

# **ENVIRONMENTAL ASSESSMENT SECTION 4(f) EVALUATION FOR**

**CONTRACT NO. H-873-101-470 N**

**U.S. ROUTE 1 (CONOWINGO ROAD)  
MARYLAND ROUTE 23 EXTENDED  
HICKORY BYPASS**



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

and  
MARYLAND DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION

Report Number: FHWA-MD-EA-88-02-D

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Federal Highway Administration  
Region III

US 1 Business to US 1 north of Hickory  
MD 23 Extended from US 1 to MD 543  
Harford 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)  
CEQ REGULATIONS (40 CFR 1500 et seq)

October 17, 1988  
Date

Neil J. Pedersen  
Neil J. Pedersen, Director  
Office of Planning and  
Preliminary Engineering  
Maryland State Highway  
Administration

11/10/88  
Date

Herman Rodrigo  
FOR Federal Highway Administration  
Division Federal Highway  
Administrator

**Summary**

SUMMARY

1. ADMINISTRATIVE ACTION

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

2. ADDITIONAL INFORMATION

Additional information concerning the proposed project and this document may be obtained by contacting:

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 and Safety Engineer  
 Federal Highway Administration  
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3. DESCRIPTION OF PROPOSED ACTION

The proposed project consists of the relocation of U.S. Route 1 bypassing Hickory, and the extension of MD Route 23 from west of existing U.S. Route 1 to MD Route 543. These improvements would relieve the traffic congestion along U.S. Route 1 and the high accident rate at the intersection of U.S. Route 1 and MD Route 543. These improvements are consistent with the Harford County transportation and land use plans.

4. ALTERNATE DESCRIPTION

Alternate 1

Alternate 1, the No-Build Alternate, would not involve any construction within the study area. However, routine maintenance of, or short term improvements to, the existing roadways and intersections would continue.

Alternate 2

Alternate 2 proposes the construction of U.S. Route 1 Relocated to bypass Hickory to the east of the existing alignment and the extension of MD Route 23 from west of existing U.S. Route 1 to MD Route 543.

The relocation of U.S. Route 1 would begin as an extension of the Bel Air Bypass approximately 4,000 feet north of the U.S. Route 1/MD Route 24 interchange. This alignment would meet U.S. Route 1 just north of the existing U.S. Route 1/U.S. Route 1 Business intersection. The roadway would continue on

new location in a northeasterly direction, intersect MD Route 543 south of the existing U.S. Route 1/MD Route 543 intersection, cross Wyndemede Farm Road, and connect to existing U.S. Route 1 approximately 1,400 feet south of Ruffs Mill Road.

Two options are proposed at the northern connection of the U.S. Route 1 Bypass with U.S. Route 1. Option 1 proposes a direct connection. Option 2 proposes an alignment which curves west of Option 1.

Two options are proposed for the extension of MD Route 23 from west of U.S. Route 1 to MD Route 543. MD Route 23 Extended, Option 1, consists of the extension of MD Route 23 to intersect U.S. Route 1 north of Pritt Lane. It then continues eastward across U.S. Route 1 Relocated and then southward to connect with MD Route 543 opposite the C. Milton Wright High School at Leeswood Road. MD Route 23 Extended, Option 2, would be identical to Option 1 west of the proposed U.S. Route 1 Relocated/MD Route 23 Extended intersection. However, this option would connect with MD Route 543 approximately 900' north of Option 1 in the vicinity of C. Milton Wright High School.

The typical section under consideration for U.S. Route 1 Relocated is a two-lane initial roadway and an ultimate four-lane highway in the design year 2015. The U.S. Route 1 Relocated ultimate section would provide for two 12-foot lanes in each direction separated by a 54-foot grass median.

The MD Route 23 Extended would be constructed as a two-lane roadway. The initial typical section for both roadways would provide one 12-foot lane in each direction with 10-foot shoulders.

Alternate 3

The alignment and typical section of U.S. Route 1 Relocated and the typical section for MD Route 23 would be the same for this Alternate as previously described for Alternate 2. The difference from Alternate 2 would be that MD Route 23 would extend from west of existing U.S. Route 1 and terminate at U.S. Route 1 Relocated.

5. SUMMARY OF ENVIRONMENTAL IMPACTS

The Build Alternates would separate local from through traffic and reduce traffic accidents and congestion at Hickory. They are also consistent with the Harford County Master Plan, 1977.

Alternate 1, the No-Build Alternate, would not affect any homes or require additional right-of-way. However, it is not consistent with area land use plans and would not address existing safety and congestion problems at Hickory.

Alternate 2 could require up to nine (9) displacements (10 families relocated) contingent on various tie-in options, and Alternate 3 could require up to three (3) displacements.

The acquisition of right-of-way is required by all the build alternates.

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Alternate 2 would require property from one (1) historic site (Vineyards) which is eligible for the National Register of Historic Places. One archeological site, 118 HA 167, which is potentially eligible for the National Register would be impacted by all the build alternates.

No public park lands or 100-year floodplains would be impacted. Wetlands, streams, forest land and prime farmland soils would be impacted by the build alternates. Alternate 2 would require seven (7) stream crossings, whereas Alternate 3 would require (5) five stream crossings.

Construction of Alternate 2 would impact approximately 13 acres of wetland based on the ultimate 4-lane roadway on U.S. Route 1. Alternate 3 would impact approximately 10 acres of wetlands. Approximately 19 acres of prime farmland soils would be affected by Alternate 2 and 17 by Alternate 3.

Erosion and sediment control measures and stormwater management plans and permits, approved by MDE, would be implemented to minimize water quality impacts.

There are no violations of State or National Ambient Air Quality Standards by either of the Build Alternates.

The Federal Highway Administration Noise Abatement Criteria would be exceeded at two sites for the Build Alternates for the Year 2015. At two sites the noise levels would increase 10 dBA over existing ambient levels for the Build Alternates in the design year 2015.

COMPARISON OF ALTERNATES

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Analysis Item	No-Build	Alternate 2*	Alternate 3*
<u>Social Economic</u>			
1. Relocation			
a. Residences	0	10	3
b. Businesses	0	1**	1**
c. Farms	0	0	0
2. Minorities affected	0	0	0
3. Parkland or recreation area affected	0	Yes	Yes
4. Consistent with area land use plans	No	Yes	No
5. Historic Sites Affected (Property acquisition)	0	1	No
6. Archeological Sites Affected	0	1	1
<u>Natural Environment</u>			
1. Number of stream relocations	0	0	0
2. Number of stream crossings*	0	7	5
3. Threatened or endangered species	No	No	No
4. Acres of prime farmland affected*	--	19	17
5. Impacts 100-year floodplain (Acres)	No	No	No
6. Wetlands affected (Acres)	No	13	10
<u>Noise</u>			
1. Number NSA's exceeding abatement criteria or increase 10 dBA or more over ambient	0	2	2
<u>Air Quality</u>			
1. CO violations of 1-hour or 8-hour standards	No	No	No
<u>Costs</u> (In.Millions)	None	\$22,500	\$16,000

\*Values shown represent worst-case impacts for the various tie-in options under consideration.

\*\*One residence is a combination residence/business

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

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



ENVIRONMENTAL ASSESSMENT FORM (EAF)

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
<b>A. Land Use Considerations</b>			
1. Will the action be within the 100 year flood plain?	<u>    </u>	<u>  X  </u>	<u>Section I, Page 9</u>
2. Will the action require a permit for construction or alteration within the 50 year flood plain?	<u>    </u>	<u>  X  </u>	<u>                    </u>
3. Will the action require a permit for dredging, filling, draining, or alternation of a wetland?	<u>  X  </u>	<u>    </u>	<u>Section I, Page 11</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%?	<u>    </u>	<u>  X  </u>	<u>                    </u>
6. Will the action require a grading plan or a sediment control permit?	<u>  X  </u>	<u>    </u>	<u>Section IV, Page 5</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>
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	<u>  X  </u>	<u>    </u>	<u>Section IV, Page 5</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>    </u>	<u>  X  </u>	<u>                    </u>

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
13. Will the action affect the use of an archeological or historical site or structure?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 4/23</u>
<b>B. Water Use Considerations</b>			
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?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 5</u>
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
16. Will the action change the overland flow of storm water or reduce the absorption capacity of the ground?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 5</u>
17. Will the action require a permit for the drilling of a water well?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
18. Will the action require a permit for water appropriation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
21. Will the action result in any discharge into surface or sub-surface water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 5</u>
22. If so, will the discharge affect ambient water quality limits or require a discharge permit?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
<b>C. Air Use Considerations</b>			
23. Will the action result in any discharge into the air?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Section IV, Page 17-20</u>
24. If so, will the discharge affect ambient air quality limits or produce a disagreeable odor?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
25. Will the action generate additional noise which differs in character or level from present conditions?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 12-15</u>
26. Will the action preclude future use of related air space?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
27. Will the action generate any radiological, electrical, magnetic, or light influences?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
<b>D. Plants and Animals</b>			
28. Will the action cause the disturbance, reduction, or loss of any rare, unique or valuable plant or animal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 6</u>
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical, or radiological control agents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
<b>E. Socio-Economic</b>			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, 2-4</u>
32. Will the action cause relocation of activities or structures, or result in a change in the population density of distribution?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>Section IV, Page 1-2</u>

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
33. Will the action alter land values?	<u>X</u>	<u>    </u>	<u>Section III, Page 1</u>
34. Will the action affect traffic flow and volume?	<u>X</u>	<u>    </u>	<u>Section II, Page 3</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>Section IV, Page 4</u>
38. Will the action affect the employment opportunities for persons in the area?	<u>    </u>	<u>X</u>	<u>                    </u>
39. Will the action affect the ability of the area to attract new sources of tax revenue?	<u>    </u>	<u>X</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>
<b>F. Other Considerations</b>			
42. Could the action endanger the public health, safety, or welfare?	<u>    </u>	<u>X</u>	<u>                    </u>

	<u>YES</u>	<u>NO</u>	<u>COMMENTS</u>
43. Could the action be eliminated without deleterious affects to the public health, safety, welfare, or the natural environment?	---	<u>X</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>	_____
46. Will the action require additional power generation or transmission capacity?	---	<u>X</u>	_____
<b>G. Conclusion</b>			
47. This agency will develop a complete environmental effects report on the proposed action.	---	<u>X*</u>	_____

\*This Environmental Assessment satisfies the requirements of both the National Environmental Policy Act and the Maryland Environmental Policy Act.

