K.P.

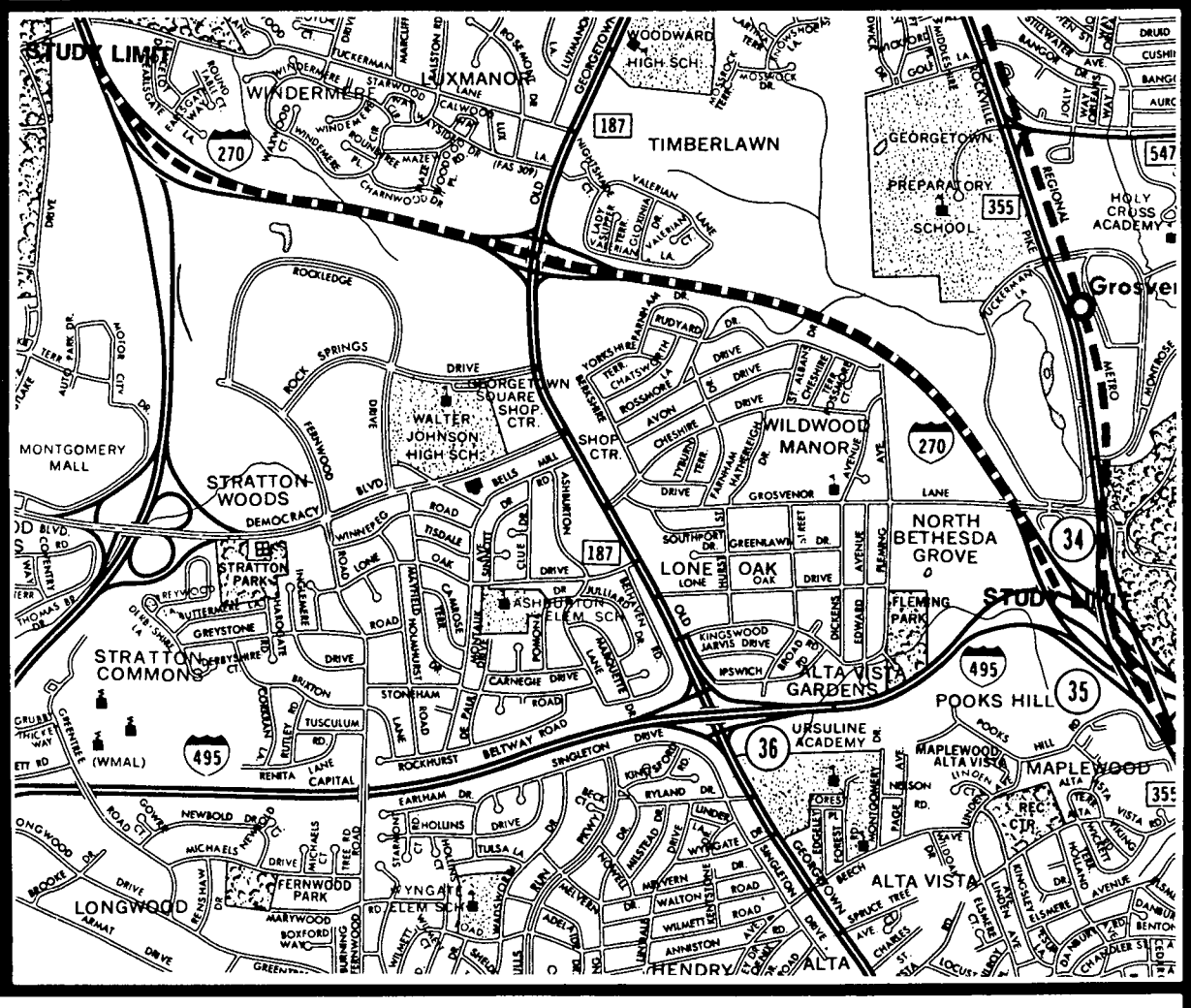
ENVIRONMENTAL ASSESSMENT

FOR

CONTRACT NO. M 401-154-372

INTERSTATE ROUTE 270

EAST SEGMENT
FROM THE Y-SPLIT TO INTERSTATE ROUTE 495
MONTGOMERY COUNTY, MARYLAND



Prepared by
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

and
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Maryland Department of Transportation
State Highway Administration

David L. Winstead
Secretary
Parker F. Williams
Administrator

Project No. MO401B16
I-270 at MD 187 and I-270 Spur
at Democracy Boulevard
Montgomery County, Maryland

FINDING OF NO SIGNIFICANT IMPACT

Enclosed for your information and files is the approved Finding of No Significant Impact (FONSI) for the I-270/MD 187 and I-270 Spur/Democracy Boulevard project. This document has been prepared in accordance with CEQ Regulations and 23 CFR 771.

The selected combination of alternatives include Alternatives 2D-Modified, 3E, 4A-Signalized-Modified, 4C, and 5C). While Alternatives 2D-Modified (at MD 187) and Alternatives 4A-Signalized-Modified and 4C (at Democracy Boulevard) propose improvements at the existing I-270 interchanges, Alternatives 3E (north of MD 187 interchange) and 5C (I-270 Spur south of Y-Split) provide new access. The selected combination of alternatives will alleviate the adverse conditions caused by inadequate capacity and safety deficiencies at existing interchanges along I-270 and in the surrounding area where further development has been recommended by the North Bethesda-Garrett Park Master Plan.

Distribution of the FONSI is made on behalf of the Federal Highway Administration in accordance with 23 CFR 771.

Louis H. Ege, Jr.
Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

Attachment
cc: Mr. Louis H. Ege, Jr.
Mr. Thomas K. Folse
Mr. Joseph R. Kresslein
Mr. Douglas Rose

My telephone number is _____
Maryland Relay Service for Impaired Hearing or Speech
1-800-735-2258 Statewide Toll Free
Mailing Address: P.O. Box 717 • Baltimore, MD 21203-0717
Street Address: 707 North Calvert Street • Baltimore, Maryland 21202

Distribution List

I-270 @ MD 187 and
I-270 Spur @ Democracy Boulevard

Finding Of No Significant Impact

FEDERAL AGENCIES

Mr. Robert J. Klumpe
State Conservationist
Soil Conservation Service
US Department of Agriculture
339 Revell Highway, Suite 301
Annapolis MD 21401

Mr. John Wolflin
US Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis MD 21401
Attn: Mr. Robert Zepp
Mr. William Schultz

Mr. John Forren
NEPA Coordinator
Environmental Protection Agency
Region III
841 Chestnut Street (3E543)
Philadelphia PA 19106
Attn: Ms. Danielle Algazi

Commander
US Army Corps of Engineers
P.O. Box 1715
10 S. Howard Street
Baltimore MD 21201
Attn: Mr. Vance Hobbs

Distribution List

I-270 @ MD 187 and
I-270 Spur @ Democracy Boulevard

Finding Of No Significant Impact

FEDERAL AGENCIES CON'T

Mr. Paul Giordano
Regional Director
Federal Emergency Management Agency
Liberty Square Building
105 South 7th Street
Philadelphia PA 19106
Attn: Mr. Walter Pierson

STATE AGENCIES

Mr. William Carroll, Chief
State Clearinghouse
Maryland Office of Planning
301 West Preston Street
Baltimore MD 21201

Mr. Ray Dintaman, Director
Environmental Review Unit
Department of Natural Resources
Resources Management Services
Tawes State Office Building, C-2
Annapolis MD 21401

Mr. Terry Clark
Water Quality Certification Division
Water Management Administration
Maryland Department of the Environment
2500 Broening Highway
Baltimore MD 21224

Distribution List

I-270 @ MD 187 and
I-270 Spur @ Democracy Boulevard

Finding Of No Significant Impact

STATE AGENCIES CON'T

Mr. Robert Bachman, Director
Tidal and Freshwater Fisheries
Department of Natural Resources
Tawes State Office Building, E-1
Annapolis MD 21401
Attn: Ms. Janet McKegg

Ms. Kathleen Fay
Maryland State Department of Education
State Depository Distribution Center
Public Depository and Distribution Program
Enoch Pratt Free Library
400 Cathedral Street
Baltimore MD 21201

Mr. Michael Slattery
Non-Tidal Wetlands and Waterways Division
Water Resources Administration
Department of Natural Resources
Tawes State Office Building
Annapolis MD 21401

Mr. Elder Ghigiarelli, Director
Water Management Administration
Maryland Department of The Environment
Tawes State Office Building, B-3
Annapolis MD 21401

Distribution List

I-270 @ MD 187 and
I-270 Spur @ Democracy Boulevard

Finding Of No Significant Impact

LOCAL GOVERNMENT AGENCIES

Mr. Larry Cole
Maryland National Capital Park and
Planning Commission
8787 Georgia Avenue
Silver Spring MD 20904

Montgomery County Citizens
Bicycle Commission
c/o Mr. Chip Johnson, Chairman
4000 Wexford Drive
Kensington MD 20910

Mr. Robert Marriot, Director
Department of Planning
8787 Georgia Avenue
Silver Spring MD 20904

Ms. Elizabeth Davison, Director
Office of Planning and Implementation
101 Monroe Street
Rockville MD 20850

Ms. Trudye Morgan-Johnson, Executive Director
Maryland National Capital Park and Planning
Commission
8787 Georgia Avenue
Silver Spring MD 20910

Ms. Carol A. Mehrling, Chief of Police
Department of Police
2350 Research Boulevard
Rockville MD 20850

Distribution List

I-270 @ MD 187 and
I-270 Spur @ Democracy Boulevard

Finding Of No Significant Impact

LOCAL GOVERNMENT AGENCIES CON'T

Mr. Jon C. Grover, Director
Department of Fire and Rescue Services
101 Monroe Street
Rockville MD 20850

Ms. Kathleen Henning, Chief
Division of Emergency Management Planning
100 Maryland Avenue
Rockville MD 20850

Mr. Charles M. Steinbraker, Acting Director
Department of Recreation
12210 Bushey Drive
Silver Spring MD 20902

Mr. Lowell Jackson, Fire Marshall
Division of Fire Protection
101 Monroe Street
Rockville MD 20850

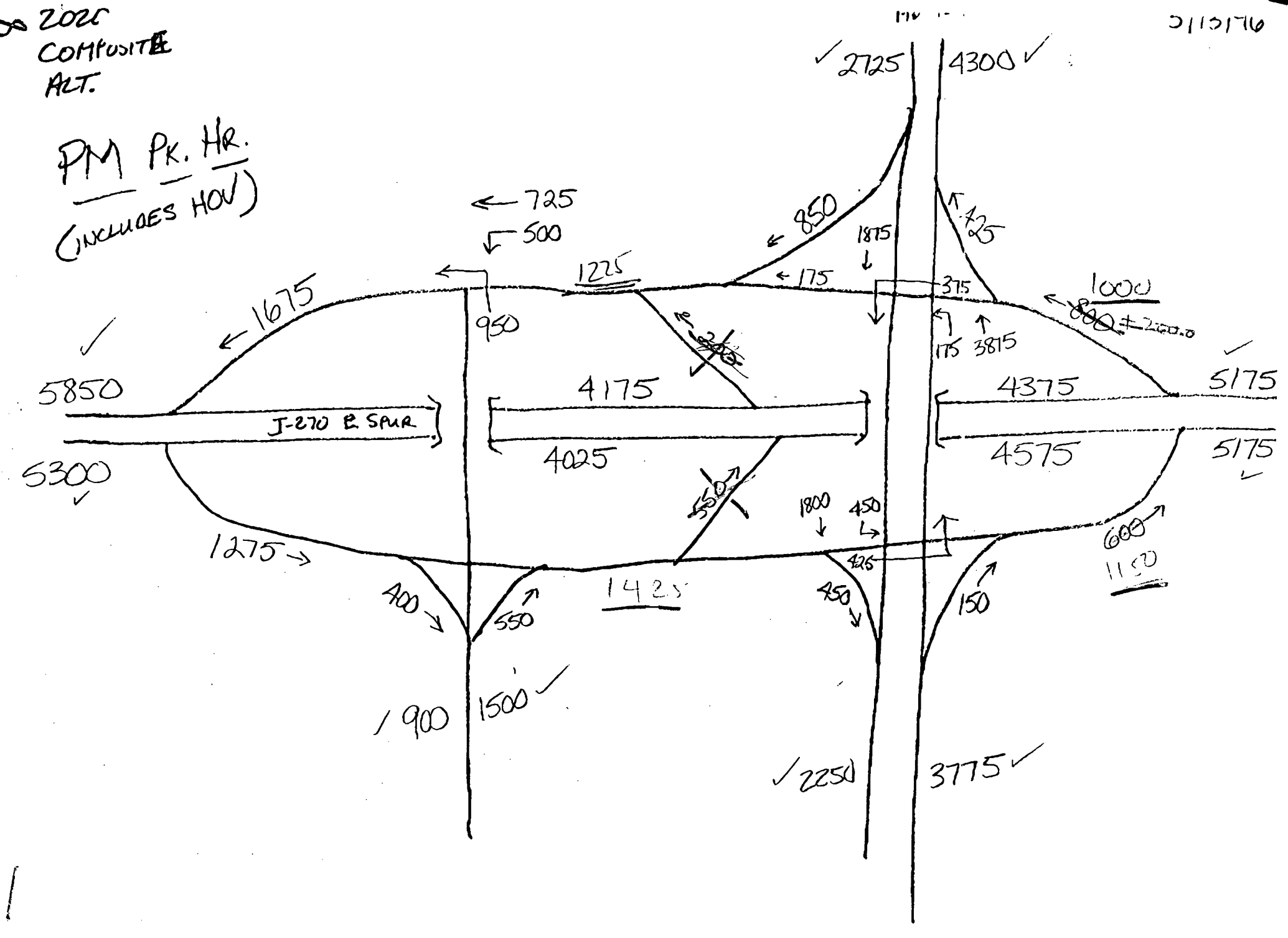
Mr. Graham Norton, Director
Department of Public Works and Transportation
101 Monroe Street
Rockville MD 20850

Mr. W. Scott Wainwright, Chief
Division of Transportation
Mobility Services
101 Monroe Street
Rockville MD 20850

∞ 2025 COMPOSITE ALT.

