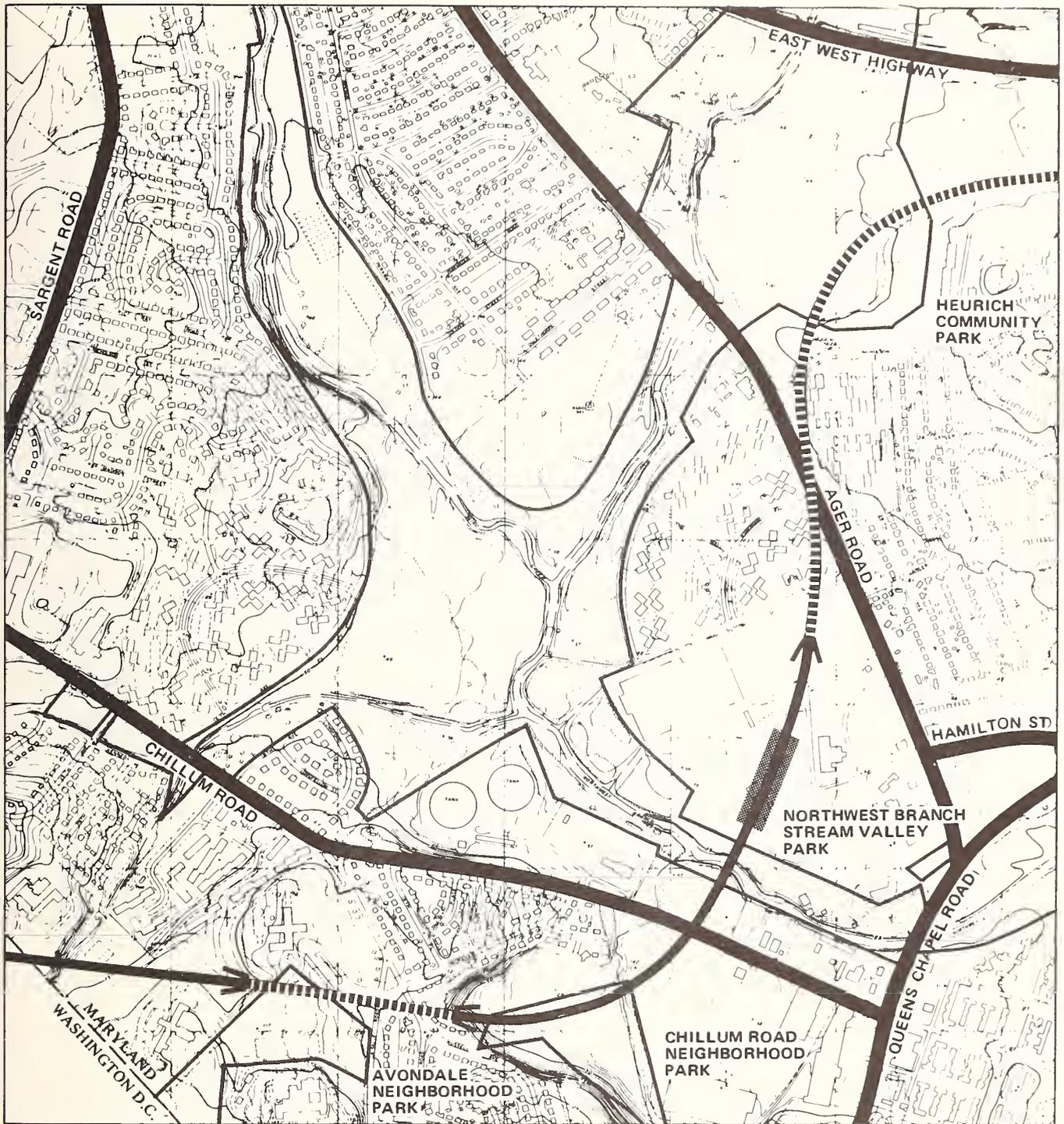
Heurich Community Park

Long-term use of Heurich Community Park can be avoided by using cut-and-cover construction, identified as Alternative E, or earth tunnel construction, identified as Alternative F, to cross the park (Figure 5.14).¹² Neither of these alternatives is considered prudent because the increased costs which would result are of extraordinary magnitude.

With Alternative E, unlike Alternatives C and D, no speed reductions occur since the superelevation of the curves involved is controlled by underground alignment in the general plans. In December 1985 dollars, Alternative E would cost approximately \$19.5 million more to construct than the S-Curve Alignment.

With Alternative F, as with Alternative E, no curve speeds are reduced. An advantage of Alternative F is that earth tunnel construction is used under Ager Road, thereby minimizing traffic disruption. The general plan alignment and Alternative E cross Ager Road in cut-and-cover construction. In December 1985 dollars, Alternative F would cost approximately \$30.6 million more to construct than the S-Curve Alignment.

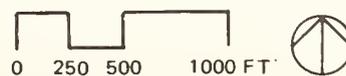
¹²Strahm, P.H., DeLeuw, Cather and Company. Letter to WMATA. May 11, 1982.



-  ABOVE GROUND
-  BELOW GROUND
-  PORTAL
-  STATION PLATFORM

ALTERNATIVES E AND F

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



5.2.4 STATUS OF COORDINATION WITH APPROPRIATE AGENCIES

Coordination between WMATA and M-NCPPC is guided by an agreement between WMATA and Prince George's County, Maryland.¹³ This agreement specifies that M-NCPPC and other County departments will review WMATA's plans at 30, 65 and 100% stages of final engineering design. As part of this review, M-NCPPC approvals will be necessary for WMATA to proceed with each successive stage of design.