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I  
**Description  
of  
Proposed  
Action**

I. DESCRIPTION OF PROPOSED ACTION

A. PROJECT LOCATION

The study area for this project as shown in Figure 2 is located in central Harford County, Maryland, north of the Town (County Seat) of Bel Air. The Hickory community includes the intersection of U.S. Route 1 (Conowingo Road) and MD Route 543 (Fountain Green and Ady Roads) and the surrounding area for a mile or more.

B. PROJECT DESCRIPTION

Two Build Alternates, in addition to the No-Build Alternate (Alternate 1), are being considered for this project. Alternate 2 proposes the relocation of U.S. Route 1 as a new initial roadway with one 12' lane in each direction to serve ultimately as the two southbound lanes of a four lane divided highway from the Bel Air Bypass to U.S. Route 1 north of Hickory. MD Route 23 Extended would be constructed as a two lane roadway and would extend easterly from west of U.S. Route 1 to MD Route 543 in the vicinity of C. Milton Wright High School. Both roadways comprise a distance of approximately 2.0 miles each.

Under Alternate 3, U.S. Route 1 Relocated would be similar to that previously described for Alternate 2. However, MD Route 23 would terminate at U.S. Route 1 Relocated resulting in a 0.6 mile extension from west of U.S. Route 1.

C. DESCRIPTION OF EXISTING ENVIRONMENT

1. Social Environment

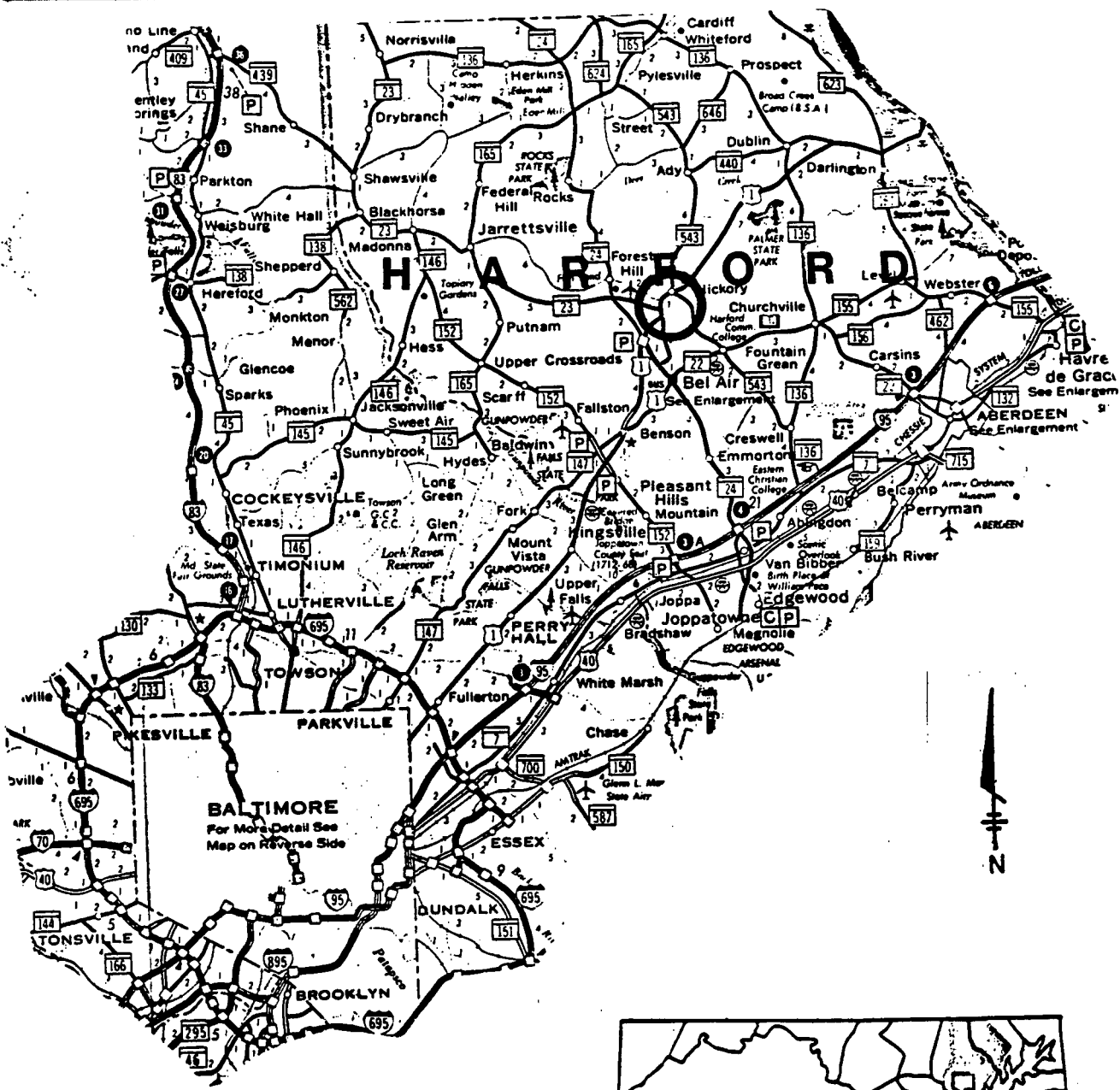
a. Population

The area of Harford County served by U.S. Route 1 and MD Route 23 consists of Harford Planning Districts numbered 2, 9 and 10 (see Figure 3). The overall population within these planning districts increased 29% between 1970 and 1980. During the same time period, the overall County population increased 29 percent as compared to the State increase of 7.5 percent (Table 1).

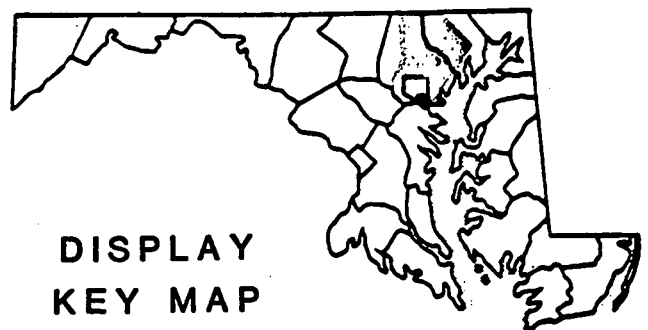
The population for Planning District 2, which extends from MD Route 543 to Interstate 95 along MD Route 22 and MD Route 155, increased 20.7 percent between 1970 and 1980.

The population for Planning District 10, which includes the town of Bel Air and part of Hickory, increased 28.7 percent as compared to Planning District 9, located at the northern tip of the town of Bel Air, which increased 50.5 percent.

It is projected that between 1980 and 2000, the population within the Planning District 2 would decline by 2 percent due to the changes in the County's land use plan and the lack of public utilities. Planning District 9 is expected to experience an increase in population by 32% due to zoning pattern,



**BALTIMORE**  
For More Detail See  
Map on Reverse Side



**DISPLAY  
KEY MAP**

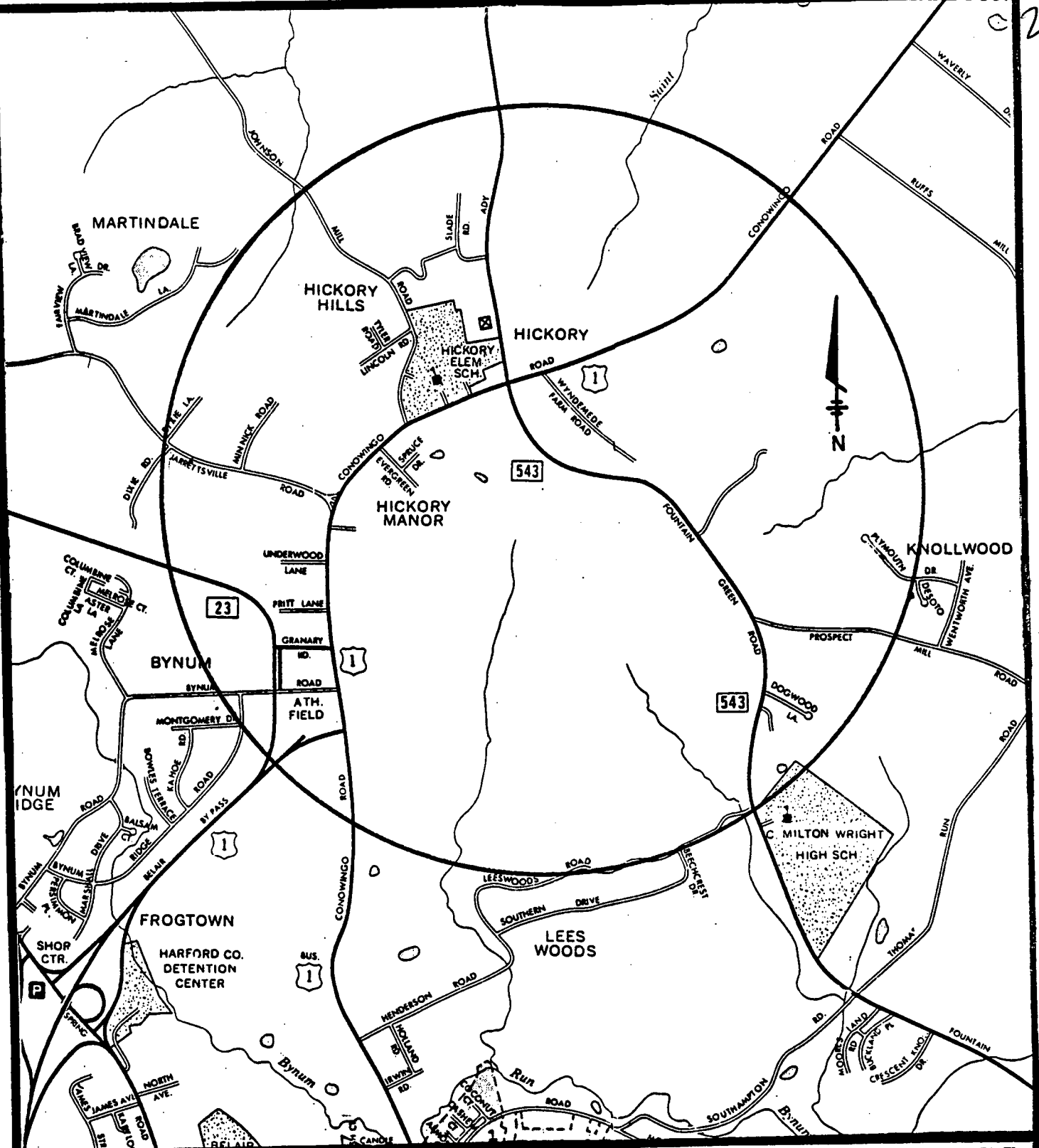
**U.S. ROUTE 1 / MD. ROUTE 23  
EXTENDED-HICKORY BYPASS**