5/15/96

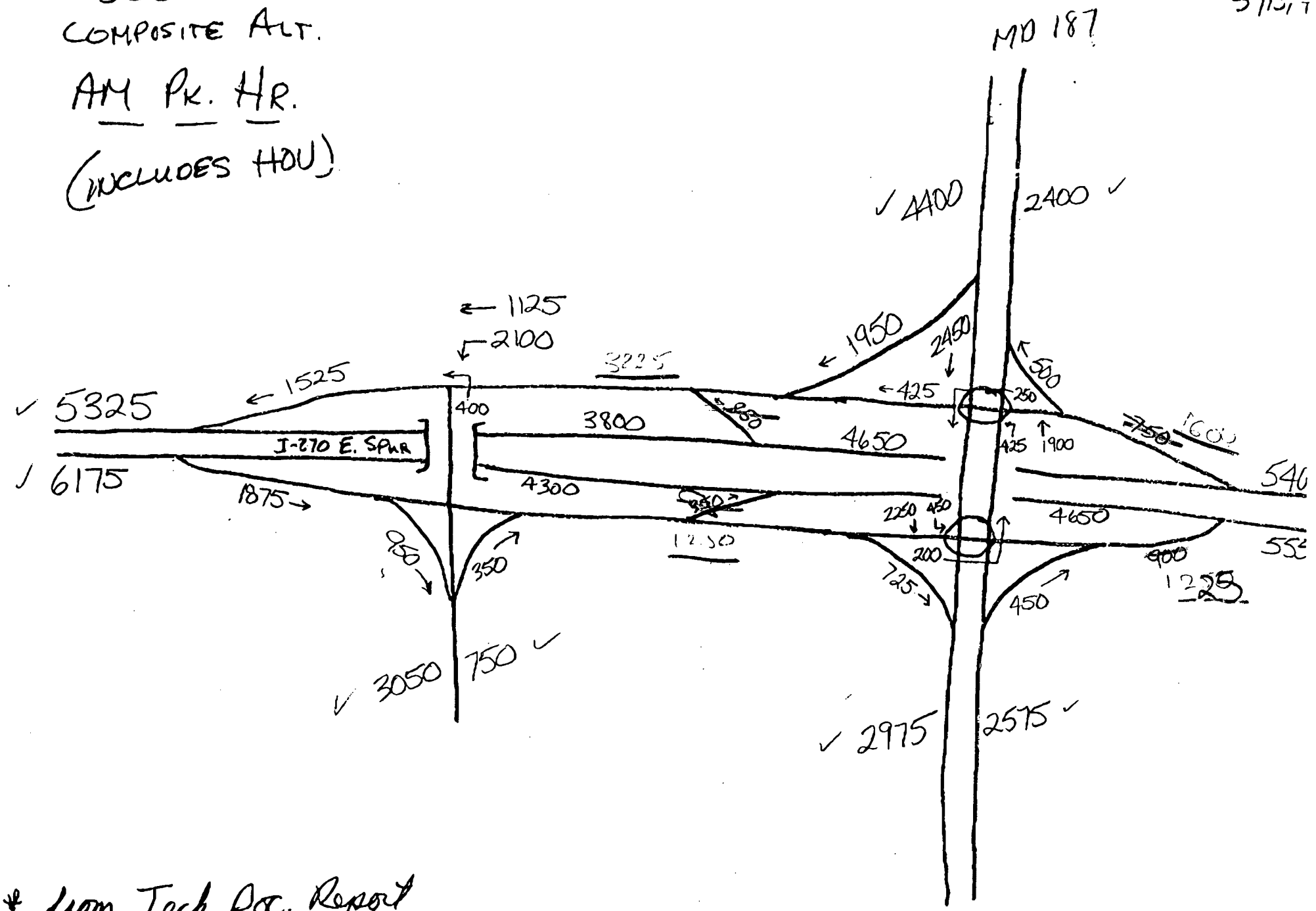
PM PK. HR.
(INCLUDES HOV)



2020
COMPOSITE ALT.

AM PK. HR.

(INCLUDES HOV)



* from Tech. Doc. Report Appendix D

REPORT NUMBER: FHWA MD-EA-86-03-D

FEDERAL HIGHWAY ADMINISTRATION

REGION III

Interstate Route 270
East Segment From The Y-Split to I-495
Montgomery County, Maryland

Administrative Action

ENVIRONMENTAL ASSESSMENT

U.S. Department of Transportation
Federal Highway Administration

and

State of Maryland
Department of Transportation
State Highway Administration

Submitted pursuant to 42 U.S.C. 4332 (s) (C), 23 U.S.C. 128 (a), 49 U.S.C. 303 (c), and CEQ Regulations (40 CFR 1500 et seq.)

HAL KASSOFF
ADMINISTRATOR

8/20/86
Date

by: Neil J. Pedersen
Neil J. Pedersen, Director
Office of Planning and
Preliminary Engineering

8/25/86
Date

by: Fred J. Hempel
Federal Highway Administration
Division Administrator

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SUMMARY

1. Administrative Action

( ) Environmental Impact Statement
(X) Environmental Assessment
( ) Finding of No Significant Impact
( ) Section 4(f) Evaluation

2. Additional Information

Additional information concerning this project may be obtained by contacting:

Mr. Louis H. Ege, Jr.
Deputy Director
Project Development Division
(Room 310)
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21202
PHONE: (301) 659-1130
HOURS: 8:15 a.m. - 4:15 p.m.

Mr. Edward Terry
District Engineer
Federal Highway Administration
The Rotunda - Suite 220
711 West 40th Street
Baltimore, Maryland 21211
PHONE: (301) 962-4010
HOURS: 7:45 a.m. - 4:15 p.m.

3. Description of Proposed Action

The proposed project consists of widening the east segment of I-270 to six lanes. An additional lane would be constructed in each direction within the existing right-of-way from the Y-split to I-495 (a distance of approximately 2.5 miles). This widening would expand capacity to accommodate traffic volumes projected for the design year 2010.

4. Alternates Description

Two alternates are being considered: Alternate 1 (No-Build Alternate) and Alternate 2 (inside widening). Alternate 1 consists of routine maintenance and safety improvements, but would not increase capacity. A 12-foot wide through traffic lane in each direction would be added within the existing median with Alternate 2. A continuous jersey-type concrete median barrier and 12-foot paved shoulders to the left of each roadway are included in the improvements. One bridge in the study area would be widened to accommodate the additional lanes.

5. Summary of Impacts

The proposed widening would occur within the existing right-of-way and does not require any residential or business relocations. However, it may be determined during the design phase that some minor right-of-way would be required for stormwater management. No historic or archeological sites on or eligible for the National Register of Historic Places would be affected. Parks and

recreational facilities would likewise not be impacted.

The proposed project would not impact any wetlands or floodplains of Rock Creek or Old Farm Creek, both of which cross under I-270. Sediment and erosion control measures would be strictly enforced during construction. Stormwater management would minimize impacts to these streams. There are no threatened or endangered species in the study area and there would be no significant loss of natural habitat.

The Federal Highway Administration Noise Abatement Criteria would be exceeded at 11 sites for the No-Build Alternate and 12 sites for the Build Alternate (Alternate 2). In addition, the projected noise level at one noise sensitive area would increase 10 and 11 dBA over existing ambient levels for the No-Build and the Build Alternates, respectively, in the design year 2010.

The State and National Ambient Air Quality standards would not be exceeded under either of the alternates.

The project is consistent with the Master Plan for the North Bethesda-Garrett Park Planning Area, 1970, as amended, the Potomac Subregion Master Plan, 1980, and the North Bethesda Sector Plan, 1978.

A comparison of impacts resulting from both alternates can be found in Table 1 on the following page.

TABLE 1

Comparison of Alternates

Interstate Route 270 (East Segment from the Y-Split to Interstate Route 495)

Analysis Item	Alternate 1	Alternate 2
Socio-economic Impacts		
1. Residential Displacements	0	0
2. Minorities Relocated	0	0
3. Business Displacements	0	0
4. Total Properties Affected	0	0
5. Historic Sites Affected	0	0
6. Archeological Sites Affected	0	0
7. Public Recreational Lands Affected	0	0
8. Effect on Residential Access	Not Improved	Improved
9. Consistency with Land Use Plans	No	Yes
Natural Environment Impacts		
1. Loss of Natural Habitat (woodland acres)	0	0
2. Effect on Wildlife Populations	0	0
3. Effect on Threatened or Endangered Species	0	0
4. Stream Crossings	2	2
5. Wetland Areas Affected	0	0
6. 100-year Floodplains Affected (acreage)	0	0
7. Prime Farmlands Soils Affected (acreage)	0	0
8. Air Quality Impacts (sites exceeding S/NAAQS)	0	0
9. Noise Sensitive Areas (NSAs exceeding Federal Noise Abatement Criteria or Experiencing a 10dBA or greater increase)	11	12
Costs (1986 dollars in thousands)		
TOTAL	0 (minimal)	$3,361

The following Environmental Assessment Form is a requirement of the Maryland Environmental Policy Act and Maryland Department of Transportation Order 11.01.06.02. Its use is in keeping with the provisions of 1500.4 (k) and 1506.2 and .6 of the Council of Environmental Quality Regulations, effective July 31, 1979, which recommend that duplication of federal, state, and local procedures be integrated into a single process.

The checklist identifies specific areas of the natural and social-economic environment which have been considered while preparing this environmental assessment. The reviewer can refer to the appropriate sections of the document, as indicated in the "Comment" column of the form, for a description of specific characteristics of the natural or social-economic environment within the proposed project area. It will also highlight any potential impacts, beneficial or adverse, that the action may incur. The "No" column indicates that, during the scoping and early coordination processes, that specific area of the environment was not identified to be within the project area or would not be impacted by the proposed action.

ENVIRONMENTAL ASSESSMENT FORM

	Yes	No	Comments
A. Land Use Considerations			
1. Will the action be within the 100-year floodplain?		X	
2. Will the action require a permit for construction or alteration within the 50-year floodplain?		X	
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?		X	
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?		X	
5. Will the action occur on slopes exceeding 15 percent?		X	
6. Will the action require a grading plan or a sediment control permit?	X		Section IV-E
7. Will the action require a mining permit for deep or surface mining?		X	
8. Will the action require a permit for drilling a gas or an oil well?		X	
9. Will the action require a permit for airport construction?		X	
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?		X	
11. Will the action affect the use of a public recreation area, park, forest, wildlife, management area, scenic river, or wildland?		X	
12. Will the action affect the use of natural or man-made features that are unique to the county, state or nation?		X	

	Yes	No	Comments
13. Will the action affect the use of an archeological or historical site or structure?		X	
B. Water Use Considerations			
14. Will the action require a permit for the change of the course, current, or cross-section of stream or other body of water?		X	
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?		X	
16. Will the action change the overland flow of stormwater or reduce the absorption capacity of the ground?	X		Section IV-E
17. Will the action require a permit for the drilling of a water well?		X	
18. Will the action require a permit for water appropriation?		X	
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?		X	
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?		X	
21. Will the action result in any discharge into surface or sub-surface water?		X	
22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?		X	
C. Air Use Considerations			
23. Will the action result in any discharge into the air?	X		Section IV-G

	Yes	No	Comments
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?	____	X	____
25. Will the action generate additional noise which differs in character or level from present conditions?	X	____	Section IV-F
26. Will the action preclude future use of related air space?	____	X	____
27. Will the action generate any radiological, electrical, magnetic, or light influences?	____	X	____
D. Plants and Animals			
28. Will the action cause the disturbance, reduction, or loss of any rare, unique or valuable plant or animal?	____	X	____
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	____	X	____
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?	____	X	____
E. Socio-economic			
31. Will the action result in a preemption or division of properties or impair their economic use?	____	X	____
32. Will the action cause relocation of activities or structures, or result in a change in the population density or distribution?	____	X	____
33. Will the action alter land values?	____	X	____
34. Will the action affect traffic flow and volume?	X	____	Sections II-A, C

	Yes	No	Comments
35. Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?		X	
36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?		X	
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans, including zoning?	X		Section IV-C
38. Will the action affect the employment opportunities for persons in the area?	X		Section IV-B
39. Will the action affect the ability of the area to attract new sources of tax revenue?	X		Section IV-B
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?		X	
41. Will the action affect the ability of the area to attract tourism?		X	
F. Other Considerations			
42. Could the action endanger the public health, safety, or welfare?		X	
43. Could the action be eliminated without deleterious effects to the public health, safety, welfare, or the natural environment?		X	Section II-A
44. Will the action be of statewide significance?		X	

	Yes	No	Comments
45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare or environment?		X	
46. Will the action require additional power generation or transmission capacity?		X	
47. This agency will develop a complete environmental effects report on the proposed action.	X		See Note Below*

*This environmental assessment has been prepared in accordance with the National Environmental Policy Act and the Federal Department of Transportation Order 5610.1c.

I DESCRIPTION OF PROPOSED ACTION

I. DESCRIPTION OF PROPOSED ACTION

A. Project Location

Interstate Route 270, part of the Interstate Highway System, extends in a north-south direction from the city of Frederick to northwest of Washington, D.C., in Montgomery County. This route is one of the major routes to Washington, D.C., and serves a heavy volume of local commuter traffic as well as interstate traffic passing through the region. The east segment of Interstate Route 270, located in Montgomery County, is a four-lane, divided highway with full control of access. The only interchange within the project's limits is at Maryland Route 187 (Old Georgetown Road). The project area is part of one of the fastest growing corridors in Maryland in terms of residential, commercial, and industrial development, and has been designated a growth area in Montgomery County area master plans. The project limits extend from south of Tuckerman Lane (at the Y-split) to south of Grosvenor Lane (at Interstate Route 495) for a distance of approximately 2.5 miles (See Figures 1 and 2).

B. Project Description

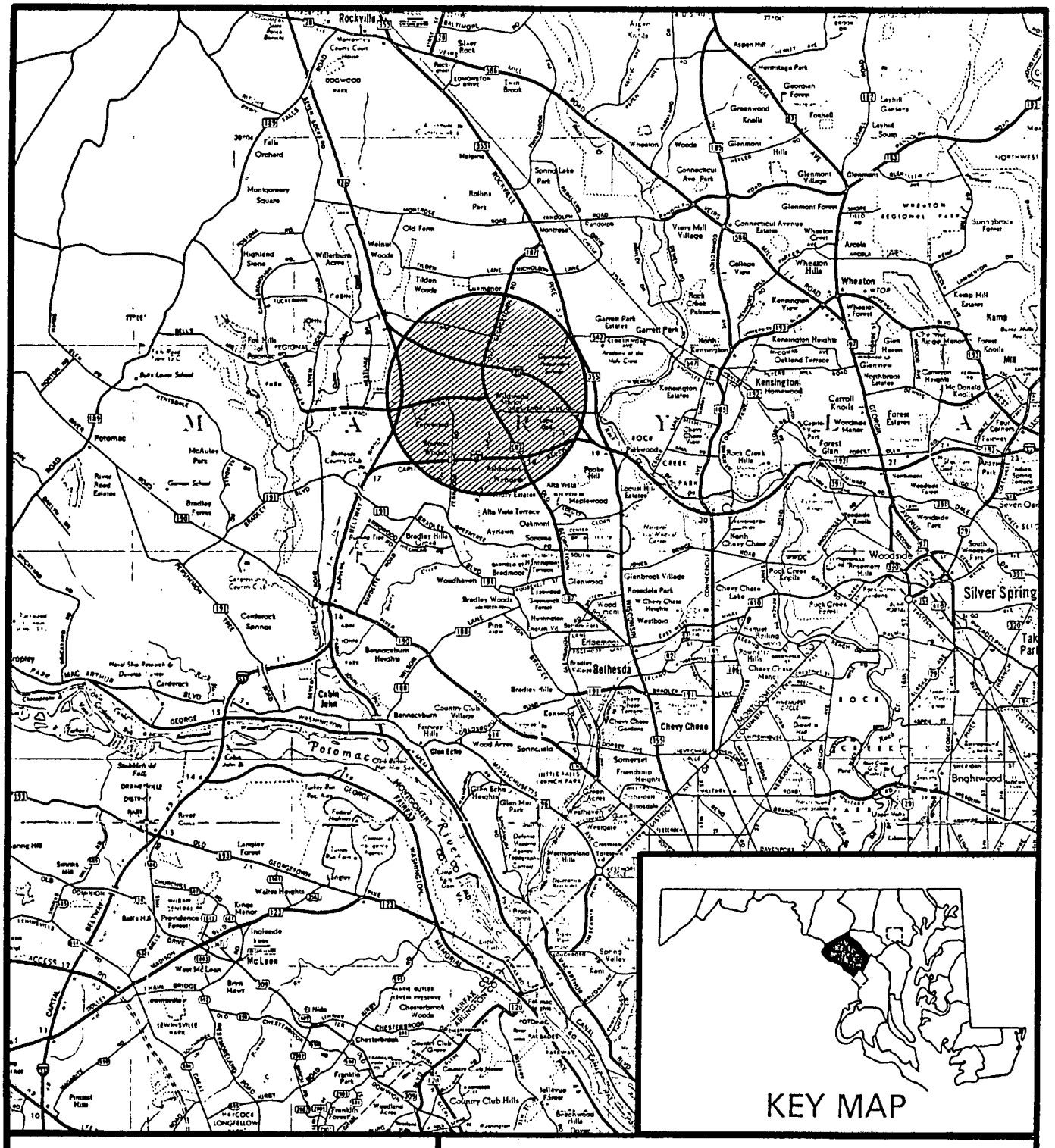
The proposed project consists of the widening of the east segment of Interstate Route 270 to six lanes. Besides the No-Build Alternate (Alternate 1), one widening alternate (Alternate 2) is being considered for improving capacity and traffic operations. This alternate consists of the construction of one 12-foot travel lane with a 12-foot shoulder in each direction within the existing median.