Since the use and replacement of stream valley parkland acquired under the Capper-Cramton Act (Northwest Branch Stream Valley Park and Heurich Community Park) will be subject to the review and approval of the NCPC (National Capital Planning Commission), and since the NCPC will be party to future agreements between M-NCPPC and WMATA involving Capper-Cramton parklands, future coordination concerning WMATA's use of these parklands will include the NCPC.

WMATA has consulted the M-NCPPC periodically during the preparation of general plans for the S-Curve Alignment. WMATA and M-NCPPC staff met in June 1981 to discuss the four parks along the S-Curve. At that meeting, M-NCPPC identified specific concerns about Metro's use of each park.¹⁴

In summary, M-NCPPC is concerned about the loss of existing vegetation, stormwater management, the disruption of patron service, the replacement of land, and the rehabilitation of land at both Avondale Neighborhood Park and Chillum Road Neighborhood Park. At Northwest Branch Stream Valley Park, M-NCPPC is concerned about the temporary disruption of circulation during construction, visual disruption and noise. At Heurich Community Park, M-NCPPC is concerned about loss of vegetation, visual and noise factors, and the disruption of aesthetic features and recreational activities during and after construction. WMATA has responded to these concerns in planning for mitigation of impacts discussed in Section 5.2.2.

¹³WMATA and Prince George's County, Maryland. "Master Agreement No. MA-024." August 1972.

¹⁴Arciprete, R.M., Maryland-National Capital Park and Planning Commission. Letter to WRT. June 29 1981.

In June 1981, M-NCPPC also identified its general concern about the identification of criteria for providing acceptable replacement land for that taken by Metro.¹⁵ M-NCPPC has proposed a 5.31-acre parcel of land, located at the intersection of Ager Road and Nicholson Street, as a potentially suitable replacement for that portion of the Heurich Park proposed for use by Metro.¹⁶ The parcel, identified on Figure 5.7, is currently owned by the Maryland State Highway Administration. WMATA is considering purchase of this property for transfer to M-NCPPC.¹⁷

In March 1982, WMATA staff met with M-NCPPC staff to discuss the manner in which pedestrian access would be maintained between Queens Chapel and Heurich Park. The consequence of that discussion was the understanding that a pathway would be provided beyond the east end of the surface segment.¹⁸

In January 1983, the Urban Mass Transportation Administration (UMTA) asked the U.S. Department of the Interior (DOI) to provide final comments on this Section 4(f) Statement. In its response (Figure 5.15), DOI expressed interest in further evaluation of land replacement issues and a stronger commitment to replace parkland taken. Also, DOI suggested that the final Section 4(f) Statement document coordination with and approval by appropriate park agencies concerning measures to minimize harm.

To achieve that end, UMTA directed WMATA to obtain a letter from M-NCPPC confirming that M-NCPPC staff is in agreement with the concept of exchanging lands of equivalent use for park purposes. The response (Figure 5.16) indicates that M-NCPPC is prepared to negotiate a mutually acceptable land exchange and improvements to the affected parklands. It will be some time in the future before any agreement can be finalized since it will involve the near completion of right-of-way plans to define property needs and negotiation with several affected property owners and governmental agencies.¹⁹

¹⁵Arciprete, R.M., Maryland-National Capital Park and Planning Commission. Letter to WRT. June 29 1981.

¹⁶Hancock, B.E., Maryland-National Capital Park and Planning Commission. Letter to WMATA. June 19 1981.

¹⁷Egbert, J.S., Washington Metropolitan Area Transit Authority. Letter to M-NCPPC. December 9 1982.

¹⁸Arciprete, R.M., Maryland National Capital Park and Planning Commission. Letter to WRT. May 25 1982.

¹⁹Egbert, J.S., Washington Metropolitan Area Transit Authority. Letter to M-NCPPC. February 23 1983.



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

In Reply Refer To:
ER 82/2004

JAN 27 1993

Mr. Charles H. Graves
Director
Office of Planning Assistance
Urban Mass Transportation Administration
400 7th Street, S.W.
Washington, D.C. 20590

Dear Mr. Graves:

This is in response to the request for the Department of the Interior's comments on the proposed final Section 4(f) statement for the Washington Metrorail System, Green Line (E Route), West Hyattsville Segment, Prince George's County, Maryland.

We concur that there is no feasible and prudent alternative to the use of Avondale Neighborhood Park, Chillum Road Neighborhood Park, Northwest Branch Stream Valley Park, and Heurich Community Park for the construction of the Washington Metrorail System Green Line (E Route), under the preferred S-Curve Alignment.

However, we do not believe that all possible planning has been done to minimize harm. In particular, we are interested in further evaluation of the land replacement issues and a stronger commitment to replace the parklands which will be taken. The development of facilities, landscaping and/or reimbursements also merit further planning and evaluation.

In addition, further studies should address the problems associated with the east-west movement of traffic due to the blockage of Calvert Road and the at-grade Calvert Road station. Adoption of the current plan would apparently restrict access to the University of Maryland and the Northwest Branch Park (Paint Branch Stream Valley Park). It is our understanding that the proposed access road, Paint Branch Parkway, may not meet local needs. Further planning is necessary to ensure continued access to these sites.

