

Environmental Assessment for

For:

Contract No. M 971-000-370
F.A.P. No. F 120-1(1)
Interstate 270/Maryland
Route 124 Interchange
Modifications

In Montgomery County, Maryland

prepared by
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
and
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

REPORT NUMBER: FHWA-MD-EA-80-04-(D)

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FEDERAL HIGHWAY ADMINISTRATION
REGION III

INTERSTATE 270 AND MARYLAND 124 INTERCHANGE
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 (2) (C) AND 23 U.S.C. 128 (a),
CEQ REGULATIONS (40 CFR 1500 et seq)

M. S. Caltrider
State Highway Administrator

7/14/80
Date

by: Hal Kassoff
Hal Kassoff, Director
Office of Planning and
Preliminary Engineering

7-24-80
Date

by: Li M. Lopez
For Federal Highway Administration
Division Federal Highway
Administrator

I-270 MD 124 INTERCHANGE
MONTGOMERY COUNTY, MD

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SUMMARY

1. Region III Federal Highway Administration

() Environmental Impact Statement

(X) Environmental Assessment () Finding of No Significant Impact

2. Individuals who can be contacted for additional information concerning the proposed project and this document:

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Bureau of Project Planning
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Mr. Roy D. Gingrich
District Engineer
Federal Highway Administration
The Rotunda - Suite 220
711 West 40th Street
Baltimore, Maryland 21211

Phone: (301) 962-4011

Office Hours: 7:45 a.m. to 4:15 p.m.

3. Summary

Based on information obtained from studies for socioeconomic, air quality, noise, water resources, terrestrial ecosystems, and upon historical/archeological data, it has been determined that the construction of a new facility for the I-270/MD 124 interchange would not have a significant impact on the quality of the human or natural environments. No businesses or residences would be displaced, and no historic sites are impacted.

No violations of the Federal Ambient Air Quality Standards are predicted to occur with any of the proposed alternatives.

Increases in noise levels will be experienced whether a No Build or Build Alternate is adopted. Also, design standards for noise will be exceeded with both types of Alternates.

Some construction would be required in the 100-year floodplain of Long Draught Creek, but this would not be a significant encroachment.

4. Description of Action

Located in northwest Gaithersburg, Maryland in Montgomery County, the action consists of studying modifications and additions to the interchange of Maryland I-270 and MD 124 to improve capacity, efficiency and safety. The improvement could include modification of ramp configurations at the existing interchange, relocation of the movements from west of I-270 to and from the south to ramps on MD 924, and a collector distributor road to interconnect the ramps. The distance from the existing interchange to the end of the collector-distributor road would be approximately 1.75 miles.

5. Alternatives Considered

Five alternates, including the No-Build Alternate, were studied during the preliminary stages of project planning. These included:

- o Alternate 1 - Major reconstruction of the existing interchange.

- o Alternate 2 - Improvements to the existing interchange including closing two ramps, reconstructing two new ramps at I-270/MD 924, and constructing collector distributor roads to interconnect the ramps.
- o Alternate 3 - Construct two new ramps at MD 924; close two ramps at existing interchange.
- o Alternate 4 - Construct two new ramps at MD 924 and close two ramps at existing interchange. (Similar to Alternate 3 except northbound off-ramp would be directional.)
- o Alternate 5 - Minor construction of existing northbound off-ramp to provide two lanes and install a traffic signal on MD 124 for eastbound traffic (TSM Alternate).
- o No-Build - No change made to existing interchange or at MD 924.

Based upon a preliminary analysis of engineering, safety and environmental factors, three Build alternates and the No-Build Alternate were selected for further analysis. Two alternates - Alternate 1 and 5, were not considered further. Alternate 1 was dropped because of the dislocation of a lumber business, restriction of access to two businesses and an SHA facility, and its high cost - \$11.2 million for construction and \$5.8 million for right-of-way. At the same time, the weaving problems on I-270 would remain although most sight and capacity problems would be eliminated. Alternate 5, a limited improvement, was not taken further since it was determined that while it would improve service to LOS D, this improvement would only accommodate a two to three year growth in traffic and would not be responsive to future traffic growth.

COST EFFECTIVE ANALYSIS

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<u>Impact Category</u>	Alternate 2	Alternate 3	Alternate 4	No Build
Houses displaced	0	0	0	0
Estimated number of persons affected	0	0	0	0
Businesses displaced	0	0	0	0
Unimproved property affected	0	0	0	0
Historical sites affected	0	0	0	0
Noise level impact (sites exceeding standards)	0	0	0	0
Air quality impact (sites exceeding standards)	0	0	0	0
Floodplain areas affected	Yes ¹	Yes; 4.4 ac.	Yes; 3.8 ac.	No
Wetland areas affected	No	No	No	No
Acres of Right-of-way required	9.7	3.1	4.4	0
Residential	0	0	0	0
Commerical	9.7	3.1	4.4	0
Public Recreation Lands	0	0	0	0
Archeological Sites	0	0	0	0
Endangered or threatened species	0	0	0	0
 <u>Cost</u>				
Estimated construction cost	\$5,718,000 ²	\$1,831,000	\$2,295,000	0
Estimated Right-of-Way Cost	\$633,800	\$202,550	\$391,660 ³	0

1 Acreage would vary depending on improvement selected at MD 924.

2 Includes construction of Alternate 3 at MD 924; cost with construction of Alternate 4 at MD 924 would be \$6,046,000.

3 Includes \$200,000 cost to relocate SHA salt storage facility.

6. Consistency with President's Urban Policy

Five major urban objectives are identified as the cornerstone of this policy to improve transportation systems. Following are summaries of the relation of the project to the five points which support its being consistent with these objectives:

- o Urban impact - Project will improve access to central Washington via I-270, an important radial route serving the metropolitan area; also access to the developing central business district in Gaithersburg, Maryland, an important identified sub-center in the region, will be enhanced.
- o Energy Conservation - Overall, traffic speeds will increase, congestion and queuing will decrease with a corresponding increase in fuel economy.
- o Minority and neighborhood effects - No communities will be affected by the project and no persons dislocated.
- o Improvements to existing system - The project consists of an improvement of access to an existing facility and represents a change in configuration to eliminate unsafe conditions.
- o Consideration of Alternatives - As noted, the project consists of various improvements to existing facilities; TSM alternative (Alternate 5) was determined to be insufficient to address the safety and operational problems. See pages 3 and II-5 for rationale.

7. Technical Reports

This Environmental Assessment was prepared, in part, from materials obtained from:

- o the Interim Alternate Report, Volume 1, Great Seneca Highway, from Middlebrook Road to Maryland Route 28, Montgomery County, Maryland.

- 11
- o Gaithersburg Vicinity Approved and Adopted Master Plan, 1971, Soil Survey, Montgomery County, Maryland, and
 - o Master Plan and Ordinance for Historic Preservation, in Montgomery County, Maryland
 - o Technical Reports prepared for Analysis of Traffic, Air and Noise Impacts

These technical reports and project files are available at the Offices of SHA, Baltimore, Maryland, for inspection and review.

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ENVIRONMENTAL ASSESSMENT FORM

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.

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The following questions should be answered by placing a check in the appropriate column(s). If desirable, the "comments attached" column can be checked by itself or in combination with an answer of "yes" or "no" to provide additional information or to overcome an affirmative presumption.

In answering the questions, the significant beneficial and adverse, short and long term effects of the proposed action, on-site and off-site during construction and operation should be considered.

All questions should be answered as if the agency is subject to the same requirements as a private person requesting a license or permit from the State or Federal Government.

	<u>Yes</u>	<u>No</u>	<u>Comments Attached</u>
A. Land Use Considerations			
1. Will the action be within the 100-year flood plain?	<u>X</u>	<u> </u>	<u>X</u>
2. Will the action require a permit for construction or alteration within the 50-year flood plain?	<u> </u>	<u>X</u>	<u>X</u>
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?	<u> </u>	<u>X</u>	<u> </u>
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?	<u> </u>	<u>X</u>	<u> </u>
5. Will the action occur on slopes exceeding 15 percent?	<u>X</u>	<u> </u>	<u>X</u>
6. Will the action require a grading plan or a sediment control permit?	<u>X</u>	<u> </u>	<u>X</u>
7. Will the action require a mining permit for deep or surface mining?	<u> </u>	<u>X</u>	<u> </u>
8. Will the action require a permit for drilling a gas or oil well?	<u> </u>	<u>X</u>	<u> </u>
9. Will the action require a permit for airport construction?	<u> </u>	<u>X</u>	<u> </u>
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	<u> </u>	<u>X</u>	<u> </u>

	<u>Yes</u>	<u>No</u>	<u>Comments Attached</u>
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	___	<u>X</u>	___
12. Will the action affect the use of any natural or man-made features that are unique to the county, state, or nation?	___	<u>X</u>	___
13. Will the action affect the use of an archaeological or historical site or structure?	___	<u>X</u>	___

B. Water Use Considerations

14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	___	<u>X</u>	<u>X</u>
15. Will the action require the construction, alteration or removal of a dam, reservoir, or waterway obstruction?	___	<u>X</u>	___
16. Will the action change the overland flow of storm water or reduce the absorption capacity of the ground?	<u>X</u>	___	<u>X</u>
17. Will the action require a permit for the drilling of a water well?	___	<u>X</u>	___
18. Will the action require a permit for water appropriation?	___	<u>X</u>	___
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	___	<u>X</u>	___
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?	___	<u>X</u>	___
21. Will the action result in any discharge into surface or subsurface water?	<u>X</u>	___	<u>X</u>

	<u>Yes</u>	<u>No</u>	<u>Comments Attached</u>
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22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?

<u> </u>	<u> X </u>	<u> X </u>
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C. Air Use Considerations

23. Will the action result in any discharge into the air?

<u> X </u>	<u> </u>	<u> X </u>
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24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?

<u> </u>	<u> X </u>	<u> X </u>
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25. Will the action generate additional noise which differs in character or level from present conditions?

<u> X </u>	<u> </u>	<u> X </u>
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26. Will the action preclude future use of related air space?

<u> </u>	<u> X </u>	<u> </u>
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27. Will the action generate any radiological, electrical, magnetic, or light influence?

<u> X </u>	<u> </u>	<u> X </u>
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D. Biological Considerations

28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?

<u> </u>	<u> X </u>	<u> X </u>
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29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?

<u> </u>	<u> X </u>	<u> X </u>
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30. Will the action require a permit for the use of pesticides, herbicides, or other biological, chemical or radiological control agents?

<u> </u>	<u> X </u>	<u> </u>
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E. Socioeconomic Considerations

31. Will the action result in a preemption or division of properties or impair their economic use?

<u> </u>	<u> X </u>	<u> X </u>
-------------	--------------	--------------

	<u>Yes</u>	<u>No</u>	<u>Comments Attached</u>
32. Will the action cause relocation of activities, structures or result in a change in the population density or distribution?	<u> </u>	<u> X </u>	<u> </u>
33. Will the action alter land values?	<u> X </u>	<u> </u>	<u> X </u>
34. Will the action affect traffic flow and volume?	<u> X </u>	<u> </u>	<u> X </u>
35. Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?	<u> </u>	<u> X </u>	<u> </u>
36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?	<u> </u>	<u> X </u>	<u> </u>
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans—including zoning?	<u> X </u>	<u> </u>	<u> </u>
38. Will the action affect the employment opportunities for persons in the area?	<u> X </u>	<u> </u>	<u> </u>
39. Will the action affect the ability of the area to attract new sources of tax revenue?	<u> X </u>	<u> </u>	<u> </u>
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?	<u> </u>	<u> X </u>	<u> </u>
41. Will the action affect the ability of the area to attract tourism?	<u> </u>	<u> X </u>	<u> </u>
F. Other Considerations			
42. Could the action endanger the public health, safety or welfare?	<u> </u>	<u> X </u>	<u> </u>
43. Could the action be eliminated without deleterious effects to the public health, safety, welfare or the natural environment?	<u> </u>	<u> X </u>	<u> X </u>

	<u>Yes</u>	<u>No</u>	<u>Comments Attached</u>
44. Will the action be of statewide significance?	___	<u>X</u>	___
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?	<u>X</u>	___	<u>X</u>
46. Will the action require additional power generation or transmission capacity?	___	<u>X</u>	___
G.. Conclusion			
47. This agency will develop a complete environmental effects report on the proposed action.	___	<u>X</u>	<u>X</u>

INTERSTATE 270/MARYLAND 124 INTERCHANGE

ENVIRONMENTAL ASSESSMENT FORM COMMENTS

A. Land Use Considerations

- 1. The Interstate 270/Maryland 124 (I-270/M-124) Interchange with related construction of entrance and exit ramps at the existing Maryland 924 overpass (Clopper Road/W. Diamond Avenue) will encroach upon the upper limit of the 100-year floodplain of Long Drought Branch (a small tributary of Great Seneca Creek).
- 2. No. A floodplain construction permit will not be required. The encroachment of the 100-year floodplain is at a location having an upstream drainage area of less than 400 acres, hence, exempting the project from the permit requirement.
- 5. Yes. Several locations of 15 percent slope or greater will be affected. In all such locations, the existing slope is man-made, being the cut or fill surface of previous road construction. Necessary alteration of these slopes will be in accordance with standard highway construction techniques.
- 6. Yes. Due to the potential for soil erosion and sedimentation in nearby streams, a grading plan and sediment control permit will be required.

B. Water Use Considerations

14. No. Any potential effect on the course, current, or cross section of streams would occur at locations having an up-stream drainage area of less than 400 acres, hence exempting the project from the permit requirements.

16. Yes. The necessary alteration of surface topography, including the construction of a storm water runoff system, will cause minor changes to the overland flow of storm water. Also, the overall absorption capacity of the ground will be somewhat reduced by paving of additional road surface.

21. Yes. Storm water runoff from the pavement and shoulders will be directed into nearby surface stream channels. (See also comment to question 16.)

22. Possibly. Storm water runoff from the additional paved roadway surfaces may contain sufficient concentrations of oils, greases, sodium chloride, sediment, or other materials to adversely affect water quality in receiving waters. However, Section 08.05.05.08 of the Water Pollution Control Regulations adopted by the Water Resources Administration does not require a discharge permit for storm water runoff.

C. Air Use Considerations

23. Yes. Both construction and use of the highway will result in discharge of pollutants (hydrocarbons, carbon monoxide, nitrogen oxides, and particulates) into the air. However, improved traffic flow resulting from the redesigned

interchange may result in an overall reduction of vehicle emissions for the vicinity.

24. The magnitude of resultant air quality changes will depend largely on changes in the level of vehicular use and local meteorological conditions.

25. Yes. Use of new interchange ramps will increase noise levels in the vicinity of those ramps. The amount of increase depends upon speed, grade, level of use, and the vehicular makeup of the traffic.

27. Yes. Standard highway lighting will be installed at all new entrance and exit ramps and will alter the existing natural light regime in the immediate vicinity.

E. Socioeconomic Considerations

31. Possibly. Depending upon final determination of the interchange configuration, the action may result in preemption of small portions of some properties. The economic use of properties taken would be precluded while use of adjacent or nearby properties may be altered. It is not anticipated that any existing residential, commercial, or industrial buildings will be directly affected.

33. Yes. In response to improved accessibility to Interstate 270, some increase in land values can be expected in the areas served.

34. Yes. In accordance with its purpose, the project will provide improved flow of traffic through the I-270/M-124 Interchange and is intended to have beneficial implications for traffic flow on local roads as well as I-270.

F. Other Considerations

43. No. The action will correct the currently congested, unsafe conditions at the I-270/M-124 Interchange and, thus, is essential to the improvement of public safety and welfare.

45. Yes. The subject action is part of several comprehensive plans for the development of the I-270 corridor area.

G. Conclusion

47. An Environmental Assessment will be prepared for the proposed action in accordance with Council on Environmental Quality regulations.

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ENVIRONMENTAL ASSESSMENT

I. Project Location and Description

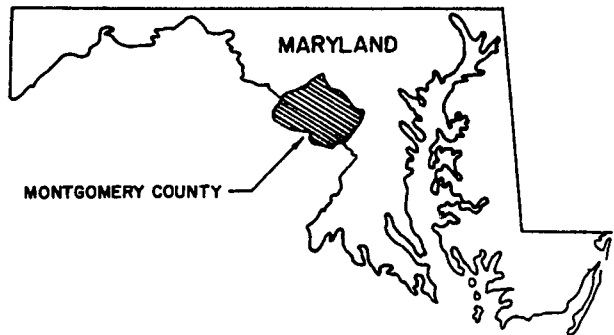
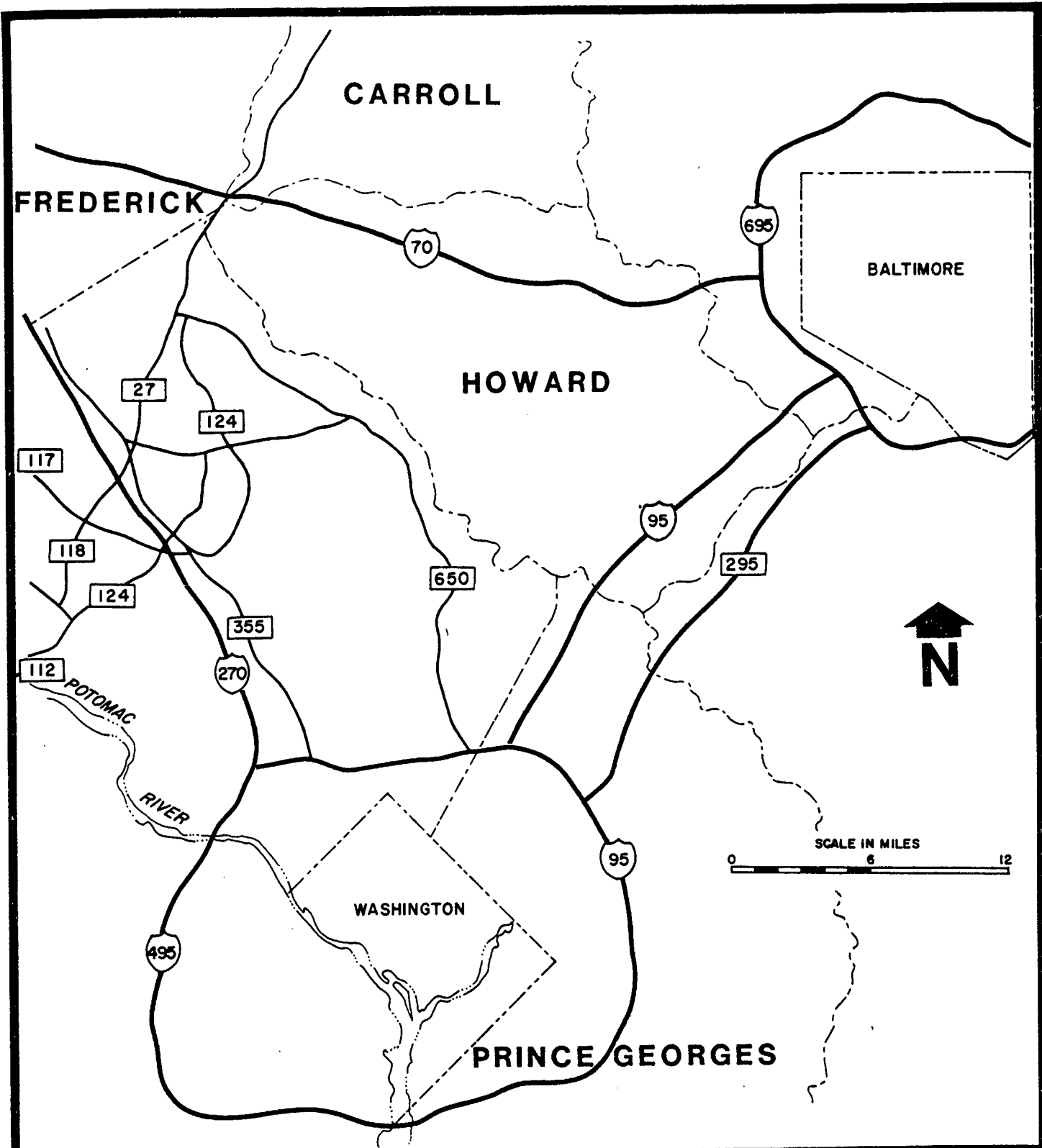
A. Project Location

The project area is located in Gaithersburg, Maryland, in northern Montgomery County, along the I-270 corridor about 20 miles northwest of downtown Washington. (See Figure 1.) The project includes modifications to the present interchange of MD 124 with I-270. At present, the area is urban in character, comprised of residences, shopping centers, and strip development, and is one of the fastest developing areas in the county.