C. Description of Existing Environment

1. Social Environment

a. Population

The study area is situated in Montgomery County, Maryland, northwest of Washington, D.C. The study area lies at the southern end of the I-270 corridor, which is one of the fastest growing transportation corridors in Montgomery County and the state. Major business and industrial concentrations, as well as significant residential development, are located along this corridor. This county is Maryland's fourth most populous jurisdiction. According to the 1980 U.S. Census, the population of this county increased by nearly 11 percent in the period from 1970 to 1980 (see Table 2). The Maryland Department of State



NORTH

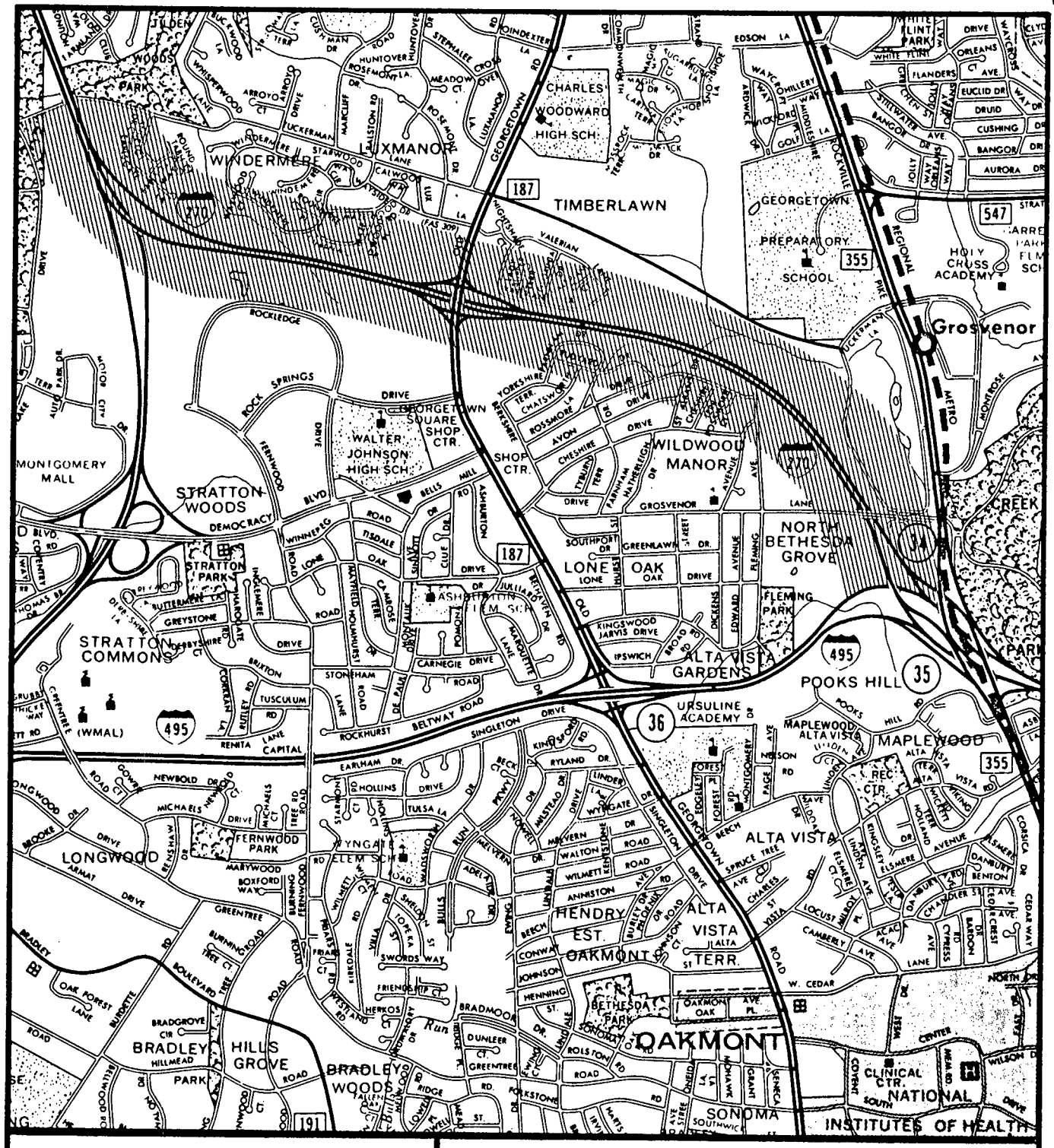
0 3 6 MILES

SCALE

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

PROJECT LOCATION

FIGURE 1



NORTH

0 2000 4000 FT

SCALE

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

STUDY AREA

FIGURE 2

TABLE 2

Population and Growth in the Study Area

Census Tracts	1970	1980	% Change
Montgomery County	522,809	579,053	+10.8
7012.05	6,162	5,981	-2.9
7012.03	4,487	4,532	-1.0
7044.01	3,156	2,657	-15.8
7060.03[a] 7060.04[a] 7060.05[a]	10,269[b]	16,171	+57.5
Total Census Tracts	24,074	29,341	+21.9
7060.04 (1980)	-	4,835	-

[a]Area equivalent to Census Tract 7060.01 in 1970.

[b]Population in Census Tract 7060.01.

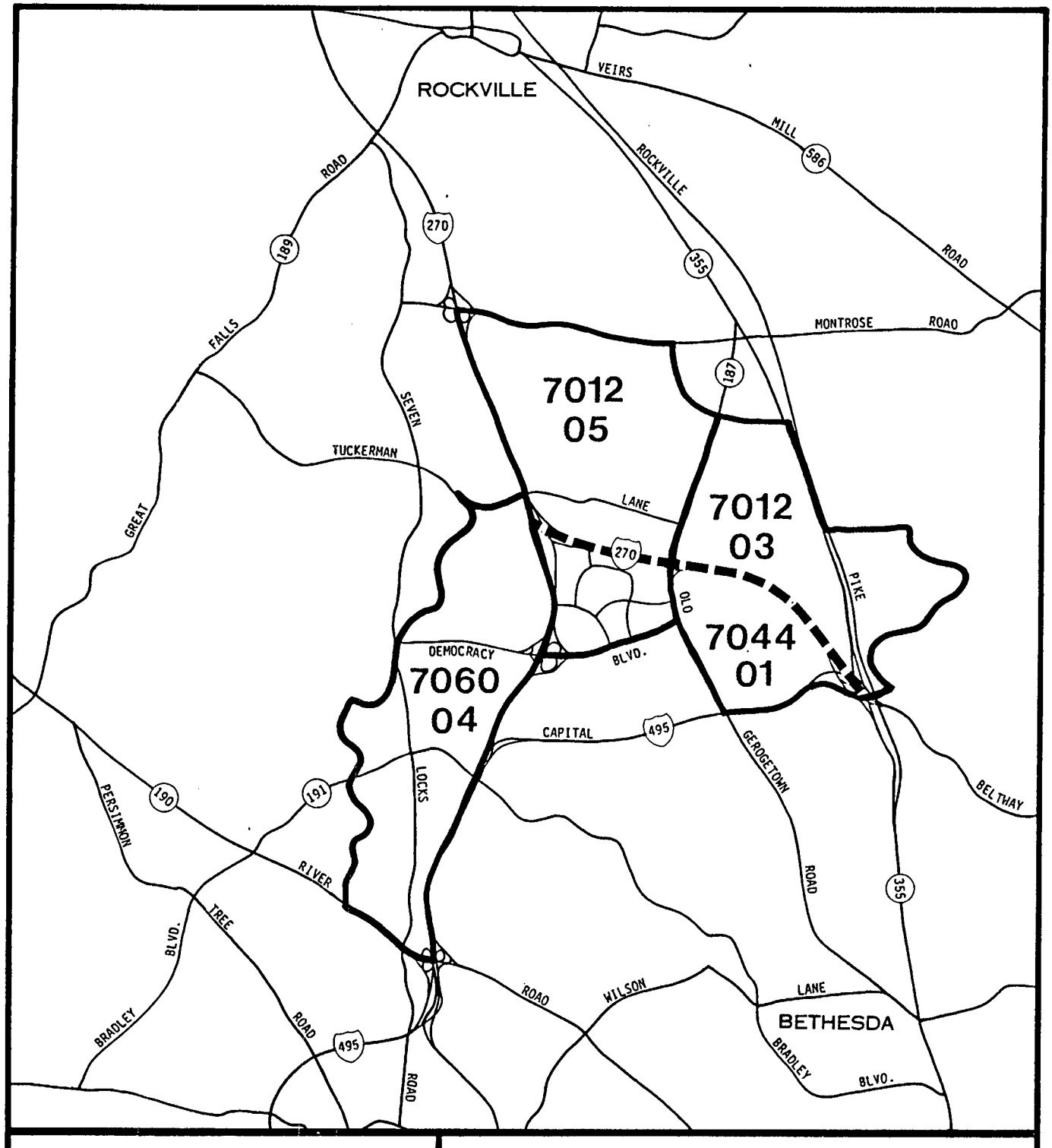
Source: 1980 United States Census of Population and Housing.

Planning predicts that Montgomery County's population will grow by nearly 21 percent by the year 2000.

The study area includes portions of Census Tracts 7012.03, 7012.05, 7044.01, and 7060.04* (see Figure 3). During the last decade, the total population in the area defined by these census tracts increased by 21.9 percent with the largest amount of growth occurring in Census Tracts 7060.04, 7060.05, and 7060.03 (57.5 percent). The other census tracts had a net decline in population due to a reduction in household sizes and low housing growth (see Table 2). In 1980, the total population in Census Tracts 7012.03, 7012.05, 7044.01, and 7060.04 was 18,005 with the greatest proportion (33.2 percent) residing in Census Tract 7012.05.

An analysis of 1980 census data indicates that 93.1 percent of the population in these four census tracts was white, 2.0 percent was black, 4.2 percent was of Oriental origin, 0.1 percent was American Indian, and 0.6 percent was classified as other. The largest proportion of minorities (10.4 percent) appears in Census Tract 7044.01, which also has the smallest percentage of the total population among all four census tracts (14.8 percent). Those age 60 and older comprise 16.5 percent of the study area population; that is, the population in these four census tracts. The largest percentage of this age group resides in Census Tract 7012.03 (28.0 percent). No concentrations of elderly, handicapped, or minority individuals have been identified in the study area.

*For accurate population comparisons between 1970 and 1980, Census Tract 7060.04 must be combined with Census Tracts 7060.03 and 7060.05 to comprise an area equivalent to 1970 Census Tract 7060.01, which was divided after 1970.



NORTH

0 2 4 MILES

SCALE

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

CENSUS TRACTS

FIGURE 3

b. Community Facilities and Services (Figure 4)

Contained in the study area are the following services and facilities:

Schools -	Grosvenor Elementary Georgetown Preparatory Charles Woodward High Walter Johnson High
Churches -	St. Mark's United Presbyterian
Parks and Recreation Areas -	Cabin John Regional Park Tilden Woods Park Fleming Park Windermere Recreation Center

Other facilities and services are located outside of the study area, but are available to local residents. The county fire station at Democracy Boulevard provides fire protection and ambulance service. Police protection is provided by the Montgomery County Police Department originating out of the Bethesda and Rockville district stations and the Maryland State Police, Rockville barracks. The Davis branch of the county library system and the Davis Information Center for People With Special Needs are located on Democracy Boulevard. Various branches of the Rockville and Bethesda post offices are also nearby. The closest hospitals are Shady Grove Adventist in Rockville, and Suburban and Bethesda Naval in Bethesda. The study area is well served by regional bus service, some Montgomery County Department of Transportation Ride-on Service, commuter rail service from Garrett Park, and Metrorail Service (Grosvenor Station). In addition, the study area is served by public water and sewer.

2. Economic Environment

Sections of the I-270 corridor within the study area that are not in residential use are devoted to light industrial/office development, oriented toward high technology, research, and administration. Major business and industrial concentrations are also located along the remaining length of this corridor north of the study area. Several major shopping centers and some scattered commercial areas are located within the study area south of the I-270/Maryland Route 187 interchange. Most employment in the study area is limited to these industrial and commercial areas. Some future increase in area employment is anticipated as industrial uses expand to fill the remaining vacant areas surrounding existing industrial development in the southwest quadrant of the

I-270/Maryland Route 187 interchange. An analysis of 1980 census data reveals that a majority of the working population in these census tracts were employed in public administration, retail and wholesale trade, health services, professional services, and finance, insurance, and real estate.

The commuting patterns of the study area population reflect the county's evolution into a major employment center and the location of employment in the I-270 corridor. Nearly 60 percent of those employed are commuters who hold jobs within the county.

The 1979 median household income average for the four census tracts was $36,430, which was higher than the countywide median of $28,994. The median income figure of $52,526 for Census Tract 7012.05 was the highest among the group.