All measures to minimize harm should be coordinated with and approved by the Maryland-National Capital Park and Planning Commission and the National Capital Regional Office of the National Park Service, and evidence to that effect should be documented in the final Section 4(f) statement.

The Department of the Interior has no objection to Section 4(f) approval of the proposed project, providing the measures to minimize harm discussed above are satisfactorily resolved.

We appreciate the opportunity to provide these comments.

Sincerely,

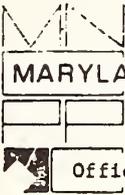

Bruce Blanchard, Director
Environmental Project Review



LETTER FROM U S DEPARTMENT
OF THE INTERIOR

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT




THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
 Office of the Chairman
 14741 Governor Oden Bowie Drive
 Upper Marlboro, Maryland, 20870
 952-3560

March 9, 1983

Mr. John S. Egbert, Asst. Gen. Mgr.
 Design and Construction
 Washington Metropolitan Area Transit Authority
 600 Fifth Street, N. W.
 Washington, D. C. 20001

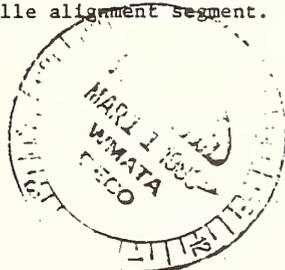
Dear Mr. Egbert:

Thank you for your letter of February 25, 1983 advising the Commission of WMATA's involvement in preparing the final EIS for the Greenbelt Metrorail West Hyattsville segment. Since Commission parklands will be affected by the proposed construction of the subject metrorail, you requested us to furnish you with a letter confirming that we agree with the concept of exchanging lands of equivalent use for parklands affected by the proposed metrorail, with the understanding that you will take measures to lessen the impact on public parklands.

The Commission is prepared to negotiate a mutually acceptable land exchange and improvements to the affected parklands resulting from the proposed metrorail for the West Hyattsville alignment segment. It is our understanding that WMATA will take appropriate measures in its planning and design of the subject rail to insure that the least-required amount of public parkland is affected and that appropriate mitigating measures involving land replacement will be taken to achieve the least impact to the existing parkland resulting from Metro construction.

Since most of the parkland affected by the West Hyattsville segment involves Capper-Cramton funded lands which are jointly administered by our Commission and the National Capital Planning Commission (NCPC), resolution of issues involving parkland taken, replacement of parkland, restoration and other mitigating measures proposed by WMATA will be subject to final approval of both Commissions.

We look forward to a mutually acceptable final solution involving Metro's West Hyattsville alignment segment.



Sincerely,


 Charles A. Dukes, Jr.
 Chairman, Prince George's
 County Planning Board



beautiful, historic... and progressive

LETTER FROM M-NCPPC

GREEN LINE (E ROUTE)
WEST HYATTSVILLE SEGMENT



5.2.5 SECTION 4(f) DETERMINATION

The proposed project will require the use of four parklands protected by Section 4(f) of the Department of Transportation Act. These include:

1. Avondale Neighborhood Park.
2. Chillum Road Neighborhood Park.
3. Northwest Branch Stream Valley Park.
4. Heurich Community Park.

Based on the information contained in this document, the Department of Transportation has determined in accordance with Section 4(f) that:

1. There is no feasible and prudent alternative to the use of such land; and
2. Such project includes all possible planning to minimize harm to the Section 4(f) land resulting from such use.

Chapter 6

COMMENTS AND RESPONSES ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

6.1 INTRODUCTION

The circulation period for the Washington Metrorail System Green Line (E Route) West Hyattsville Segment Draft EIS began on October 17 1980 and ended on December 1 1980.

Commenting letters were received during the review period from the following federal, state, regional and local agencies, organizations and concerned citizens:

Federal Agencies:

Federal Emergency Management Agency,	
Federal Insurance Administration	(FEMA)
National Capital Planning Commission	(NCPC)
U.S. Department of the Army, Baltimore	
District Corps of Engineers	(COE)
U.S. Department of Health and Human	
Services, Public Health Service	(PHS)
U.S. Department of the Interior	(DOI)
Office of the Secretary	
U.S. Department of Transportation,	
Office of the Secretary	(DOT)
Federal Highway Administration	(FHWA)
U.S. Environmental Protection Agency	(EPA)

State Agencies:

Maryland Department of Economic and	
Community Development	(MDECD)
Maryland Department of Natural Resources,	
Water Resources Administration	(MDNR)
Maryland Department of State Planning	(MDSP)
Maryland Department of Transportation	(MDOT)

Regional Agencies:

Maryland-National Capital Park and	
Planning Commission	(M-NCPPC)

Local Agencies:

Prince George's County Government (PG County)
Prince George's County Department
of Public Works and Transportation (PGDPWT)

Organizations and Individuals

Carroll Manor Nursing Home
M.S. Ginn and Company
Elaine R. Hodges
Neighborhoods Uniting Project, Inc.
Palmer Ford, Inc.
Queenstown Duckpin Bowl, Inc.
St. Ann's Infant Home

Responses to all substantive comments received during the review period are included in this chapter of the document. Comments and their respective responses have been categorized according to subject matter. Due to their length, not all comments have been reproduced in their entirety. Special attention, however, has been given to represent the original comment as accurately and completely as possible. In each case the source of the comment is identified.

Where necessary, Chapters 1 through 5 have been revised to reflect comments received during the review period. Substantive changes and additions to the text are identified by vertical black stripes in the margins.