**LOCATION MAP**

**SCALE: 1" = 6 mi**

**FIGURE 1**

23



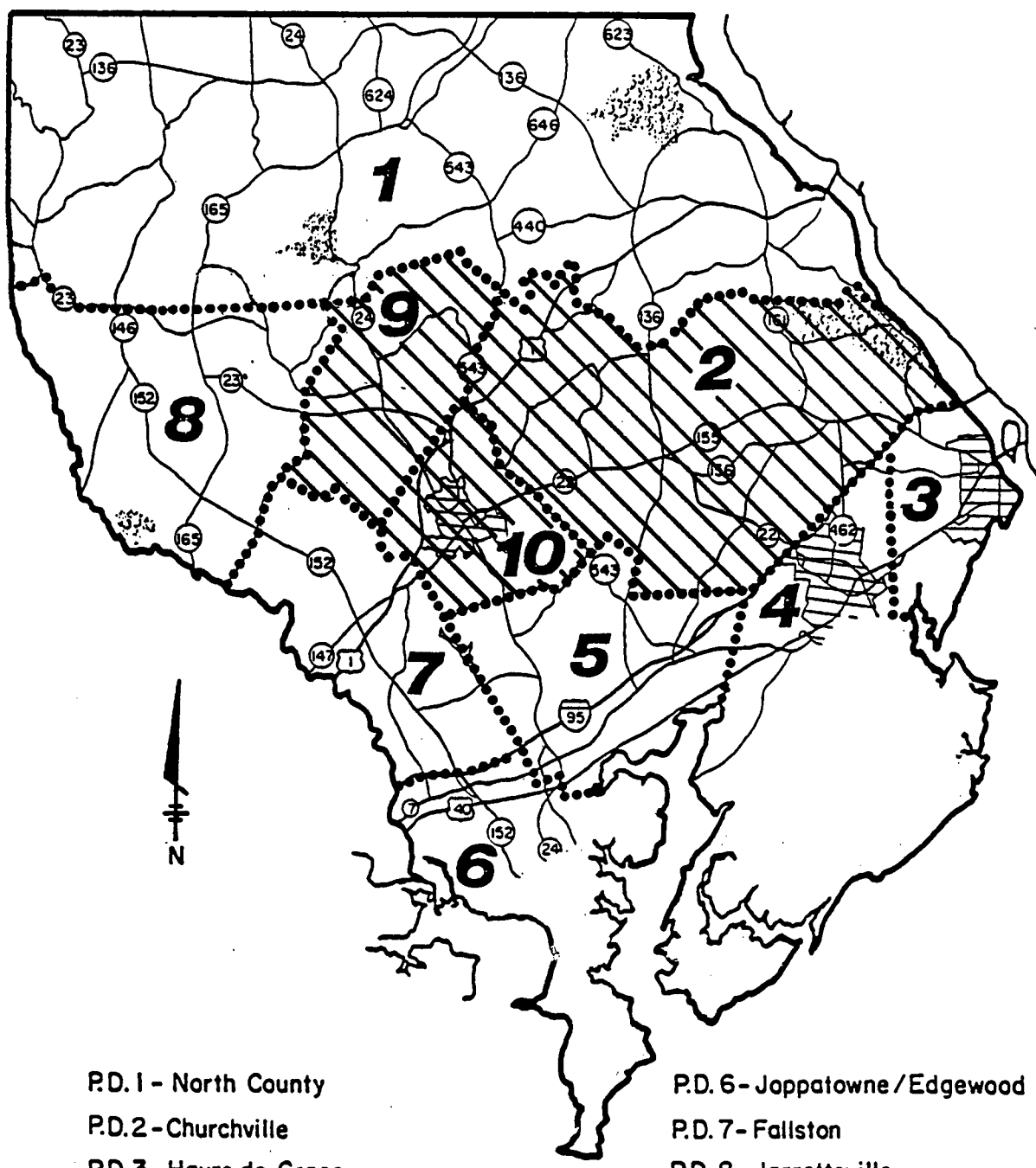
U.S. ROUTE 1/MD. ROUTE 23  
EXTENDED-HICKORY BYPASS

**STUDY AREA MAP**

SCALE: 1"=2,000'

FIGURE 2


# Harford County Planning Districts



- P.D. 1 - North County
- P.D. 2 - Churchville
- P.D. 3 - Havre de Grace
- P.D. 4 - Aberdeen
- P.D. 5 - Emmorton

- P.D. 6 - Joppatowne / Edgewood
- P.D. 7 - Fallston
- P.D. 8 - Jarrettsville
- P.D. 9 - Forest Hill
- P.D. 10 - Bel Air

## LEGEND

 - STUDY AREA DISTRICTS

U.S. ROUTE 1/MD. ROUTE 23  
EXTEND-HICKORY BYPASS

PLANNING DISTRICTS

SCALE: 1" = 4mi.

FIGURE 3



infrastructure capability, accessibility and marketability. Planning District 10 should continue to experience a population growth, as high as 37% as long as undeveloped land is available for residential development.

TABLE 1  
Population Data

	Census Data		Projections	
	1970	1980	1990	2000
Planning District 2	10,604	12,796	12,708	12,504
Planning District 9	5,271	7,935	9,187	10,499
Planning District 10	13,016	16,745	19,952	22,965
Harford County Total	115,378	145,930	165,000	176,000

Source: Harford County, Maryland Department of Planning and Zoning Data Book, April 1985.

The 1980 population characteristics for the study area are included in Table 2. The minority population in Planning District 2, Planning District 9 and Planning District 10 is 5.6, 2.0 and 3.3 percent, respectively. These percentages are lower than the County-wide average of 10 percent.

TABLE 2  
1980 Population Characteristics

	Planning District 2	Planning District 9	Planning District 10	Harford County Population and Percent of Total
Total Population	12,796 100.0%	7,935 100.0%	16,745 100.0%	145,930 100.0%
Minority Population	719 (5.6%)	156 (2.0%)	546 (3.3%)	14,583 10.0%
Age 65 and over	908 (7.1%)	373 (4.7%)	1,536 (9.2%)	9,371 6.4%

Source: Harford County Maryland Department of Planning and Zoning Data Book, Demographic, Economic and Land Use Trends, April 1985.

According to the Harford County Department of Planning and Zoning, the Regional Planning Council and the State of Maryland, the County's population is projected to reach 178,000 in 2005, an increase of about 22 percent. It is anticipated that 85 percent of this growth would be located within the "development envelope" shown on Figure 4.

There are no known concentrations of minorities, elderly or handicapped persons within the study corridor.

b. Community Facilities and Services

Major community facilities such as the post office, library, courthouse and emergency services are located south of the study area in or near the town of Bel Air.

Churches located in the study area are the Bel Air Church of Nazarene, Friendship Baptist Church, St. Ignatius Church and Mt. Tabor. (See Figure 5).

Schools within the study area include:

- o Hickory Elementary School
- o C. Milton Wright High School

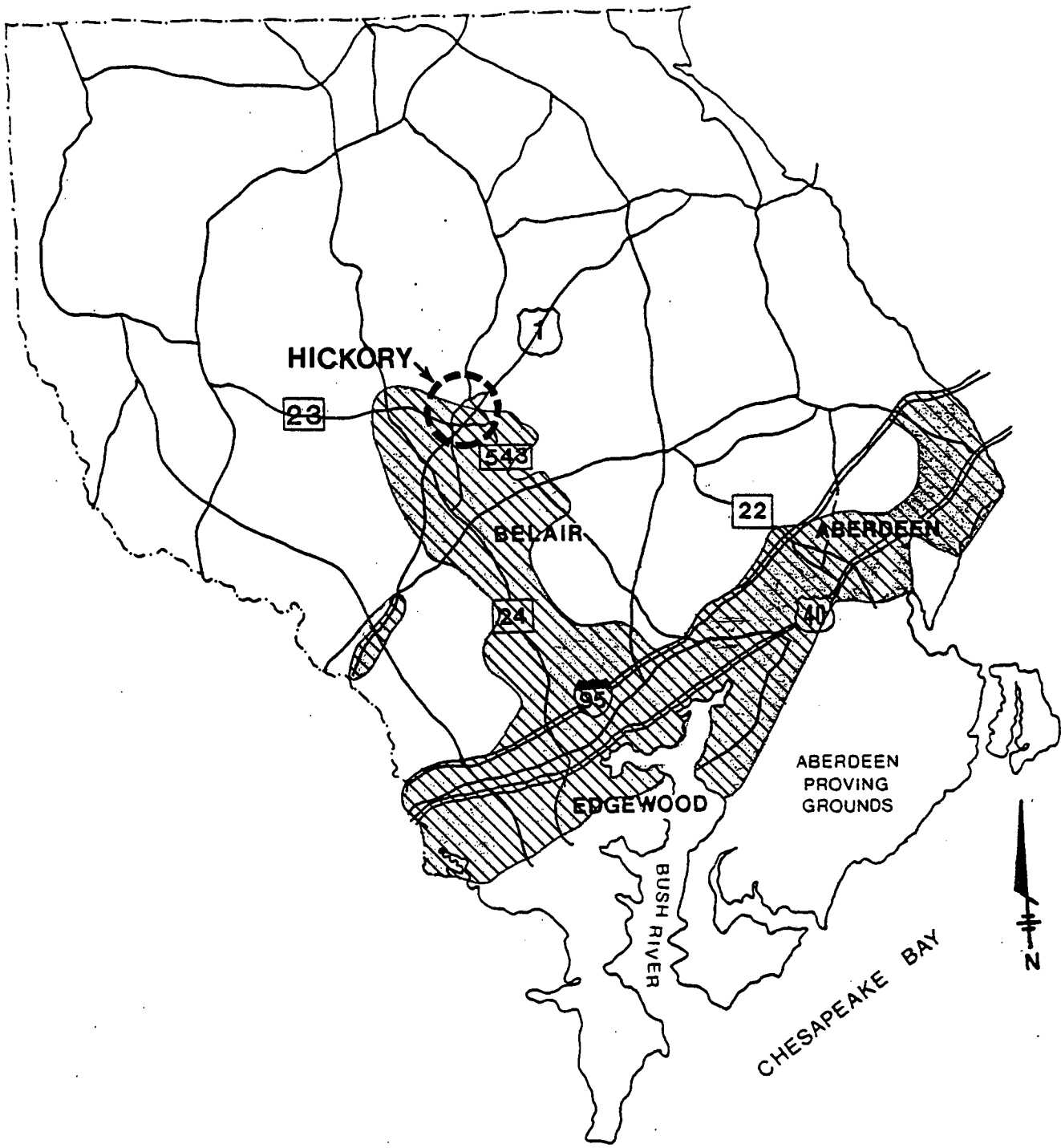
The Harford County Board of Education is located west of the study area on Jarrettsville Road.