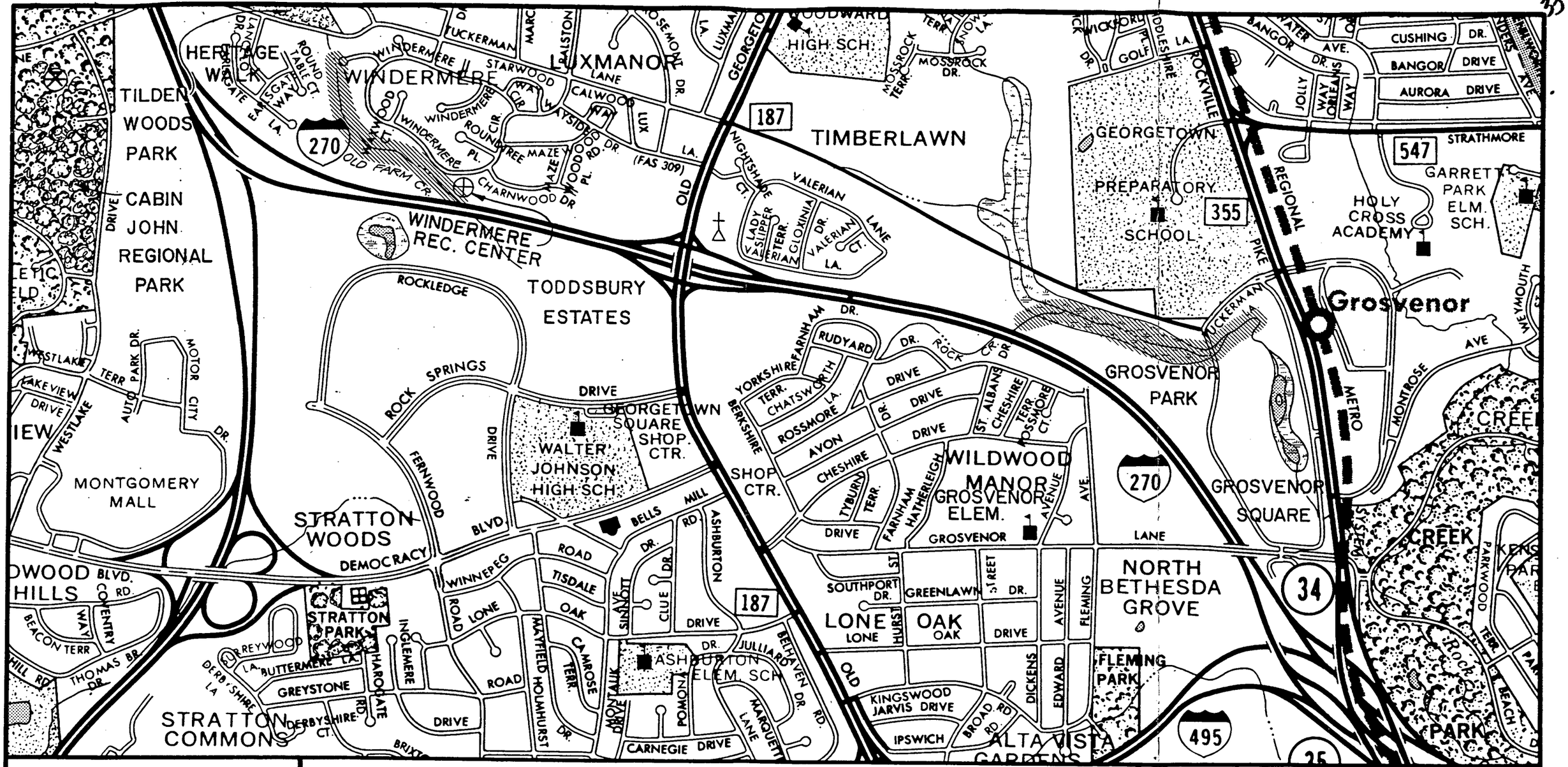
3. Land Use

a. Existing (Figure 5)

The predominant land uses in the study area are characterized by medium-to-high density residential development (single family dwellings, townhouses, high rise apartments) with wooded buffers between this development and nearby highways. Most housing stock has been constructed in the past 20 years. The density increases from west to east as development gets closer to mass transit facilities. Another major land use, although not dominant, is light industrial/office/research consisting of major employers and large facilities (i.e., IBM, Martin Marietta, Sovran Bank-Maryland). Other uses include some commercial and retail areas (Montgomery Mall, Georgetown Square Shopping Center), some wooded and vacant tracts, and institutional uses (parks, schools, etc.). No land is devoted to agriculture. The majority of the land in the corridor is either already developed or committed to public use, such as roadways and parks.

b. Future (Figure 6)

The Master Plan for the North Bethesda-Garrett Park Planning Area, 1970, as amended, indicates that vacant areas are to be developed for residential or commercial/industrial uses consistent with those uses now existing in surrounding properties. The present character of the study area would remain essentially unchanged. Continued development would be directed into the area due to the provision of freeways, mass transit, and other public facilities.



LEGEND

- SCHOOL
- CHURCH
- FIREHOUSE
- RECREATION CENTER
- LIBRARY
- STREAM
- PARKS & RECREATION AREAS
- WETLAND
- 100-YEAR FLOODPLAIN

NORTH

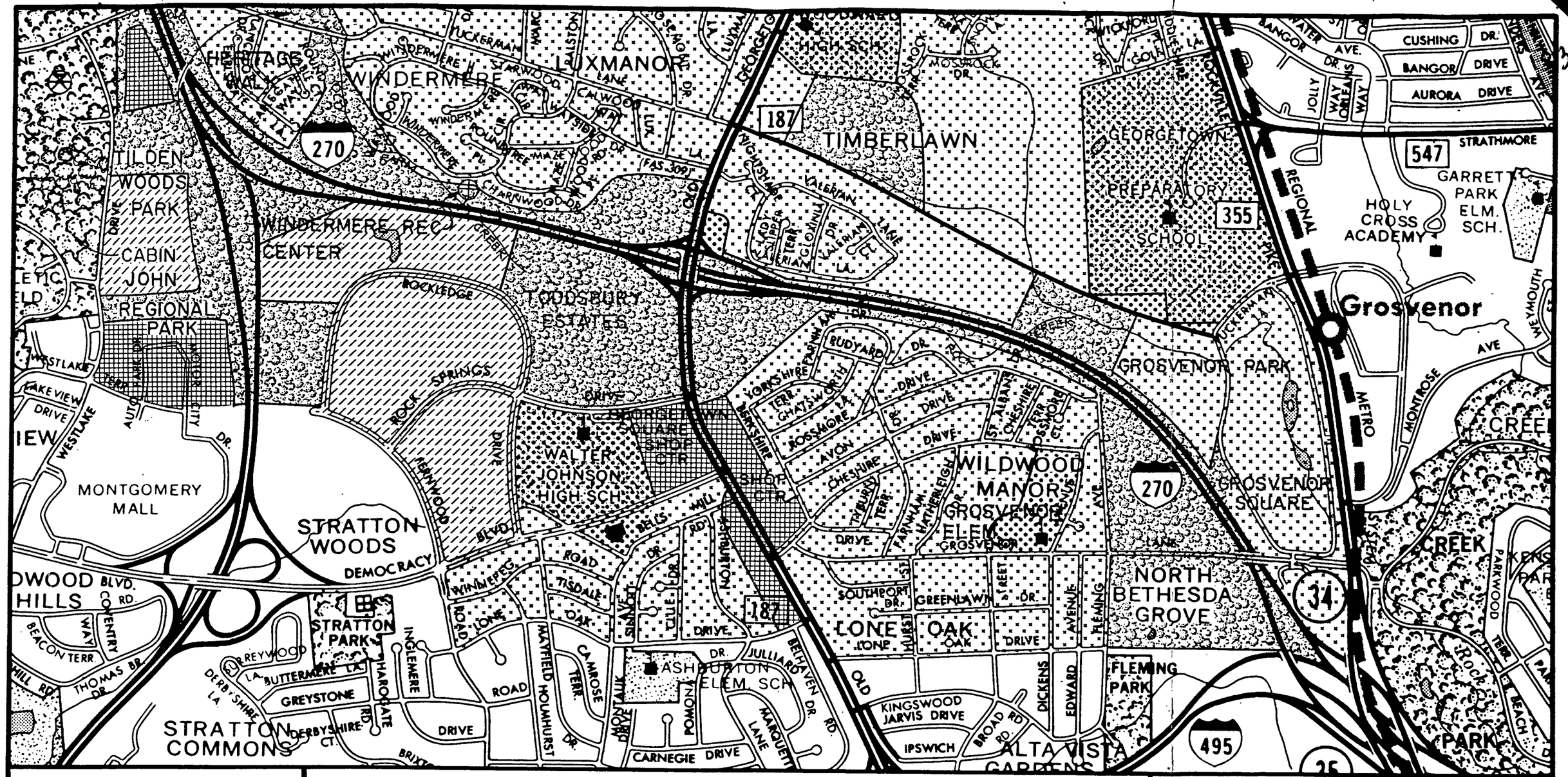
0 1000 2000 FT

SCALE

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

COMMUNITY FACILITIES & ENVIRONMENTAL FEATURES

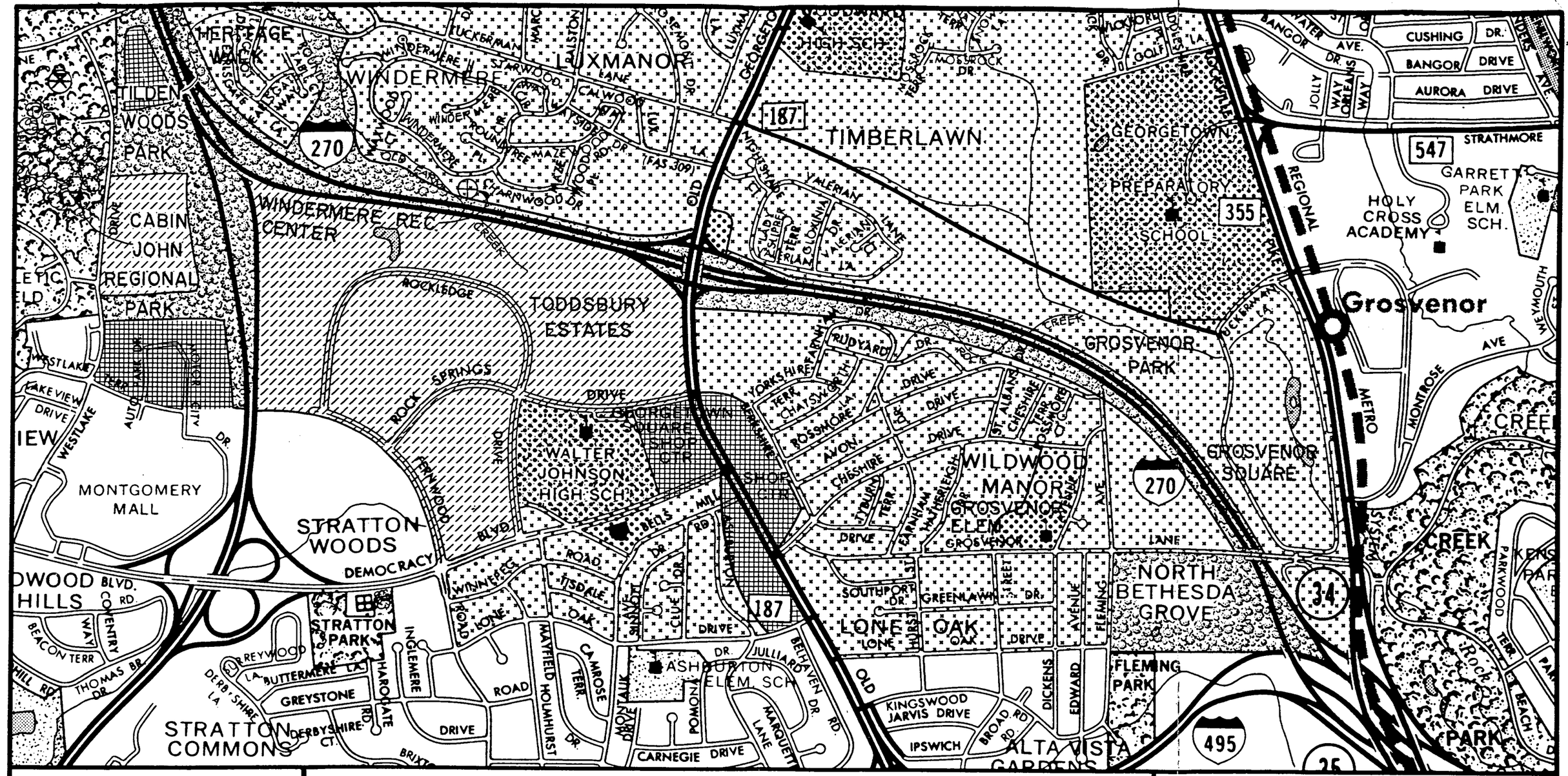
FIGURE 4



INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

EXISTING LAND USE

FIGURE 5



NORTH

0 1000 2000 FT

SCALE

LEGEND

- RESIDENTIAL
- COMMERCIAL
- LIGHT INDUSTRIAL/OFFICE
- WOODED/BRUSH/VACANT
- INSTITUTIONAL/RECREATION

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

FUTURE LAND USE

FIGURE 6

4. Historic and Archeological Sites

The project would occur entirely within state-owned right-of-way. An historic sites survey of the study area revealed that there were no sites on or eligible for the National Register of Historic Places. No archeological sites would be affected.

5. Natural Environment

a. Topography/Physiography

Terrain in the study area is generally flat to gently rolling. The study area lies on the Piedmont Physiographic Province. Elevations in the area vary between 300 and 400 feet above mean sea level.

b. Geology

The Piedmont Province is composed of hard, crystalline igneous and metamorphic rocks including schist, gneiss, and gabbro.

c. Soils

According to the Soil Survey of Montgomery County, published by the U.S. Department of Agriculture, Soil Conservation Service, soils in the project area belong to the Glenelg-Manor-Chester Association and are well-drained micaceous soils.

The Manor Channery series consists of silt loams with slopes of 15-25 percent. The moderately eroded soils of this group provide the best (most problem-free) sites for urban development. Slopes are favorable, thus requiring only minimal cutting, filling and grading.

The Wehadkee series consists of silt loams with slopes of 0-3 percent. These soils generally occur in areas that are occassionally flooded, and have severe limitations for use as sites for commercial and residential development.

The study area does not contain any Prime, Statewide, and Unique Farmland classified by the U.S. Department of Agriculture.

d. Groundwater

The Wissahickon Formation has small to moderate supplies of groundwater available throughout this region. This Hydrologic Unit II contains aquifers of intermediate productivity, and includes those geologic units in which the average well yields and specific capacities fall between 25 and 50 percent. The yields of wells in this study area range from less than 1 to 200 gallons per minute.

e. Surface Water

The study area lies within the Washington Metropolitan Area Watershed. Tributaries of Old Farm Creek and Rock Creek, which pass under I-270 via concrete pipes, are the only streams within the study area. The widening in the sections where the streams occur will take place within the existing median and may require minimal modification of the existing drainage structures.