B. Project Description

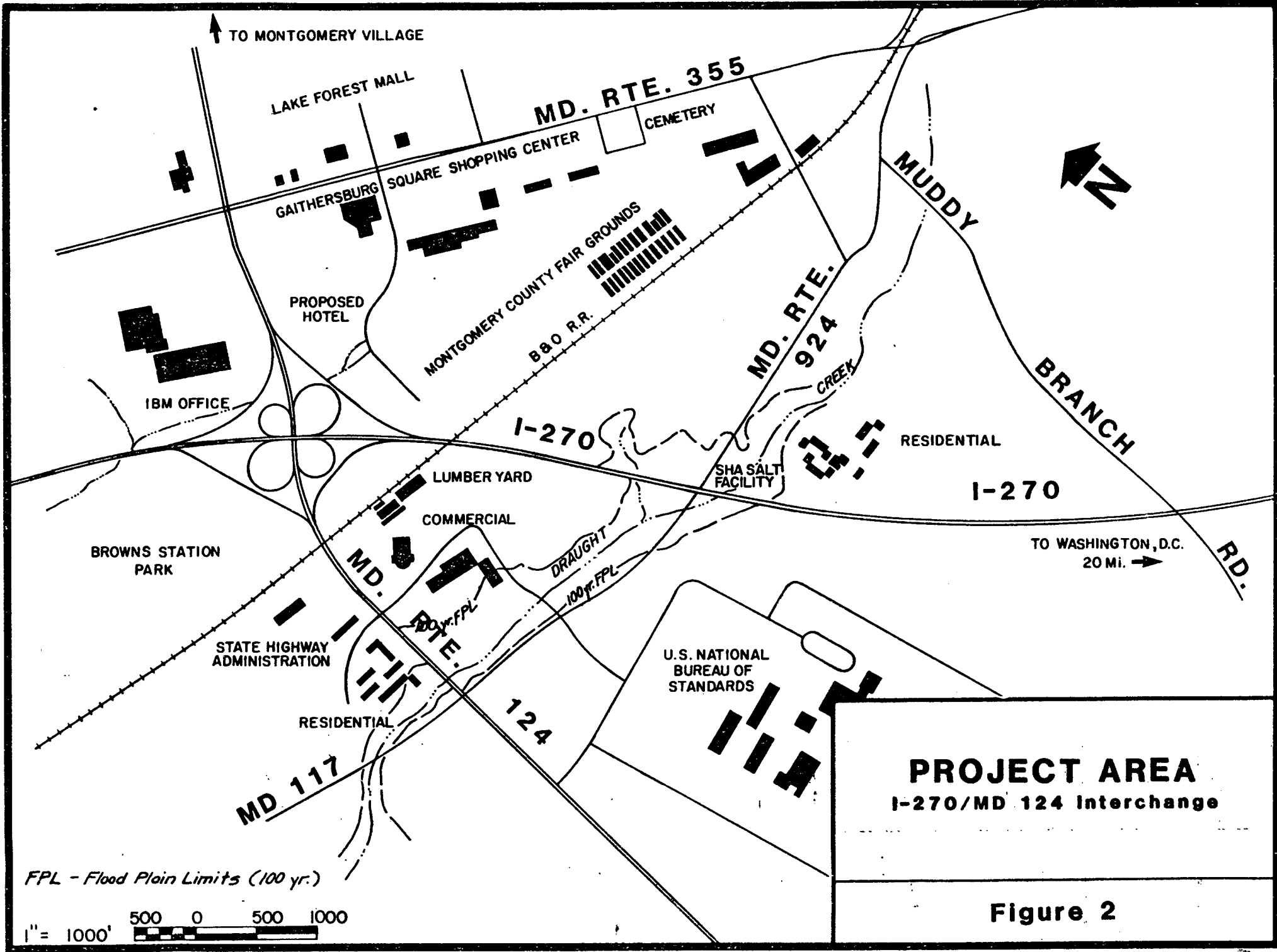
The Interstate 270 interchange with Maryland 124, shown in Figure 2, provides access from residential areas to shopping and employment centers, as well as to service, educational, cultural, and recreational facilities. Interstate 270 is a major connector between the City of Gaithersburg and places south of the project area, particularly downtown Washington, D.C.

To improve capacity and safety, major improvements at this location have been studied, including modification of interchange ramp configurations at the existing MD 124 interchange, relocation of west-south movements to nearby MD 924, and construction of a collector-distributor road to interconnect the ramps.



AREA MAP
I-270/MD 124 Interchange

Figure 1



II. Project Need

This section presents discussions of the various aspects of the problems in operation, capacity and safety which support the project need.

A. Purpose

The purpose of this project is to develop a safe and convenient means of providing for highway transportation in this particular portion of Montgomery County, MD. It is also intended that the project be consistent with the social and environmental needs of the area served. The traffic needs addressed by this study are those predicted to occur by the design year 2005.

Among others, support for the proposed improvement came from the Montgomery County Executive, who in a letter dated May 27, 1980, emphasized that the I-270/MD 124 project is a "much needed and long overdue improvement."* A copy of this letter can be found in Appendix A.

B. Traffic Operational Conditions

Existing and projected travel characteristics in the study area indicate significant growth due to proposed development.

1. Existing Conditions

The I-270 interchange at MD 124 has a number of design deficiencies that do not accommodate current traffic demands. The situation has become critical with increased volumes causing major back-ups to occur on a regular basis along the I-270 mainline. This situation at MD 124 presently contributes to a serious safety hazard on the Interstate System.

* In correspondence to FHWA Division Administrator, Baltimore, MD, from Montgomery County Executive, May 27, 1980.

Traffic conditions are discussed for I-270 and for the local street network.

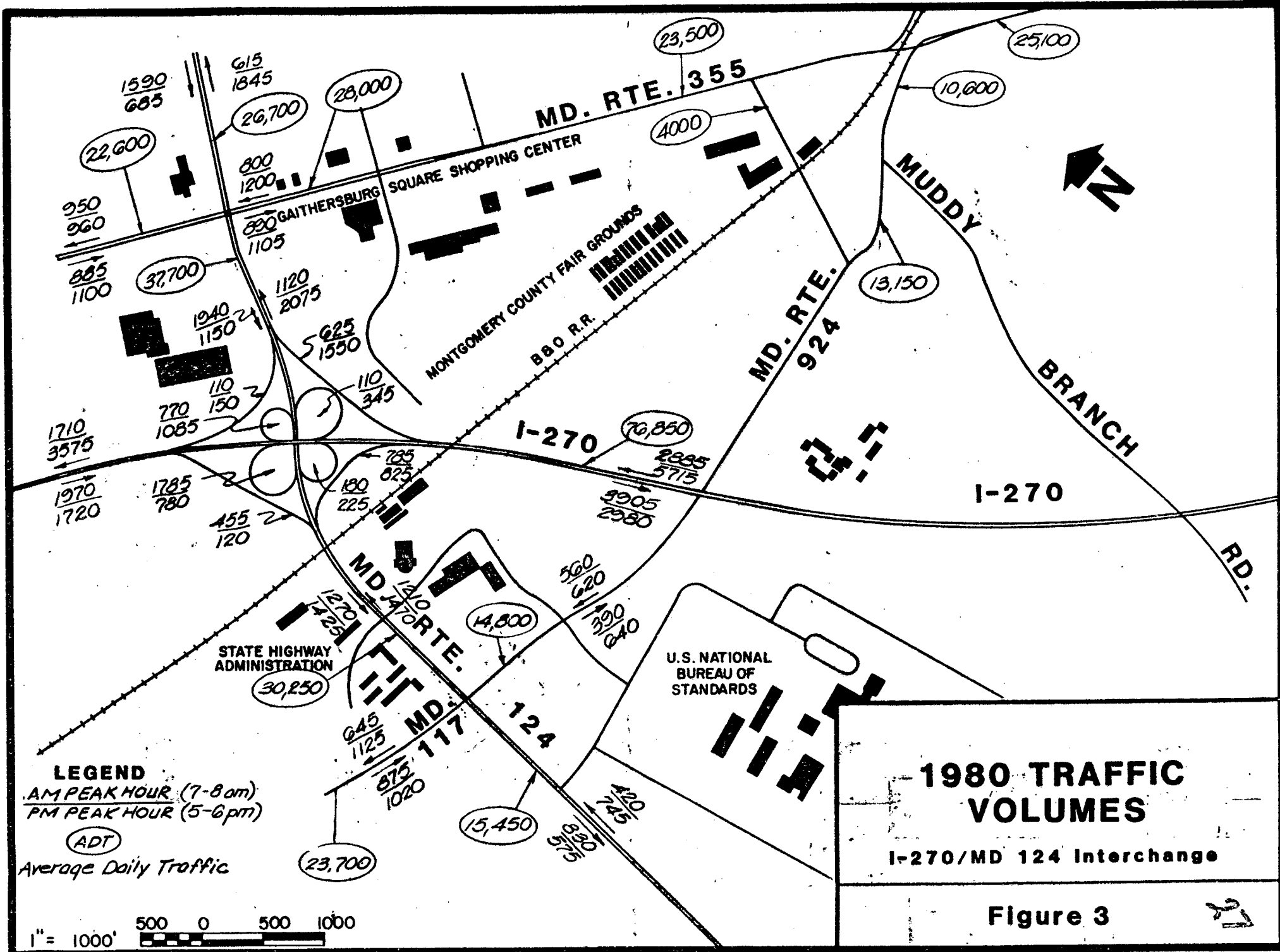
Traffic volume - Figure 3 shows 1980 two-way Average Daily Traffic (ADT) for the area. A key aspect of the volumes on I-270 is the large difference in volume north and south of the interchange with MD 124. Volumes in the area have generally increased significantly (around 50 percent since 1976) over the past several years due to the opening of the Lake Forest Mall, Montgomery Village and other intense residential developments.

Also shown are 1980 a.m. and p.m. peak hour traffic by direction. A number of ramps can be seen to carry substantial traffic, particularly in the p.m. peak hour. These ramps presently are operating above capacity, are creating hazardous conditions, and are experiencing a disproportionate number of peak hour accidents.

I-270/MD 124 Interchange - There are a number of critical problem locations related to the combination of volumes and substandard design at the I-270/MD 124 interchange.

The off-ramp from northbound I-270 to eastbound MD 124 currently experiences queuing problems which back up onto mainline I-270, affecting operation of the highway downstream. A checkpoint analysis at the merge of this ramp with MD 124 shows "LOS" E¹ operation during the p.m. peak. Operating problems exist which result from a combination of factors. One is the merge point is operating at capacity. The second has to do with weaving taking place east of the merge point. Under current p.m. peak hour conditions, 375 vehicles turning left at MD 355 have to weave across 375 vehicles from mainline MD 124, which are either turning right or going through at MD 355. Also, 275 vehicles from mainline MD 124 which turn right at MD 355 must weave with 290 ramp vehicles which go through the MD 355/MD 124 intersection. These two weaves comprise a weaving

¹ The measure LOS refers to "Level of Service", which represents the ratio of traffic volume to carrying capacity of an intersection. The ranges in levels of service are expressed alphabetically, 'A to F', "A" being the best and "F" the worst condition.



1590
685

615
1845

28,000

23,500

25,100

22,600

26,700

MD. RTE. 355

10,600

950
960

800
1200

GAITHERSBURG SQUARE SHOPPING CENTER

4000

MUDDY

885
1100

37,700

890
1105

MONTGOMERY COUNTY FAIR GROUNDS

MD. RTE. 924

13,150

1940
1150

1120
2075

B&O R.R.

BRANCH

1710
3575

770
1085

625
1550

I-270

70,850

I-270

1970
1720

1785
780

785
825

2835
5715

RD.

455
120

180
225

560
620

390
640

STATE HIGHWAY ADMINISTRATION

30,250

MD. RTE. 124

14,800

U.S. NATIONAL BUREAU OF STANDARDS

645
1125

875
1020

15,450

515
915

744
510

23,700

MD. RTE. 117

LEGEND

AM PEAK HOUR (7-8 am)
 PM PEAK HOUR (5-6 pm)

(ADT)

Average Daily Traffic

1" = 1000'
 500 0 500 1000

1980 TRAFFIC VOLUMES

I-270/MD 124 Interchange

Figure 3

volume of 1,515 vehicles operating in a space of 1,000 feet, which indicates a theoretical maximum LOS D operation. However, queues associated with signal operations at MD 355 reduce this weaving distance and indicate a further reduction to LOS F.

All cloverleaf ramps of the interchange have radii which do not conform to desirable standards, which is 270 feet. Two have radii of about 190 feet, one a radius of 140 feet, and one a radius of 130 feet. These result in extremely short interior weaving sections, especially considering the volumes involved. Queues back up onto mainline I-270 during the p.m. peak hour, which also affects traffic trying to merge onto I-270 from the east to north ramp.

Local Street System - There are three locations which are expected to be sensitive to any redesign of the I-270/MD 124 interchange. These are:

- o The intersection of MD 355 and MD 124
- o The intersection of MD 124 and MD 117
- o The street network in the vicinity of MD 355 and MD 924

The MD 355/MD 124 intersection operates at level of service A and C during the a.m. and p.m. peak hours, respectively. These levels of service correspond to critical lane volumes of 955 during the a.m. and 1,225 during the p.m., which would indicate satisfactory conditions in a normal situation. However, there has been observed a queuing problem which is related to the short weaving section between MD 355 and the northbound I-270 to eastbound MD 124 off-ramp. Queues experienced on the eastbound MD 124 approach to the MD 355 intersection shorten this weaving section even more.

The intersection of MD 124 and MD 117 is presently operating at LOS B during the a.m. peak and LOS D during the p.m. peaks. Similar to MD 355 and MD 124, this intersection will be sensitive to operational changes in configuration of the I-270/MD 124 interchange.

At present, no south to west movements are permitted at the intersection of MD 924 (Diamond Avenue) and MD 355. Southbound MD 355 traffic currently uses Chestnut Avenue to access westbound MD 924 and southbound Muddy Branch Road.

Accident Data - From a system perspective, both mainline I-270 and MD 124 overall seem to be within reasonable accident rate limits based upon expectations of similar type facilities statewide prior to 1977. Neither route appeared on the last High Accident Location Listing developed covering the period through 1976. However, along MD 124, two locations, at MD 355 and MD 117/924, have been identified as High Accident Intersections for 1977 and 1978, with 1979 data not yet available.

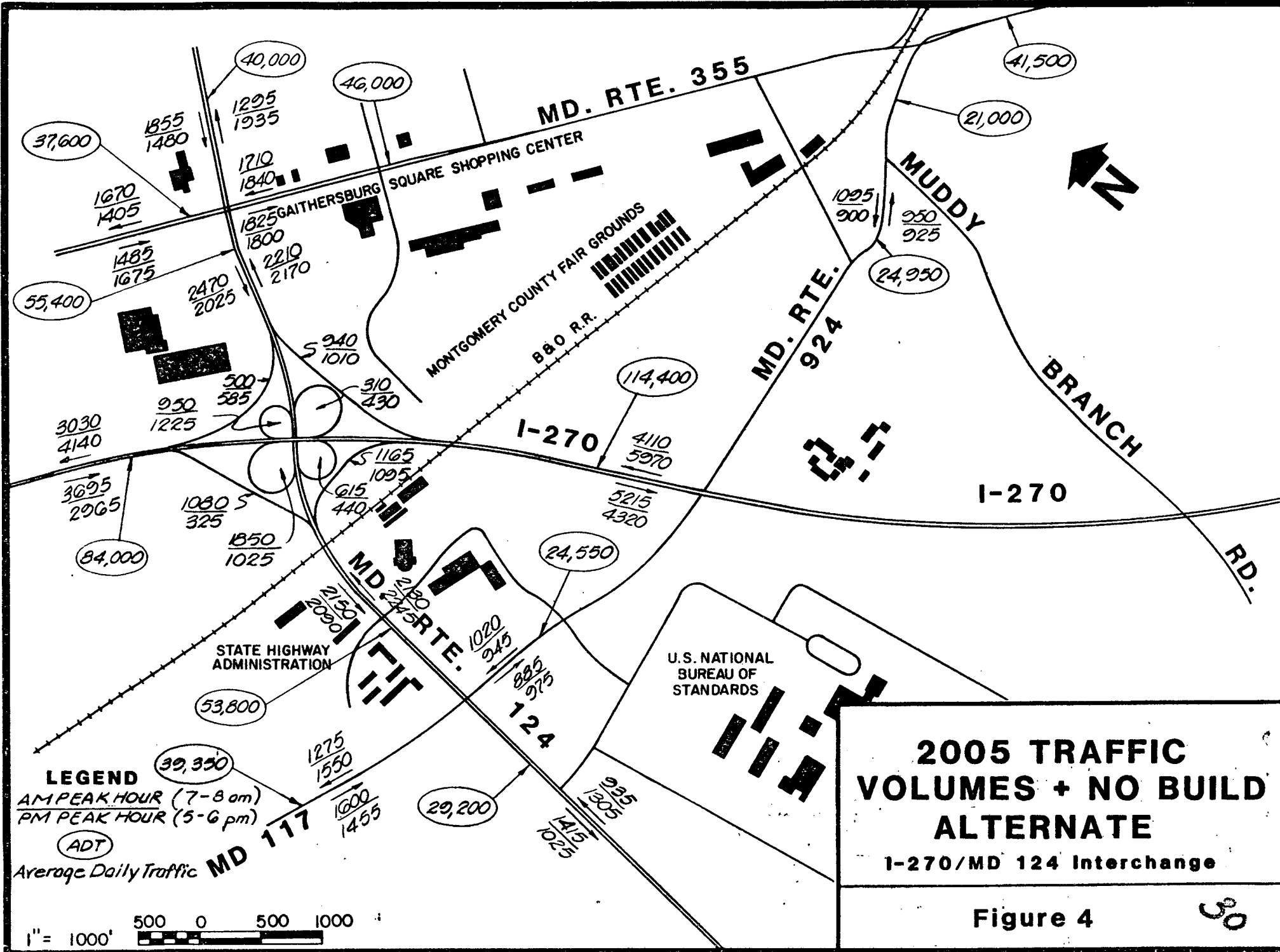
Most I-270/MD 124 interchange ramps were within acceptable limits prior to 1977 except for two ramps - eastbound MD 124 to northbound I-270 and to southbound I-270 - which were identified as High Accident Interchange Ramps in the period 1974-1976. Even on the other ramps, however, the peak period studies indicated some substantial increases in the accident rate for both the a.m. and p.m. peaks. While this information was based on a reduced frequency, it did indicate a reasonably high probability of future problems with increased traffic volumes.