Fire protection is provided by volunteer companies located in Bel Air, Level, Darlington and Jarrettsville. Major health care needs for the study area are provided by Fallston General Hospital located approximately 3.5 miles southwest of Bel Air and the Harford Memorial Hospital in Havre de Grace.

Law enforcement is provided by the Bel Air Police, the Harford County Sheriffs Department in Bel Air, and the Maryland State Police located in Benson, 2.6 miles southwest of Bel Air.

There are no parks within the study area. Recreational facilities are provided by local public schools, the Bel Air Roller Rink and the Wade R. Tucker Athletic Field. The Tucker Field is a lot located at the end of the Bel Air Bypass and would be rendered disfunctional for recreational activities by the proposed right-of-way takes by the build alternates. It is leased to the County by the State Highway Administration for temporary recreational purposes. There is no fixed recreational equipment on the lot. Although the County has recently renewed the contract for another 5-year period, SHA reserves the right to rescind the terms of the agreement within a 30-day period. Therefore, this would not constitute a 4(f) involvement.

The Hickory area is not served by public water and sewer systems. Service is planned to be extended to the Hickory area within the next five to ten years.



LEGEND  
 DEVELOPMENT ENVELOPE 

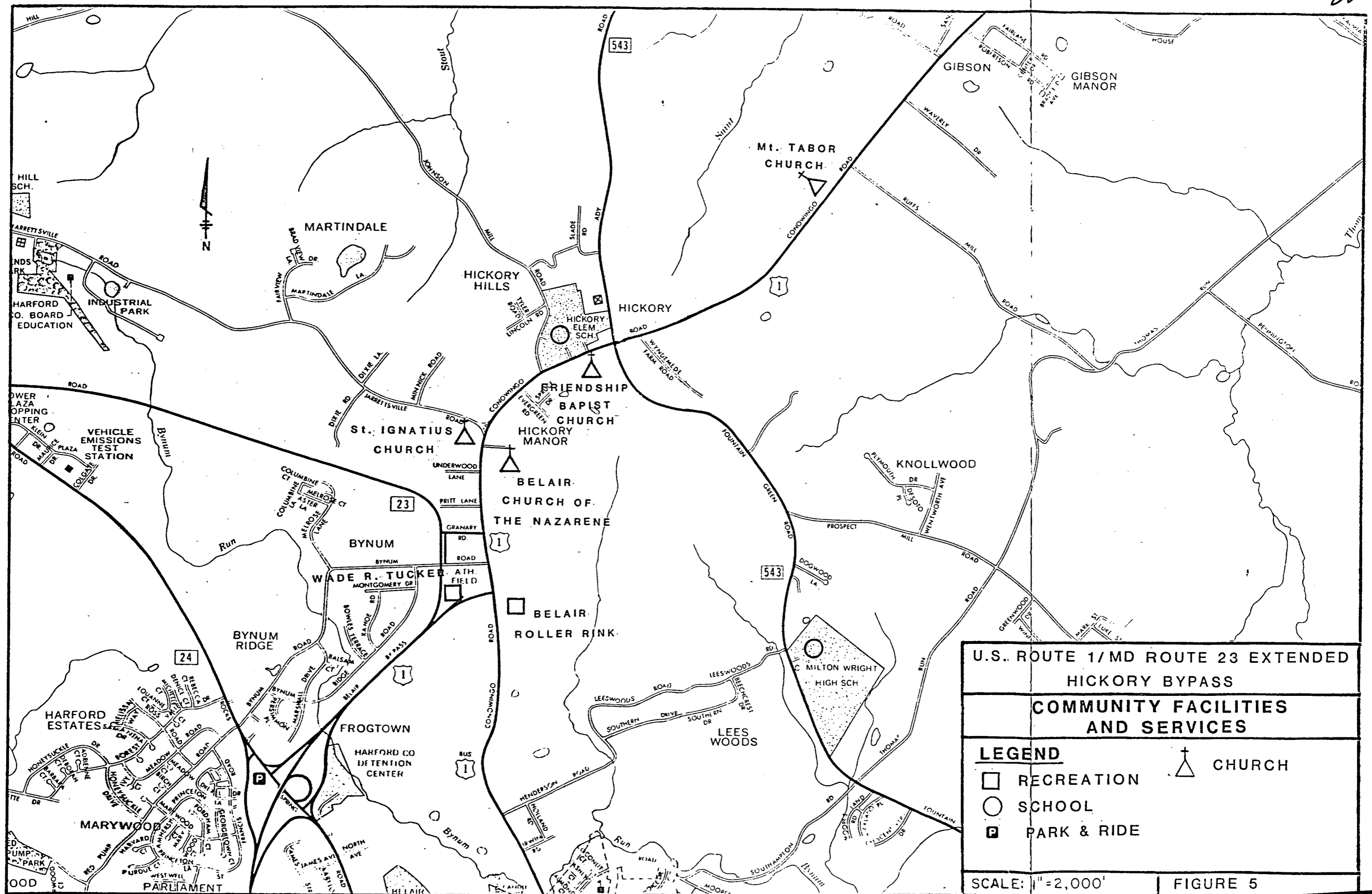
NOTE: FROM HARFORD COUNTY MASTER PLAN (1977)  
 AND COMPREHENSIVE ZONING MAPS (1982)

U.S. ROUTE 1 / MD. ROUTE 23  
 EXTENDED-HICKORY BYPASS

**HARFORD COUNTY  
 DEVELOPMENT ENVELOPE**

SCALE: 1" = 4 mi

FIGURE 4



U.S. ROUTE 1/MD ROUTE 23 EXTENDED  
HICKORY BYPASS

**COMMUNITY FACILITIES  
AND SERVICES**

LEGEND	
□	RECREATION
○	SCHOOL
⊠	PARK & RIDE
△	CHURCH

SCALE: 1" = 2,000' | FIGURE 5

2. Economic Environment

Industrial and commercial development in Harford County is concentrated along U.S. Route 40, Interstate Route 95 and within and about the town of Bel Air. Other economic development is scattered throughout the County particularly within the development envelope which includes a small portion of Hickory. (See Figure 4.)

Primary employers within the County include the military installations at Edgewood Arsenal and Aberdeen Proving Grounds, and numerous retail commercial centers particularly in and about the County seat of Bel Air. As the work force within the County continued to increase, so did the number of out commuters increase (28.2% in 1970 to 39.2% in 1980). Harford County's commuter population is closely linked to the Baltimore area job base.

Economic activity in the study area consists of a small commercial strip at the Hickory intersection of U.S. Route 1 and Maryland Route 543, and individual businesses along U.S. Route 1, including the Bynum area. These businesses consist of restaurants, convenience stores, service stations, general merchandise and industrial uses. Other local shopping facilities include the Rock Spring Shopping Center at Frogtown and Klein's Tower Plaza Shopping Center. Major retail facilities are established in the Town of Bel Air.

Two industrial parks are located within the study area, namely the Greater Harford Industrial Center (approximately 40 acres) situated in the Bynum area, and the Wyndemere Industrial Park located in the north and southeast quadrants of the Hickory intersection.