6.2 COMMENTS AND RESPONSES BY TOPIC

6.2.1 ALTERNATIVES

Comment 1: The Final EIS should be expanded to discuss modifications to the S-Curve presented by WMATA at its public hearing on November 18 1980, since they would have the effect of changing residential and commercial displacement and parkland impacts addressed in the Draft EIS. (NCPC, DOT, M-NCPPC)

Response: As described in Section 2.1.2, plans for the S-Curve Alignment have been modified since the Draft EIS was issued. This Final EIS addresses impacts resulting from the S-Curve Alignment as currently proposed.

Comment 2: The chronology on major events and decisions on this route (Section 2.1.2) omits NCPC's action and recommendation of May 1975 regarding this segment of the alignment. This recommendation was reaffirmed by NCPC at its meeting on May 29 1980, and should be included in the Final EIS. (NCPC)

Response: NCPC's action and recommendation of May 1975 has been included in Section 2.1.2.

Comment 3: Figure 2.5a shows the ARS Alignment crossing the Northwest Branch at grade on fill. The ARS Alignment crossed the Northwest Branch on aerial structure. (PGDPWT)

Response: As originally designed and addressed in the System-wide EIS, the ARS Alignment was in the median strip of I-95 as it crossed the Northwest Branch at grade on fill. When plans for I-95 through West Hyattsville were withdrawn to provide substitution funds for the Metrorail System, WMATA modified its plans for the ARS Alignment. The Modified ARS Alignment crossed the Northwest Branch in aerial structure.

This document is a supplement to the System-wide EIS. It compares the environmental impacts of the S-Curve Alignment to those of the original ARS Alignment.

6.2.2 LAND USE

Comment 4: The S-Curve Alignment will cut across property owned by a children's home and a nursing home. The Final EIS should evaluate measures, including a longer covered section, to reduce the impacts for the residents of both facilities. (St. Ann's Infant Home, Carroll Manor Nursing Home, DOT)

Response: No significant impacts related to airborne and ground borne noise, air quality, soil stability or general safety are likely to be experienced by residents of these facilities during Metro construction or operation. Visual disruption caused by the presence of Metro will be mitigated through use of earth berms and vegetative buffers along the alignment.

Comment 5: To the extent that the Kirkwood complex is preserved by modifications to the S-Curve Alignment, the adjacent M.S. Ginn and Palmer Ford properties are increasingly impacted by the West Hyattsville Station and its tangent track alignment. The Final EIS should incorporate findings concerning the impact of modifications to the S-Curve Alignment on these properties. (M-NCPPC)

Response: The concerns of the M.S. Ginn Company have been satisfied by the approved modifications to the S-Curve Alignment (Section 2.1.2). The Palmer Ford Dealership will be displaced by station facilities. The unique nature of this displacement is addressed in Section 4.1.1.

Comment 6: The S-Curve station design limits the accessibility of the station for walking patrons, including shoppers, by placing a large parking lot between the station and the street and shopping mall. The Final EIS should reflect consideration of a more accessible station design. (DOT)

Response: New plans for the West Hyattsville Station have been prepared subsequent to the modification of the S-Curve Alignment addressed in the Draft EIS. The station has been moved closer to the Queens Chapel commercial area and a

pedestrian walkway has been provided along the shortest route between the station entrance and the intersection of Jamestown Road and Hamilton Street. Figure 2.6b has been changed to reflect current plans for the West Hyattsville Station, and Section 4.1.3 has been expanded to reflect the increased accessibility of this design.

Comment 7:

Recognizing that the 100-year floodplain of Northwest Branch, the proximity of Ager Road and the skewed Metro alignment constrain the West Hyattsville Station site layout, WMATA should carefully pursue site development plans which minimize the impact on the floodplain yet maximize the development potential of properties surrounding the station and of the air rights over WMATA facilities in this area. (M-NCPPC)

Response:

New plans for the West Hyattsville Station have been prepared subsequent to the modification of the S-Curve Alignment addressed in the Draft EIS. The degree to which the station impacts the floodplain is addressed in Section 4.1.4. The new station site layout (Figure 2.6b) increases the development potential of properties in Queens Chapel through proximity, permits the expansion of the warehouse adjacent to the station, and makes more land available for air rights development over the cut-and-cover section on the southwest side of Ager Road.

6.2.3 GEOLOGY AND SOILS

Comment 8:

Geology and soil information included in the Draft EIS is general in nature. Since a substantial portion of the S-Curve Alignment is underground, the Final EIS should include a description of subsurface conditions along this alignment and related environmental impacts. (DOI)

Response: Subsurface conditions along the S-Curve Alignment are described in Section 3.4.1, Geology and Soils.

The S-Curve Alignment is not expected to have any long-term effect on subsurface conditions. Existing information on subsurface conditions has been considered in the development of the alignment's general engineering design.

Comment 9: The construction of the S-Curve Alignment could cause damage to the St. Ann's Infant Home and the Carroll Manor Nursing Home as a result of unstable subsurface conditions. (DOI, St. Ann's Infant Home, Carroll Manor)

Response: The S-Curve Alignment will be constructed in an open cut approximately 125 feet from the St. Ann's Infant Home. The alignment will be constructed by cut and cover methods approximately 200 feet from Carroll Manor.

A detailed soils analysis, to be undertaken during final engineering design, will be used to select specific techniques to stabilize excavation in this area. Techniques which can be used to stabilize cut slopes both during and after construction include revegetation, stormwater management practices, such as the diversion of storm runoff, erosion control netting and mulching, and the use of retaining walls. Techniques which can be used to stabilize trench walls during construction include the use of sheet piling and shoring and the use of stormwater management practices.