2. Projected Volumes - 2005

Traffic volumes are anticipated to increase significantly in the area due to projected new development. Figure 4 shows both ADT and peak-hour volumes for 2005. The expected economic and land use development by 2005 is reflected in increased traffic volumes. It is anticipated that the present problems will be heightened in the year 2005 if no improvements are made.

C. Alternates Considered

Initially, five alternatives were considered in addressing transportation improvement in the study area.



2005 TRAFFIC VOLUMES + NO BUILD ALTERNATE
I-270/MD 124 Interchange

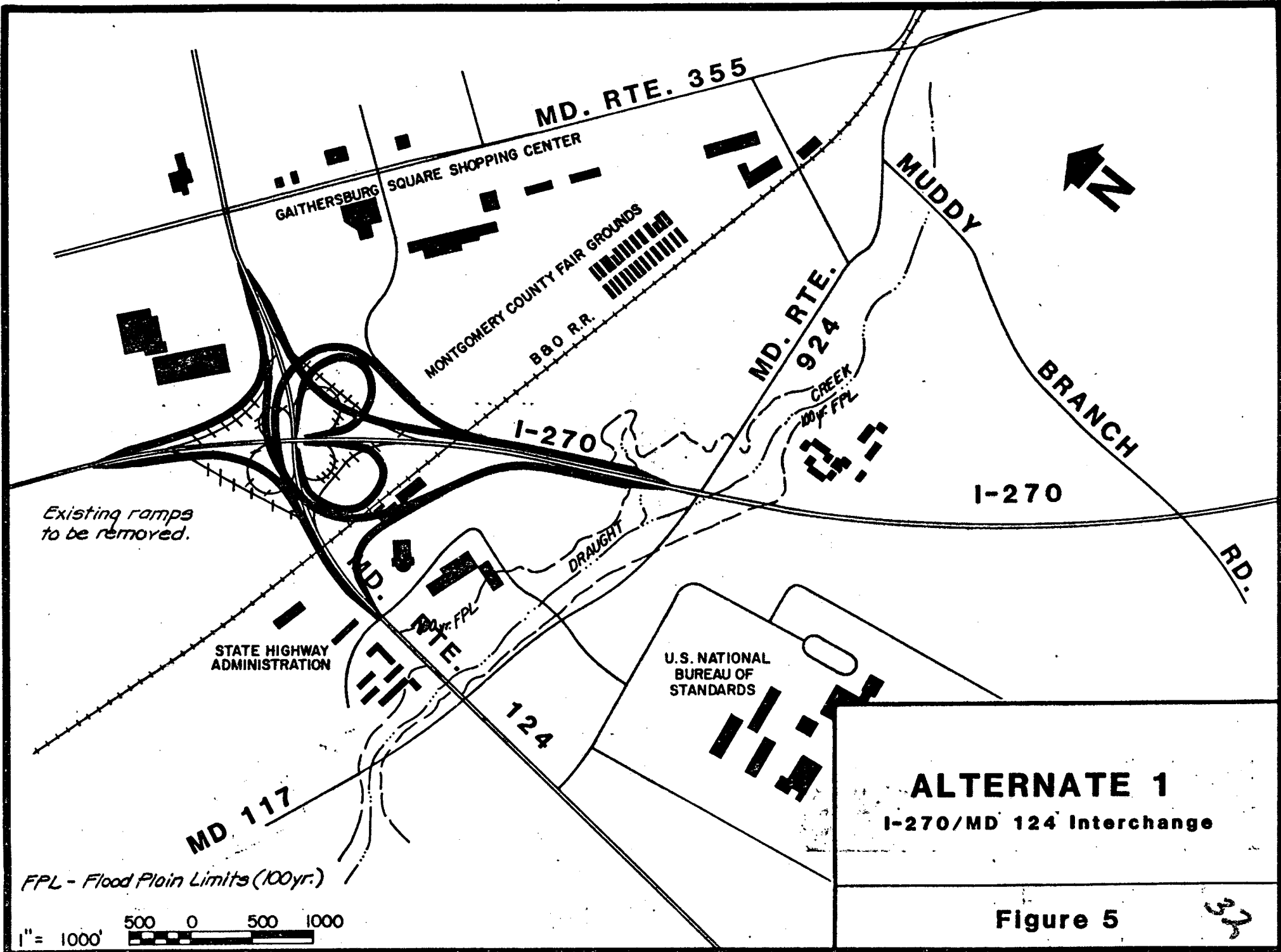
Figure 4 30

- o Alternate 1 - All improvements would be made to the existing interchange;
- o Alternate 2 - Includes improvement to the existing interchange, the construction of two new ramps at MD 924, and new collector-distributor road to interconnect ramps.
- o Alternate 3 - Reconstruction of two new ramps at MD 924 and closure of two ramps at the existing interchange.
- o Alternate 4 - An alternate design for the construction of two new ramps at MD 924 and closure of two ramps at the existing interchange: this is similar to Alternate 3 except the northbound off-ramp is a directional ramp.
- o Alternate 5 - Transportation System Management (TSM) Alternate. Improvements to northbound to eastbound off-ramp.
- o No-Build - No improvements would be made to the interchange.

Based on initial evaluation, three of the alternates together with the No-Build were developed and considered further.

1. Alternates Eliminated

Alternate 1 (Figure 5) and the TSM Alternate (Alternate 5) were not developed further for several reasons. The only feasible TSM Alternate identified would reconstruct the northbound off-ramp from I-270 to eastbound MD 124 to two lanes, and install a traffic signal at its intersection with MD 124. This was determined to be only a short-term solution to traffic congestion and provided no solution to safety and operational problems. This would improve service for northbound off traffic only, and this would be useful for only two to three years. The safety and operational problems at other locations on the I-270 mainline, the ramps, and on MD 124 would not be alleviated by this improvement.



Alternate 1 was not carried further based on its adverse environmental impacts and high costs - \$11.2 million for construction and \$5.8 million for right-of-way. Its construction would have displaced a lumber yard and restricted access to several other business as well as an SHA facility in the area. It also would have displaced a hotel proposed for the southeast portion of the interchange.

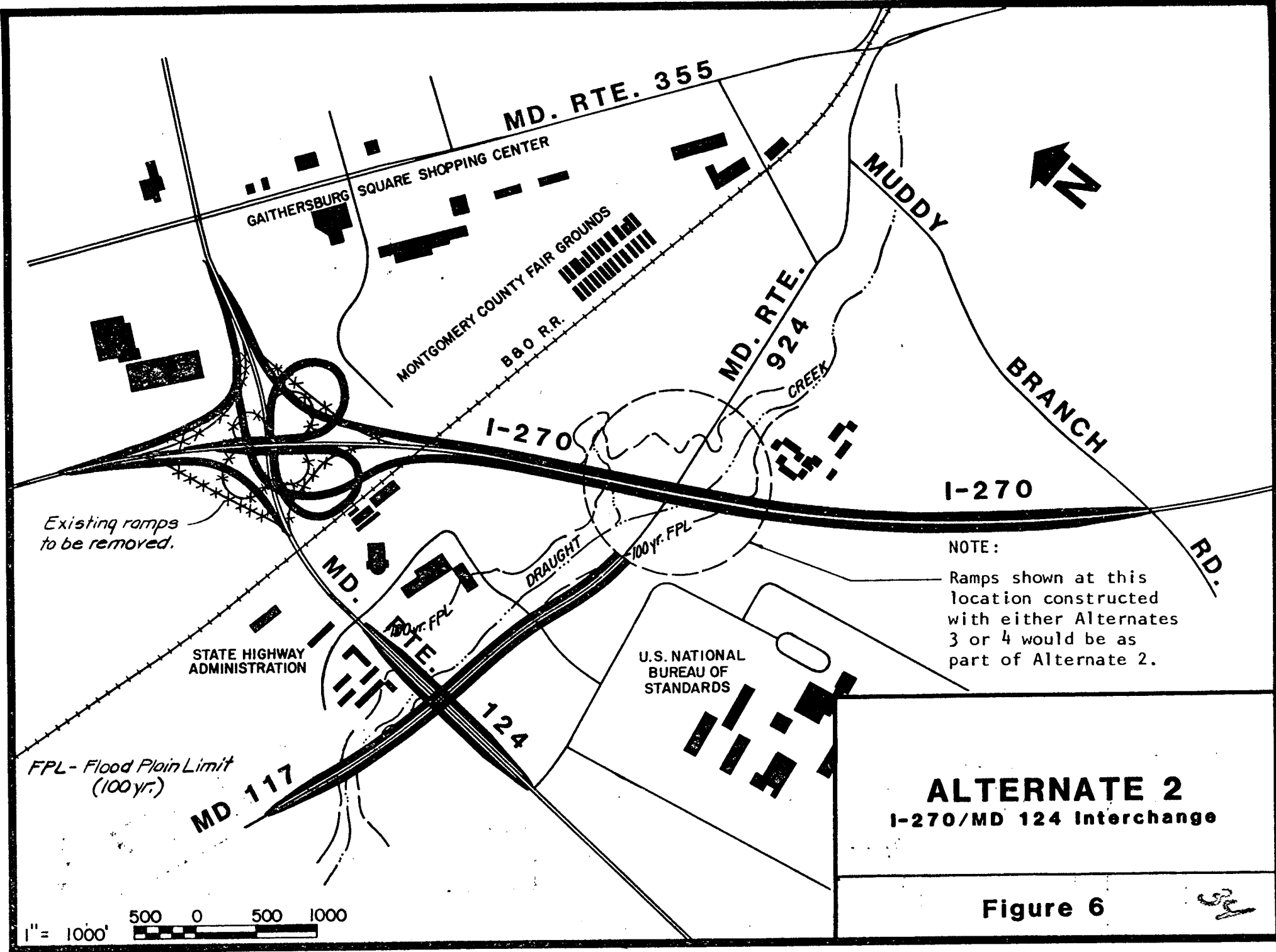
This alternate was also the most expensive from both a right-of-way and construction perspective. More, higher priced land would have been required. Also, the design because of the site constraints would have required extensive bridges.

2. Alternates Developed

The three alternates developed represent a combination of improvement to the interchanges with I-270 as well as improvements to local streets. All alternates included reconstruction of the intersection of MD 124/MD 924/MD 117, and some improvements to MD 924 west of I-270.

Alternate 2 - Proposed as part of this alternative are improvements to the existing interchange, two new ramps at MD 924, and a new collector-distributor road. As shown in Figure 6, the new ramp at MD 924 would provide an off movement northbound to westbound and an on movement eastbound to southbound. These movements would be relocated from the existing interchange. A total of 9.7 acres of right-of-way would be required. (This interchange design would allow Alternates 3 or 4 to be developed independently initially and then be integrated as part of this configuration at a later date.)

The collector-distributor would extend from south of MD 924 to the existing interchange at MD 124. It would have both north and southbound lanes and could generally be constructed in the existing right-of-way. It provides for all northbound off-movements and all southbound on-movements. It would connect with the new ramps at MD 924 and with reconstructed ramps at MD 124.



GAITHERSBURG SQUARE SHOPPING CENTER

MONTGOMERY COUNTY FAIR GROUNDS
B&O R.R.

MD. RTE. 355

MD. RTE. 924
CREEK

MUDDY

BRANCH

I-270

I-270

RD.

Existing ramps
to be removed.

STATE HIGHWAY
ADMINISTRATION

DRAUGHT

U.S. NATIONAL
BUREAU OF
STANDARDS

NOTE:

Ramps shown at this
location constructed
with either Alternates
3 or 4 would be as
part of Alternate 2.

FPL - Flood Plain Limit
(100 yr.)

MD. 117

124

ALTERNATE 2
I-270/MD 124 Interchange

1" = 1000'
500 0 500 1000

Figure 6

324

Major reconstruction would occur at the existing interchange at MD 124, including one new directional ramp and the reconstruction of two cloverleaves and four directional ramps. Two new bridges under the B&O Railroad would be required.

The following improvements are proposed for the MD 124/117 intersection:

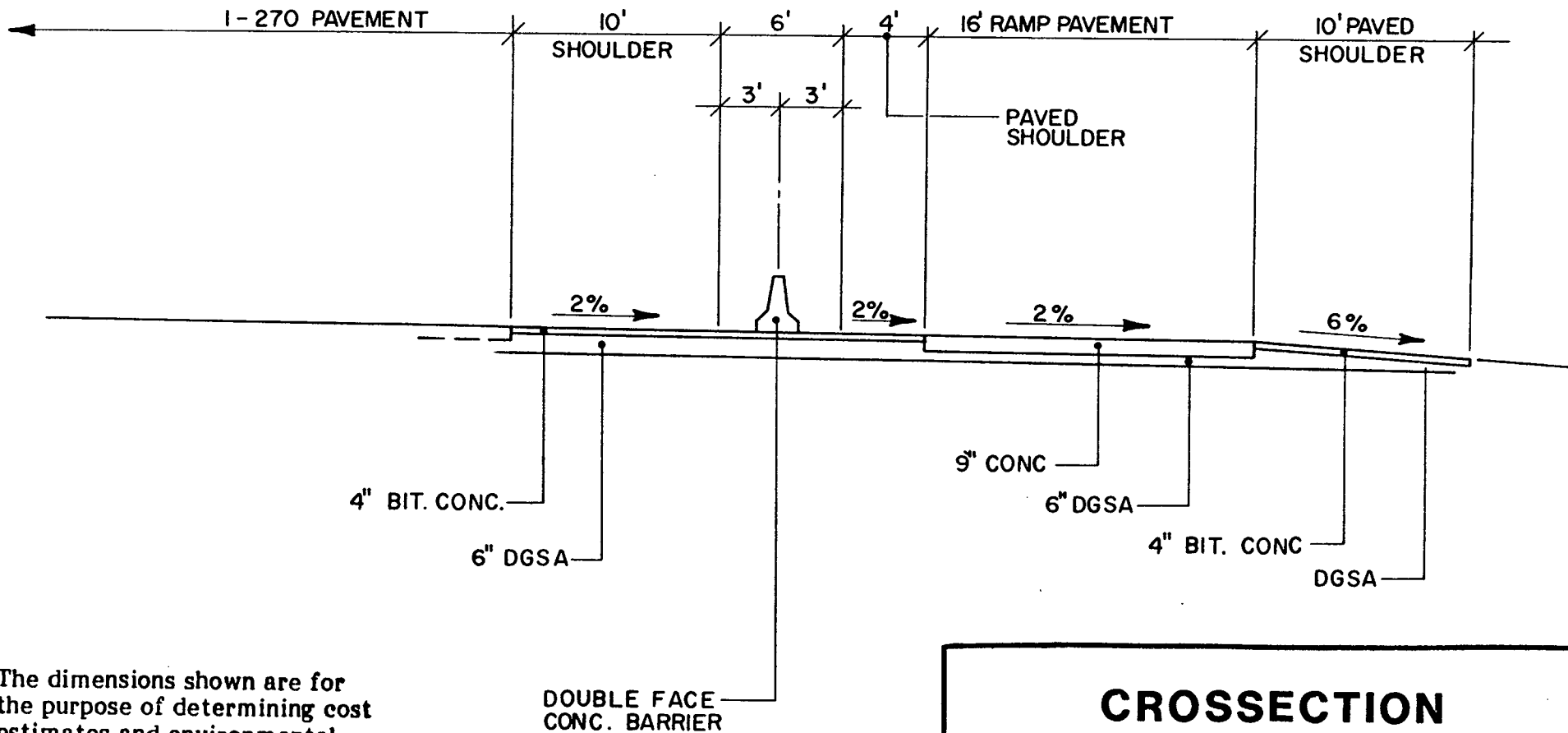
- o MD 124 - free right turns both west and southbound
- o MD 117 - a thru lane
- o MD 924 - a thru, left turn only and a free right turn lane

These improvements would also apply to Alternates 3 and 4.

Except for one ramp, a design speed of 30 MPH was used. The exception is the westbound MD 124 to southbound I-270 on-ramp, which has a design speed of 50 MPH.

Signing for this interchange would include two changes from the existing conditions. From MD 124 westbound, the sign to either north or southbound would be consolidated at one location; also, the direction of movement would be toward the ultimate destination. The second change would be for northbound off-movement from I-270. Both movements, to either westbound or eastbound, would be from one location at the merge point with the new collector-distributor road. A cross-section of this road is shown in Figure 7.

Alternate 3 - This alternate proposes two new ramps at MD 924, consisting of a new northbound to westbound off-ramp and an eastbound to southbound on-ramp, as shown in Figure 8. These would replace the ramps at the existing interchange at MD 124, which presently accommodate these movements. These existing ramps would be closed. No other construction would occur at the existing interchange to correct present safety and capacity problems. Both of the new ramps would be designed with 30 MPH design speeds and could be implemented in conjunction with Alternate 2 at a later date. About 3.1 acres of right-of-way would be required for this alternate.



The dimensions shown are for the purpose of determining cost estimates and environmental impacts, and are subject to change during the final design phase.

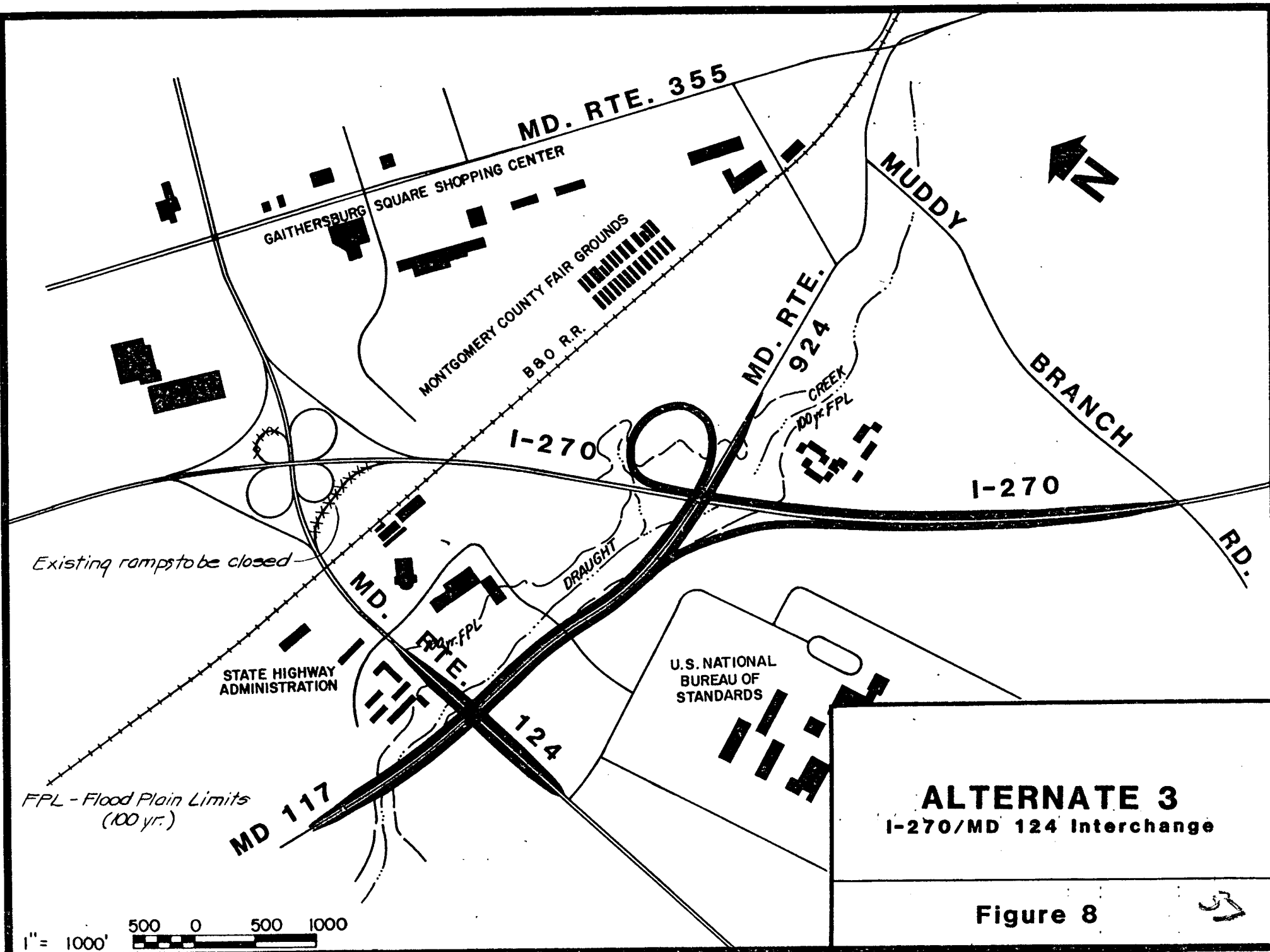
NO SCALE

CROSSECTION COLLECTOR-DISTRIBUTOR ROAD

I-270/MD 124 Interchange

Figure 7

36



ALTERNATE 3
I-270/MD 124 Interchange

Figure 8

53

The new ramps at MD 924 would require some reconstruction of the I-270 bridge over MD 924 to accommodate an additional lane on MD 924. This would be required because of the deceleration lane of the new off-ramp; movement from the relocated ramp would be in the westbound direction only. Access to I-270 southbound would only be possible from the west. The resulting configuration for MD 924 would be four lanes to the west of the new on-ramp, three lanes between the new on and off ramps (i.e., under I-270) and two lanes to the east of the new off-ramps.