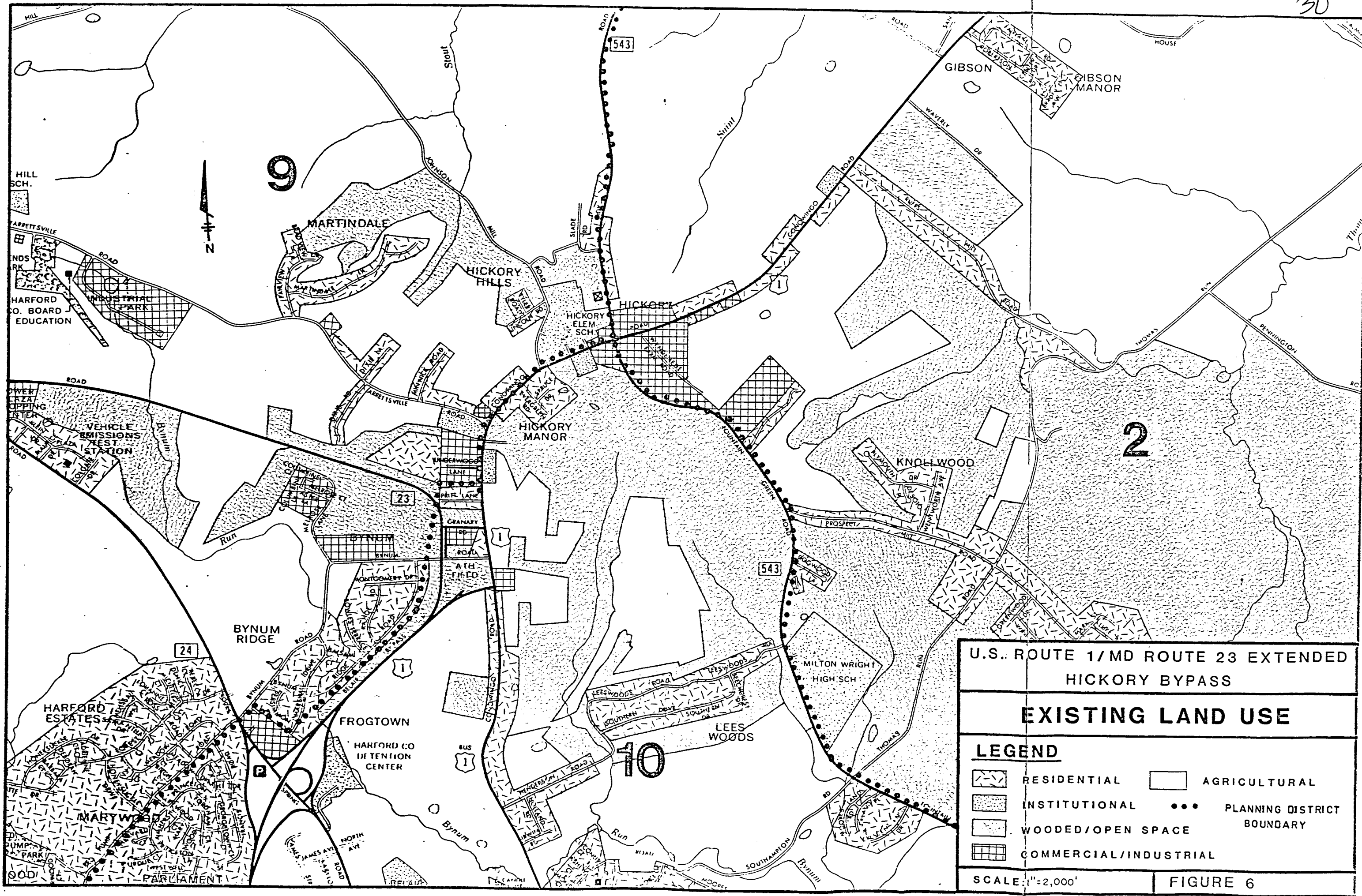
In 1980, over one-half of the labor force in Planning District 2 and over two-thirds in Planning District 10 were employed in the administrative/managerial, clerical, professional speciality, sales and technician areas. In Planning District 9, the leading occupations were professional specialties, administrative support, crafts or repair sales and managerial-administration. Overall, employment in wholesale trade, communications, finance, real estate, insurance, retail trade services, state and local government increased between 1970 and 1980. During the same period, employment opportunities in agriculture, construction, manufacturing and the military decreased. Construction has been on the increase since 1980.

The 1980 median household income for Planning District 2 was \$23,631, Planning District 9 was \$24,796 and for Planning District 10 was \$22,844, all well above the countywide average of \$20,830.

3. Land Use

a. Existing Land Use (See Figure 6)

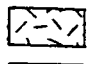





The key primary concept of the Harford County Master Plan is the "Development Envelope" into which suburban and urban land uses are channeled in accordance with need and financial resources (see Figure 4). The Plan suggests an 87 percent goal for new development occurring within the envelope. The area outside the envelope is identified by the Master Plan as a "rural/agricultural



U.S. ROUTE 1/MD ROUTE 23 EXTENDED  
HICKORY BYPASS

**EXISTING LAND USE**

**LEGEND**

- |                                                                                       |                       |                                                                                       |                            |
|---------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|----------------------------|
|  | RESIDENTIAL           |  | AGRICULTURAL               |
|  | INSTITUTIONAL         |  | PLANNING DISTRICT BOUNDARY |
|  | WOODED/OPEN SPACE     |                                                                                       |                            |
|  | COMMERCIAL/INDUSTRIAL |                                                                                       |                            |

SCALE: 1"=2,000'

FIGURE 6

area" featuring only limited low-density residential opportunities, natural features protection areas and village centers. However, between 1970 and 1980, only 60 percent of the new development occurred within the envelope, with a strong demand outside the envelope, particularly along the Baltimore County border.

The major land use within the Hickory area is agricultural with some rural residential development and minor commercial uses.

A small neighborhood hub of commercial use is located at the crossroads of Hickory (U.S. Route 1 and MD Route 543), which includes the Wyndemede Industrial Park. Other small business establishments are located in the Bynum area which includes the Greater Harford Industrial Center.

Planning District 2 is predominantly an agricultural area with some large lot rural residential development interspersed with minimal commercial and industrial uses. This district contains one of the County's major recreational areas, the Susquehanna State Park (outside the project area). Located on Deer Creek, the park acts as a conservation area, protecting wildlife habitats, and the water source for Aberdeen Proving Ground. Zoning for this district is designed to protect the agricultural industry and natural resources.

Planning District 9 is also agricultural in character with limited residential development in the immediate vicinity of the Route 1 Bypass. The southeastern portion of this district comprises the northern tip of the development envelope and contains several commercial and industrial developments. The area north of Route 23 within Planning District 9 is rural and agricultural reflecting its status in the County's Master Plan.

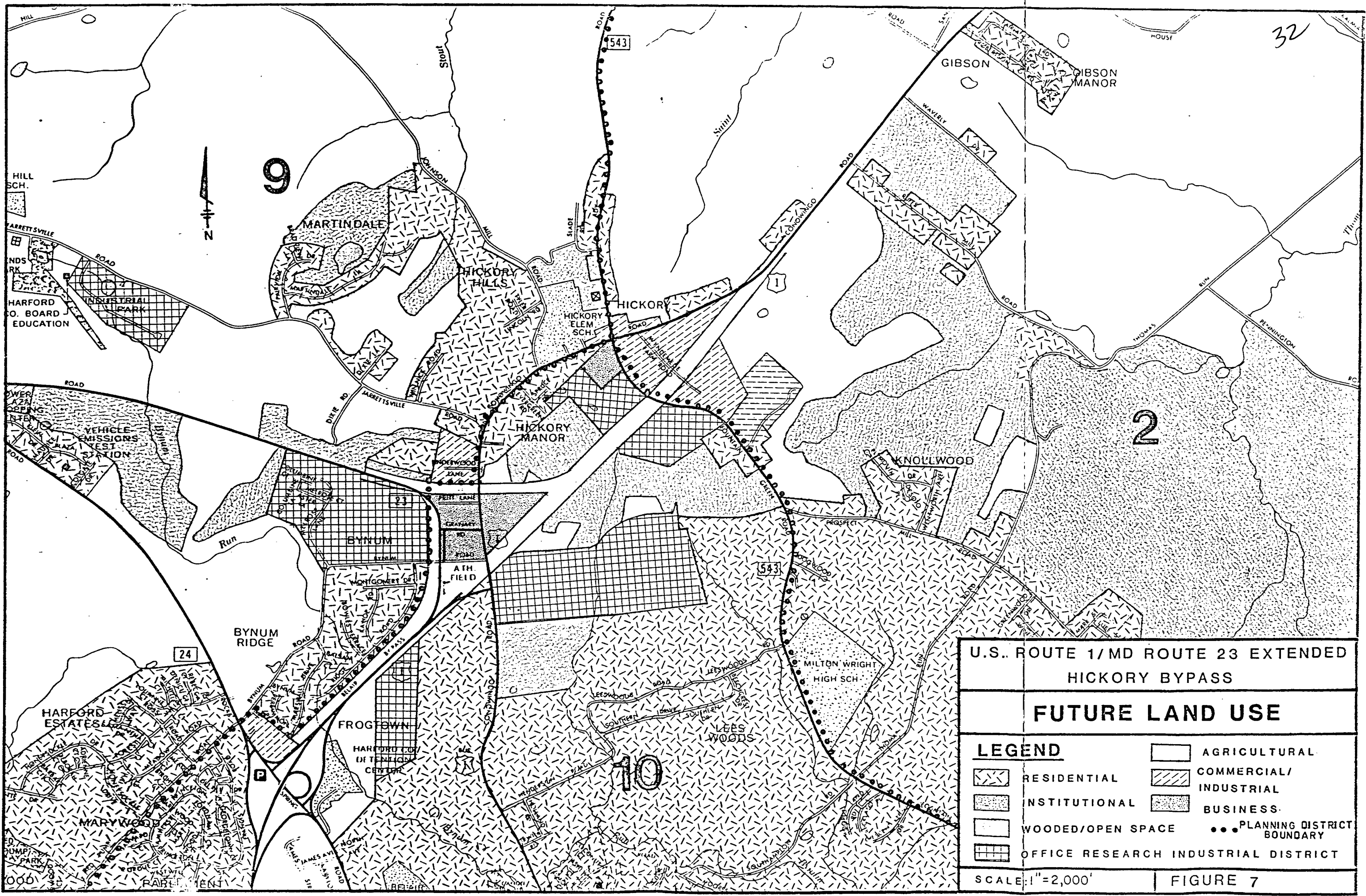
Planning District 10, centrally located in Harford County, is mixed suburban and rural development circling the town of Bel Air, the major commercial center of the County. The study area portion of Planning District 10 consists of agricultural, rural residential and wooded land use.

b. Future Land Use (See Figure 7)

According to the Harford County Maryland Department of Planning and Zoning Data Book (April, 1985), most of the study area will maintain its existing land use with the exception of a portion contained in Planning District 10 which is zoned for industrial development.

Planning District 2 is zoned to provide protection for the agricultural industry and protection of natural resources.

The zoning pattern for Planning District 9 is to maintain the area north of Route 23 as rural and agricultural. Those areas south of MD Route 23 which are inside the envelope are generally zoned for medium density residential development.



U.S.. ROUTE 1/MD ROUTE 23 EXTENDED  
HICKORY BYPASS

**FUTURE LAND USE**

**LEGEND**

- |  |                                     |  |                            |
|--|-------------------------------------|--|----------------------------|
|  | RESIDENTIAL                         |  | AGRICULTURAL               |
|  | INSTITUTIONAL                       |  | COMMERCIAL/ INDUSTRIAL     |
|  | WOODED/OPEN SPACE                   |  | BUSINESS                   |
|  | OFFICE RESEARCH INDUSTRIAL DISTRICT |  | PLANNING DISTRICT BOUNDARY |

SCALE: 1"=2,000'

FIGURE 7



#### 4. Historic and Archeological Sites

##### a. Historic Sites

The project area was reconnoitered for historic sites. Seven sites were identified as meeting the criteria for inclusion in the National Register of Historic Places. These sites are described below and shown on the Alternates Maps in Section II of this document.