6.2.4 GROUNDWATER AND SURFACE WATER HYDROLOGY

Comment 10: The S-Curve Alignment will pass through one aquifer portal and be adjacent to a second north of Toledo Terrace. The ARS Alignment passes adjacent to the same aquifer portal; however there was no discussion or analysis of impacts to aquifers and the associated groundwater system. (DOI)

Response: Further analysis indicates that the aquifer portals identified in the Draft EIS are not significant inputs to the groundwater system. The major recharge area for the Patuxent Formation is located in the less urbanized northern portion of Prince George's County (Section 3.4.2). References to aquifer portals have therefore been deleted from the Final EIS.

Section 4.1.4 has been expanded to discuss the reduction of runoff, and potential enhancement of groundwater recharge, near the West Hyattsville Station. Impervious cover in the West Hyattsville Station area will actually be reduced as a result of Metro construction.

Comment 11: The material on groundwater and surface water hydrology and floodplain encroachment is a superficial assessment of the hydrologic situation and environmental impacts. The water quality discussion was limited to one brief statement indicating that the Northwest Branch's water quality was fair between 1973-1976. The water quality parameters measured and the data used for the "fair" analysis were not presented. (DOI)

Response: Supplementary water quality information for both the Northwest Branch and Sligo Creek has been added to Section 3.4.2 to substantiate the "fair" water quality designation. Physical and chemical data such as water temperature, dissolved oxygen, turbidity, pH, and total and fecal coliform concentrations were compared to Maryland Water Resources Administration Water Pollution Control Regulations. This additional information supports the conclusions that the Northwest Branch, Sligo Creek and their tributaries exhibit fair water quality since they are stressed by coliform loading from sewer malfunctions, excessive flows, and sediment and pollutant-laden runoff from heavily developed commercial and residential areas.

Comment 12: No discussion was found in the Draft EIS on the effects of Metrorail construction on stream water quality. (DOI)

Response: Section 4.1.11, added to the Final EIS, states that the hydrologic impacts of the S-Curve Alternative are limited to short-term construction impacts at Station Point 389 associated with culvert placement on the unnamed tributary to the Northwest Branch. This work will be performed in compliance with U.S. Army Corps of Engineers 404 Permit requirements and with Maryland Water Resources Administration Waterway Construction Permit requirements and Soil Erosion and Sediment Control Standards and Specifications. No other elements of Metro construction will occur in any of the stream channels; therefore, no water quality impacts are anticipated.

Comment 13: The Final EIS should reflect consultation with the U.S. Army Corps of Engineers concerning any Section 404 Permit Requirements. (DOT, DOI, COE)

Response: The COE has been consulted and has determined that the proposed crossing of the unnamed tributary near the District boundary is authorized under the provisions of a Department of the Army Nationwide Permit. The Northwest Branch crossing will not require COE Authorization. COE findings are presented in Section 4.1.11, which has been added to address water quality issues.

Comment 14: The S-Curve Alignment has been designed to be situated on elevated piers throughout most of the floodplain to minimize significant encroachment. The Final EIS should explain why the Ginn's warehouse access road has been relocated to the floodplain adjacent to the Northwest Branch with the roadbed designed to be above the level of the 100-year floodplain. This road would restrict stream flow through the floodplain during floods and appears to be contrary to Executive Order 11988, "Floodplain Management," and DOT Order 5650.2, "Floodplain Management and Protection." (DOI)

Response: The S-Curve Alignment modifications revised the Ginn's warehouse access road design. The road is now designed to be at grade along the edge of the existing Drive-In Theater site and therefore will not restrict stream flow through the floodplain during flood events.

Comment 15: Section 60.3c of the National Flood Insurance Program Regulations prohibits encroachments in the floodplain that would cumulatively cause an increase in the 100-year flood elevation of more than one foot at any point in the community. To comply with the NFIP regulations, Prince George's County floodplain management legislation, and Maryland Water Resources Administration regulations, WMATA should calculate any rise that will be caused by the proposed encroachment on the floodplains. (FEMA, PHS, COE)

Response: WMATA will comply with Executive Order 11988 "Floodplain Management," DOT Order 5650.2 "Floodplain Management and Protection," Maryland Water Resources Administration regulations and Prince George's County regulations. The required hydrologic analyses and calculations will be completed during final design. (Section 4.1.11)

Comment 16: Concerning floodplain considerations, there is a lack of discussion concerning practical alternatives to locating the alignment in the base floodplain. (COE)

Response: A discussion concerning practical alternatives to locating the alignment in the base floodplain was lacking in the Draft EIS. A subsection titled "Alternatives to Avoid Floodplain Encroachment" has been added to Section 4.1.4 to provide this discussion.

Comment 17: The potential problem of floodwaters draining into the transit tunnel warrants greater discussion of the problem and the mitigation measures than provided in the one line response to the possible need for a retaining wall. (MDSP, PGDPWT)

Response: Floodproofing protective measures, as required in all WMATA construction, will be used to exclude floodwaters from below grade portions of the alignment. These measures will sufficiently protect the transit system from flooding. Floodproofing for the S-Curve Alignment is explained in more detail in Section 4.1.4.