The Maryland Department of Health and Mental Hygiene has classified all surface waters of the state into four categories according to their desired uses. These categories are:

Class I - Water contact recreation, for fish, other aquatic life, and wildlife.

Class II - Shellfish harvesting.

Class III - Natural trout waters.

Class IV - Recreational trout waters.

All waters of the state are Class I with additional protection provided by higher classifications.

Stream waters in the study area are classified as Class I.

f. Floodplains

According to the Federal Emergency Management Agency (FEMA), the extent of the 100-year floodplains associated with these streams lies outside of the I-270 corridor and would not be affected by the proposed project (see Figure 4).

g. Ecology

1) Terrestrial

Some woodlands still remain on the highway periphery and have been identified as the Tulip-Poplar Association. Characterized by the presence of tulip poplar (Liriodendron tulipifera), common associated species include: red maple (Acer rubrum), flowering dogwood (Cornus florida), Virginia creeper (Parthenocissus quinquefolia), black gum (Nyssa sylvatica), white oak (Quercus alba), sassafras (Sassafras albidum), black cherry (Prunus serotina), grape (Vitis sp.), mockernut hickory (Carya tomentosa), southern arrowwood (Viburnum dentatum), Japanese honeysuckle (Lonicera japonica), spicebush (Lindera benzoin), and skunk cabbage (Symplolocarpus foetidus). The median is comprised of grassy, shrubby, and wooded areas. The median area also supports a few bird species and mammals such as mice, rabbits, oppossum, moles, and squirrels. However, because the median is bounded on both sides with roadways, its value as wildlife habitat is minimal.

2) Aquatic

Two wetlands within the study area have been identified by field inspection and by using the U.S. Department of the Interior National Wetlands Inventory (see Figure 4). These wetlands are associated with Old Farm and Rock Creeks. Both wetlands are broad-leaved, deciduous, forested, palustrine wetlands that are temporarily flooded. They are located outside the area of the proposed improvements.

No finfish species inhabit the two streams in the area of the proposed improvements.

h. Threatened or Endangered Species

Coordination with the Maryland Department of Natural Resources and the U.S. Fish and Wildlife Service indicates that there are no known populations of federally-listed threatened or endangered species in the study area.

6. Existing Noise Conditions

Fourteen noise sensitive areas (NSAs) have been identified in the Interstate Route 270 study area. Descriptions of these noise sensitive areas are provided in Table 3. The location of the NSAs are shown on Figure 7. A copy of the technical analysis report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

Highway traffic noise is usually measured on the "A" weighted decibel scale, "dBA", which is the scale that has frequency range closest to that of the human ear. In order to give a sense of perspective, a quiet rural night would register about 25 dBA, a quiet suburban night would register about 60 dBA, and a very noisy urban daytime about 80 dBA. Under typical field conditions, noise level changes of 2-3 dBA can barely be detected, with a 5 dBA change readily noticeable. A 10 dBA increase is judged by most people to be a doubling of sound loudness. (This information is presented in the "Fundamentals and Abatement of Highway Traffic Noise," by Bolt, Beranek & Newman, Inc., for FHWA, 1980).

The Federal Highway Administration has established, through the Federal-Aid Highway Program Manual (FHPM) 7-7-3, noise abatement criteria for various land uses (see Table 4).

The noise levels are expressed in terms of an L_{eq} noise level or equivalent levels on an hourly basis. The L_{eq} noise level is the energy-averaged level for a given period of time.

TABLE 3

Noise Sensitive Area Descriptions

Noise Sensitive Areas	Activity Category	Description
1	B	Grosvenor Mews Townhomes. Two-story single family brick townhouses on King Charles Way.
1A	B	Grosvenor Mews Townhomes. Two-story single family brick townhouses on King Charles Way.
2	B	Grosvenor Park Condominium. One, 13-story, brick, air conditioned condominium located on Grosvenor Place.
3	B	Wildwood Manor Subdivision. Two-story single family brick/frame residences along Rossmore Drive.
4	B	Wildwood Manor Subdivision. One-and-one-half-story single family brick/frame residences along Farnham Drive.
5	B	St. Mark's Church. One, four-story, stone, air conditioned church with access to Old Georgetown Road.
6	B	Two-story, single family brick residences located on Valerian Lane.
7	B	Community Tennis Courts. Located on Valerian Lane.
8	B	Two-story, single family, brick, air conditioned townhomes located on Pine Haven Terrace.
9	B	Two-story, single family, brick, air conditioned townhomes located on Groveridge Way.
10	B	Two-story, single family, brick residences located on Charnwood Drive.
11	B	Windermere Recreation Center. Recreation Center and swimming pool located on Windermere Circle.
12	B	Two-story, single family, brick residence located on Earlsgate Lane.
13	B	Two-story, single family, brick residence located on Earlsgate Lane.

All ambient and predicted levels in this report are L_{eq} exterior levels unless otherwise noted.

Measurement of ambient noise levels is intended to establish the basis for impact analysis. The ambient noise level as recorded represents a generalized view of present noise levels. Variations with time of total traffic volume, truck traffic volumes, speed, etc., may cause fluctuations in ambient noise levels of several decibels. However, for the purpose of impact assessment, these fluctuations are not sufficient to significantly affect the assessment. Ambient noise levels were also predicted using computer modeling to ensure the accuracy of measured noise conditions.

It was determined for all the noise sensitive areas, that the most typical noise conditions occur during the non-rush hour period (9:00 a.m. - 4:00 p.m.). During this time, the highest noise levels are experienced for the greatest length of time.

The monitored and predicted ambient noise levels are included in Table 5; also see Figure 7 for NSA receptor locations.

7. Existing Air Quality

The Interstate Route 270 project is within the National Capital Intrastate Air Quality Control Region. The region does not meet the primary standards for carbon monoxide (CO) and is subject to transportation control measures such as the Vehicle Emissions Inspections Program.

A detailed microscale air quality analysis has been performed to determine the CO impact of the proposed project, which is described in further detail in Section IV-G.

TABLE 4

Noise Abatement Criteria and Land Use Relationships
Specified in FHPM 7-7-3

Activity Category	L_{eq} (h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties or activities not included in Categories A or B above.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

TABLE 5

Ambient Noise Levels

I-270 East Segment Widening

NSA	Description	Measured Ambient L_{eq}	Predicted Ambient Leq
1	Residential	59	61
1A	Residential	66	66
2	Residential	59	59
3	Residential	66	67
4	Residential	66	66
5	Church	63	64
6	Residential	62	64
7	Residential (Tennis Courts)	70	68
8	Residential	62	64
9	Residential	62	65
10	Residential	65	65
11	Recreation Center	59	64
12	Residential	64	65
13	Residential	64	65

II NEED FOR THE PROJECT

II. NEED FOR THE PROJECT

A. Purpose

The purpose of the proposed action is to widen the east segment of I-270 by construction of an additional lane in each direction. This four-lane segment of I-270 presently experiences congestion and is anticipated to continue to experience traffic capacity problems through the design year 2010 as traffic volumes continue to increase. These increased volumes will be largely a result of planned area growth.

Traffic service and safety problems related to inadequate capacity and congestion are especially critical during the morning and afternoon rush hour periods. This proposed action would expand capacity, reduce congestion, lower the potential for accidents, and improve overall traffic operations.

B. Project Background

The east segment of I-270 was originally constructed about 1956 and was then designated I-70S. The east segment was first included in the 1985-1990 Consolidated Transportation Program (CTP) for study to upgrade it to a six-lane freeway.

The project is currently listed in the Interstate Development and Evaluation Program of the Maryland Department of Transportation's 1986-1991 CTP for planning and engineering through fiscal year 1988. Following location and design approvals, the project will be eligible for inclusion in future programs of the CTP for construction.

This project is consistent with the improvements being planned and/or designed for other sections of I-270 and I-495 in Montgomery County. It is also consistent with the Master Plan for the North Bethesda-Garrett Park Planning Area (1970, as amended), The Potomac Subregion Master Plan (1980), and the North Bethesda Sector Plan (1978).

C. Existing and Projected Traffic Conditions

Quality of traffic flow along a roadway is measured in terms of levels of service (LOS). This measure is dependent on traffic characteristics and roadway geometry. It ranges from LOS "A" (best or free flow, high speeds) to LOS "C" (minimum desirable) to LOS "E" (capacity, low speeds, temporary delays) and LOS "F" (worst or forced flow, frequent delays).

The LOS on the east segment of I-270 is currently "D" and is characterized by heavy traffic volumes and decreasing speeds. Under the No-Build condition,

the LOS will worsen to "F" by the design year. By widening this section of I-270, the LOS is projected to improve to "C" by the design year 2010.

The east segment of I-270 carries an average daily traffic (ADT) ranging from 62,000 to 65,000 vehicles, 7 percent of which are trucks. The latest traffic projections predict the ADT to increase to 83,000 vehicles (7 percent trucks) by the design year. Adding these traffic volumes without adding capacity will result in a worsening of the LOS, congestion of longer durations, and erratic traffic flow.

D. Existing and Projected Safety Conditions

The east segment of I-270 experienced an average accident rate of 105 accidents per 100 million vehicle miles of travel (100 mvm) for the 4-year period from 1981 to 1984. This rate is significantly higher than the statewide average rate of 71 accidents per 100 mvm of travel on highways of similar design. A total of 264 accidents was reported on this section of roadway during the study period. Over 48 percent of these total accidents was attributed to rear end collisions. The bulk of the remaining collision types were attributed to those involving a fixed object (25 percent) and vehicle sideswipes (14 percent). Wet surface conditions contributed to 55 percent of the accident total.

The rates for rear end, fixed object, and wet surface accidents are significantly above the respective statewide averages. The rear end collisions are mainly associated with congestion, whereas the wet surface accidents indicate a smooth road surface condition. Collisions with fixed objects are mainly associated with weaving at interchanges and "stop and go" traffic associated with congestion.

No high accident highway sections were identified along the I-270 mainline roadway. High accident interchange ramps were identified as the ramp from westbound I-270 to northbound Maryland Route 187 and the ramp from eastbound I-270 to southbound Maryland Route 187 (1983 and 1984). These ramps had accident rates of 0.73 and 0.68 accidents/100 mvm respectively. Their rank is low compared to other accident locations in the county (i.e., in the lower tenth).

III ALTERNATES CONSIDERED

III. ALTERNATES CONSIDERED

A. Alternate 1 (No-Build)

This alternate would provide no major improvements or construction to the existing roadway, which would measurably affect the ability of the highway to accommodate increased traffic volumes predicted for the design year 2010. Normal maintenance, such as resurfacing or safety improvements, would be completed as warranted, but capacity would not be increased.

This Administration regards this alternate to be an infeasible solution to present and anticipated traffic capacity problems. As traffic volumes grow, the frequency and duration of congested periods will likely increase. In turn, this congestion would increase the potential for accidents and delays for travelers through the area.

B. Alternate 2 (Inside Widening)

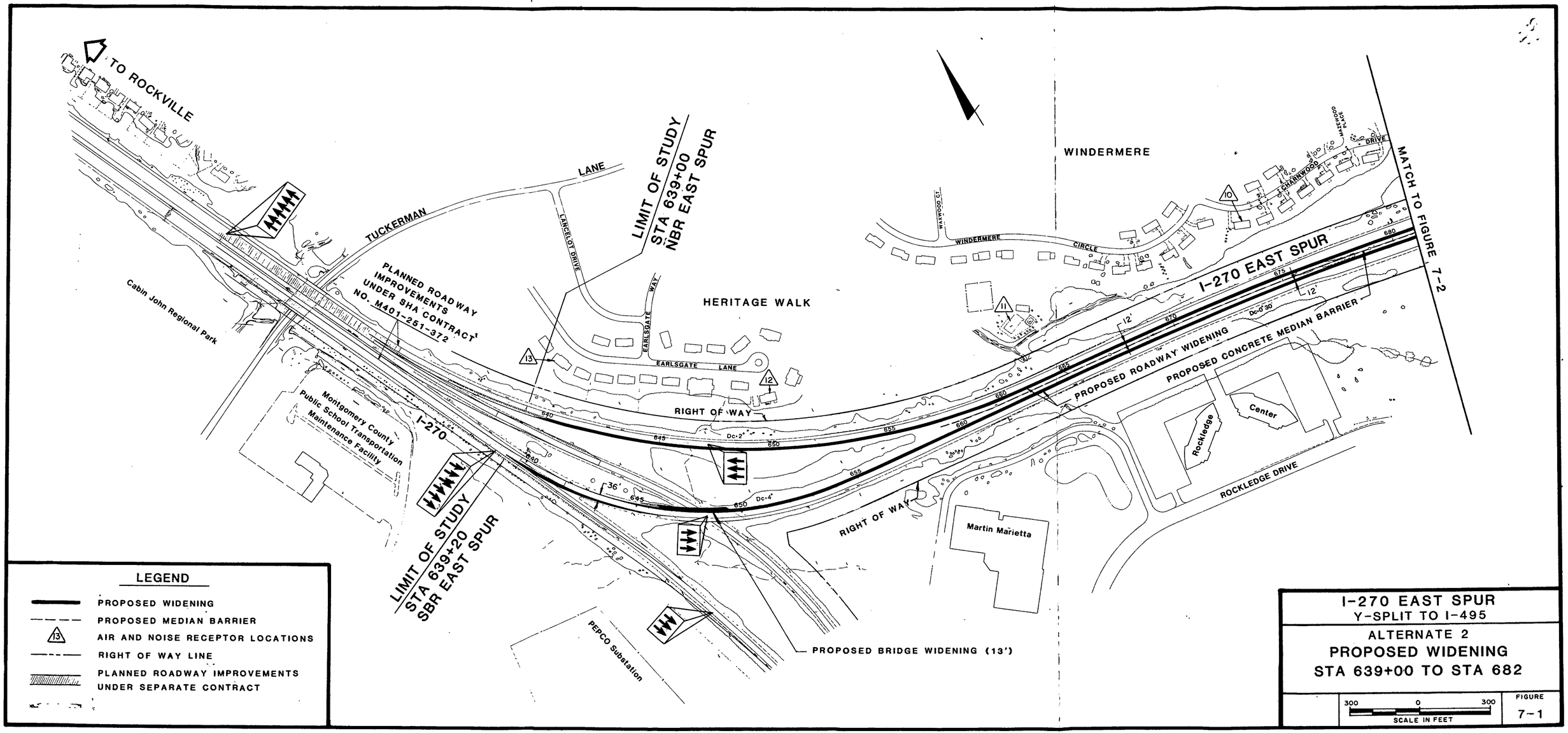
This alternate consists of the addition of one lane in each direction to the existing four-lane roadway (see Figures 7-1 through 7-3). The additional two lanes (each 12-feet wide) would be constructed in the median, separated by a continuous jersey-type concrete median barrier. Twelve-foot wide paved shoulders to the left of each roadway are also proposed. Figure 8 illustrates the typical sections. The existing roadway within the study limits would be resurfaced. No improvements are contemplated for the interchange at Maryland Route 187 as part of this project. A special district project will address the problems on one of the interchange maps identified as a high accident location. The other high accident ramp is beyond the scope of this project, but may be considered for study and improvement at a future date.