- 1) St. Ignatius Church and Rectory (HA 41): This church is one of the few known 18th century churches in Maryland and is the oldest extant church in the Archdiocese of Baltimore. (Figures 12 and 15 in Section III.)
- 2) Preston's Choice: This large late 18th century stone and frame farmhouse and a few outbuildings are all that remain of a large 18th century farm located in Hickory, Maryland (located north of immediate project area). The owner reportedly sold or donated a portion of the property to the Jesuits about 1780 for the establishment of a church. St. Ignatius Church was built on this land shortly thereafter.
- 3) Grafton-Klein Residence: This well preserved 1880 Victorian residence is architecturally unique for the Hickory area. (Figures 13 and 14 in Section III.) In addition to being architecturally significant, it is historically notable for its association with the Grafton family, inhabitants of the community for roughly the last century.
- 4) Southampton Farm (HA 1092): The architecturally distinctive group of buildings constituting the center of this large farm is dominated by a large frame and stone main dwelling and a large stone tenant house, both constructed in the 19th century (located approximately 3,500 feet south of project limit). Established by John Moore, a Quaker, the farm has been continuously operated for almost 200 years. It is thus not only significant architecturally, but also important historically for its place in the agricultural past of Harford County.
- 5) The Vineyard (HA 417-20): This large farm was formed in the 19th century by James Preston, whose descendents were important in Harford County history. (Figure 16 in Section III.) It is significant architecturally as well as a remarkably intact farmstead retaining numerous distinctive farm buildings and a fine stone main house.
- 6) Stephen Kahoe House (HA 15-37): This dwelling, the sole remaining structure of what was once a vast farm, is made up of a large early 19th century wing which was added to the 18th century, two-story, stone dwelling. (Figure 11 in Section III.) The stone portion has been converted to a kitchen wing. The reputedly well preserved interior with its nicely executed trim and traditional design makes this site architecturally significant. It is historically significant for its association with the Kahoe family who were early settlers of the Hickory area.
- 7) Bussey Stone Dwelling: This stone house is the sole remnant of the Bussey Farm established by a Harford County family in the early 19th century

(located outside of project area). It is significant primarily as a link to the early history of the County and the Bussey family, who owned the farm throughout most of the 19th century.

The March 3 and May 21, 1987 letters from the State Historic Preservation Officer are included in the Comments and Coordination Section.

An additional 15 sites were identified as Maryland Inventory quality but not eligible for inclusion in the Register. These sites are:

Hoops Residence	U.S. Route 1 at Waverly Avenue
Mt. Tabor Church	U.S. Route 1
Frame Dwelling	2309 U.S. Route 1
Grafton Residence	2256 U.S. Route 1
Anderson House (HA 1269)	1601 MD Route 543
Henry Butt House	MD Route 543 near Prospect Mill Road
Thompson Residence	MD Route 543, south of Leeswoods Road
Grace Chapel	U.S. Route 1
Old Hickory School	2544 U.S. Route 1
J. Minnick House	U.S. Route 1
B. Minnick House	U.S. Route 1
Old Kennedy Store	U.S. Route 1
Fawler Residence	2208 U.S. Route 1
Barrow Farm	U.S. Route 1
Farm	U.S. Route 1 and Ruffs Mill Road

b. Archeological Sites

A Phase I archeological study was completed for the study area by the Division of Archeology, Maryland Geological Survey. One site, 18 HA 167, was identified as potentially eligible for the National Register of Historic Places. This site yielded historic and prehistoric material. Although the scattered historic artifacts were not significant, the prehistoric material suggests that the site was a base camp, perhaps occupied seasonally.

The Maryland Geological Survey - Division of Archeology, whose letter is included in the Comments and Coordination Section, states that Phase II investigation of the site is warranted if it is impacted, by the Selected Alternate. The Division of Archeology has requested that the locations of sites not be shown on document maps to avoid destruction of those sites by non-archeologists.

5. Natural Environment

a. Topography/Geology

The entire project area lies within the Eastern Division of the Piedmont Physiographic Province with elevations ranging from 460 ft. to 360 ft. above sea level. Generally, existing slopes are within a range of 3% to 15%. The Piedmont landscape is rich and varied and is characterized by low, wooded hills separated by well-drained valleys.

The Eastern Division of the Piedmont Province is underlain by a complex series of metamorphosed rocks, including gneisses, slates, phyllites, schist, marble and gabbroic rocks.

Specifically, the study area is scattered with Baltimore gneiss (banded metamorphic rock) and Baltimore gabbro. Baltimore gabbro is granular, dark-gray or greenish crystalline rock. This rock is commonly found as stones and boulders of the stream substrates and forest floors.

Baltimore gneiss are metamorphic rocks with characteristic banding of dark minerals and light colored feldspars and quartz. Baltimore gneiss are some of the oldest rock formations in Maryland.

The Piedmont Province contains a variety of mineral resources. Historically, building stone, slate, base-metal sulfides, gold, chromite, and iron were mined. Currently, crushed stone, cement, and lime are mined for construction activities.

b. Soils

The soils in study area belong to the Montalto-Neshaminy-Aldino association, being deep, steep to level, well-drained soils that are underlain by basic and acidic rocks, with the uplands having broad flats. Watchung soils which are poorly drained are found in the stream valleys.

Several different soil types occur within the study area. Along the streams the Watchung Series consists of poorly drained, moderately eroded soils that are best suited for woodland and wetland wildlife. This Watchung silt loam has slopes of 3% to 8%.

The Montalto Series consists of moderately sloped soils of rolling uplands. This soil has slopes of 3%-8% and contains few, if any, stones. This soil is limited in use for farming only and is classified by the United States Department of Agriculture, Soil Conservation Service, as Prime Farmland Soils.

Also, several areas of the study area contain Montalto silt loams with slopes of 8-15%. The soils have been cultivated and have lost part of their surface layer from erosion, limiting the crops suitable on these erosion hazard soils. According to the USDA, Soil Conservation Service, these soils are of Statewide Importance.

The Aldino soils found in some of the uplands are moderately well-drained, with a fragipan found about 24" below the surface, which may cause a perched water table. They have moderately severe limitations for non-farm uses.

There are a few locations where Neshaminy soils are found in the study area. These soils are deep, well-drained, moderately permeable and are well suited to farming except where they are too steep or stony. Erosion may be a limitation for non-farm uses. The less steep portions are classified as Prime Farmland Soils.

c. Groundwater

Groundwater in the study area is primarily provided by the Piedmont Aquifers of Hydrologic Unit III. This unit contains the poorest aquifers within the region with wells ranging less than 1 to 200 gallons per minute, or only 1 out of 50 wells yielding 50 gpm.

d. Floodplains

According to the Federal Emergency Management Agency (FEMA), there is no 100-year floodplain within the study area. However, there are several 10 and 50-year floodplains located throughout the study area associated with the tributaries of Bynum Run.

e. Surface Water

The study area lies within the Bush River Sub-Basin. Specifically, Wysong Branch, the headwaters of Bynum Run drains the study area with a drainage area of 1.3 square miles. These tributaries are order three streams, with rubble and stone substrates. The Maryland Department of Natural Resources (DNR), Water Resources Administration (WRA) has classified all surface waters of the state into four categories according to desired use. These categories are:

- Class I: Water Contact Recreation, Aquatic Life, and Water Supply
- Class II: Shellfish Harvesting
- Class III: Natural Trout Waters
- Class IV: Recreational Trout Waters.

All waters of the state are Class I with additional protection provided by higher classifications. Bynum Run and its tributaries are designated Class III Waters. Of particular concern in these waters is maintenance of high dissolved oxygen levels and a relatively low temperature, along with prevention of sedimentation, excessive nutrient levels, and other standard water quality criteria. The discharge of chlorine into these waters is also prohibited except under certain conditions.

Road. Most of the streams located within the study area are the headwaters to the Bynum Run mainstem. The streams were free from excessive algal growths and sediments, and were well shaded by trees, except for the previously mentioned tributary near the highway.

f. Ecology

Within the natural environment are two general types of areas; terrestrial and aquatic. The terrestrial environment includes both the upland vegetation and wildlife associated with it. The aquatic environment includes the streams, fish populations, and the adjacent wetlands.

1) Terrestrial Environment

Much of the study area has been developed into residential communities with commercial activity along the U.S. Route 1 corridor. However, along Wysong Branch, a climax hardwood forest occurs within the study limits. Along the stream banks, the co-dominant tree species are American beech (Fagus grandifolia), and tulip poplar (Liriodendron tulipifera). Other associated species are: red maple, green ash, white oak, flowering dogwood, mockernut hickory, and ironwood. Shrub species include spicebush and arrowwood.

A few representatives of the herbaceous layer within the study area are: poison ivy, jewelweed, false Solomons seal, jack-in-the-pulpit, skunk cabbage, Christmas fern, wood fern, and nettle.

Some agricultural land is located along the eastern side of the study area. The field was planted in corn. This cornfield adds to the available food sources for wildlife, increasing the "carrying capacity" of the forest.

Fallow fields and agricultural field edges in the study area are dominated by goldenrod, foxtail, broomsedge, and narrowleaved thoroughwort, with scattered sumac, small eastern red cedar, and young red maple, black cherry and locust trees.

Wildlife abounds in the study area, taking advantage of the cornfield/forest ecotone. During field surveys, numerous animal species were observed, such as green frogs, water snakes, raccoon, woodchuck, red fox, deer, rabbits, American crow, mourning doves, robins, blue jay, kingbird, and pheasant. The Maryland Ornithological Society has deemed the property along Wysong Branch a sanctuary. Many orders of insects were observed; harvestman, scarab beetles, grasshoppers, damselflies, stoneflies, and spicebush swallowtail being a few of the common representatives.

Bird species observed in the area during the Maryland Breeding Bird Atlas Survey are listed in Table 3 in the Appendix.

2) Aquatic Habitat

Coordination with the Maryland Department of Natural Resources, Tidewater Administration, indicates that Bynum Run has an aquatic ecosystem capable of supporting trout populations and associated forage finfish species. (See Section V.)

Future plans to replace culverts under Henderson Road (south of the project limits) and remove the barrier to fish migrations is expected to allow trout management in the headwaters of Bynum Run, since existing water quality is suitable.

Forage fish and benthic organisms were collected during a field survey on August 7, 1987. Several creek chubs, common shiners, blacknose daces and tessellated darters were collected and released. The streams have a 3/1 riffle-pool ratio with many trees snags for larger fish resting areas.