6.2.5 VEGETATION AND WILDLIFE

Comment 18: The Draft EIS is deficient and inadequate with respect to fish and wildlife resources. The aquatic resources description was limited to a few fish species in the Northwest Branch. There was no description of aquatic invertebrates which might be affected in Sligo Creek or the unnamed tributary to the Northwest Branch. No description of wildlife resources, including mammals and birds in the study area, was given. The vegetation description was limited in scope, referring only to mature deciduous communities. (DOI)

Response: Descriptions of existing vegetation, fish and wildlife resources have been expanded in the Final EIS (Sections 3.4.3 and 3.4.4). Mammals, birds, amphibians, reptiles and fish species in the study area are listed and the vegetation discussion has been expanded to include understory species composition. Consultations with the Department of the Interior's Fish and Wildlife Service, the Maryland Department of Natural Resources, Montgomery County Department of Environmental Protection, and M-NCPPC did not produce any descriptions of aquatic invertebrates. No major long-term impacts on vegetation, fish and wildlife resources are expected from the construction and operation of the S-Curve Alignment.

6.2.6 NOISE

Comment 19: It is not clear why the criteria for allowable noise levels was set at 75 dBA in the Draft EIS, since projects sponsored by other agencies generally try to achieve lower levels. The Federal Highway Administration, for instance, uses a design standard of 70 dBA for highway projects. The noise assessment guidelines published by the Department of Housing and Urban Development list 65 L_{dn} to 75 L_{dn} as "normally unacceptable" and 75 L_{dn} and higher as "clearly unacceptable" noise exposures. L_{dn} estimates for this project may be helpful. (EPA)

Response:

In selecting the maximum allowable sound level for airborne noise from surface or aerial structure operations from transit trains, a number of factors must be taken into account. These include the character and time duration of the noise, the repetitiveness of the noise, the character and ambient noise of the neighborhood through which the train passes, and the land use or type of occupancy of the buildings adjacent to the transit structure. Through a large amount of experience with measuring noise from transit trains and correlating the measured results with the general community response in residential areas it has been determined that for quiet residential areas a maximum level of 70 dBA repeated many times a day is acceptable to residents. This level corresponds approximately to the level expected in the front yard or front porch of a residential dwelling due to a well muffled automobile passing by at 25 to 30 mph, a level which is generally accepted and appropriate for residential areas. For average residential areas where the ambient noise may be greater and there is a significant amount of noise from traffic on streets, a level of 75 dBA is satisfactory and acceptable to the residents.

These criteria were determined in the late 1960's and have withstood the test of time. More recently developed criteria, such as L_{10} and L_{dn} criteria quoted by other agencies or more recent references actually result in very similar maximum levels when a typical transit operation schedule is considered and the maximum levels are converted to statistical or exposure levels. In terms of acceptability of the transit train wayside noise experienced with the new transit systems which have gone into operation since 1970, there is community acceptance of the airborne noise from the trains when it does not exceed the range of 70 to 75 dBA in residential areas. Higher maximum levels, regardless of the exposure level, have resulted in complaints and in some cases, erection of sound barrier walls after trains were in operation in order to make the train noise acceptable in the residential areas.

Thus for transit train noise, a repetitive transient noise of relatively constant maximum level, use of the maximum noise level (L_{max}) is more appropriate than noise exposure levels such as L_{10} which are more useful for characterizing noise levels which fluctuate randomly in both time and level. The maximum sound level (L_{max}) should not be confused with the statistical noise level, L_{10} , as used by FHWA, or L_{dn} , as used by HUD, which are average or exposure level types of descriptors.

In general terms as an example, for typical train schedules the L_{dn} is 10 to 14 dBA lower than the maximum noise level, L_{max} . Thus, use of an L_{max} of 75 dBA will result in an L_{dn} of less than 65 dBA (neglecting other noise sources) and thus is consistent with HUD criteria for normally acceptable levels.

"Criteria Used for Supplementary Noise Analysis for WMATA Greenbelt Route September 9, 1980," identifies the basis for establishment of criteria for maximum A-weighted noise levels produced by transit trains. Specifically, the reference is to Appendix A, "Metro System-Wide Noise and Vibration Criteria and Control," which has been incorporated into virtually all of the noise and vibration studies for WMATA, and specifically the original study of the Greenbelt Route in 1974 and 1975. Reference is also made to the "Guidelines for Design of Rapid Transit Facilities" published by the American Public Transit Association. This latter reference establishes criteria for maximum noise levels produced by transit systems, and these criteria are virtually identical to those used for the WMATA system.

Comment 20:

The ambient noise levels should be added to the projections of train noise in order to provide a good estimate of total noise levels near the proposed alignment. Table 4.2 does not appear to include these background levels. (EPA)

Response:

Addition of ambient noise to the projected maximum noise levels produced by transit trains is not appropriate since during a train passby the train noise predominates

and is generally 10 dBA or more above the ambient level. There would be no advantage to adding ambient noise since the change in maximum level would be, at most, a fraction of a dBA unless there were very high noise levels already present. The same would not be true for an exposure level metric such as L_{EQ} .

Comment 21: Where the proposed alignment passes near apartment buildings, the noise analysis should examine the noise levels at the upper floors of the buildings. (EPA)

Response: Airborne sound levels produced by transit trains operating on at-grade or aerial structures are essentially the same at upper floors as at lower floors. There is thus no need for specific mention of lower or upper floors; the exposure is essentially the same.

Comment 22: The noise analysis does not indicate how many families or individuals will be affected by the higher noise levels. It is difficult to assess the extent of these noise impacts without this information. (EPA, PHS)

Response: Section 4.1.8 identifies mitigation techniques to be used by WMATA to insure that noise produced along the S-Curve Alignment will be at levels which will be acceptable to families and individuals nearby.