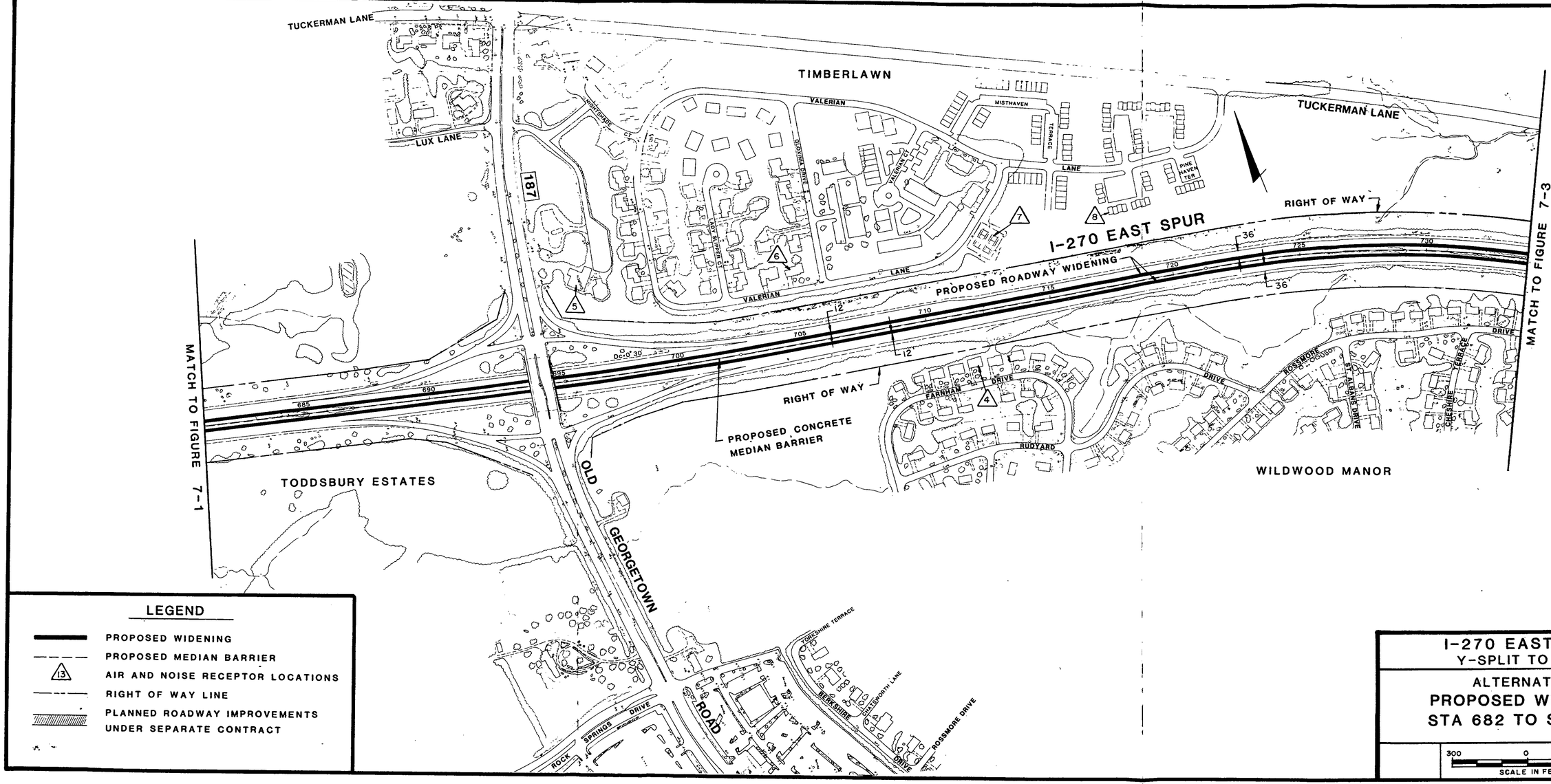
The improvements would be consistent with the existing curves and grades and would utilize criteria for a 70 mph design speed. In general, the existing cross slopes will be held to extend the additional widening.

There is one bridge in the study corridor that would be widened to accommodate three through lanes and full shoulders. Bridge No. 15082 (I-270 southbound to the east segment over I-270 northbound from the west leg) is a steel beam/girder bridge, 292 feet in length. It has an existing clear roadway width of 46 feet, 5 inches and would be widened to approximately 59 feet. Bridge redecking is not necessary because the existing bridge was rehabilitated in 1980.

Inside widening is preferred and was given more consideration than outside

widening due to the availability of existing right-of-way, lower overall costs, and fewer environmental impacts. In fact, the original design plans for the construction of I-270 allow for inside widening within the median.


TO ROCKVILLE
TUCKERMAN LANE
LANCELOT DRIVE
LIMIT OF STUDY
STA 639+00
NBR EAST SPUR
PLANNED ROADWAY IMPROVEMENTS UNDER SHA CONTRACT NO. M401-251-372
Cabin John Regional Park
HERITAGE WALK
EARLSGATE WAY
EARLSGATE LANE
WINDERMERE
WINDERMERE CIRCLE
MAYWOOD CT.
CHARNWOOD DRIVE
MAPLEWOOD PLACE
I-270 EAST SPUR
MATCH TO FIGURE 7-2
PROPOSED ROADWAY WIDENING
PROPOSED CONCRETE MEDIAN BARRIER
RIGHT OF WAY
I-270
Montgomery County Public School Transportation Maintenance Facility
Rockledge Center
ROCKLEDGE DRIVE
Martin Marietta
LIMIT OF STUDY
STA 639+20
SBR EAST SPUR
PEPCO Substation
PROPOSED BRIDGE WIDENING (13')
LEGEND
PROPOSED WIDENING
PROPOSED MEDIAN BARRIER
AIR AND NOISE RECEPTOR LOCATIONS
RIGHT OF WAY LINE
PLANNED ROADWAY IMPROVEMENTS UNDER SEPARATE CONTRACT
I-270 EAST SPUR
Y-SPLIT TO I-495
ALTERNATE 2
PROPOSED WIDENING
STA 639+00 TO STA 682
300 0 300
SCALE IN FEET
FIGURE
7-1



LEGEND

- PROPOSED WIDENING
- PROPOSED MEDIAN BARRIER
- 13 AIR AND NOISE RECEPTOR LOCATIONS
- RIGHT OF WAY LINE
- PLANNED ROADWAY IMPROVEMENTS UNDER SEPARATE CONTRACT

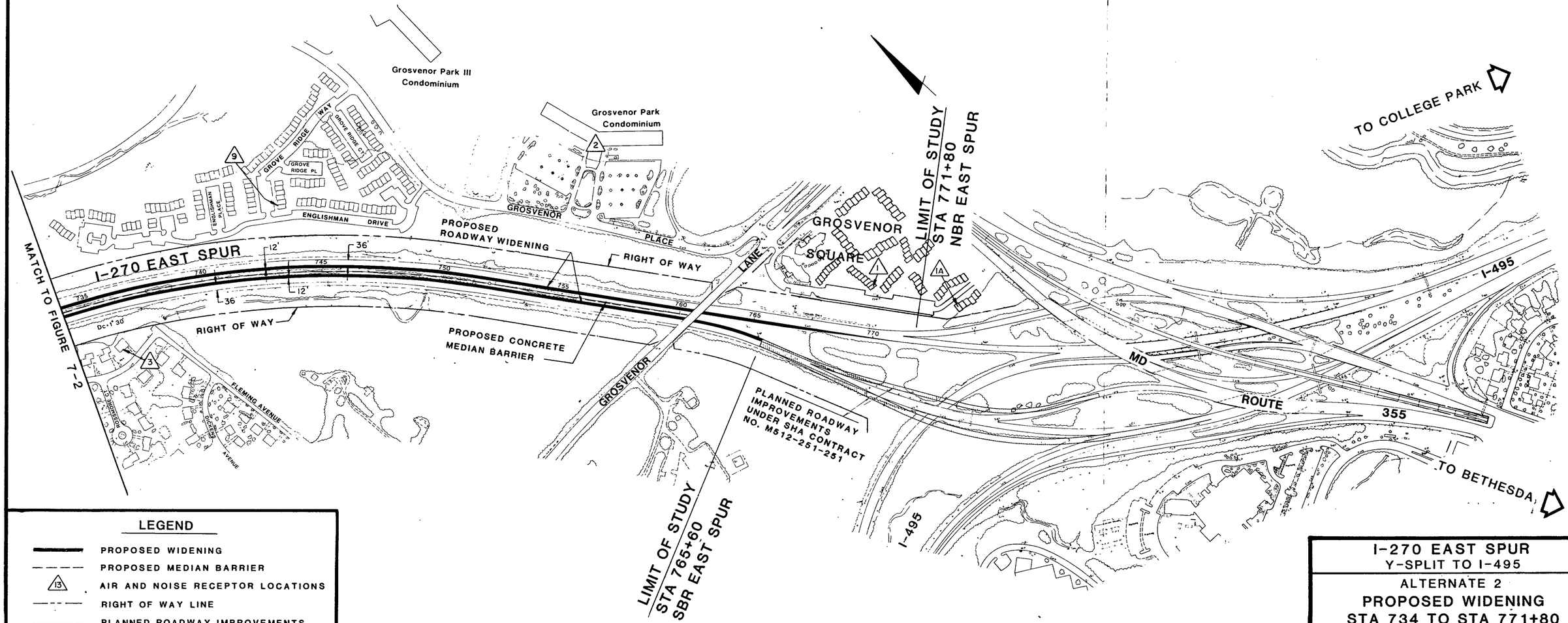
I-270 EAST SPUR
Y-SPLIT TO I-495

ALTERNATE 2

PROPOSED WIDENING
STA 682 TO STA 734

300 0 300
SCALE IN FEET

FIGURE 7-2



LEGEND

- PROPOSED WIDENING
- PROPOSED MEDIAN BARRIER
- (13) AIR AND NOISE RECEPTOR LOCATIONS
- RIGHT OF WAY LINE
- PLANNED ROADWAY IMPROVEMENTS UNDER SEPARATE CONTRACT

I-270 EAST SPUR
Y-SPLIT TO I-495

ALTERNATE 2

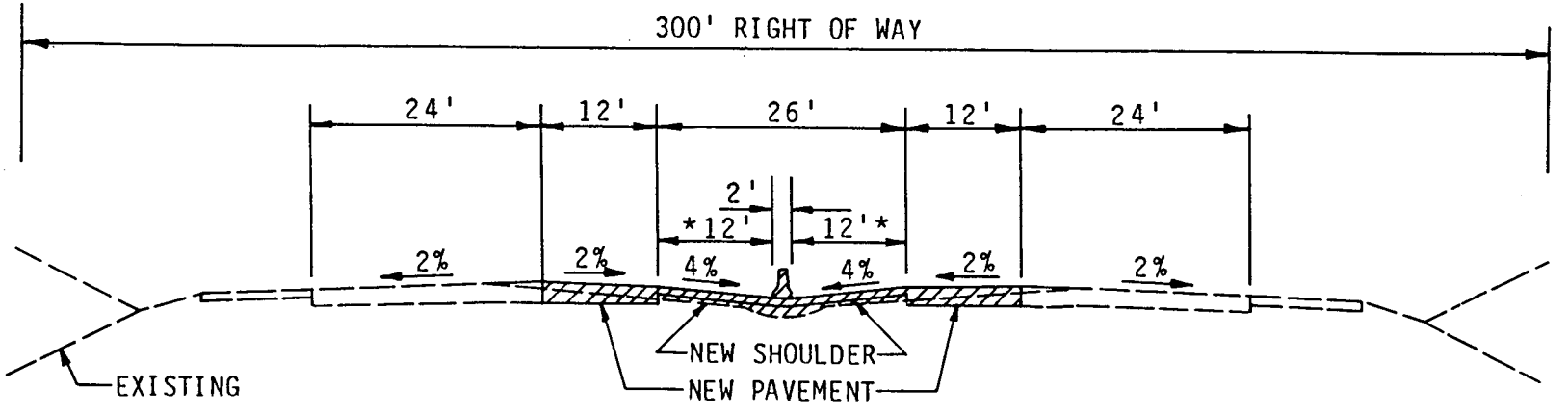
PROPOSED WIDENING
STA 734 TO STA 771+80

300 0 300
SCALE IN FEET

FIGURE 7-3

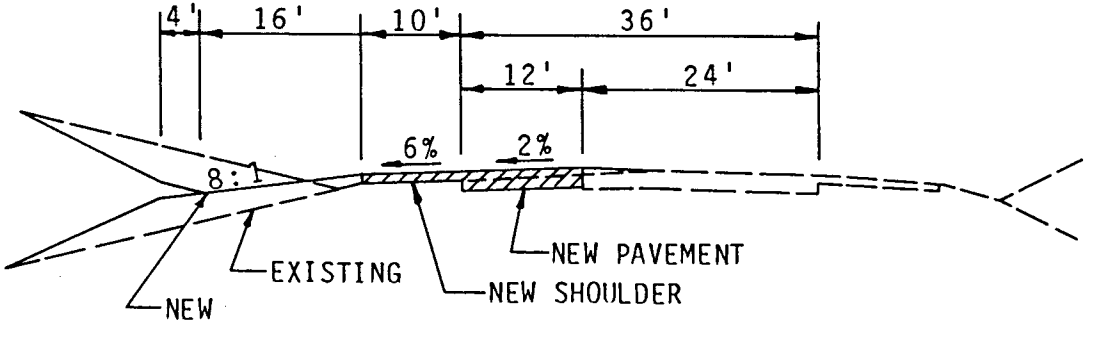
TYPICAL SECTIONS

INTERSTATE ROUTE 270 EAST SEGMENT
Y-SPLIT TO INTERSTATE ROUTE 495



MAINLINE

* 9'-7' AT MD. RTE. 187 UNDERPASS



RAMP CONNECTIONS AT NORTHERN & SOUTHERN TERMINUS

DIMENSIONS SHOWN ARE FOR THE PURPOSE OF DETERMINING COST ESTIMATES AND ENVIRONMENTAL IMPACT, AND ARE SUBJECT TO CHANGE DURING THE FINAL DESIGN PHASE.

NOT TO SCALE

FIGURE 8

IV ENVIRONMENTAL IMPACTS

IV. ENVIRONMENTAL IMPACTS

A. Social

The proposed project would occur within the existing right-of-way. However, during the design phase, it may be determined that minor additional right-of-way may be required for stormwater management. No residential or business acquisitions or additional right-of-way from other properties would be required under Alternate 2. No minority, elderly, or handicapped persons would be affected.