Several wetland areas are located within the study area and are associated with seep springs and the headwaters of Wysong Branch. The palustrine wetlands have been identified by field inspections and the U.S. Fish and Wildlife Service, National Wetland Inventory Mapping. Wetlands in the study area are mostly palustrine-broad-leaved, deciduous, forested with seasonally saturated hydric soils. The dominate canopy species are red maple, pin oak, American beech, and American elm. Most areas have a sparse understory of ironwood and a dense shrub layer dominated by spicebush, arrowwood, and highbush blueberry with occasional winterberry, elderberry and swamp sweetbells in some areas. Skunk cabbage, climbing boneset, sensitive fern, and false nettle dominate the herbaceous layer in some areas. These high value forested wetlands along the stream valleys have several physical and environmental functions including: flood conveyance along the stream, slow release of flood waters, dissipation of erosive forces of stormwater runoff, nutrient retention, sediment trapping, food chain support, wildlife habitat and passive recreational use. (See Table 6.)

There are three wetlands within the study area which are not forested: one just north of the junction of MD Route 23 and U.S. Route 1 at Bynum Road (W1); the continuation of that system which runs parallel to the west side of the U.S. Route 1 where it joins MD Route 23 (W2); and Wetland 4 in an agricultural field east of U.S. Route 1 opposite Bynum Road. Wetland 1 is dominated by cattail and softstemmed bulrush, Wetland 2 by cattail and seedbox, with spicebush, blackwillow, red maple and sycamore in part of the area. Wetland 4 contains softstemmed bulrush, verbain and various Juncus species, with scattered black willow, red maple and spicebush. These areas were judged to have a low to medium value, compared to the larger forested systems.

Wetland W-1 (W1) is a freshwater meadow consisting of 2 acres of emergent and scrub/shrub vegetation located near the Bynum Road athletic field and existing U.S. Route 1 Bypass. The hydrology source is a tributary of Bynum Run that drains Bynum Ridge. The Watchung silt loam (WaB) is the dominant hydric soil with a chroma of 1 and mottling present. The dominant

vegetation consists of young black willow, silver maple, softstem bulrush, broadleaved waterplantain, sedges, smartweed and cattail. Some of the functions of this wetland are habitat for wildlife, including observed rabbits and a red fox; sediment and nutrient trapping; and dissipation of erosive forces and flood desynchronization.

Wetlands W-2 and W-3 are shown on Figure 11 in Section III Alternates Considered. They are located outside the project construction limits and therefore are not described.

Wetland W-4, also shown on Figure 11 in Section III, is located east of Conowingo Road on active farmland and is part of an entire wetland system totaling approximately 64 acres which includes wetlands W-11, W-6, W-7 and W-5. The hydrology source is a stream that meanders through the agricultural land and is supplemented by a high water table. The soils consist of the typical Watchung hydric soil and are too wet for the farmer to cultivate. The dominant plants growing in this wetland are black willow along the stream banks and swamp rose, smartweed, sedges, seedbox, softstemmed bulrush, and verbain growing in the wet meadow. The functions of this wetland are: habitat for farm game and old-field wildlife, sediment and nutrient trapping, groundwater discharge, and flood desynchronization.

Wetland W-5 is located southeast of Wetland 6 and is a continuation of that system. It is shown on Figure 12. The hydrology source is the headwaters of Bynum Run. The soils consist of the typical Watchung Series, with chroma of 2 and mottles. The vegetation and functions of this wetland are similar to those in Wetland 6, with climax forests bordering the wetland/stream system.

Wetland W-6, shown on Figure 12, Section III, is located in the vicinity of the proposed U.S. Route 1 Relocated/MD Route 23 Extended intersection. The hydrology source of this wetland is Bynum Run and spring seeps. The hydric soils consist of chroma of less than 1, and chroma of 2 with mottles. The plants growing in this wetland are red maple, pin oak, American beech, green ash and ironwood in the canopy and understory layer. A dense shrub layer of highbush blueberry, arrowwood, and spicebush is found, with jewelweed, bog hemp and skunk cabbage in evidence during the growing season. This high value wetland has several functions including: habitat for forest and aquatic wildlife, food chain support, longterm nutrient and sediment retention, flood desynchronization, groundwater discharge, passive recreation and Natural Heritage value.

Wetland W-7 is located just west of MD Route 543, about 1,200 feet south of its intersection with existing U.S. Route 1. It is in the Bynum Run headwaters and has mottled soils. The wetland in this area is confined to a small area near the stream, with red maple, sweet gum and tulip poplar being the dominant trees. Elderberry and arrowwood are found in the shrub layer. The stream/wetland system provides habitat for aquatic wildlife and fisheries, and sediment and nutrient trapping.

Wetland W-8 is outside the project area near MD Route 543 and Leeswood Road.

Wetland W-9, shown on Figure 16, is another of the small streams forming the headwaters of Bynum Run and is part of a wetland system consisting of 5.8 acres which incorporates wetlands W-10 and W-12. Soils are typical of the area, with chroma less than 1 and strong mottles. Pin oak, red maple, American elm, and ironwood are the dominant trees, with arrowwood, elderberry, rose and blackberry common in the shrub layer. This small stream system provides sediment and nutrient trapping, flood desynchronization, dissipation of erosive forces and groundwater discharge to Bynum Run.

Wetland W-10, shown on Figure 16, is part of the same system as Wetland 9. It is located along MD Route 543 north of Leeswood Road. The hydrology source is Bynum Run, and the soils consist of Aldino silt loam hydric soils with mottles. The dominant plants include red maple, pin oak, tulip poplar, white oak, American beech, an ironwood, with spicebush, arrowwood and elderberry in the shrub layer. Adjacent to the wetland are climax forest trees. Skunk cabbage may be found during the growing season. The functions of this high value wetland include upland and aquatic wildlife habitats, nutrient and sediment retention, food chain support, flood desynchronization, and Natural Heritage value.

Wetland W-11, as shown on Figure 12, extends north and south of the proposed intersection of U.S. Route 1 Bypass and U.S. Route 23 Extended and is a continuation of the wetland system which incorporates Wetlands W-4, W-6, W-7 and W-5. The hydrology source of the wetland seeps from the higher agricultural land to the south. The hydric soils have a chroma of 1 and strong mottles. The area is mostly old field vegetation with young red maple and sweet gum dominating. Larger pin oak can be found in the more mature vegetation around the field edges. Winterberry and arrowwood are found in the scattered shrub layer. This medium value wetland provides for sediment and nutrient retention, dissipates erosive forces of agricultural runoff, and provides groundwater discharge to Bynum Run.

Wetland W-12, shown on Figure 16, is located southwest of U.S. Route 543, approximately 1,200 yards south of the U.S. Route 543/U.S. Route 1 intersection and is part of the same stream system as wetland W-9 and W-10. It is a small seep/spring and groundwater recharge area at the headwaters of Bynum Run. It has mottled hydric soils with chroma of 2. The dominant vegetation is red maple, sweet gum, American beech and ironwood. Herbaceous vegetation typical of such areas may be evident during the growing season. Its functions include nutrient and sediment retention, and groundwater discharge and recharge.

g. Endangered Species

Coordination with the Maryland Department of Natural Resources and the U.S. Fish and Wildlife Service indicates that no federally listed threatened or endangered species inhabit the study area. (See correspondence from these agencies in Section V.)



6. Existing Air Quality

The U.S. Route 1/MD Route 23 Extended project is within the Metropolitan Baltimore Intrastate Air Quality Control Region. While only a portion of the region does not meet the primary standards for carbon monoxide (CO), the entire region is subject to transportation control measures such as the Vehicle Emissions Inspections Program.

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

7. Existing Noise Conditions

Ten noise sensitive areas (NSAs) have been identified in the U.S. Route 1/MD Route 23 study area. Descriptions of these noise sensitive areas are provided in Table 3. In addition, the locations of the NSAs are shown on the Alternates Mapping. A copy of the technical report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

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

The Federal Highway Administration has established, through 23 CFR 772, noise abatement criteria for various land uses. These criteria, along with the associated activity category, are presented in Table 4.

The noise levels in this analysis are expressed in terms of an  $L_{eq}$  noise level, which is the energy-averaged noise level for a given time period. All ambient and predicted noise levels in this report are  $L_{eq}$  exterior noise levels unless otherwise noted.

In an acoustical analysis, measurement of ambient noise levels is intended to establish the basis for impact analysis. The ambient noise levels are recorded represent a generalized view of present noise levels. Variations in total traffic volume, truck traffic volumes, speed, etc. may cause fluctuations in ambient noise levels of several decibels. However, for the purposes of impact assessment, these fluctuations are usually not sufficient to significantly affect the assessment.

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

An on-site monitoring program was conducted on March 8 and 9, 1988. Measurements were made for 20-minute intervals at each of the ten NSAs. Ambient noise levels ranged from 56 to 71 dBA for these sites.

The results of the ambient monitoring are shown in Table 7.

TABLE 3  
Noise Sensitive Areas

NSA	Description
1	Two (2) Story Frame Historic Residence at 2247 U.S. Route 1
2	One (1) Story Brick Residence at 2106 Fountain Green Road
3	Two (2) Story Brick and Frame Residence at 1608 U.S. Route 1
*4	Two (2) Story Frame Residence at 1500 U.S. Route 1
5	Two (2) Story Frame Residence at 1320 U.S. Route 1
6	One (1) Story Frame Residence at 1430 Fountain Green Road
7	One (1) Story Frame Residence at 1420 Fountain Green Road
8	One (1) Story Stone Residence at 1603 Dogwood Lane
9	One (1) Story Brick Residence at 1330 Fountain Green Road
10	Two (2) Story Frame Residence at 1317 Fountain Green Road

Note: NSAs 1-5 are applicable only to U.S. Route 1 improvements and NSAs 6-10 are only applicable to MD Route 23 Extended.

\*Location 4 was identified as a NSA but was dropped from further analysis since it will be displaced by U.S Route 1 Relocated.

TABLE 4

Noise Abatement Criteria and Land Use Relationships  
Specified in 23 CFR, 771

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

II

**Need for  
Project**

II. NEED FOR THE PROJECT

A. PURPOSE

U.S. Route 1 is designated as a primary highway in this area and provides service in the north-south direction for regional and local traffic. MD Route 23 is designated as a secondary east-west roadway which provides service through the eastern region of Harford County.