Comment 23: The operating schedule for trains on this route will be an important factor in determining the noise impacts on local residences. The Final EIS should include some discussion of issues such as the frequency of trains and night operations. (EPA)

Response: Train scheduling will have no effect on maximum noise levels due to train operations. During revenue hours, the hourly L_{eq} will be minimally influenced by train scheduling. Even if the number of train passbys were to double in a particular hour (not likely), the hourly L_{eq} would increase at most 3 dBA which would be just barely noticeable. Noise from train passbys during the evening and nighttime periods are most noticeable, however the criteria are based on nighttime noise exposure and acceptability standards. Thus the

increase in sensitivity to noise during the night has been included in developing the noise limit criteria.

A wide range of train scheduling has been reviewed to determine the effect on L_{dn} for comparison with the noise assessment guidelines published by HUD (see response to Comment 19). Because of the nature of scheduled train noise, the effect on the overall exposure is small, typically 2 to 3 dBA or less, which is within the range of prediction accuracy and well within the range of accuracy for determining expected community response.

6.2.7 TRANSPORTATION CHARACTERISTICS

Comment 24: The Final EIS should address how WMATA facilities will affect public and private streets to Ginn's warehouse, the Kirkwood Apartments and other nearby areas. (PGDPWT)

Response: New plans for the West Hyattsville Station have been prepared subsequent to the modification of the S-Curve Alignment as it was addressed in the Draft EIS (see Section 2.1.2). WMATA has resolved Ginn's access problems by providing a service road from Hamilton Street. The portal outbound of the West Hyattsville Station will be located south of Lancer Drive, thereby eliminating the need to permanently close any existing roads in the vicinity of Kirkwood Apartments.

Comment 25: The functional classifications for highways described in the Draft EIS are incorrect and not in accordance with the 1980 Maryland Functional Classification Map. Traffic projections in the Draft EIS are also incorrect and should be revised and level of service classifications should be reviewed. (MDOT)

Response: The functional classifications for the routes in the study area have been corrected and are now in accordance with MDOT 1980 State Functional Classification Map. Traffic projections have also been amended with information provided by MDOT.

Comment 26: The statement in the Draft EIS that station traffic would not decrease level of service at any intersection operating above capacity conflicts with the Hamilton/Queens Chapel Road intersection level of service decrease from 'C' to 'D'. (PGDPWT)

Response: Section 4.1.7 has been revised to state clearly that the Hamilton/Queens Chapel Road intersection level of service would be decreased to Level of Service 'D' during the afternoon peak hour by West Hyattsville Station oriented traffic.

Comment 27: Some street intersections near the alternate station locations will experience a reduction in their level of traffic service. Those intersections related to the selected alternative should be reviewed with the local highway agency to see if minor alterations or adjustments could be performed to improve traffic service. The results of such coordination should be summarized in the Final EIS. The funding of any minor adjustments could also be discussed. (DOT, FHWA)

Response: Only the Hamilton/Queens Chapel Road intersection will experience a reduction to Level of Service 'D' and then only during the afternoon peak hour, as a result of West Hyattsville Station oriented traffic. WMATA has Master Agreements with Prince George's County (MA-024) and Maryland Department of Transportation (MA-022) concerning traffic improvements required as a result of increased traffic at the transit stations. In both general agreements, the County and the State have agreed to design and construct any required improvements at their expense. WMATA has agreed to make the required studies to determine the need for such street and highway improvements at WMATA's expense. WMATA has coordinated traffic improvements with these agencies during planning for the proposed alignment, and will resolve road improvement issues with them during final design.

Comment 28: The statement in the Draft EIS that no arterial streets would be closed at any time to avoid detouring traffic through residential streets is in conflict with the statement that

temporary rerouting of traffic around construction activity may be necessary at LaSalle Road, Russell Avenue and Ager Road while cut-and-cover construction is underway. WMATA should maintain the continuity and integrity of the highway and street system, both during and after construction. (MDOT, PGDPWT)

Response: The statements are not conflicting. Temporary rerouting of traffic around construction activity at LaSalle Road, Russell Avenue, and Ager Road will not require detouring through residential streets. Generally, traffic will be rerouted within the rights-of-way of these arterial roads.

Comment 29: Reference to the existing Baltimore/Ohio Railroad commuter service should be made in the Final EIS. (MDOT)

Response: The Baltimore/Ohio Railroad commuter service has been described in Section 3.5.2 and noted on Figure 3.12.

6.2.8 PARKS

Comment 30: The parklands that are to be taken by either the ARS Alignment or the S-Curve Alignment were not described in Chapter 3 (Affected Environment), nor were the impacts to these parks discussed in Chapter 4 (Environmental Consequences). These impacts should be included in the body of the Final EIS since the Section 4(f) statement is not an analysis of project impacts, but is a documentation of no feasible and prudent alternative to the taking of parklands. (DOI)

Response: Section 3.2.1 of the Final EIS describes parklands intersected by both alignments. Section 4.1.11 has been added to the Final EIS to discuss impacts to these parks.

Comment 31: The Draft EIS does not mention that WMATA and M-NCPPC will need to identify the criteria for providing acceptable replacement parkland for that which is taken for Metro. (M-NCPPC)

Response: Section 5.2.4 of the Final EIS, dealing with coordination, has been revised to identify the issue of providing replacement parkland.