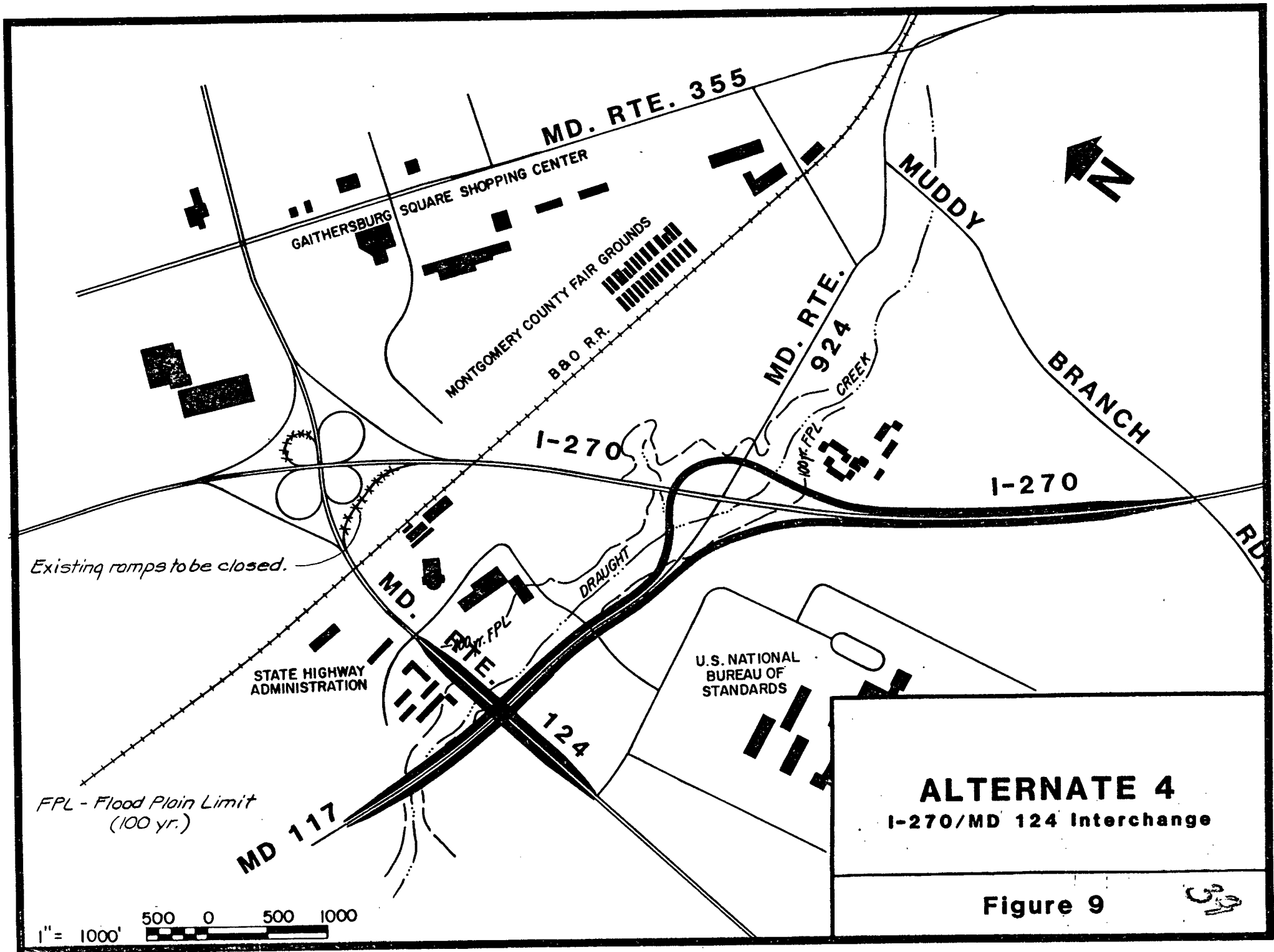
This alternative would include relocation of signing for traffic to and from the west. For the northbound I-270 traffic exiting the mainline, the ramp for movement to the west would be about 1,000 feet south of the off-ramp to the east. At the same time, the signs for on southbound I-270 would be relocated to the intersection of MD 924 and MD 124.

Alternate 4 - This alternate is similar to Alternate 3 in that it includes the relocation of two movements from the existing interchange with MD 124 to new ramps at MD 924. The corresponding existing ramps would be closed in this option as in Alternate 3, as shown in Figure 9. The same movements are involved -- the northbound to westbound off movement and the westbound to southbound on movement. The primary difference is that the northbound to westbound off-ramp would be a directional over I-270 rather than a clover-leaf under the mainline.

As with Alternate 3, no work would be required at the existing interchange, although this alternate could also be integrated as part of the ultimate improvement to the MD 124 interchange. This alternate would require the relocation of a SHA salt storage facility in this area. Both ramps are designed for 30 MPH design speeds.

The changes in signing would also be the same as for Alternate 3. For the I-270 traffic, the northbound to westbound off sign would be relocated to the south of the existing interchange; for local traffic from the west, the southbound on sign would be relocated to the intersection of MD 124 and MD 924.

No-Build Alternate - This alternate assumes no improvement to the existing interchange will be made.



ALTERNATE 4
I-270/MD 124 Interchange

Figure 9

D. Summary of Costs

The following table reflects the total costs of construction and costs associated with right-of-way acquisition for each of the alternates.

SUMMARY OF COSTS

<u>Alternatives</u>	<u>Construction Costs</u>	<u>Right-of-Way Costs²</u>
Alternate 2	\$3,877,000 ¹	\$2,233,832
Alternate 3	\$1,831,000	\$616,342
Alternate 4	\$2,295,000	\$932,000 ³
No Build	0	0

¹ For total cost of construction and right-of-way, the cost of Alternate 3 or 4 must be added to Alternate 2.

² Right-of-Way costs based on the estimates from the Maryland Department of Transportation, State Highway Administration, Right-of-Way Agent, Right-of-Way, District 3.

³ Includes \$200,000 cost associated with relocating SHA salt storage facility.

III. Existing Social, Economic and Environmental Conditions

A. Socio-Economic Environment

1. Population

Montgomery County, in the vicinity of Gaithersburg has experienced tremendous increases in population during the 1960's and 1970's. According to the U.S. Census of Population and Housing, the study area contained about 11,000 people in 1970. Montgomery Planning Board staff estimated the January 1, 1976 population at 30,300 from data compiled from records of the Office of Supervisor of Assessments in Montgomery County (M-NCPPC) Information Bulletin No. 18, Area, Population and Housing Counts, January 1976). This represents an increase of nearly 200 percent in just five years. A recent M-NCPPC estimate shows an increase to about 59,000 in 1978.

Average disposable income for Montgomery County was estimated at \$24,443, highest of any county in the United States. (Maryland Department of Economic and Community Development, Maryland Statistical Abstract, 1977). There were approximately 28,000 persons in the labor force from the Gaithersburg/Germantown area. This represented about 10 percent of the County total. The government sector of the economy employed the most people - over 28 percent - reflecting the County's proximity to Washington, D.C. The services sector provided about 26 percent of the jobs, while manufacturing represents only 3.7 percent of the labor force. (M-NCPPC, Population, Households and Employment Growth Forecast, 1974.) In 1980, the unemployment rate ranges from two to six percent depending on the type of employment category.

The 1970 U. S. Census data show the population in the four census tracts surrounding the study area was 93.3 percent white, 5.9 percent black, and 0.8 percent other minorities. While this percentage may have changed somewhat over the last decade, within the immediate project study area, no minority communities have been identified to date.

12

2. Economic Characteristics

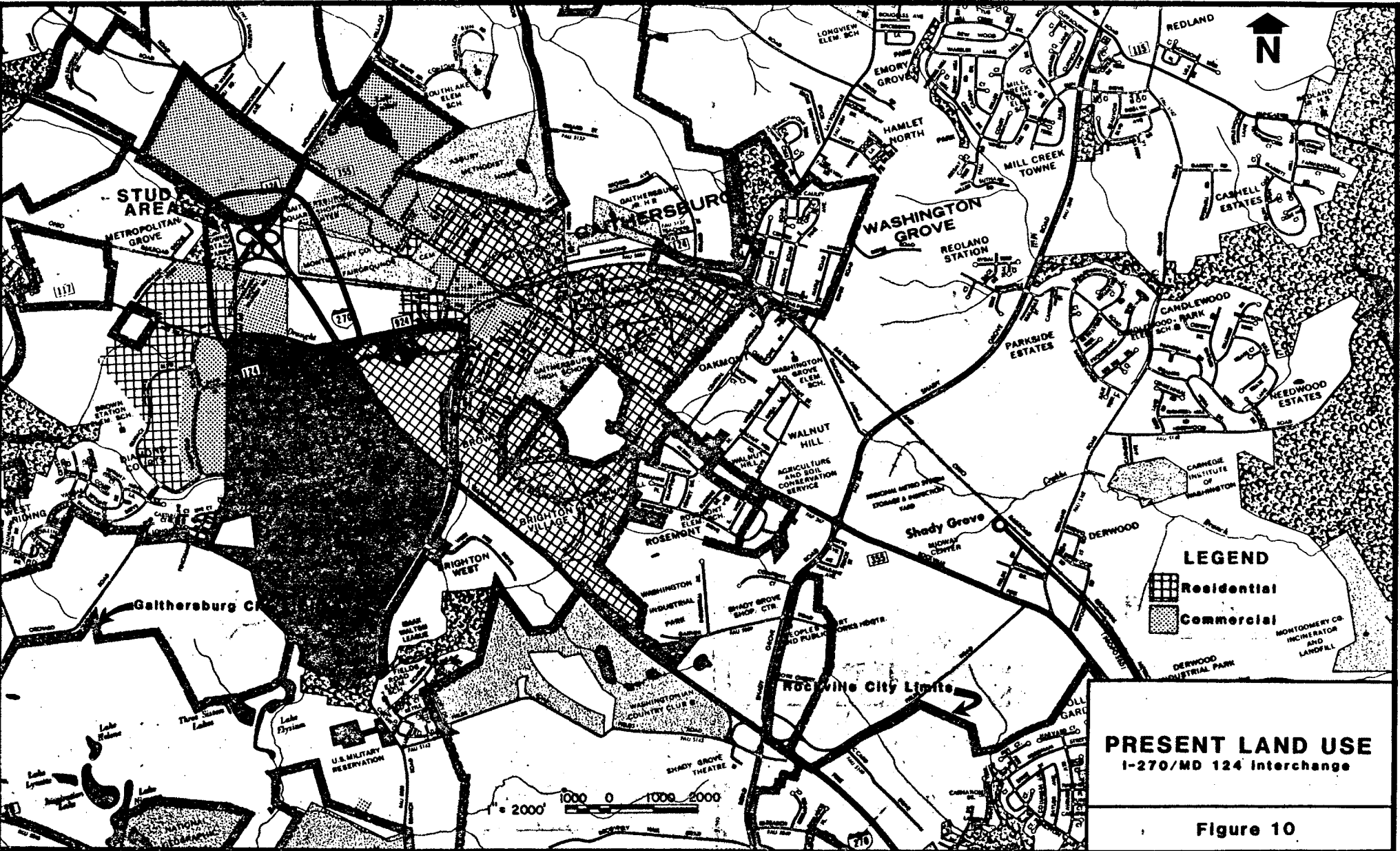
A comprehensive analysis of the economy of the study area is made difficult due to a lack of economic data on a small enough scale. Some general observations about the economy of Montgomery County can be made, however, by abstracting some aggregated statewide data.

According to the Maryland Department of Economic and Community Development's Statistical Abstract (1977), Montgomery County ranked third in the state in number of manufacturing firms (208) but had only 3.7 percent (9,350) of its total workforce employed in the manufacturing sector. If it is assumed that all county manufacturing workers are employed in county firms, this data relates to an average of about 45 employees per firm, indicating a manufacturing sector comprised of small firms. Most of Montgomery County's 254,000 plus workers are employed in either retail trade service or government, demonstrating a dependency on non-basic sector industries. Montgomery County's proximity to Washington, D.C., accounts for the high percentage of government employment reaching 25% (MNCP & PC).



The construction of I-270 has created an improved transportation corridor and has not only resulted in the speedy movement of people but the efficient movement of goods as well. As a result, new firms have located in specially zoned industrial parks along the Interstate.

3. Land Use

Most of the activity in the study area (urban) is concentrated in the City of Gaithersburg as shown in Figure 10. The town of Gaithersburg developed as a 19th century trading center along the Baltimore and Ohio Railroad. The economy was based upon the agricultural resources of the area. Successive bands of residential growth developed around the original town center over several generations. Before World War II, most of the development took the form of single-family residences and other low-density uses.



LEGEND

-  Residential
-  Commercial

PRESENT LAND USE
I-270/MD 124 Interchange

Figure 10

59

44

When I-270 was extended from the Washington, D.C. area to Gaithersburg (until recently the Interstate was designated I-70S), new development pressures and opportunities were created. New employment centers, such as the U.S. National Bureau of Standards, were established in close proximity to the Interstate route and they soon created a demand for medium-density and multi-family rental housing.

The area master plans (Maryland National Capital Park & Planning Commission, 1971), for the community envision a major activity center (central business district) immediately east of the existing interchange, which will generate high density retail and office development at the intersection of North Frederick Road (MD 355) and Montgomery Village Avenue (MD 124). Other proposals include the further expansion of industrial parks to the west towards the Great Seneca State Park, a new hotel on vacant land between the interchange and the Gaithersburg Square Shopping Center. The potential of new headquarters for General Electric Information Services Center (GEISCO) could generate annual tax revenues of \$5,500,000 to the State and County. Given the activity from Lake Forest Mall, IBM, and the Bureau of Standards, Gaithersburg can be seen as emerging as a viable corridor city.

To the northwest of the study area is Germantown, located in the vicinity of Clopper Road (MD 117) and MD 118. Until recently, Germantown had not shared in the growth of Montgomery County. Now it too is now on the threshold of experiencing growth similar to that of Gaithersburg. There is a great deal of concern about the proper way to develop the Germantown area, since it is the last large area in the I-270 corridor in which there remains the opportunity to create a planned community.

Quince Orchard, the name given the community near the intersection of Route 28 and Quince Orchard Road, is composed of a shopping center and a large garden apartment complex. Quince Orchard Manor, Quince Orchard Valley and West Riding are other communities located off Quince Orchard Road (MD 124).

Diamond Courts, Fox Chapel and Brighton Village are large residential developments to the west of the study area.

These areas are the largest of the existing residential communities within the study area. New housing construction is intense in this area, with new developments springing up almost overnight. The fast-paced development of the area is putting increased demands on an already strained transportation system.

4. Utilities

The study area is served by the following utilities:

- o Telephone - Chesapeake and Potomac Telephone Company
- o Electric - Potomac Electric and Power Company
- o Natural Gas - Washington Gas Light Company
- o Water - Washington Suburban Sanitary Commission and the Montgomery Department of Public Works

5. Recreation and Community Facilities

Recreation and community facilities center around active social and recreation organizations. The Montgomery Public Library and Montgomery Community College are local sources of enrichment; however, the nearby urban centers of Washington and Baltimore offer opera, theater, symphonic music, art and literature collections.

Recreational opportunities include golf courses (Washington Golf Course, Washingtonian Country Club) and the Izaak Walton League, which offers hiking and public fishing opportunities. Also, Brown's Station Park is located in the study area.

4/12

B. Cultural Resources

The following discussion describes those cultural resources present in the study area.

1. Historic/Archeological

A preliminary review did not identify any historic properties which are eligible for the National Register in the study area. This conclusion is based on two items - first, an initial review of significant points of interests done for the overall Intercounty Connector/Rockville Facility Study by the Maryland Historic Trust. Second, a review of the historic sites identified in the County by M-NCPPC. See Figure 11 for the location of historic sites identified to date.

The Maryland National Trust, however, did identify four sites in the vicinity of the project which are of local significance but not likely to be eligible for the National Register of Historic Places (see letter in Appendix A). These also are shown on Figure 11.

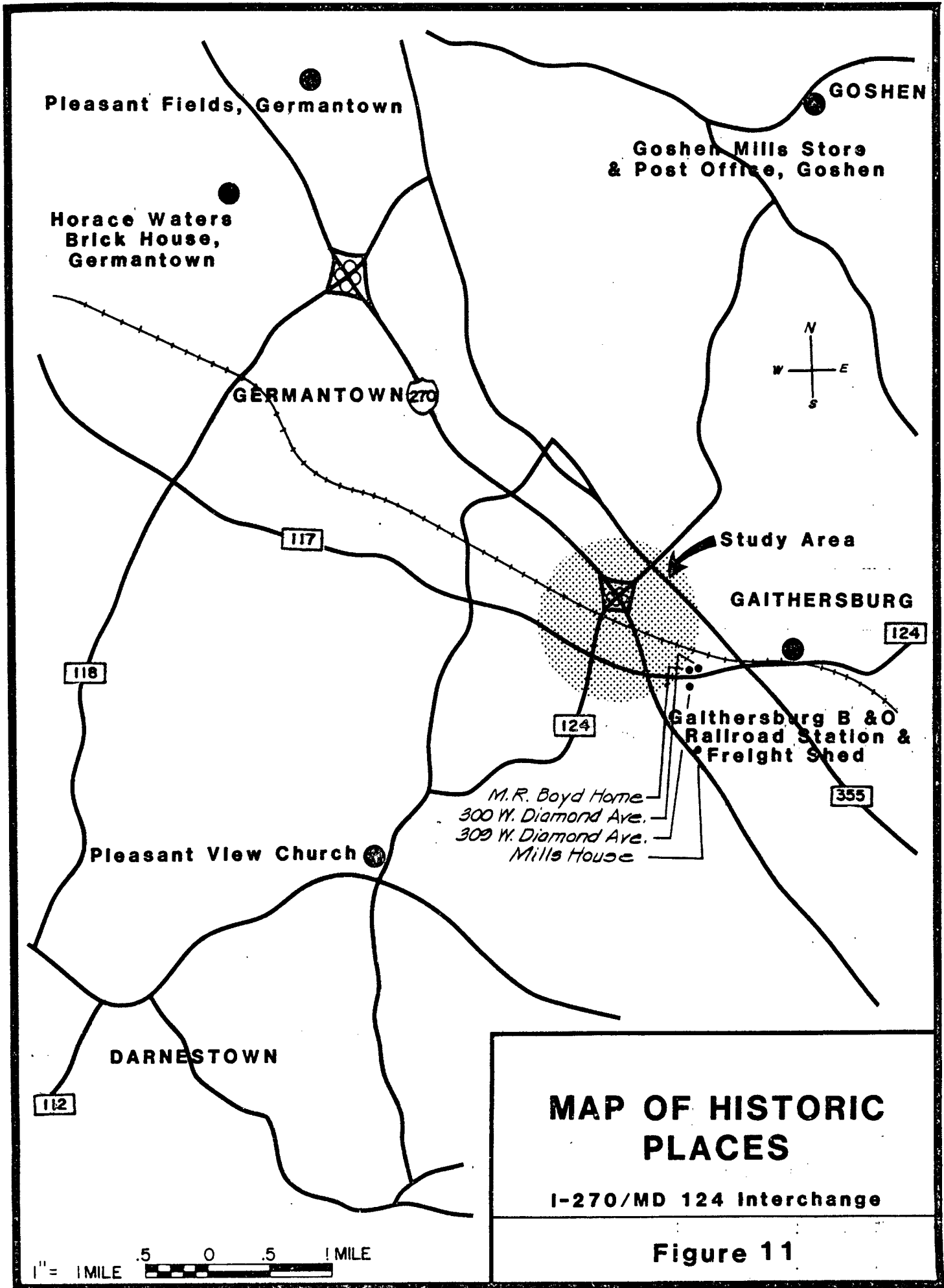
A similar preliminary finding is the case for archeological sites. While archeological sites do occur in the area, the site for any of the improvements is on previously disturbed surfaces, which reduces considerably the potential for discovering artifacts of archeological significance. A conformation of this finding has been received from the Maryland Geologic Survey, Division of Archeology. (See Appendix.)