The No-Build Alternate does not address the existing or projected traffic congestion problems in the study area. Consequently, access to services and facilities for local and through traffic using this section of I-270 would become increasingly difficult. Congestion and worsening traffic operations due to increasing traffic would further jeopardize traffic safety and increase the potential for accidents. Travel time and costs, as well as distances traveled, would be increased as motorists either experience delays or seek alternative routes to avoid congestion.

Alternate 2 would increase capacity, which, in turn, would provide relief from congestion and improve traffic service. Safety and access to facilities and services also would improve throughout the corridor. Travel time would be shortened as fewer delays are experienced, especially during peak hour periods. These improvements would also reduce the impacts of traffic on local streets in the corridor that are used by those travelers seeking alternative routes to avoid congestion and delays on I-270. Local arterial streets that could be expected to benefit include Tuckerman Lane, Grosvenor Lane, and Democracy Boulevard.

Neither alternate would impact the social integrity and cohesion of nearby local communities.

The provision of, and response times for emergency services would improve under Alternate 2 because of a reduction in congestion and associated delays on I-270 and on adjacent arterial routes.

No parks or recreational areas would be affected by the proposed improvements or used for stormwater management.

TITLE VI STATEMENT

It is the policy of the Maryland State Highway Administration to ensure compliance with the provisions of Title VI of the Civil Rights Act of 1964, and related civil rights laws and regualtions which prohibit discrimination on the

grounds of race, color, sex, national origin, age, religion, physical or mental handicap in all State Highway Administration program projects funded in whole or in part by the Federal Highway Administration. The State Highway Administration will not discriminate in highway planning, highway design, highway construction, the acquisition of right-of-way, or the provision of relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process in order that proper consideration may be given to the social, economic, and environmental effects of all highway projects. Alleged discriminatory actions should be addressed to the Equal Opportunity Section of the Maryland State Highway Administration for investigation.

B. Economic

Alternate 1 would have impacts on the local and regional economy. The east segment of I-270 is a vital link in the north/south corridor linking the market area of Frederick and industries along I-270 north of the study area with the metropolitan Washington market area south of the study limits. Not alleviating congestion and traffic safety and service problems would delay the exchange of goods and services, as well as make the area a less attractive place to work or locate businesses. Alternate 2 reduces all these impacts and alleviates bottlenecks in the study area. Providing the additional lanes would be an important step in addressing the transportation needs of this growing metropolitan area. This alternate would have no adverse effect on the local and regional economies.

C. Land Use

Alternate 2 is consistent with the future land use plans for the area. These improvements would help accommodate planned regional industrial and residential growth. These plans indicate that the study area is to remain in residential/light industrial use. Additional growth in vacant areas would be consistent with the existing character of the study area.

D. Historic and Cultural

Neither Alternate 1 nor 2 would affect any significant historic or archeological resources in the study area (see letters in Section V, Comments and Coordination, in this document).

E. Natural Environment

1. Soils

The proposed project will not affect any prime or unique farmland soils. The study area soils are currently zoned for either residential or industrial development.

2. Terrestrial Ecology

The proposed project would have no substantial environmental impact on the terrestrial ecosystem. Widening of the roadway would occur within the existing right-of-way in a sodded and partially wooded median strip. Such median strips supply relatively little food and cover for wildlife species. Therefore, the loss of the area would not significantly affect area wildlife. No threatened or endangered species would be affected by the proposed improvements.

3. Wetlands

There are no wetlands identified in the median of I-270, according to field check and the U.S. Fish and Wildlife Service National Wetlands Inventory Mapping. Thus, there would be no impacts to wetlands' function or quality.

4. Surface Water

The proposed project will cross Old Farm Creek and Rock Creek. These streams are enclosed within standard culvert piping under the roadway.

Although some modification of existing hydraulic structures may be required, strict adherence to a sedimentation and erosion control plan approved by the Maryland Department of Natural Resources will minimize any water quality impacts. The existing roadway would prevent most sediment from escaping the construction site in the median. Sediment traps, silt fences, interceptor dikes and ditches, and other erosion control measures would be included. The water quality and aquatic ecosystems will not be substantially affected by the proposed project.

Stormwater runoff would be managed in accordance with the Department of Natural Resources' Stormwater Management Regulations. These regulations will require stormwater management practices in the following order of preference:

- On-site infiltration.
- Flow attenuation by open vegetated swales and natural depressions.
- Stormwater retention structures.
- Stormwater detention structures.

It has been demonstrated that these measures can significantly reduce pollutant loads and control runoff.

Final design for the proposed improvements will include plans for grading, erosion and sediment control, and stormwater management, in accordance with state and federal laws and regulations. They will require review and approval by the Maryland Department of Natural Resources - Water Resources Administration (WRA) and the Department of Health and Mental Hygiene - Office of Environmental Programs (OEP). The stormwater management regulations require that existing runoff rates be maintained after construction of the project.

5. Floodplains

There are no designated floodplains in the immediate project vicinity. The project action will not result in risks or impacts to the beneficial floodplain values or provide direct or indirect support to further development within a floodplain.

F. Noise

The method used to predict the future noise levels from the proposed I-270 improvements was developed by the Federal Highway Administration (FHWA) of the U.S. Department of Transportation. The FHWA Highway Traffic Noise Prediction Model (FHWA Model) incorporates data pertaining to normal traffic volume increases over time, utilizes an experimentally and statistically determined reference sound level for three classes of vehicles (auto, medium duty trucks, and heavy duty trucks), and applies a series of adjustments to each reference level to arrive at the predicted sound level. The adjustments include: 1) traffic flow corrections, taking into account the number of vehicles, average vehicle speed, and a specified time period of consideration; 2) distance adjustment comparing a reference distance and actual distance between receiver and roadway, including roadway width and number of traffic lanes; and 3) adjustment for various types of physical barriers that would reduce noise transmission from source (roadway) to receiver.

The prediction calculations were performed utilizing a computer program adaptation of the FHWA Model, STAMINA 2.0/OPTIMA.

The determination of environmental noise impacts is based on the relationship between the predicted noise levels, the established noise abatement criteria, and the ambient noise levels in the project area. The applicable standard is the Federal Highway Administration's noise abatement criteria/activity relationship (see Table 4) published in the Federal Highway Program Manual 7-7-3.

When design year L_{eq} noise levels are projected to exceed the abatement criteria (Table 4) or increase ambient conditions by 10 dBA or more, noise abatement measures (in general, noise barriers) are considered to minimize impacts. Consideration is based on the size of the impacted area (number of structures, spatial distribution of structures, etc.), the predominant activities carried on within the area, the visual impact of the control measure, practicality of construction, feasibility, and reasonableness.

An effective barrier should, in general, extend in both directions to four times the distance between receiver and roadway (source). In addition, an effective barrier should provide a 7-10 dBA reduction in the noise level, as a preliminary design goal. For the purpose of comparison, a total cost of $27 per square foot is assumed to estimate total barrier cost. This cost figure is based upon current costs experienced by Maryland State Highway Administration and includes the costs of panels, footings, drainage, landscaping, and overhead. Generally, noise barriers are considered reasonable if the cost per residence is less than $35,000-$40,000.

Table 6 summarizes the ambient measurements, the predicted noise levels, and barrier analysis for both Alternates 1 and 2. Figure 9 illustrates the areas analyzed for possible noise mitigation and the NSA locations.

1. Alternate 1 (No-Build)

A total of 14 noise sensitive areas are associated with this alternate. The projected 2010 L_{eq} noise levels increase 3-10 dBA over ambient levels. NSA 7 will have a projected noise level lower than the existing or ambient level. This is primarily due to the fluctuations in traffic volume and vehicle mix that occurred during the monitoring period. The noise abatement criteria would be exceeded at NSAs 1A, 3, 4, and 6-13. In addition, noise sensitive area 11 will have a 2010 projected level 10 dBA over the measured ambient level.

2. Alternate 2

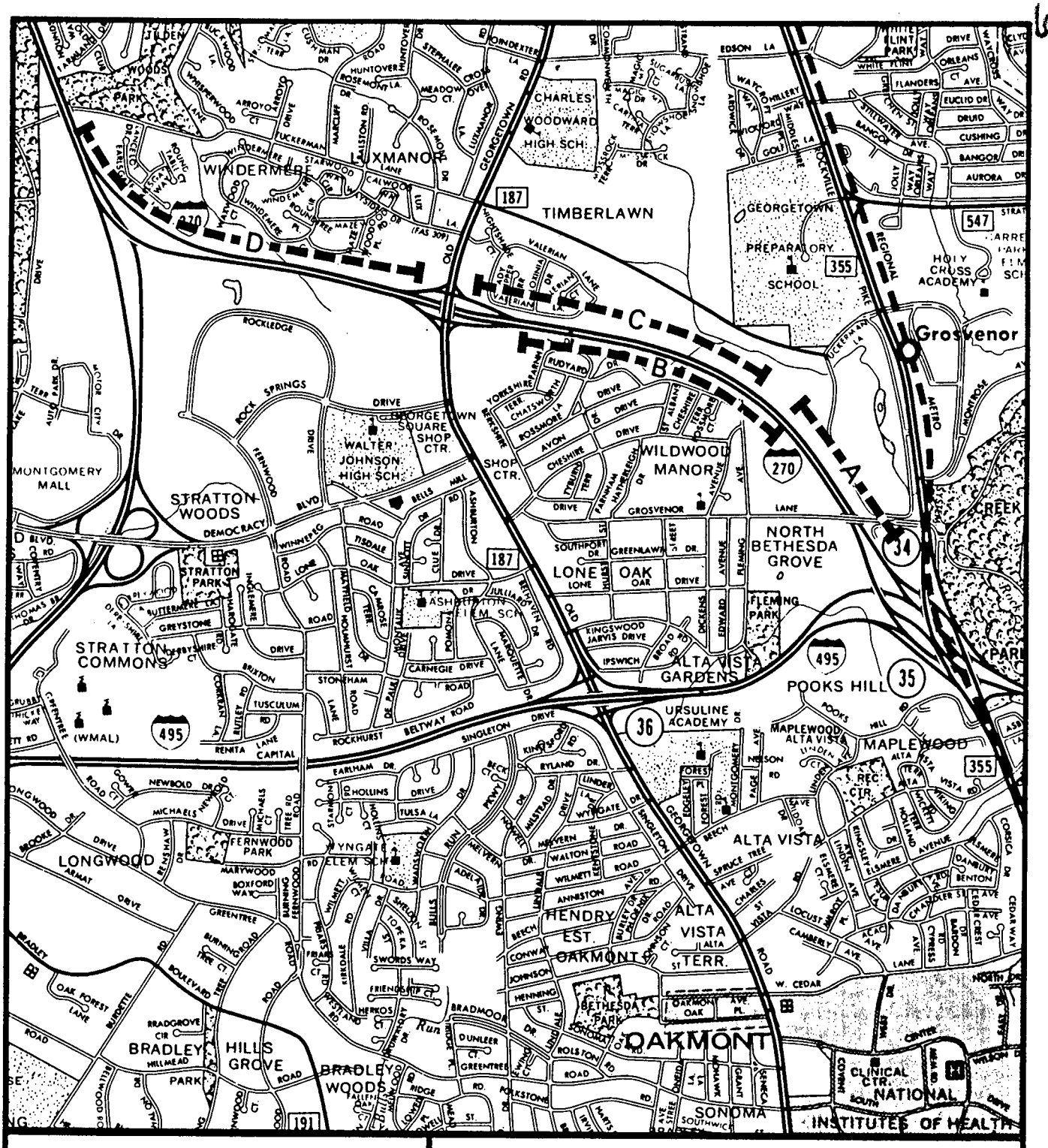
A total of 14 NSAs are associated with this alternate. The projected 2010 noise levels would increase 1-11 dBA over the measured ambient noise levels. The noise abatement criteria would be exceeded at NSAs 1A and 3-13. In addition, NSA 11 will have a 2010 projected noise level 11 dBA over the measured level. The following discussion and Table 6 summarize potential noise abatement for these 12 NSAs.

TABLE 6

Project Noise Levels

I-270 East Segment Widening

Noise Area	NSA	Oescription	Measured Ambient L_{eq}	Predicted Ambient L_{eq}	Design Year (2010) L_{eq} in dBA No-Build	Build	Build w/Barrier	Barrier Reduction	Approx. Barrier Lngth (ft)	Approx. Barrier Hgt (ft)	Estimated Total Costs (in Thous.)	Number of Residences Protected
A	1	Residential	59	61	64	66	N/A	-	N/A	N/A	N/A	N/A
A	1A	Residential	66	66	70	72	69	3	385	12	103.95	6
A	2	Residential	59	59	62	64	N/A	-	N/A	N/A	N/A	N/A
B	3	Residential	66	67	71	73	61	12	4190	14	1583.82	36
B	4	Residential	66	66	71	72	65	7				
C	5	Church	63	64	67	69	62	7				
C	6	Residential	62	64	68	70	62	8				
C	7	Residential (Tennis Courts)	70	68	69	71	65	6	6475	14-19	2983.50	99 + 1 Church
C	8	Residential	62	64	68	70	63	7				
C	9	Residential	62	65	69	70	62	8				
O	10	Residential	65	65	69	70	62	8				
O	11	Recreation Center	59	64	69	70	65	5	5820	15-18	2634.93	25
O	12	Residential	64	65	69	70	65	5				
D	13	Residential	64	65	70	70	62	8				



NORTH

0 2000 4000 FT

SCALE

INTERSTATE ROUTE 270
EAST SEGMENT FROM
Y-SPLIT TO INTERSTATE ROUTE 495

NOISE AREAS

FIGURE 9

a. NSA 1A (Residential - Grosvenor Mews Townhouses)

Noise sensitive area 1A will have a projected noise level 5 dBA above the noise abatement criteria of 67 dBA. A barrier/berm was analyzed at this location Table 6 as an extension of the existing berm at King Charles Way. A berm extension of 385 feet in length by 12 feet in height at a cost of $103,950 would provide a 3 dBA reduction to 6 first row residences. The noise contribution from Maryland Route 355 would limit the physical effectiveness to approximately 3 dBA.

b. NSAs 3-4 (Residential - Wildwood Manor Subdivision)

Noise sensitive areas 3 and 4 will have projected 2010 noise levels 6 and 5 dBA above the noise abatement criteria, respectively. A continuous barrier 4,190 feet long by 14 feet high at a cost of $1,583,820 would reduce projected noise levels 7-12 dBA for first row residences. This barrier would provide a 5 dBA or greater reduction to a total of 36 residences.

c. NSAs 5-9 (5-Church, 6, 8, and 9-Residential, 7-Tennis Courts)

These noise sensitive areas will have projected 2010 noise levels between 2-4 dBA above the noise abatement criteria of 67 dBA. A continuous noise barrier 6,475 feet long by 14-19 feet high at a cost of $2,983,499 would reduce project noise levels 6-8 dBA for first row residences at the above sites. This barrier would provide a 5 dBA or greater reduction to a total of 99 residences and 1 church.

d. NSAs 10-13 (10, 12, 13-Residential, 11-Windermere Recreation Center)

Noise sensitive areas 10-13 will have projected 2010 noise levels 3 dBA above the noise abatement criteria. In addition, NSA 11 will have a projected increase of 11 dBA above the measured ambient level. A noise barrier 5,820 feet long by 15-18 feet high at a cost of $2,634,930 would only provide a 5-8 dBA reduction for 25 first row residences. However, the existing variable topography between the proposed roadway improvements and these NSAs would substantially reduce the potential for noise abatement.