Comment 32: The Section 4(f) evaluation should contain a reference to the use and replacement of stream valley park land acquired under the Capper-Cramton Act and conditions under which this must be carried out, including the participation of the NCPC as well as the M-NCPPC (NCPC).

Response: Section 5.2.4 of the Final EIS, dealing with coordination, has been revised to explain NCPC's interest in Capper-Cramton parks.

Comment 33: As described in the Draft EIS, it appears that the Chillum Road Neighborhood Park could be avoided by a minor alignment change to the north of the S-Curve. The Final EIS should address this alternative in greater detail. (DOI)

Response: Chillum Road Neighborhood Park can be avoided by changing the alignment. The change would increase the cost of the alignment by approximately \$1.3 million in December 1985 dollars. This alternative is addressed in greater detail in Section 5.2.3.

Comment 34: The Draft EIS is unclear as to the construction technique of the S-Curve Alignment through Heurich Community Park. (DOI)

Response: Approximately 900 feet of the S-Curve Alignment intersects Heurich Community Park. The alignment is in a retained cut for 300 feet and at grade for 600 feet.

Comment 35: The Final EIS should discuss in greater detail measures such as tunnelling which would reduce project impacts on 4(f) parkland, particularly for the Heurich Community Park. (DOI, DOT)

Response: Placing the alignment underground would reduce impacts on the Chillum Road Neighborhood Park, Northwest Branch Stream Valley Park and Heurich Community Park. The feasibility of using cut-and-cover or tunnel construction methods through these parks is addressed in Section 5.2.3.



LIST OF DRAFT EIS RECIPIENTS

I. FEDERAL AGENCIES

Advisory Council on Historic Preservation
Department of Agriculture
Department of Army, Corps of Engineers
Department of Commerce
Federal Emergency Management Agency
General Services Administration
Department of Health and Human Services,
Center for Disease Control
Department of Housing and Urban Development,
Regional Office
Department of Interior
Interstate Commerce Commission
Office of Management and Budget
Department of Transportation, Assistant
Secretary of Policy and International Affairs
Department of Transportation, Federal Highway
Administration, Division Office
Environmental Protection Agency
National Capital Planning Commission

II. REGIONAL AGENCIES

Metropolitan Washington Council of Governments
Washington Metropolitan Area Transit Authority
Washington Suburban Transit Commission

III. STATE AND LOCAL AGENCIES

District of Columbia, Mayor
City Council
Department of Transportation

Maryland, Governor
State Highway Administration
Department of Transportation
State Planning Department
Department of Natural Resources
Historical Trust
State Historic Preservation Officer
Maryland-National Capital Parks and
Planning Commission
Montgomery County, Executive
County Council
Department of Transportation

Prince George's County, Executive
County Council
Department of Public
Works and Transportation

Incorporated Municipalities:

Berwyn Heights, Town of
Bladensburg, Town of
Brentwood, Town of
College Park, City of
Greenbelt, City of
Hyattsville, City of
Mount Rainier, City of
North Brentwood, Town of
Riverdale, Town of
University Park, Town of

Virginia, Governor
Department of Highways
Northern Virginia Planning District Commission
Northern Virginia Transportation Commission
Alexandria City Council
Arlington, City Council
Fairfax City Council
Falls Church City Council
Arlington County Board of Supervisors
Fairfax County Board of Supervisors

IV. INTERESTED PARTIES

Amalgamated Transit Union
Berwyn Heights Civic Association
Calvert Hill Citizens Association
Citizens Organization for Unification and Preservation
Coalition for an Alternative Metro Plan University Station
College Park Estate Citizens Association
College Park Board of Trade
Committee to Save University Park

Eighth Precinct Civic Association
Hyattsville Transportation Task Force
International Brotherhood of Teamsters
Isaac Walton League of America
Kirkwood Associates
Kirkwood Residents Association
Maryland Environmental Trust
National Wildlife Federation
Neighborhoods Uniting Project, Inc.
North College Park Civic Association
Prince George's County Audubon Society
Prince George's League of Women Voters, Transportation
Committee
Prince George's Chamber of Commerce, Transportation/
Metro Committee
Sierra Club
Suburban Trust Co., College Park Office
University of Maryland
Weinberg and Green
Weygandt Engineering, Inc.

Maryland State Senate
Hon. Arthur Dorman
Hon. John J. Garrity
Maryland House of Delegates
Hon. Kay G. Bienen
Anthony Cicoria
Timothy F. Maloney
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Mr. Len Curry
Mrs. Laura Donnelly
Mr. Mike Donnelly
Mr. David Garrett
Mr. Richard Hayes
Mrs. Esther Lovell
Mr. John Puffett
Mrs. Susan Robbins
Mr. Alan Robock
Mr. Jim Rogers
Mrs. Billie Schnabel
Mr. Larry Warren
Mr. Don Skarda

Copies of the Draft EIS were sent to owners of properties identified in preliminary real estate requirements for the proposed action. Residents of properties near the alignment were notified of the availability of the Draft EIS for inspection at the WMATA offices and at the following public libraries:

College Park	7400 Yale Avenue
Greenbelt	11 Crescent Road
Hyattsville	6530 Adelphi Road
	4330 Farragut Street
Mount Rainier	3409 Rhode Island Avenue

Copies of the Final EIS are being sent to recipients of the Draft EIS and to other federal, state, regional and local agencies, organizations and concerned citizens from whom letters commenting on the Draft EIS were received.

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