2. Religious

There are no religious facilities in the study area.

3. Police, Fire and Health Facilities

The Montgomery County Police district, which serves the study area, is located in Rockville. In addition, the City of Gaithersburg has a municipal police force and is served by four volunteer fire companies.



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There are no hospitals in the Gaithersburg area. The closest facility for medical treatment is located to the south near I-495. Currently under construction is the Montgomery County Medical Center, located between Shady Grove Road and MD 28.

C. Transportation

Existing and planned transportation facilities are described in the following section.

1. Existing Roadway Network

The existing road network, as shown in Figure 12, which encompasses the proposed improvement, consists of the following:

- o Interstate 270. This highway is considered the north-south spine of the corridor circulation pattern. It is presently planned that the corridor will be supplemented by parallel major arterials to the east and west.
- o MD 355 - A major north-south arterial which also provides service to Washington, D.C.
- o Several east-west roadways include:
 - Muddy Branch Road
 - Quince Orchard: MD 124 (Montgomery Village Avenue)
 - Clopper Road
 - Shady Grove Road

2. Planned Roadway Improvements

Supplemental planned improvements in the immediate vicinity of the I-270/MD 124 interchange, excluding whatever recommendations the I-270

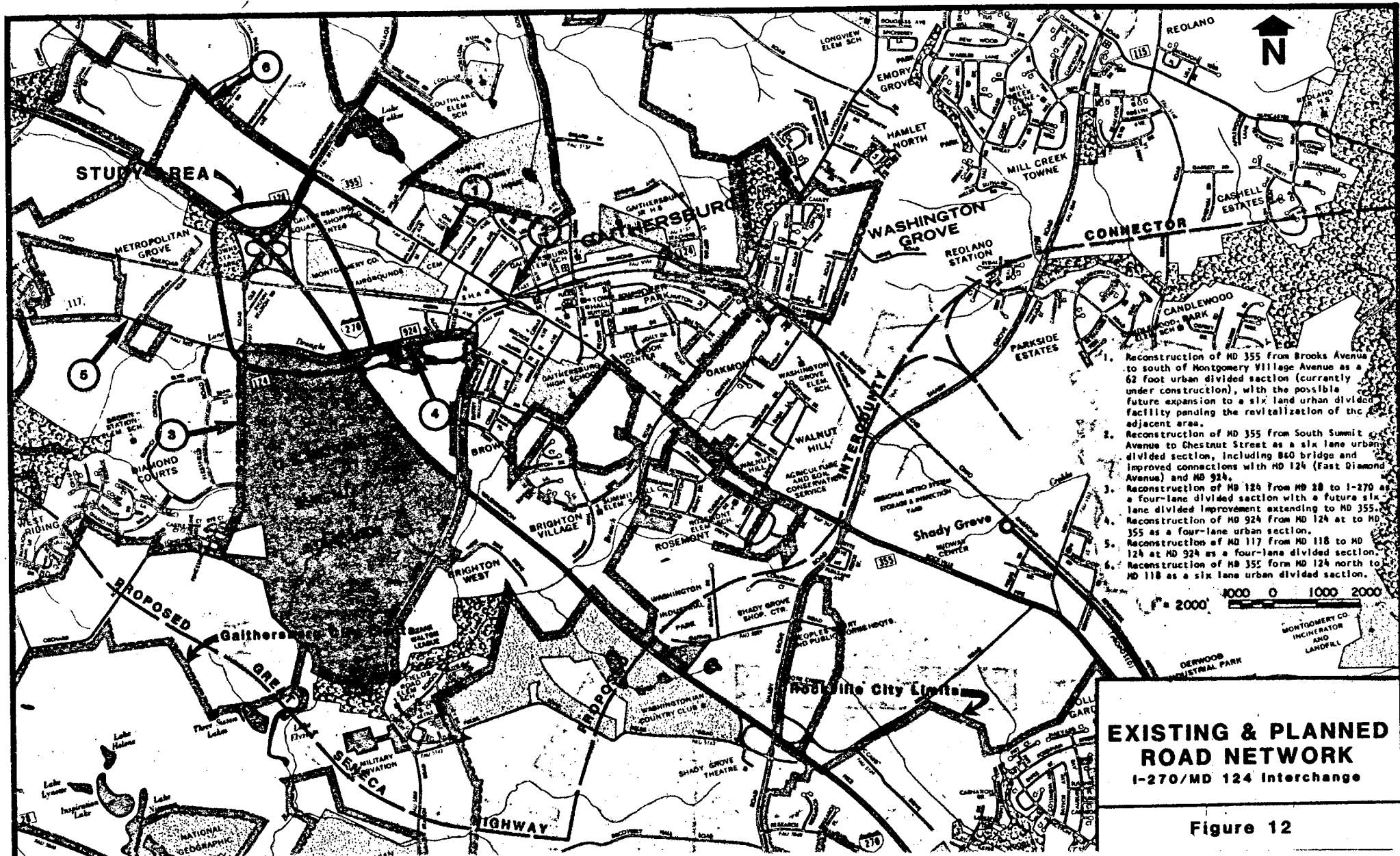


Figure 12

Corridor Study may develop, include the following State Highway Administration projects. These were obtained from the 1980-1985 Consolidated Transportation Program/Secondary System and the 1979-1998 Twenty Year Highway Needs Study/Secondary System.

- 1) Reconstruction of MD 355 from Brooks Avenue to south of Montgomery Village Avenue as a 62 foot urban divided section (currently under construction), with the possible future expansion to a six lane urban divided facility pending the revitalization of the adjacent area.
- 2) Reconstruction of MD 355 from South Summit Avenue to Chestnut Street as a six lane urban divided section, including B&O bridge and improved connections with MD 124 (East Diamond Avenue) and MD 924.
- 3) Reconstruction of MD 124 from MD 28 to I-270 as a four-lane divided section with a future six lane divided improvement extending to MD 355.
- 4) Reconstruction of MD 924 from MD 124 at MD 117 to MD 355 as a four-lane urban section.
- 5) Reconstruction of MD 117 from MD 118 to MD 124 at MD 924 as a four-lane divided section.
- 6) Reconstruction of MD 355 from MD 124 north to MD 118 as a six lane urban divided section.

Another potential state improvement is construction of the Intercounty Connector. Montgomery County also proposes a major project - the Great Seneca Highway - which is located parallel to I-270 about a mile to the west.

In addition to SHA improvements, the City of Gaithersburg anticipates future completion of two facilities which have been partially constructed by developers. Their first priority lies in completing Perry Parkway,

51

which will create a collector connection between MD 924 east of I-270 and MD 355 south of Montgomery Village Avenue. Since the remaining section involves an expensive bridge under the B&O railroad embankment, the City is currently unable to anticipate a development schedule. The second project involves future completion of the Firstfield Road crossing of Long Draught Branch to create a local service facility between Quince Orchard Boulevard and Bureau Drive. Consideration has also been given to a possible extension of Firstfield Road across I-270 to link with Perry Parkway.

3. Public Transportation System

The proposed project area presently has some bus service and air accessibility; rapid rail service will be available in several years.

Bus Transportation - While limited in scope, the employees of the National Bureau of Standards initiated the only bus service operating in the Gaithersburg area. The Washington Metropolitan Area Transit Authority (WMATA) provides bus service as far as Montgomery College. Service to the CBD of Gaithersburg is not available at present.

Air Travel - The Montgomery County Airpark is located northeast of Gaithersburg. The airpark is primarily used for private aviation purposes. Despite public policy to expand the facility, there are currently no plans for such activity due to its close proximity to residential areas.

Rapid Transit - A rapid transit station is currently under construction near Shady Grove Road about three miles to the south of the study area. The site is anticipated to accommodate 3,000 parking spaces and have long and short term parking areas, busbays, and "Kiss 'n' Ride" facilities. A great emphasis will be placed on feeder bus service.

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D. Natural Environment

1. Topography

Most of Montgomery County is on the very old, eroded peneplain that is generally known as the Piedmont Plateau.

The topography of the the study area is generally rolling. The entire County slopes from north and east toward the south and west. The highest point in the County is 846 feet above sea level, at Damascus. The lowest point is about 60 feet above sea level, where the Potomac River flows from Montgomery County into the District of Columbia. Most of the County, including the study area, is between 300 and 600 feet about sea level.

2. Geology and Soils

The I-270/MD 124 interchange area lies within a geologic province known as the Piedmont. The corridor is underlain by "parallel belts of metamorphic rock" (Bedrock Map of Montgomery County, Maryland, U. S. Geological Survey, 1975) of early Paleozoic or late Precambrian age with younger igneous intrusions of Triassic and early Paleozoic age. The Precambrian rocks were formed approximately 4.5 billion years ago, the Paleozoic rocks - 30 to 80 million years ago, and Triassic rocks - 30 million years ago.

The study area is dominated by mafic and ultramafic rocks. These geologic deposits were probably originally igneous rocks which were eroded and transported to their present locations when metamorphosed as shale and transformed into schist.

The Ultramafic Rock is primarily serpentinite with chlorite-actinolite-talc schist near contacts and minor gabbro and diorite. Supertinite is massive to foliated, dark green, dense rock, very rich in magnesium and iron. The unit is usually broken into blocks by intersetting joints and fractures.

Mafic rocks, containing magnesium and iron, include greenstone, green schist, amphibolite, and metamorphosed rocks of igneous origin. Excavation of mafic and ultramafic rock is difficult and may require blasting.

Most of the study area is covered by the moderately deep to deep soils of the Genelg-Manor-Chester Soil Association. These soils are well-drained, silty, and strong sloping. This Soil Association is suited to general farming as well as to suburban development.

3. Terrestrial Ecosystem

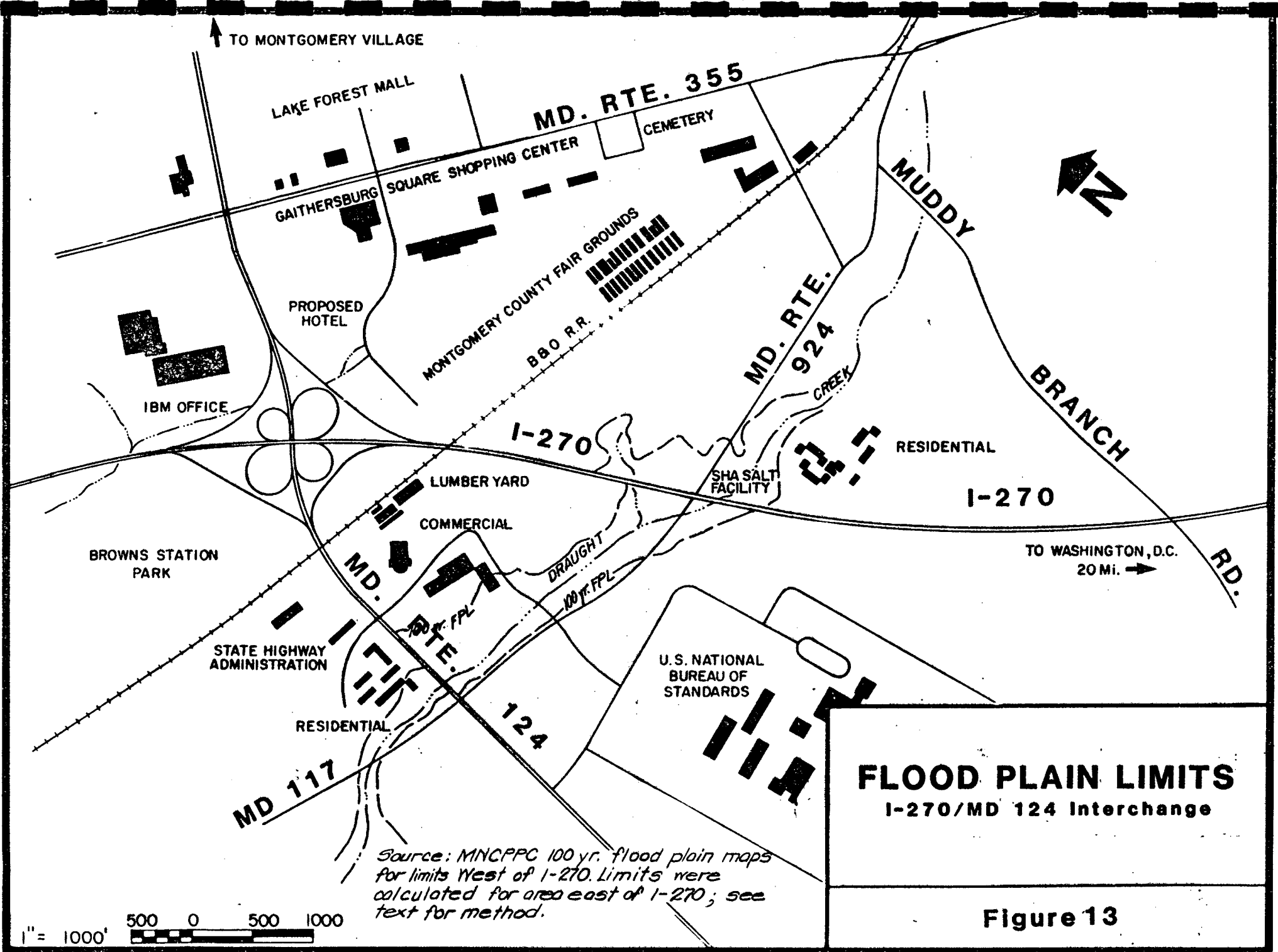
The natural vegetation of Montgomery County is mainly hardwood forest. The oak, red and white primarily, dominates the tree type. Due to increased development in the study area, the acreage of hardwood forest has declined.

4. Water Resources

Montgomery County is entirely within the Watershed of Chesapeake Bay. Drainage is mostly southeast toward the Potomac River while some flows east towards the Patuxent. The main tributaries of the Potomac River in the study area include Great Seneca Creek and Muddy Branch. The Seneca basin drains the northern and western portions of Gaithersburg and Montgomery Village; the Muddy Branch basin drains the southern and eastern sections of the city. The important drainage shed areas in the city have been identified as the Whetstone Game Preserve and Long Draught Districts (tributary to the Great Seneca), and the Muddy Branch District (tributary to the Muddy Branch).

Long Draught Creek is directly within the study area, and flows parallel to MD 924. It presently is carried under I-270 by culverts both north and south of MD 924. The 100-year floodplain for the creek covers portions of MD 924 both east and west of I-270. The floodplain extends to areas on both sides of I-270 with the roadway itself (MD 924) providing a main connection since it is entirely within the 100-year floodplain limits. (Fig. 13)

No wetland areas have been identified in the project area.



↑ TO MONTGOMERY VILLAGE

LAKE FOREST MALL

MD. RTE. 355

GAITHERSBURG SQUARE SHOPPING CENTER

CEMETERY

PROPOSED HOTEL

MONTGOMERY COUNTY FAIR GROUNDS

B&O R.R.

MD. RTE. 924

MUDDY BRANCH

IBM OFFICE

I-270

RESIDENTIAL

I-270

BROWNS STATION PARK

LUMBER YARD

SHA SALT FACILITY

TO WASHINGTON, D.C. 20 Mi. →

COMMERCIAL

DRAUGHT

RD.

STATE HIGHWAY ADMINISTRATION

U.S. NATIONAL BUREAU OF STANDARDS

RESIDENTIAL

MD 117

124

FLOOD PLAIN LIMITS
I-270/MD 124 Interchange

Source: MNCPPC 100 yr. flood plain maps for limits West of I-270. Limits were calculated for area east of I-270; see text for method.

1" = 1000' 500 0 500 1000

Figure 13

E. Climate and Air Quality

Montgomery County has the temperate, rather humid climate that is typical of the region. The average temperatures and rain distribution are given in the Appendix. There are no significant differences in elevation or climatically significant bodies of water. The Chesapeake Bay area, while only 30 miles to the east, has little effect on the climate due to dominant air mass movements from the north and the west.

The study area is located within the National Capital Interstate Region, which is presently an EPA-designated Priority I Region, for carbon monoxide, hydrocarbons and oxides of nitrogen. The most recent data on levels of carbon monoxide in the study area was collected in 1976 at Montgomery County's Research and Monitoring Lab. The second highest one-hour average concentration of carbon monoxide measured was 34.9 ppm; the second highest eight-hour average concentration was 14 ppm. The one-hour recorded level is 0.1 lower than the one-hour maximum federal standard of 35 ppm, while the eight hour concentration exceeds by 5 ppm the federal eight-hour maximum of 9 ppm.

Carbon monoxide concentrations were calculated at several sensitive receptor sites. These indicate that there are no violations of CO National Ambient Air Quality Standards in the immediate project area. (See impact section for CO estimates and location of sensitive receptor sites.)

F. Noise

Sensitive receptors for noise located in the immediate vicinity of the project are similar to those for air and include Brown's Station Park, the proposed hotel on MD 124, the U. S. National Bureau of Standards housing area, and residential areas along MD 124 and MD 924.

Noise levels were calculated for these locations using existing traffic volumes and characteristics. These indicated that present exterior noise levels could result in interior noise levels which exceed the Design Noise Levels established in FHPM 7.7.3 for the residential and proposed hotel site. (See impact section for location of receptor sites and calculated noise levels.)

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IV. Environmental Impacts

Impacts of the alternative improvements are discussed in this section for the following categories:

- o Socio-economics and Land Use
- o Cultural Resources
- o Transportation
- o Natural Environment
- o Air Quality
- o Noise
- o Construction
- o Cost

These are summarized at the end of the section.

A. Socio-Economic

In spite of current expansion of the Metro to serve a portion of the study area (Shady Grove Road), Gaithersburg is still greatly dependent upon automobile transportation to meet its mobility needs. It is necessary that a good road network be maintained that provide for safety, comfort and efficiency.