3. Construction Impacts

As with any major construction project, areas around the construction site are likely to experience varied periods and degrees of noise impact. This type

of project would probably employ the following pieces of equipment that would likely be sources of construction noise:

Bulldozers and Earth Movers
Graders
Front End Loaders
Dump and Other Diesel Trucks
Compressors

Generally, construction activity would occur during normal working hours on weekdays. Therefore, noise intrusion from construction activities probably would not occur during critical sleep or outdoor recreating periods.

Maintenance of construction equipment will be regular and thorough to minimize noise emissions because of inefficiently tuned engines, poorly lubricated moving parts, poor or ineffective muffling systems, etc.

G. Air Quality

1. Analysis Objectives, Methodology, and Results

The objective of the air quality analysis is to compare the carbon monoxide (CO) concentrations estimated to result from traffic configurations and volumes of each alternate with the State and National Ambient Air Quality Standards (S/NAAQS). The NAAQS and SAAQS are identical for CO: 35 ppm (parts per million) for the maximum 1-hour period and 9 ppm for the maximum consecutive 8-hour period.

A microscale CO pollution diffusion analysis was conducted using the third generation California Line Source Dispersion Model, CALINE 3. This microscale analysis consisted of projections of 1-hour and 8-hour CO concentrations at sensitive receptor sites under worst case meteorological conditions for the No-Build and the Build Alternates for the design year (2010) and the estimated year of completion (1990).

a. Analysis Inputs

A summary of analysis inputs is given below. More detailed information concerning these inputs is contained in the I-270 Air Quality Analysis, which is available for review at the Maryland State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

Background CO Concentrations

In order to calculate the total concentration of CO which occurs at a particular receptor site during worst case meterological conditions, the background CO concentrations are considered in addition to the levels directly attributed to the facility under consideration. The background concentrations

were derived from the application of rollback methodology to background grid system CO concentrations calculated by the Metropolitan Washington Council of Governments. The resulting background concentrations are as follows:

	CO, PPM	
	1-hour	8-hour
1990	1.6	1.0
2010	1.6	1.0

Traffic Data, Emission Factors, and Speeds

The appropriate traffic data was utilized as supplied by the Bureau of Highway Statistics (October 1985 and March 1986) of the Maryland State Highway Administration.

The composite emission factors used in the analysis were derived from the Environmental Protection Agency (EPA) Compilation of Air Pollutant Emission Factors: Highway Mobile Sources, and the Modifications to MOBILE 2 Which Were Used by EPA to Respond to Congressional Inquiries on the Clean Air Act, and were calculated using the EPA MOBILE 2.5 computer program. An ambient air temperature of 20 degrees Fahrenheit was assumed in calculating the emission factors for both the 1-hour and 8-hour analysis to approximate worst case results for each analysis case. Credit for a vehicle inspection maintenance (I/M) emission control program beginning in 1984 was included in the emission factor calculations.

Average vehicle operating speeds used in calculating emission factors were based on the capacity of each roadway link considered, the applicable speed limit, and external influences on speed through the link from immediately adjacent links. Average operating speeds ranged from 35 mph to 55 mph depending upon the roadways and alternate under consideration.

Meteorological Data

Worst-case meteorological conditions of 1 meter/second for wind speed and atmospheric stability class F were assumed for both the 1-hour and 8-hour calculations. In addition, as stated above, a worst-case temperature of 20 degrees Fahrenheit was assumed.

The wind directions utilized as part of the analysis were rotated to maximize CO concentrations at each receptor location. Wind directions varied for each

receptor and were selected through a systematic scan of CO concentrations associated with different wind angles.

b. Sensitive Receptors

Site selection of sensitive receptors were made on the basis of proximity to the roadway, type of adjacent land use, and changes in traffic patterns on the roadway network. Thirteen receptor sites were chosen for this analysis consisting of ten residences, a church, a tennis court, and a recreation center. The receptor site locations were verified during study area visits by the analysis team. The receptor sites are listed in Table 7 and shown on Figure 7.

c. Results of Microscale Analysis

The results of the calculations of CO concentrations at each of the sensitive receptor sites for the No-Build and Build Alternates are shown on Table 8. The values shown consist of predicted CO concentrations attributable to traffic on various roadway links plus project background levels. A comparison of the values in Table 8 with the S/NAAQS shows that no violations will occur for the No-Build or Build Alternates in 1990 or 2010 for the 1-hour and 8-hour concentrations of CO. The projected CO concentrations vary between alternates depending on receptor locations as a function of the roadway locations and traffic patterns associated with each alternate.

In most cases, the No-Build Alternate CO concentrations are equal to or greater than the Build Alternate concentrations. The concentrations remain below the S/NAAQS for the alternates under consideration.

In conclusion, the No-Build Alternate and Build Alternate will not result in violations of the 1-hour or 8-hour S/NAAQS in 1990 or 2010.

2. Construction Impacts

The construction phase of the proposed project has the potential to impact the ambient air quality through such means as fugitive dust from grading operations and materials handling. The State Highway Administration has addressed this possibility by establishing Specifications for Materials, Highways, Bridges and Incidental Structures, which specifies procedures to be followed by contractors involved in state work.

The Maryland Bureau of Air Quality Control was consulted to determine the adequacy of the specifications in terms of satisfying the requirements of the Regulations Governing the Control of Air Pollution in the State of Maryland. The Maryland Bureau of Air Quality Control found that the specifications are

TABLE 7

Air Receptor Sites
Interstate Route 270, East Segment

Site No.	Description/Location
1	Residence, two-story brick/frame King Charles Way
2	Residence, 13-story brick condos Grosvenor Place
3	Residence, two-story brick Rossmore Drive
4	Residence, one and one half-story brick/frame Farnham Drive
5	St. Mark's Church Old Georgetown Road
6	Residence, two-story brick Valerian Lane
7	Community Tennis Courts Valerian Lane
8	Residence, two-story brick townhouses Pine Haven Terrace
9	Residence, two-story brick townhouses Groveridge Way
10	Residence, two-story brick Charnwood Drive
11	Windermere Recreation Center
12	Residence, two-story brick Earlsgate Lane
13	Residence, two-story brick Earlsgate Lane

TABLE 8

CO Concentrations* at Each Receptor Site, PPM

	NO-BUILD				BUILD ALTERNATE			
Receptors	1990		2010		1990		2010	
	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.	1 HR.	8 HR.
1	4.4	2.9	5.4	3.6	4.5	2.9	5.0	3.5
2	8.0	5.7	10.9	7.5	7.3	5.2	9.3	6.8
3	3.9	2.7	4.9	3.3	4.1	2.7	4.8	3.3
4	6.1	4.1	7.6	5.3	6.2	4.2	7.7	5.3
5	5.2	3.5	6.0	4.2	5.2	3.6	5.9	4.3
6	4.6	3.0	5.9	4.0	4.8	3.1	5.7	4.0
7	4.5	3.2	5.5	3.8	4.5	3.2	5.3	3.7
8	4.1	2.7	4.8	3.3	4.1	2.7	4.6	3.3
9	4.2	2.7	4.8	3.4	4.2	2.8	4.6	3.0
10	4.4	2.9	5.2	3.6	4.4	2.9	5.1	3.5
11	5.1	3.5	6.3	4.4	5.2	3.6	6.0	4.4
12	4.0	2.9	5.1	3.4	4.0	2.9	4.8	3.3
13	3.1	2.0	3.5	2.5	3.1	2.0	3.4	2.5

*Includes Background Concentrations.

The S/NAAQS for CO: 1 HR maximum = 35 PPM
8 HR maximum = 9 PPM

consistent with the requirements of these regulations. Therefore, during the construction period, all appropriate measures (Code of Maryland Regulations 10.18.06.03D) will be taken to minimize the impact on the air quality of the area.

3. Conformity with Regional Air Quality Planning

The project is in an air quality nonattainment area, which has transportation control measures in the State Implementation Plan (SIP). This project conforms with the SIP because it originates from a conforming transportation improvement program.

4. Agency Coordination

Copies of the technical Air Quality Analysis are being circulated to the U.S. Environmental Protection Agency and the Maryland Air Management Administration for review and comment.

V COMMENTS & COORDINATION

V. COMMENTS AND COORDINATION

Coordination has been undertaken with the appropriate resource agencies, including the Maryland Historical Trust, Maryland Geological Survey, Maryland Department of Natural Resources, and the U.S. Fish and Wildlife Service.

Continuing efforts will be made to coordinate the proposed project with the appropriate review agencies.

TORREY C BROWN M D
SECRETARY

JOHN R GRIFFIN
DEPUTY SECRETARY

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
MARYLAND GEOLOGICAL SURVEY
THE ROTUNDA
711 W. 40TH STREET, SUITE 440
BALTIMORE, MARYLAND 21211

KENNETH N. WEAVER
DIRECTOR
MARYLAND GEOLOGICAL SURVEY

EMERY T. CLEAVES
DEPUTY DIRECTOR

Division of Archeology
338-7236

16 January 1986

Mr. Louis H. Ege, Jr.
Bureau of Project Planning
State Highway Administration
P.O. Box 717/707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: I-270 - Montgomery County

Dear Mr. Ege:

I have reviewed the subject project relative to archeological resources. There is one reported site near the project area as depicted on the attached map. Site 18M063 is represented by five Late Archaic/Early Woodland quartz projectile points collected from the site by a previous owner.

Three transects surveyed during the MDOT study include portions of the present study area. All three (Transects #12-005, 12-010, 12-011) failed to locate any archeological resources. In general, the archeological potential of this area is considered moderate. However, extensive land-disturbing operations (road and housing construction, primarily) have effectively diminished the potential for intact sites in most of the project area.

If I can be of further assistance on this matter, please let me know.

Sincerely yours,

Dennis C. Curry
Archeologist

DCC:lw

cc: Cynthia Simpson
Rita Suffness

Attachment

TELEPHONE 301 338-7066

Maryland Historical Trust

April 4, 1986

Ms. Cynthia D. Simpson, Chief
Environmental Management
MDOT-SHA
707 N. Calvert Street
P. O. Box 717
Baltimore, MD 21203

RE: Interstate Route 270
Y-Split to I-495
Contract M 401-154-372

Dear Ms. Simpson:

Thank you for your letter of Oct. 25, 1985 concerning the above-referenced project.

This office concurs with the opinion that both the Davis Farm (M 30/19) and Wild Acres, the Grosvenor Estate (M 30/15) are inventory quality properties, not eligible for National Register inclusion.

We appreciate your cooperation.

Sincerely,

George J. Andreve

George J. Andreve
Environmental Review Administrator

GA/AL/mc
CC: Ms. Mary Ann Kephart
Ms. Roberta Hahn
Mr. Mark Walston

Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 269-2212, 269-2438, 269-2850
Department of Economic and Community Development Admin. S & P TPS

April 23, 1986

Mr. Louis H. Ege, Jr., Deputy Director
Project Development Division
State Highway Administration
P. O. Box 717
707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: Contract No. M 401-154-372
I-270, East Segment from
the Y-Split to I-495
P.D.M.S. No. 151105
Montgomery County, MD

Dear Mr. Ege:

Construction of the above-referenced project will have no effect upon significant archeological resources. Therefore, archeological investigations are not warranted for this particular project.

Thank you for providing us this opportunity to comment.

Sincerely,

Richard B. Hughes
State Administrator of
Archeology

RBH/BCB/mmc

CC: Mr. Tyler Bastian
Ms. Mary Ann Kephart
Ms. Roberta Hahn
Mr. Mark Walston

Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 269-2212, 269-2438, 269-2850
Department of Economic and Community Development Admin. S & P TPS

Department of Natural Resources
MARYLAND FOREST, PARK & WILDLIFE SERVICE
Tawes Office Building
Annapolis, Maryland 21401

TORREY C. BROWN, M.D.
SECRETARY

DONALD E. MacLAUCHLAN
DIRECTOR

November 5, 1985

Ms. Cynthia D. Simpson, Acting Chief
Environmental Management
Department of Transportation
P.O. Box 717
707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: Contract No. M 401
P.D.M.S. No. 151104
I-270 East Leg from
Y-Split to I-495
Inside Widening

Dear Ms. Simpson:

Your request for any information we may have concerning threatened or endangered species was review by Gary J. Taylor.

There are no known populations of threatened or endangered species within the area of project influence in Montgomery County.

Sincerely,

James Burtis, Jr.
Assistant Director

JB:emp

cc: G. Taylor
C. Brunori

Telephone 269-3776
TTY FOR DEAF: STATEWIDE 1-800-492-5062; BALTIMORE 269-2609

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TORREY C. BROWN, M.D.
SECRETARY
JOHN R. GRIFFIN
DEPUTY SECRETARY

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
CAPITAL PROGRAMS ADMINISTRATION
TAWES STATE OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

FRED L. ESKEW
ASSISTANT SECRETARY
FOR CAPITAL PROGRAMS

November 27, 1985

Mr. Louis H. Ege
Bureau of Project Planning
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Subject: I-270 East Leg From Y-Split to
I-495, Inside Widening

Dear Mr. Ege:

The Maryland Natural Heritage Program has no record of any rare species, unique habitat or other significant natural feature at, or in the vicinity of this project site. However, in the absence of a recent site review, we cannot show that such species or features are not present.

Sincerely,

Arnold W. Norden

Arnold W. Norden
Maryland Natural Heritage Program

AWN:mle

TELEPHONE: 269-3656
TTY FOR DEAF-BALTIMORE 269-2609, WASHINGTON METRO 565-0450

United States Department of the Interior

FISH AND WILDLIFE SERVICE
DIVISION OF ECOLOGICAL SERVICES
1825B VIRGINIA STREET
ANNAPOLIS, MARYLAND 21401

November 7, 1985

Ms. Cynthia D. Simpson
Maryland Department of Transportation
P.O. Box 717
707 North Calvert St.
Baltimore, MD 21203-0717

Dear Ms. Simpson:

This responds to your October 24, 1985 request for information on the presence of Federally listed endangered or threatened species within the area of the proposed widening of I-270, Montgomery County, MD (P.D.M.S. No. 151104).

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species are known to exist in the project impact area. Therefore, no Biological Assessment or further Section 7 Consultation is required with the Fish and Wildlife Service (FWS). Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to endangered species under our jurisdiction. It does not address other FWS concerns under the Fish and Wildlife Coordination Act or other legislation.

Thank you for your interest in endangered species. If you have any questions or need further assistance, please contact Judy Jacobs of our Endangered Species staff at (301) 269-6324.

Sincerely yours,

Judy Jacobs

Glenn Kinser
Supervisor
Annapolis Field Office

VI BIBLIOGRAPHY

VI. BIBLIOGRAPHY

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