Presently, the existing I-270/MD 124 interchange does not adequately satisfy these needs. With increases anticipated in traffic volumes due to the planned growth of the area, the situation will worsen, making access more difficult, imposing slower speeds, increasing noise and air pollution, and causing more accidents. Benefits resulting from the proposed project will improve the overall quality of transportation.

1. Social

No significant impacts would occur to the social environment with any of the alternates. No communities or facilities would be affected and no families displaced. No minority communities have been identified in the study area.

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Alternate 2 - This alternate involves construction at the existing interchange and at MD 924 and I-270. Alternate 2 would require 9.7 acres in additional right-of-way, but all the land required is undeveloped and any acquisition would not adversely impact surrounding residential areas. All land is commercial and no relocations would be necessary.

Alternate 3 - This alternate would not result in any adverse social impacts. The additional right-of-way required totals 3.1 acres of commercial land not already owned by the State of Maryland. No residential relocation would be required.

Alternate 4 - The social impacts associated with this Alternate are similar to those for Alternate 3, since both include the relocation of two ramps on land owned by the State of Maryland. Additional right-of-way required for Alternate 4 totals 4.4 acres. While it would be necessary to relocate an SHA Salt Facility, no families would have to be relocated.

No-Build - A No-Build Alternate would not improve the already existing congested conditions, making travel physically difficult. With projected growth in the area, these conditions will worsen if a No-Build Alternate is selected. However, as with the Build Alternates, no communities are affected and no relocation required.

2. Economy

Generally, the implementation of any of the Build options will provide employment for those working in construction. Furthermore, all of the Build alternates would stimulate the local markets, since materials and supplies would be purchased locally. Finally, commercial/institutional establishments adjacent to the highway interchange would be encouraged to develop according to countywide plans, thus enhancing property values. Any tax loss to the county due to right-of-way acquisitions would be more than compensated for.

Alternate 2 - Alternate 2 would require some additional right-of-way (9.7 acres), but would not adversely affect economic conditions in the area.

If the directional ramp at MD 924 (Alternate 4) were chosen as the design for that location, an SHA salt facility would have to be relocated. This could be relocated across MD 924 on property already owned by SHA.

Alternate 3 - This alternate would not have any adverse economic impacts on the area. Right-of-way acquisition would total about 3.1 acres of presently undeveloped land.

Alternate 4 - This alternate requires the acquisition of 4.4 acres of land. It also requires the relocation of an SHA salt storage facility to other state-owned land. The facility is located on MD 924 adjacent to (east of) I-270. Because of the land requirements for the northbound ramp, this facility would have to be relocated to the north side of MD 924 next to I-270. No costs would be required for land acquisition but some construction costs would be necessary.

No-Build - While the No-Build Alternate would not cause any business disruption, it could affect the future employment in the area. The lower accessibility of the area could in turn result in lesser development and therefore less employment.

3. Land Use

Land in the study area has been designated for use as low and medium density residential with some limited commercial. Little impact on land uses is expected since these areas have only recently developed with their present uses; no utilities would be affected with any of the alternates.

Alternate 2 - The right-of-way acquisitions of 9.7 acres will not significantly affect the land use in the area.

Alternate 3 - The acquisition of 3.1 acres of land for this alternate will not significantly impact land uses for the area.

Alternate 4 - The acquisition of 4.4 acres of land necessary for this alternate will not affect land use since they are all small portions of vacant land.

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No-Build - While the No-Build Alternate would have no significant effect on land use in the project area, it could have an impact in restricting the overall growth and potential for the area. Based on a review by M-NCPPC (see Appendix) this would not be consistent with the area development plan.

B. Cultural Resources

None of the alternates would adversely affect any cultural resources in the area.

1. Historical/Archeological

Based on review of previous studies for the area, no known sites of historical or archeological significance within the project area were found. Therefore, no adverse impacts are anticipated associated with any of the alternates. Historic sites are shown on Figure 11. If during construction archeologically significant artifacts at a previously unknown site are discovered, in concert with the policy of the State Highway Administration, all construction would cease. Construction would be permitted to continue only after all data collection has been completed by a qualified archeologist.

2. Religious

Since there are no known cultural or religious facilities in the study area, none would be impacted by any of the alternates under consideration.

3. Community Facilities and Services

There are no public facilities and/or services that are expected to be affected by the construction of any of the Build Alternates or the No-Build.

4. Recreation

No public or private recreational property will be taken with implementation of any of the Alternates.

5. Visual

Visual impacts will occur in the short-term during construction and long-term from the construction of new ramps. These are not significant since they will occur mostly in areas already disturbed by major highway construction on I-270. In all cases, landscaping treatments of berming and new trees and shrubs could be used to help integrate the new improvements into the environment.

Alternate 2 - Construction of the new direction ramps at the existing interchange and at MD 924 would create another higher level of ramps. At the existing site this would have a minor impact on the views from the IBM building and the proposed hotel. At MD 924, the impact would be slightly greater since a new directional ramp would be built over I-270 which would be visible from both I-270 and MD 924.

Alternate 3 - This alternate would have the least impact. Both new ramps at MD 924 would be at-grade and would be built generally on berms with landscaping.

Alternate 4 - This alternate includes a new directional ramp at MD 924 which would bridge I-270. While the impact would be minor since the six lane highway is already there, it would be visible from I-270 and MD 924.

No-Build - No change in present conditions would occur with the No-Build.

6. Title VI Compliances

It is the policy of the Maryland State Highway Administration to insure compliance with the provisions of Title VI of the Civil Rights Act of 1964 and related civil rights laws and regulations which prohibit discrimination on the grounds of race, color, religion, national origin, physical or mental handicap in all State Highway program projects funded in whole or in part by the Federal Highway Administration. The State Highway Administration will not discriminate in highway planning, highway.

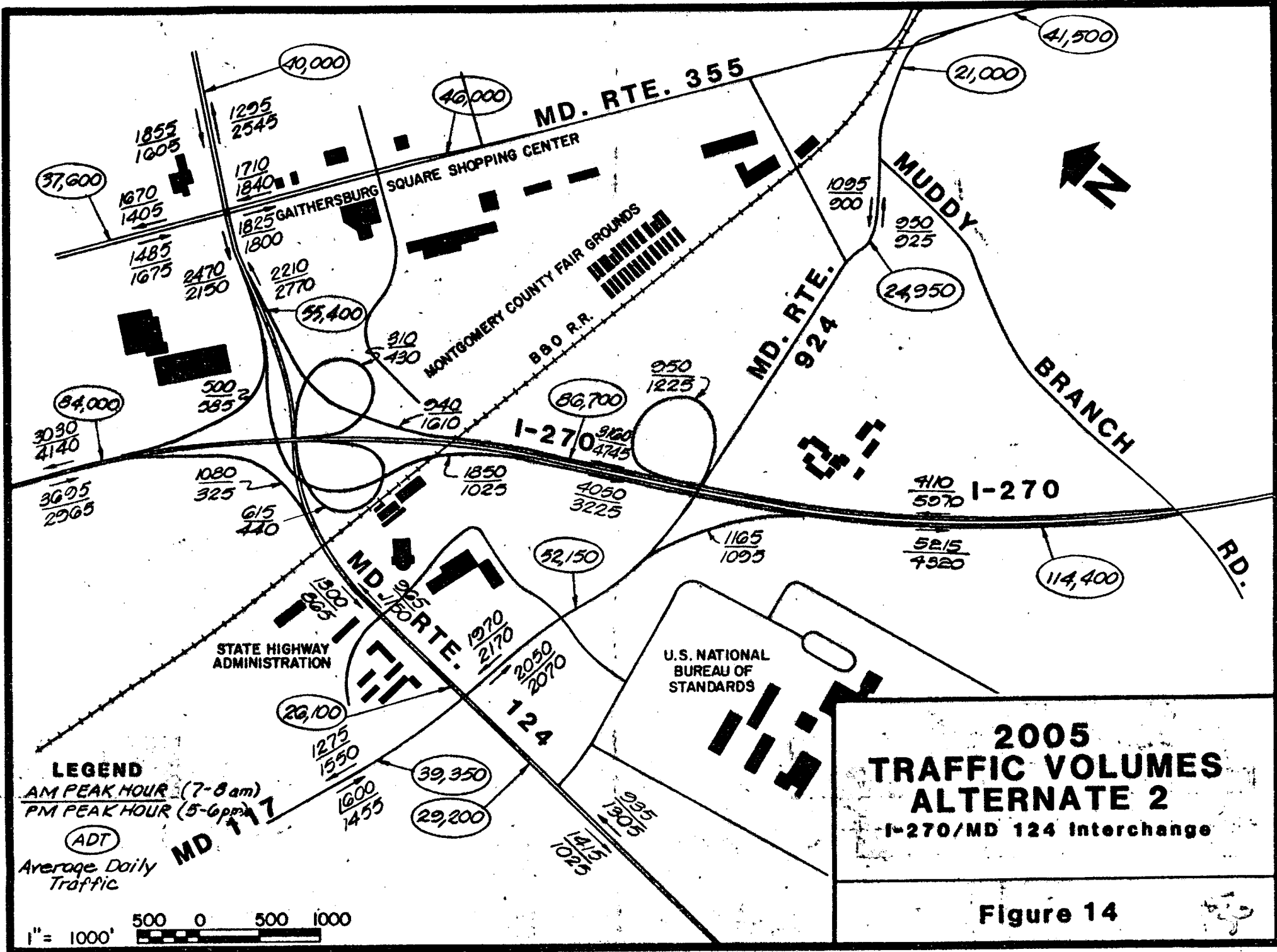
design, highway construction, the acquisition of right-of-way or the provision of relocation advisory assistance. This policy has been incorporated into all levels of the highway planning process in order that proper consideration be given to the social, economic, and environmental effects of all highway projects. Alleged discrimination actions should be addressed to the State Highway Administration for investigation.

C. Transportation

Changes in travel patterns will occur on the local roadway network and the mainline of I-270 as a result of the change in access to and from the Interstate with any of the Build Alternates. The existing patterns would remain and traffic operations deteriorate with the No Build Alternate; these are discussed in Section II, Project Need.

Alternate 2 - The key improvements associated with this Alternate are northbound on I-270 and westbound on MD 124 under I-270. The relocation of movements to MD 924 and the reconstruction of ramps will remove some poor weaving sections. This should reduce queuing on I-270 northbound, and eliminate an unsafe condition on MD 124. See Figure 14 for 2005 traffic volumes for this alternate. Also, the collector-distributor road will provide additional storage for vehicles exiting at MD 124 which will improve further operation of conditions on I-270.

The new ramps at MD 924, however, will increase traffic on MD 924 between I-270, and change the movements through the MD 124/MD 117/MD 924 intersection to the west. The increase on MD 924 will be traffic shifted from MD 124 which presently use the ramps at the existing location. At the MD 124/MD 924 intersection, improvements have been developed and are included as part of this alternate. These are based on the changes in turning movements in the a.m. and p.m. peak hours. Also, MD 924 from the intersection to the new ramps to and from I-270 would be widened to accommodate the shifted traffic and the traffic to and from the National Bureau of Standards.



The portions of MD 124 and MD 924 west of I-270 are projected to be the only local streets impacted by the change. The conditions on MD 124 to the east of I-270 and at the MD 355 intersection will not change from the No-Build Alternate. Because of the merge problems associated with this section, no basic improvement would result from Alternate 2.

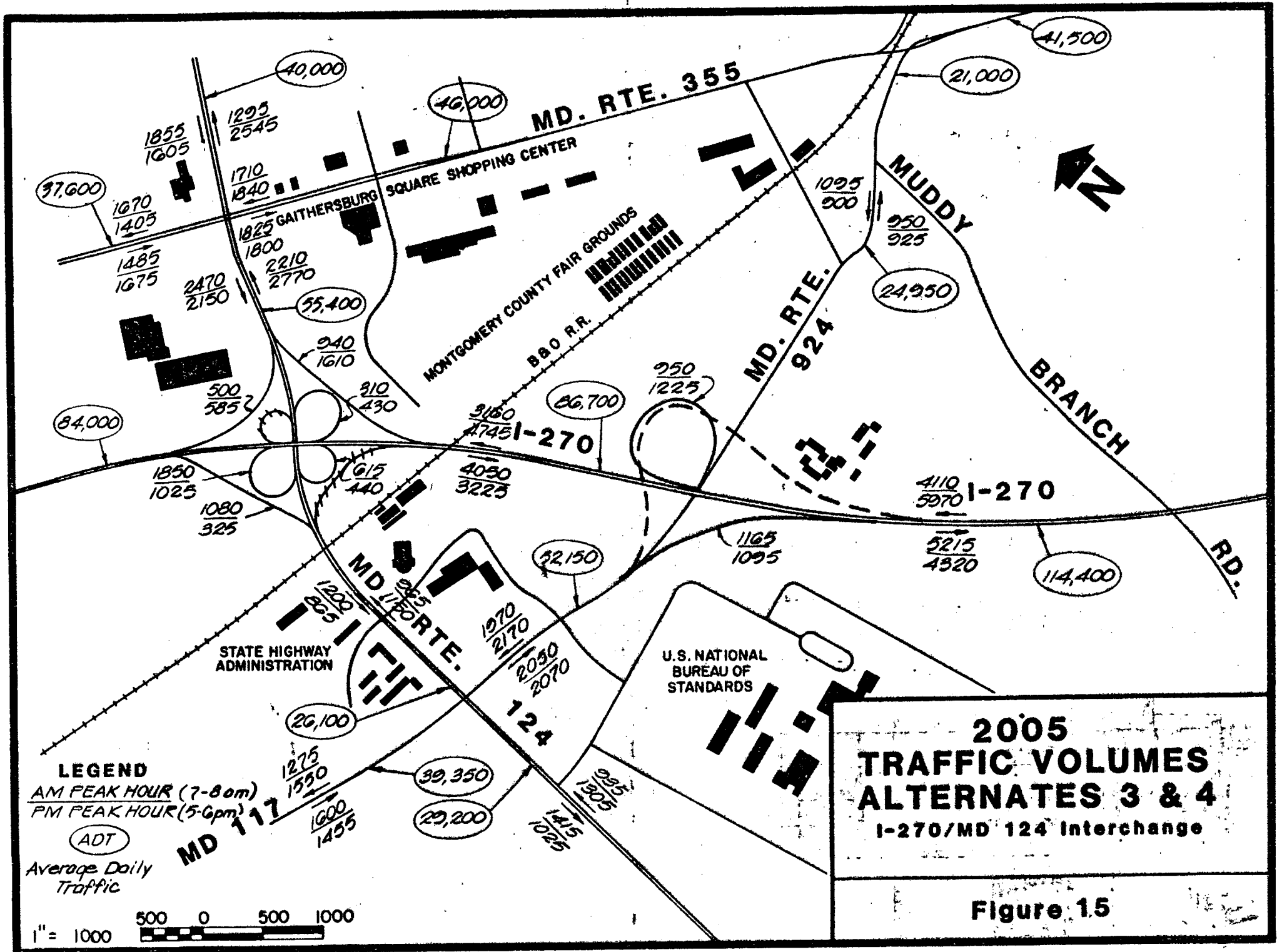
The unsafe condition would be eliminated with this alternate; directional ramps are provided where needed and, overall, merge points, weaving distances, and sight distances have all been designed to present standards.

Alternate 3 - The traffic impacts will be generally similar to those with Alternate 2. (See Figure 15.) This occurs since the new access ramps are provided at MD 924 with this alternate; however, no physical changes other than ramp closings will occur at the existing interchange.

The same change in traffic circulation and improvements to operations on I-270 and MD 124 would occur with this alternate. However, improvement to northbound operations on I-270 may be somewhat lesser than with Alternate 2 since the collector-distributor road would not be available as storage for vehicles away from the mainline lines.

The two most unsafe conditions are corrected with this alternate; however, several conditions at the existing interchange which do not meet present standards would remain.

Alternate 4 - Impacts would be the same as for Alternate 3. Traffic patterns would change, several congested, unsafe conditions would be eliminated, but some present problems would remain at the existing interchange. Figure 15 shows this alternate as well.



D. Natural Environment

1. Water Resources

None of the alternatives would impose any significant changes to the general topography of the study area. However, several locations of 15 percent slope of greater could be affected by the proposed construction. In all such locations, the existing slope is man-made, being the cut or fill surface of previous road construction. Necessary alteration of these slopes would be in accordance with standard highway construction techniques. Due to the potential for soil erosion and sedimentation in nearby streams, a grading plan and sediment control permit would be required.

Floodplain encroachment limits are shown on Figures 6, 8, 9 and 13. Except for the "No-Build" condition, all of the alternatives require construction within the upper limits of the floodplain of Long Draught Branch (a tributary of Great Seneca Creek). Alternate 3 disturbs 4.4 acres of the 100-year floodplain and Alternate 4 disturbs 5.8 acres. Alternate 2 disturbs 4.4 or 5.8 acres of the 100-year floodplain when combined with Alternate 3 or 4 respectively. Floodplain limits were established from Maryland National Capital Park & Planning Commission Floodplain Information maps for Long Draught Branch and extended through the I-270 embankment using calculated backwaters. Calculations were done using standard Bureau of Public Roads culvert procedures to establish upstream headwater elevations.

The encroachment onto the 100-year floodplain would be at a location having a drainage area of less than 400 acres, which would exempt the project from a requirement for a floodplain construction permit. With proper drainage design, none of the proposed alternates will have a significant encroachment on the floodplain resulting in any risks or impacts to the beneficial floodplain values or provide direct or indirect support to further development within the floodplain. Also, there would be no significant risk of property loss, hazard to life or potential for interruption of the transportation facility.

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Alternate 2 - Construction in the area of the existing interchange affects two minor channelized drainage courses, both minor tributaries to Great Seneca Creek. Runoff factors for the drainage area would not be materially changed and only minor pipe extensions and other minor changes to the local drainage system would be needed. Alternate 2 also includes construction at MD 924 which will result in the additional topographic and hydrologic impacts and respective design actions described under either Alternate 3 or Alternate 4.

Alternate 3 - This alternate requires no topographic or hydrologic alterations at the I-270/MD 124 interchange. The 84 inch metal pipe presently carrying Draught Creek under I-270 at MD 924 would not convey the peak rate of flow generation by a 100-year storm. If a storm of this magnitude occurred under present conditions, approximately one-third (500 cfs) of the peak flow (1400 cfs) would spill onto MD 924 and would flow into the MD 924 underpass as a means of providing relief. The proposed alternate would not alter the present flow patterns during flooding and would not significantly impact present emergency relief routes.

Proposed Alternate 3, while encroaching on a portion of the flood plain, does not cause a significant hydraulic impact. Conveyance of waterways under new highway structures would be accomplished by extending existing drainage structures. In certain cases these extensions might actually allow for improving the hydraulic capacities of the existing structures.

Alternate 4 - This alternate requires no topographic or hydrologic alterations at the I-270/MD 124 interchange. As described in Alternate 3, the existing 100-year floodplain east of I-270 is determined by the existing structure and the MD 924 underpass, which functions as a flood relief structure. The exit from northbound I-270 to westbound MD 924 crosses the floodplain upstream of the presently undersized 84 inch diameter culvert. A box culvert would be required to be built as part of this exit ramp construction. This proposed box culvert, while adding to the cost of this alternative, will be designed to produce no impact to the upstream floodplain.

No-Build - A No-Build alternate would not have any impact on the hydrological resources or topographical character of the study area.

2. Terrestrial Ecosystem

None of the proposed alternatives would affect habitats which have not been previously disturbed. Any animals that would be displaced due to construction could find other suitable habitats nearby. Any additional disturbance could be mitigated by suitable landscaping, by allowing natural revegetation where appropriate, and by proper engineering and design measures to minimize erosion of exposed soil and siltation of drainage channels during and after construction.

All the Build Alternates would have a minimal impact on the terrestrial ecosystem. (Approximately 2½ acres of vegetative cover will be taken.) In all cases, the removal of vegetation would be minimal. Most of the disturbance could be easily remedied by minimal levels of landscaping. (4½ acres will be retained through vegetative landscaping techniques.)

Alternate 2 - This alternate involves both a reconstruction of the existing MD 124 interchange and construction of new ramps at MD 924. This will have minimal biological impact on an already disturbed environment. Although of minimal biological significance, the removal of existing vegetation (mostly small trees) adjacent to the IBM property (to provide for the realignment of the west-to-north ramp at the I-270/MD 124 interchange) would create an adverse visual impact for viewers from IBM. Plantings of large specimens of rapid-growing tree species would help to mitigate this impact. Alternative 2 includes construction at the MD 124 crossing which will result in the additional biological impacts described under either Alternate 3 or Alternate 4.

Alternate 3 - This alternate requires construction only in the MD 924/I-270 vicinity. The new east-to-south ramp at MD 924 would require land along Long Draught Branch. Although this area has been undisturbed for a number of years, it is far from a natural state, being open field with clumps of young lowland tree species. Loss of the colonizing trees can be mitigated by replanting and natural revegetation of the right-of-way.

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Alternate 4 - This Alternate is similar to Alternate 3, except that it includes modifications on all four corners of the MD 924/I-270 crossing. The biological impact of this action would be negligible and mitigated as described above.

No-Build - The No-Build Alternate would impose no significant encroachment on the terrestrial environment.

There are no threatened or endangered species in the study area; consequently, there would be no impacts. A complete list of species common to the area is available from the State Highway Administration.

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E. Air Quality Impacts

To determine the impact which the modifications to the interchange would have on the air quality, an air quality analysis has been conducted. A microscale carbon monoxide (CO) emissions analysis was completed. This consisted of projections of one and eight-hour concentrations of CO at several receptor sites under worst-case meteorological conditions for the years 1985 (year of completion) and 2005 (year of design).

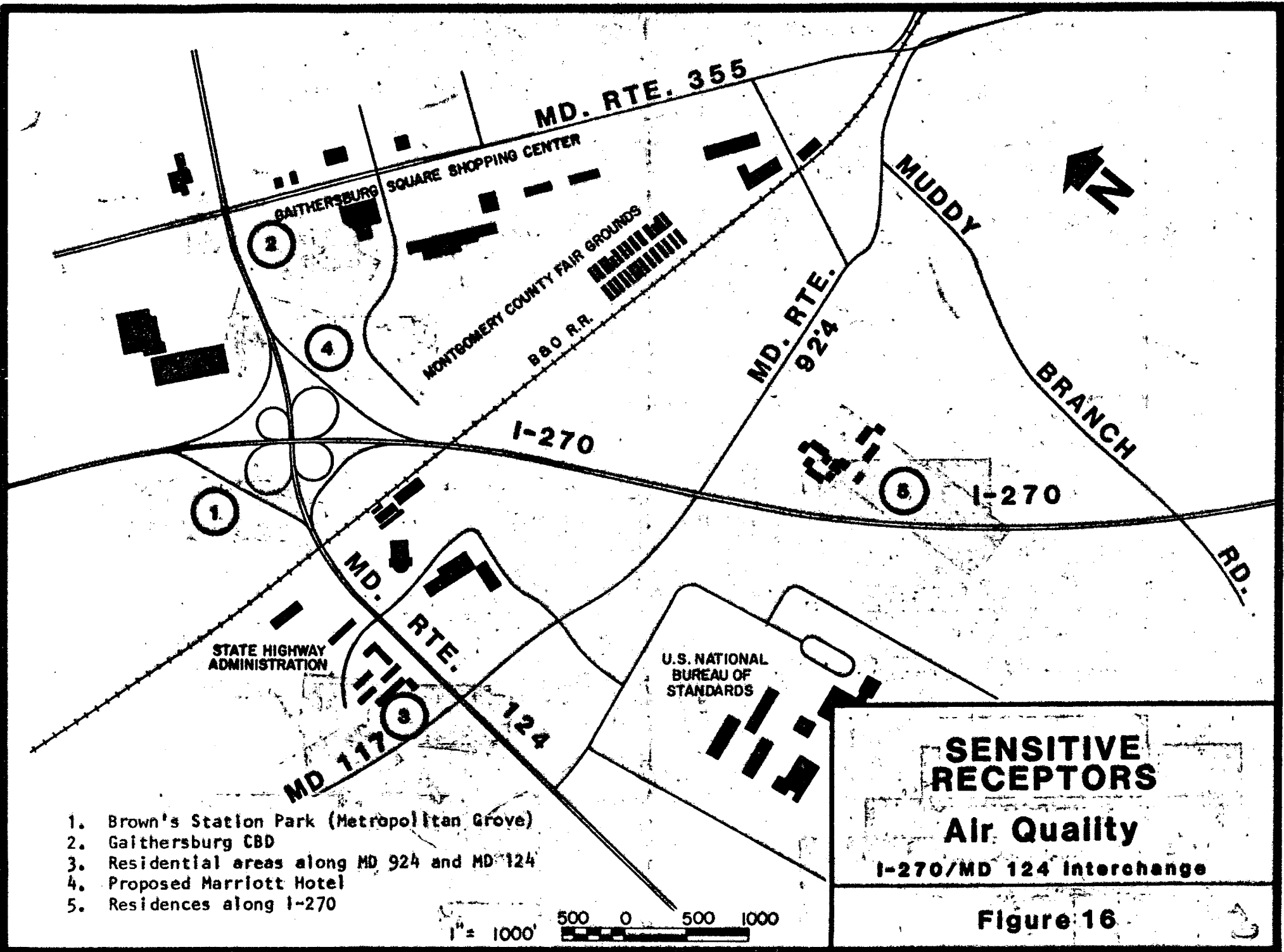
1. Microscale Analysis

To estimate the microscale air quality effects associated with the selected alternate, predictions of one-hour and eight-hour concentrations of CO were made at five sensitive receptor sites for the years 1985 and 2005, using the Illinois Department of Transportation Air Quality Manual (September 1978, updated September 1979). The location of receptor sites are shown in Figure 16. Predicted concentrations were added to projected background CO levels to arrive at total levels. Site selection of sensitive receptors was made on the basis of proximity to the roadway, type of adjacent land use, the presence of other CO augmenting factors and the changes in traffic patterns on the roadway network.

The factors which must be considered in making these projections include existing background air quality, facility design, vehicle volumes and composition, vehicular emission factors and meteorological data.

Emission factors were derived by utilizing the U.S. EPA document, EPA 400/9-78-006, Mobile Source Emission Factors, March 1978. The emission factors were computed on the basis of the following input:

- o 75°F ambient temperature
- o Federal Test Procedure (FTP) driving cycle
- o Background carbon monoxide concentrations of 3.7 PPM for a one-hour period and 1.1 ppm for an 8-hour period in 1985, and a



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- o one-hour concentration of 3.8 ppm and an 8-hour concentration of 1.1 ppm in 2005
 - o Class D stability
 - o Wind speed 22½°
 - o Wind velocity 1 meter per second

The analysis performed did not assume an inspection/maintenance program for all in-use vehicles. It is reasonable to forecast that if the air analysis was redone utilizing the inspection/maintenance program, the air quality levels would be less than shown in the preceding tables. Inspection/maintenance will become State law in July 1982. The inspection/maintenance program will become voluntary in July 1981.

The results of the analysis, shown in Table 1, consist of predicted CO concentrations at each site plus projected background levels. A review of the resulting levels show that no violations of either the one or eight-hour CO air quality standards will occur for the Build or No-Build alternates.

The projected carbon monoxide concentrations at the locations near the ramps are for the most part lower than for the No-Build Alternate. This is generally due to the lower running speeds relative to the Build Alternate. The one exception is at Site 5. At this location the new collector-distributor road would bring traffic closer to the buildings and the traffic would be moving slower than on the mainline. Both factors would tend to increase the CO concentrations at this location.

The maximum CO level predicted to occur for the No-Build Alternate in 2005 is 2.0 ppm at Sites 2 and 5. The corresponding 1985 concentrations are greater - 2.7 ppm at Site 2 and 2.2 ppm at Site 5.

Copies of the draft air quality analysis will be circulated to the U.S. EPA and the Maryland Bureau of Air Quality, Maryland State Highway Administration, for review and comment.

TABLE 1
CO CONCENTRATIONS, PPM
FOR WORST CASE
METEOROLOGICAL CONDITIONS

<u>Alternate/Site</u>	<u>CO Concentration in PPM¹</u>			
	<u>1985</u>		<u>2005</u>	
	<u>One Hour</u>	<u>Eight Hour</u>	<u>One Hour</u>	<u>Eight Hour</u>
<u>No-Build</u>				
Site 1	6.7	2.4	6.8	1.7
Site 2	8.6	2.7	8.5	2.0
Site 3	5.8	2.1	5.8	1.7
Site 4	7.1	2.3	7.3	1.7
Site 5	7.0	2.2	6.9	2.0
<u>Alternate 2</u>				
Site 1	6.7	2.2	6.8	1.6
Site 2	8.6	2.7	8.4	2.0
Site 3	6.1	1.7	6.1	1.5
Site 4	7.1	2.3	7.3	1.7
Site 5	7.2	2.8	7.1	2.1
<u>Alternate 3</u>				
Site 1	6.7	2.2	6.8	1.6
Site 2	8.6	2.7	8.4	2.0
Site 3	6.1	1.7	6.1	1.5
Site 4	7.1	2.3	7.3	1.7
Site 5	7.2	2.8	7.1	2.1
<u>Alternate 4</u>				
Site 1	6.7	2.2	6.8	1.6
Site 2	8.6	2.7	8.4	2.0
Site 3	6.1	1.7	6.1	1.5
Site 4	7.1	2.3	7.3	1.7
Site 5	7.2	2.8	7.1	2.1

(See Figure 16 for site locations.)

¹ Background carbon monoxide concentrations of 3.7 ppm for a one-hour period and 1.1 ppm for an eight-hour period in 1985; and a one-hour concentration of 3.8 ppm and an eight-hour concentration of 1.1 ppm in 2005. Source: Final Environmental Impact Statement, Section 4(f) Statement, Maryland Route 115 from Montgomery Village Avenue to Norbeck, Montgomery County, Maryland. Prepared by US DOT, FHWA, and MD DOT, SHA.

Note: National Ambient Air Quality Standards (NAAQS) are as follows:

Maximum 1 hour = 35 ppm
Maximum Consecutive 8 hours = 9 ppm

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Based on this analysis of microscale, regional and construction air quality and coordination with the U.S. Environmental Protection Agency and the Maryland Bureau of Air Quality, the project has been found to be consistent with the State Implementation Plan.

2. Regional Air Quality Consistency

The air quality consistency of this project on a regional level is assumed in the following ways:

- A. The National Memorandum of Understanding between the U.S. Department of Transportation and the Environmental Protection Agency dated June 14, 1978, formally integrates the transportation and air quality planning processes for transportation projects receiving federal aid highway funds. This Agreement recognizes that the "reduction of air pollution is an important national goal, and must be among the highest priorities of the transportation planning process in areas not meeting primary Air Quality Standards". This process provides for extensive input from the public, local and State transportation, and air quality agencies. In addition, the procedures call for the joint administration of the air quality aspects of the urban transportation planning process between U.S. Department of Transportation and Environmental Protection Agency. This includes joint review of the following documents and activities to ensure that air quality considerations are adequately addressed:
 1. The Transportation Plan for the urban area
 2. The Transportation Improvement Program which identifies projects for implementation.
 3. The State Implementation Plan. Transportation Control Plan for addressing attainment with Air Quality Standards.

4. The review process which "certifies" that adequate transportation and air quality planning is being conducted in the urbanized areas.

B. Through the urban transportation planning requirement of Title 23, United States Code, Section 134, as implemented by the RPC (or TPB/COG) forum, the same state and local agencies responsible for planning transportation projects in the urbanized area are also responsible - from a transportation control plan perspective - for assuring attainment of Air Quality Standards.

C. Therefore, the I-270/MD 124 interchange modification is included in the regional transportation plan and Transportation Improvement Program for the urbanized area and is programmed for federal-aid highway funding. Thus it is subjected to this federal review and project development process. Therefore, the regional consistency of this project is addressed prior to undertaking the final project planning studies presented in this environmental document.

Since regional pollutants such as hydrocarbons and oxides of nitrogen, precursors of photochemical oxidants (smog) are addressed through this regional planning process only carbon monoxide emissions, a more localized pollutant, are being addressed quantitatively in this analysis (environmental assessment).

F. Noise Impacts

1. Introduction

The Federal Highway Administration's Federal-Aid Highway Program Manual (FHPM 7-7-3) stipulates specific noise level standards that are to be applied to highways. The document establishes maximum noise levels allowable for specific uses of land. Table 2 provides a summary of these noise levels. Existing land uses in the study area are primarily urban. Given this type of land use character, the application of FHPM 7-7-3 land use category is "B", for which the maximum (L₁₀) exterior design noise level is 70 dBA.

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T A B L E 2

DESIGN NOISE LEVELS & LAND USE RELATIONSHIPS
SPECIFIED IN FHPM 7-7-3

<u>Land Use Category</u>	<u>Design Noise Level - L₁₀</u>	<u>Description of Land Use Category</u>
A	60 dBA (Exterior)	Tracts of land in 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. Such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dBA (Exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	75 dBA (Exterior)	Developed lands, properties or activities not included in categories A and B above.
D	None Prescribed	Land which is undeveloped on the date of public knowledge of the project, and for which no known future developed is planned.
E*	55 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

* See paragraph 1(c) of Appendix B of FHPM 7-7-3 for method of application. Partial quotation from paragraph 1(c): "The interior design noise level in Category E applies to indoor activities for those situations where no exterior noise sensitive land use or activity is identified".

When the design noise level is exceeded, an evaluation of possible noise attenuation measures will be conducted. If attenuation is not feasible, an exception must be approved by the Federal Highway Administration before a project is constructed.

2. Site Inventory

Five individual noise sensitive sites were identified for the project. Following is a description of each site (shown in Figure 17).

- o Site 1 - near Metropolitan Grove Park, facing I-270 traffic, near interchange approximately 10 feet from lane of traffic. Park is presently undeveloped area.
- o Site 2 - Access from IBM Building facing MD 124 traffic, with ground elevation at approximately 6 feet above traffic roadway. Location is situated close to bus stop.
- o Site 3 - Number 885 Orchard Pond Apartments, along MD 124. Complexes are of brick construction and have air conditioning units. While noise measurements were being monitored, PEPCO employees were conversing.
- o Site 4 - On road facing traffic on I-270 and MD 124 interchange just before a 25 foot drop off.
- o Site 5 - Number 17001 Downing Street, Londonary Apartments, in a cul-de-sac off of I-270. Buildings have 10 apartments each, are of brick construction and include air conditioning units. Noise measurements were affected by the presence of a low wooden fence and some shrubbery.

3. Ambient Noise Levels

All natural and man-made noises in a given area are included in an ambient noise. Ambient noise levels differ depending upon time, total traffic volumes, truck traffic volumes, speeds, etc.

Measurements of ambient noise levels were made at 5 sensitive areas in the vicinity of the project area in July 1980. Table 3 lists the measured noise levels recorded for each sensitive area. The location of these areas is shown on Figure 17.

TABLE 3
1980 AMBIENT NOISE LEVELS

<u>Noise Sensitive Area</u>	<u>Exterior Ambient Noise Level</u> (L ₁₀ dBA)
Site 1	70
Site 2	71
Site 3	60
Site 4	64 ¹
Site 5	69

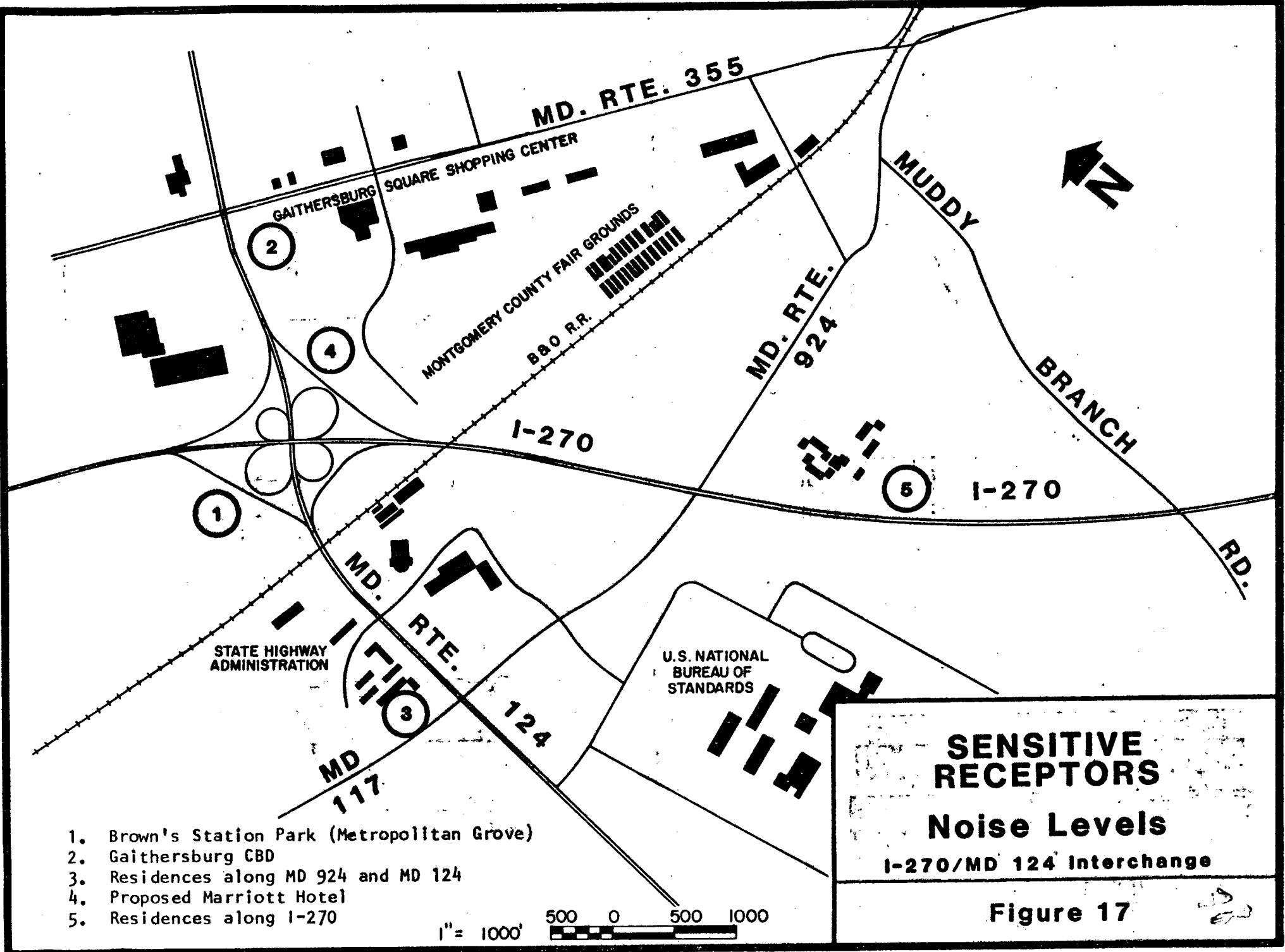
See Figure 17 for site locations.

¹ For Site 4, a measurement of 78 dBA was made at a distance of 8 feet from the edge of pavement. This was adjusted to a level of 64 dBA for a distance of 225 feet, the distance to the proposed hotel.

4. Predicted Noise Levels

Predicted noise levels were developed by using the Illinois Department of Transportation, Traffic Noise and Vibration Manual, Revised, 1980, Springfield, Illinois and based on FHWA Highway Administration's (FHWA) Highway Traffic Noise Prediction Model. The FHWA model uses three classes of vehicles (autos, median, duty trucks, and heavy duty trucks) to arrive at predicted sound levels.

The determination of environmental noise impact is based on the relationship between predicted noise levels, established design noise levels, and ambient noise levels in the project area. The Federal Highway



- 1. Brown's Station Park (Metropolitan Grove)
- 2. Gaithersburg CBD
- 3. Residences along MD 924 and MD 124
- 4. Proposed Marriott Hotel
- 5. Residences along I-270

SENSITIVE RECEPTORS
Noise Levels
 I-270/MD 124 Interchange

Figure 17

Administration has established a design noise level/activity relationship (see Table 2). Impact assessment is also based on the increase in L₁₀ noise levels over existing levels. The degree or amount of the increase is assessed according to the following criteria.

<u>L₁₀ Increase Over Ambient</u>	<u>Degree of Impact</u>
Decrease over Ambient	Positive
0-5 dBA	Negligible
6-10 dBA	Minor
11-15 dBA	Significant
Over 15 dBA	Severe

The remainder of this section presents the results of the noise impact assessment for the Build and the No Build Alternates.

Projected design year (2005) L₁₀ noise levels for applicable noise sensitive areas in the study area are presented in Table 4. These levels may be compared with the ambient noise levels, and the Federal design level, which would be 70 dBA in residential areas, and 75 dBA in commercial areas for the land uses in the project area. Whenever the L₁₀ noise levels are increased by more than 10 dBA over ambient conditions, noise abatement measures are considered to minimize impact. Consideration is based on the size of the imported area, the primary focus of activity, the visual impact of the control measure, and economic feasibility.

Based on the analysis, the change in noise levels would be negligible to minor in all cases (see Table 4). However, design standards would be exceeded at Sites 1 and 5 for all alternates and at Site 4 for the No-Build. For both Alternates 3 and 4 the distance from the ramp is the same.

Noise barrier types will be determined during the design phase and will include determination of cost-effectiveness and will involve public input. Full or partial abatement measures, including berms, landscaping, and

TABLE 4

SUMMARY OF PROJECTED NOISE LEVELS

<u>NAS/Alt.</u>	<u>Ambient L₁₀</u>	<u>Des. Yr. L₁₀</u>	<u>Change in L₁₀</u>	<u>Relation to Design Standards</u>	<u>Impact</u>
<u>Site 1</u>	70				
No Build		73	+3	+3	Negligible
2		71	+1	+1	Negligible
3/4		72	+2	+2	Negligible
<u>Site 2</u>	71				
No Build		75	+4	--	Negligible
2		75	+4	--	Negligible
3/4		75	+4	--	Negligible
<u>Site 3</u>	60				
No Build		69	+9	-1	Minor
2		68	+8	-2	Minor
3/4		68	+8	-2	Minor
<u>Site 4</u>	64				
No Build		71	+7	+1	Minor
2		70	+6	--	Minor
3/4		70	+6	--	Minor
<u>Site 5</u>	69				
No Build		74	+5	+4	Negligible
2		74	+5	+4	Negligible
3/4		74	+5	+4	Negligible

Note: The design standard is 70 dBA for Sites 1, 3, 4, and 5, and 75 dBA for Site 2, based on the land use categories at the sites and the values in Table 2.

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partial barriers, will be investigated at Site 5 before exceptions to the design noise levels are requested during the design phase. Preliminary investigation reveals, however, that noise barriers of this kind would be exceedingly high (over 30 feet), and would block the view, resulting in an aesthetically unpleasing view. It is possible that an exception to the Federal design noise level would be considered for NSA for the proposed alternatives. At Site 1 (the undeveloped park), it would be possible to provide a landscaping barrier and to limit development of the park away from the highway as mitigation measures.

G. Construction Impacts

The construction impacts will vary with the alternates. The principal difference will depend on the construction at the existing interchange with I-270 and MD 124. Alternate 2 includes either Alternate 3 or 4 in its proposed design.

Alternate 2 - Major disruption would occur with this alternate due to bridge construction and site grading. While this activity is considered to be a "heavy" construction project, ramp construction under the railway will have negligible effect on existing traffic flow of I-270 and MD 924. There would be no effect on the existing two-span railroad bridge. Any traffic delays, reduced speeds, etc. caused by construction activity are short-term adverse impacts, and do not indicate significant danger to the proposed project area.

Alternate 3 - Implementation of Alternate 3 would involve the widening and lengthening of the existing I-270 bridge for MD 924. This improvement would have significant impact in that it would have the maximum disruption on I-270 traffic operation.

Alternate 4 - Rather than the widening of the I-270 bridge as in Alternate 3, Alternate 4 requires that a ramp with two bridges be constructed over I-270 at the new exit to MD 924. Consequently, this alternate will have considerably less disruption to traffic on I-270.

No-Build - This Alternate would not have any construction impacts since no changes would be made at the proposed project area.

H. Summary of Impacts

Based on information obtained from studies for socio-economic, air quality, noise, water resources, terrestrial ecosystems, and upon historical/archeological data, it has been determined that the construction of a new facility for the I-270/MD 124 interchange would not have a significant impact on the quality of the human or natural environments.

It has also been determined that the proposed construction will not disrupt community activity nor will it displace any housing or businesses in the immediate area. The necessity to relocate an SHA salt facility should not impose major impact on the area.

Results of the air quality analysis indicate that no violations of the Federal Ambient Air Quality Standards are predicted to occur with any of the proposed alternatives.

Increases in noise levels will be experienced whether a No Build or Build Alternate is adopted. A lowering of noise levels will also be experienced with both types of Alternates. These impacts, however, can be mitigated through landscape techniques.

The project will not result in a significant loss of wildlife. No rare or endangered species inhabit the area, nor are there any wetlands in the area.

No historic sites would be impacted by the proposed project.

Some construction would be required in the 100-year floodplain of Long Draught Creek, but this would not be a significant encroachment.

V. Coordination

This project was initially identified as a separate study item in the overall Intercounty Connector/Rockville Facility Study. As such, it has been discussed with local officials and the public on several occasions. Meetings have been held with the planning staff of the City of Gaithersburg to discuss their proposals for the area. The project was noted in particular at the Alternates Public Workshop Meeting for the I-370 connection to Metro on March 11, 1980.

Contacts have also been established with the following officials and agencies with the purpose of coordination, and to obtain comments as studies for this project progress:

- Mongtomery County Executive
- Montgomery County Council
- Montgomery County Planning and Zoning
- Maryland National Park and Planning Commission
- Department of Natural Resources
- Department of State Planning
- Maryland Historic Trust
- Maryland Geologic Survey

Letters were sent to these agencies for their review of the proposed project. Letters of analysis, support, and justification of the findings of this Environmental Assessment, which have been received to date, are found in the Appendix. Additional correspondence received by the Public Hearing will be included in future documentation.

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APPENDIX A - CORRESPONDENCE

CITY OF GAITHERSBURG'S STATEMENT

ON

PROPOSED INTERSTATE ROUTE 370

ALTERNATES PUBLIC MEETING

TUESDAY, MARCH 11, 1980

GAITHERSBURG HIGH SCHOOL

7:30 P.M.

PRESENTED BY

BRUCE A. GOLDENSOHN

MAYOR

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MY NAME IS BRUCE A. GOLDENSOHN AND I AM HERE TONIGHT TO PRESENT TO YOU THE CITY OF GAITHERSBURG'S CURRENT POSITION ON THE INTERCOUNTY CONNECTOR/ROCKVILLE FACILITY, I-370 STUDY. FIRST, I WOULD LIKE TO EMPHASIZE THE CITY'S GENUINE CONCERN FOR THE PROVISION OF ADEQUATE ACCESS TO THE SHADY GROVE METRO STATION WHICH IS SCHEDULED TO BECOME OPERATIONAL IN LATE 1983. WHILE WE MAY NOT ALL BE IN ABSOLUTE AGREEMENT AS TO HOW THIS MIGHT BE MOST EXPEDIENTLY ACCOMPLISHED, THE URGENCY OF PROVIDING ACCESS TO THE LONG-AWAITED TRANSIT STATION MUST BE EVERYONE'S NUMBER ONE PRIORITY.

THE CITY HAS LONG HELD THE OPINION THAT A DECISION REGARDING THE I-370 SPUR SHOULD NOT, AND INDEED CANNOT, BE INTELLIGENTLY MADE UNTIL SUCH TIME AS A FINAL ANALYSIS ON THE ENTIRE INTERCOUNTY CONNECTOR PROJECT IS FORTHCOMING. AS WE ALL KNOW, THE CURRENT TIMETABLE FOR THE STUDY HAS FAST-TRACKED THE I-370 SEGMENT OF THE ROADWAY IN ORDER TO PROMPT A DECISION ON THE METRO ACCESS ROAD IN LIGHT OF THE METRO'S OPENING DATE. ALTHOUGH IT IS UNDERSTANDABLE THAT THE I-370 HAS JUSTIFIABLY BEEN EXPEDITED, THE CITY FEELS THAT THE SCOPE OF THE ICC ITSELF MAY VERY WELL DICTATE THE SCALE OF THE I-370 SEGMENT. AS AN EXAMPLE, EARLY EFFORTS TO ACQUIRE AN OVERSIZED RIGHT-OF-WAY FOR THE I-370 SPUR MAY PROVE UNNECESSARY IF THE ROLE OF ICC IS EVENTUALLY SCALED DOWN.

A SECOND MAJOR POINT THAT THE CITY WISHES TO MAKE NOTE OF IS OUR CONCERN THAT ALL EFFORTS SHOULD NOT BE EXCLUSIVELY DIRECTED TO THE CONSTRUCTION OF THE I-370 ACCESS ROAD TO THE TOTAL DISREGARD OF NECESSARY IMPROVEMENTS THAT SHOULD AND MUST BE MADE TO OTHER ROADS IN THE CORRIDOR WHICH WOULD FACILITATE ACCESS TO THE METRO STATION. I-370 ALONE WILL NOT SOLVE ALL THE ACCESS PROBLEMS WITH WHICH WE ARE CURRENTLY STRUGGLING. AS AN ADJUNCT TO PLANNING, PROGRAMMING AND CONSTRUCTION EFFORTS DIRECTED TOWARDS THE I-370 SPUR, THE CITY URGES THAT OTHER FACILITIES IN THE AREA, MANY OF WHICH ARE WELL ALONG IN TERMS OF PLANNING, ENGINEERING AND FUNDING BE EXPEDITED. AS EXAMPLES OF THIS NEED, WE CITE M-83, BETWEEN MONTGOMERY VILLAGE AVENUE AND SHADY GROVE ROAD AS A HIGH PRIORITY BY VIRTUE OF ITS POTENTIAL ROLE AS A TRAFFIC DISPURSER. THIS FACILITY WILL ALMOST CERTAINLY DIVERT SOME TRAFFIC FROM ALREADY OVER-BURDENED I-270. THE IMPROVEMENT OF OAKMONT AVENUE AND THE EAST DEER PARK DRIVE BRIDGE WOULD ALSO OPEN UP ACCESS OPTIONS FOR THE SHADY GROVE STATION. PERHAPS THE CLEAREST PRIORITY IN TERMS OF EXISTING ROADWAYS IN NEED OF UPGRADING IS SHADY GROVE ROAD. THE CITY HAS LONG HELD THAT PERHAPS A VASTLY IMPROVED SHADY GROVE ROAD, IN THE FORM OF A SPLIT INTERSECTION, WITH SHADY GROVE ROAD TRAVELING OVER ROUTE 355, COUPLED WITH DIAMOND-TYPE TURNING MOVEMENTS, MIGHT BETTER SATISFY THE ACCESS NEEDS TO THE STATION WHICH I-370 IS TO OFFER. THE IMPORTANCE OF SHADY GROVE ROAD CANNOT BE OVERLOOKED IN THAT IT PROVIDES INGRESS AND EGRESS TO MANY PUBLIC FACILITIES, SUCH AS THE DISTRICT COURT, COUNTY SERVICE PARK, THE PLANNED CENTRAL PROCESSING FACILITY, AS WELL AS THE METRO STATION.



AS A PART OF THE INTERCOUNTY CONNECTOR STUDY, THE STATE HAS INCLUDED A REVIEW OF THE CITY'S LONG PROPOSED SPLIT INTERCHANGE. THIS PROPOSAL SEEKS TO RELOCATE TWO MOVEMENTS FROM THE LESS THAN STANDARD MONTGOMERY VILLAGE AVENUE INTERCHANGE AND RECONSTRUCT THEM AT A NEW INTERCHANGE AT MARYLAND ROUTE 924. IT IS OUR UNDERSTANDING THAT THIS SEGMENT IS BEING FAST-TRACKED AND WE SIMPLY WISH TO RE-EMPHASIZE ITS IMPORTANCE TO THE CITY.

IN SUMMARY, THE CITY FEELS THAT IMPROVEMENTS TO THE EXISTING ROADWAYS IN THE CORRIDOR MUST BE COMPLETED WHETHER I-370 BECOMES A REALITY OR NOT. WITHOUT SUCH IMPROVEMENTS, WE WOULD NOT CONSIDER SUPPORT OF THE INTERCOUNTY CONNECTOR TO BE IN THE BEST INTERESTS OF THE CITY. SHOULD PLANS GO FORWARD FOR THE CONSTRUCTION OF THE ICC, WHICH INCLUDE THE I-370 SPUR, THE CITY FEELS IT IS IMPERATIVE THAT THE SHADY GROVE ROAD/MARYLAND ROUTE 355 INTERSECTION BE UPGRADED AS PREVIOUSLY OUTLINED; THE OAKMONT/EAST DEER PARK DRIVE BRIDGE BE IMPROVED, AND M-83 BE CONSTRUCTED TO LINK UP WITH SHADY GROVE ROAD.

GRCichy:mmb

cc: CE Reading File
CECC Section
(DOT also responded over GRC signature, copy attached)

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May 27, 1980

Mr. Emil Elinsky
Division Administrator
Federal Highway Administration
The Rotunda - Suite 220
711 W. 40th Street
Baltimore, Maryland 21211

Re: I-270/Md 124 Interchange

Dear Mr. Elinsky:

I am writing to you in support of Mr. Caltrider's letter of April 16, 1980, to you on this same subject.

I strongly support this much needed and long overdue improvement, and I feel we must act at this time for two basic reasons: Safety and Development.

First safety. Each evening long lines of cars queue up on the shoulder and sometimes in the right traffic lane waiting to exit I-270 onto Md 124. While this queuing is very inconvenient, time consuming and a waste of energy, the even greater problem is safety. I feel such a condition may invite accidents and must be corrected as soon as possible.

The second reason to improve this interchange is development. This interchange is at the conflux of two major growth corridors and is of critical importance to development in the County. The interchange cannot adequately handle current traffic volumes, let alone future volumes in this fast growing area.

I trust you will endorse the Maryland Department of Transportation's request to reconstruct this interchange with federal funds.

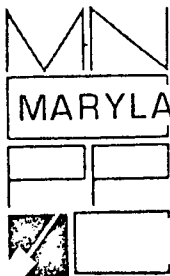
cc: Mr. Kassoff)
Mr. Camponeschi) For your information
Mr. Raith)
MSC 5/29/80

Sincerely,
Original Signed By
Charles W. Gilchrist
Charles W. Gilchrist
County Executive

CWG:bka

cc: Governor Harry Hughes
Secretary James J. O'Donnell
Administrator M.S. Caltrider

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION
8787 Georgia Avenue • Silver Spring, Maryland 20907



June 25, 1980

Mr. David Feske
Project Manager
Henningson, Durham & Richardson
5454 Wisconsin Avenue
Chevy Chase, Maryland 20015

Dear Dave:

In response to your request of May 27, 1980, relative to the I-270/Rte. 124 interchange analysis, we wish to offer the following comments involving areas of possible environmental sensitivity and consistency with overall county concerns:

- 1) The environmental report should address on-site sediment control;
- 2) Noise and localized air quality impacts near residential areas (i.e., south of Md. 924) should be evaluated;
- 3) The effect of changing volumes and traffic patterns projected under the alternatives considered on congestion at various locations in the study area should be addressed (e.g., at the Rte. 124/117 intersection, Montgomery Village Avenue/Route 355 intersection, Rte. 924/I-270 interchange, Rte. 124/I-270 interchange, Rte. 124 between Md. 117 and Rte. 355, Md. 924, and along I-270);
- 4) From a comprehensive community planning viewpoint, our Community Planning North division reports that failure to upgrade the interchange would be inconsistent with the development plans for the area.

Thank you for the opportunity to submit our comments on this issue. If I can be of further assistance, please contact me.

Sincerely,

Robert M. Winick, Chief
Transportation Planning Division

MARYLAND GEOLOGICAL SURVEY

MERRYMAN HALL, THE JOHNS HOPKINS UNIVERSITY
BALTIMORE, MARYLAND 21218

TO: Eugene T. Camponeschi, Chief
Bureau of Project Planning
State Highway Administration

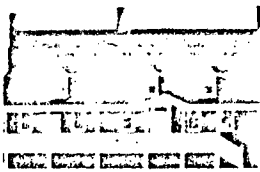
FROM: Tyler Bastian

Division of Archeology
DATE: 27 May 1980

SUBJECT: Interchange modifications at I-270/Maryland Route 124 and 924

On 16 May 1980, Terrence W. Epperson conducted an archeological reconnaissance of the above referenced project. The findings of his survey were entirely negative and we believe no significant cultural resources will be adversely affected by the proposed construction. A formal report will be submitted after the other three areas are surveyed.

TB:pd



Maryland Historical Trust

May 28, 1980

Mr. Eugene T. Camponeschi
Chief, Bureau of Project Planning
State Highway Administration
300 West Preston Street
Baltimore, Maryland 21203

RE: I270/Md. 124, Md. 924 Interchange Alterations,
Contract No. M 971-002-370, F.A.P. # 120-1(1)

Dear Mr. Camponeschi:

At the request of SHA, a reconnaissance has been completed in the vicinity of the subject project. The area surveyed, and the boundaries of the following sites, are shown on the attached maps. These sites are all of local significance and are probably not likely to be eligible for the National Register of Historic Places.

- PA 20/24 Mills House, n.e. of I270 and Muddy Branch Road,
Gaithersburg vicinity
- A M.R. Boyd House, north side West Diamond Avenue
(Md.924), Gaithersburg vicinity
- B 300 West Diamond Avenue (Md.924), Gaithersburg vicinity
- C 309 West Diamond Avenue (Md.924), Gaithersburg vicinity

Sincerely,

Peggy Bruns Weissman

Peggy Bruns Weissman
Historic Sites Surveyor

cc: George Andreve
Rita Suffness
David F. Rinn
Eileen McGuckian

enclosures

APPENDIX B - BIBLIOGRAPHY

BIBLIOGRAPHY

Approved and Adopted Master Plan, Gaithersburg Vicinity, Maryland National Park and Planning Commission, January 1971.

Interim Alternates Report, Volume 1, project planning studies for Great Seneca Highway from Middlebrook Road to MD Route 28 for Montgomery County, Maryland, 1-79.

Maryland Plan and Ordinance for Historic Preservation in Montgomery County, Maryland.

Planning, Staging and Regulating Growth Policy, report of the Montgomery County Planning Board, June 1979.