The proposed project would improve traffic safety and roadway capacity by providing full access controls, except at the intersections with state highways, and by separating through and local traffic. This separation is necessary to reduce the high accident rates on U.S. Route 1, which results from a poor roadway alignment and interference from numerous access points; and to meet projected traffic volumes through the 2015 design year. Thus, the proposed roadways should provide a safer and more efficient roadway network through Hickory.

Providing east-west highway continuity through Hickory is also addressed in this study. MD Route 23 Extended would serve as an east-west link between MD Route 22 and MD Route 23 to provide adequate travel continuity for the rapidly developing areas of Harford County. Additionally, the extension of MD Route 23 would relieve traffic congestion at the U.S. Route 1/MD Route 543 intersection, and, consequently, reduce the increasing number of accidents.

B. PLANNING BACKGROUND

The relocation of the U.S. Route 1 and the extension of MD Route 23 were originally proposed in the late 1950's. U.S. Route 1 served as the major arterial highway for north-south travel throughout the State at that time. The planning process for this project were not completed due to the updating and revising of the Harford County Comprehensive Master Plan which was modified to include the proposed Interstate highway network. Among the revisions was the construction of I-95 which replaced U.S. Route 1 as the main north-south route for interstate travel.

Since the completion of I-95, it has become heavily used by local commuter traffic in addition to interstate through traffic. Therefore, the need for U.S. Route 1 to serve as an alternate route has re-emerged.

U.S. Route 1 is currently designated as a Federal Aid Primary Highway. The relocation of U.S. Route 1 past Hickory has been identified in the SHA 20 year Highway Needs Inventory since 1975.

Both Alternates 2 and 3 would provide the continuation of the Bel Air Bypass as a fully access controlled highway from its termination, at the south end of the proposed project, to the limit of proposed development in Harford County, at the north end of the proposed project. The relocation of U.S. Route 1 is consistent with the Harford County Master Plan.

MD Route 23 was originally proposed as the East West Scenic Highway to

provide a unique scenic/recreational route to attract products from western Maryland to eastern markets in Aberdeen. It was proposed to cross MD Route 543 just south of Prospect Mill Road. This highway was proposed with full control of access to encourage intra-county trips and to separate long distance traffic from uncontrolled access routes. Right-of-way was purchased in 1961 for an interchange at the U.S. Route 1/MD Route 23 junction.

The MD Route 23 corridor has now been preserved as a Federal Aid Primary Highway for ultimate dualization to a multi-lane facility from U.S. Route 1 to the west (at Jarrettsville). East of the proposed project, from MD Route 543 to I-95, the MD Route 22 corridor has been selected as the preferred route for east-west travel. Therefore, the East West Scenic Highway is no longer under consideration but the need remains to provide a connection between MD Route 23 to the west and MD Route 22 to the east.

Alternate 2 would provide this connection in a manner consistent with the Harford County Master Plan. It would utilize the portion of MD Route 543 from south of Prospect Mill Road to MD Route 22 which is designated as a Federal-Aid Secondary Roadway. Alternate 3 is not consistent with the Harford County Master Plan. It would require the use of the portion of MD Route 543 north of Prospect Mill Road which is a Non-Federal Aid Highway designation.

The extension of MD Route 23 to MD Route 543 is also consistent with long-term plans for MD Route 543. The dualization of MD Route 543 from MD Route 23 extended to I-95 is being considered by the SHA for inclusion in the 20-year Highway Needs Inventory and by Harford County for inclusion in the 1988 Master Plan. Both of these documents are currently being revised and will be finalized by the end of the year.

The relocation of U.S. Route 1 and the extension of MD Route 23 combine to provide a highway infrastructure that will meet the demands of the current land use plan for Harford County. Traffic generated by current and planned residential development in the Hickory area will generate a demand to travel to three major employment areas. Harford County's employment is concentrated in the I-95 and U.S. Route 40 corridors and the Aberdeen proving ground to the east of the project area. Baltimore County and Baltimore City at the south (via U.S. Route 1) and southeast (via MD Route 22 and I-95) are employment attractions. In addition, there is a demand to travel to employment areas in the Hunt Valley area (to the west).

### C. EXISTING ROADWAYS

U.S. Route 1 in the study area is a two-lane rural highway with 8- to 10-foot shoulders. The existing right-of-way is 60 feet.

The posted speed on U.S. Route 1 is 50 mph at the northern end of the project area, but decreases to 35 mph in the vicinity of Granary Road and to 30 mph in the vicinity of Jarrettsville Road. Several entrances are located along a sharp horizontal curve here including those belonging to Hickory Elementary School, the Church of the Nazarene and many local businesses. This road could not adequately or safely handle the projected volume and type of traffic that is projected under the No-Build Alternate.

U.S. Route 1 to the south is a fully access-controlled highway with a design speed of 50 mph. The proposed relocation of U.S. Route 1 would provide a roadway consistent with U.S. Route 1 to the south.

MD Route 543 is a 21-foot roadway. The 4-foot shoulders that currently exist are being upgraded by the SHA District 4 office to 6-foot shoulders. The right-of-way width of this road is 50 feet. Numerous residential and commercial entrances exist along this route from the intersection of U.S. Route 1 to the C. Milton Wright High School. This road could not adequately or safely handle the volume and type of traffic that is projected under the No-Build Alternate.

MD Route 23 is a two lane, rural highway with 8- to 10-foot shoulders within a right-of-way of 300 feet. This road has partial controls of access. MD Route 23 extended as proposed with Alternate 2 would provide a roadway and right-of-way compatible with MD Route 23 to the west.

#### D. TRAFFIC CONDITIONS

The existing and projected traffic volumes indicate a need for the relocation of U.S. Route 1 and the extension of MD Route 23 in the Hickory Area.

As shown in Figure 8, U.S. Route 1 carried an ADT of 17,000 vehicles per day (VPD) in 1986. This volume is projected to double to approximately 34,000 VPD by the year 2015. A two-fold ADT increase is also projected for MD Routes 23 and 543 and 2,900 to 5,800 VPD and 6,900 to 13,000 VPD, respectively. Approximately 8% of the ADT in the study area is comprised of trucks.

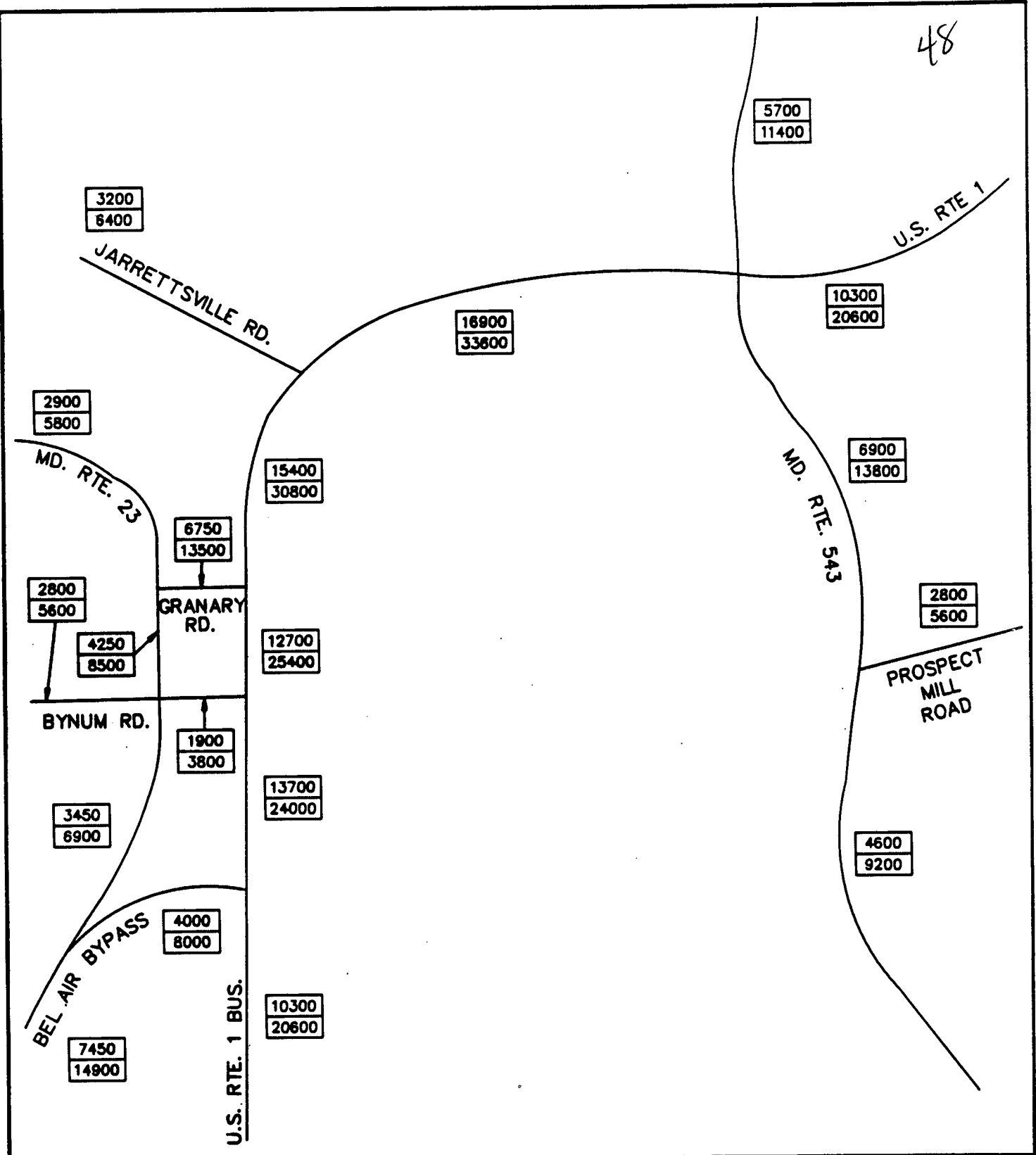
Quality traffic flow along a highway is measured in terms of level of service (LOS). This measure is dependent upon highway geometry and traffic characteristics and ranges from LOS "A" (Best) to LOS "C" (Minimum Desirable) to LOS "F" (Capacity) and LOS "F" (Worst or forced flow).

An analysis of traffic operations indicates that motorists experienced a LOS of "D" on U.S. Route 1 and a LOS of "A" at both the U.S. Route 1 (Conowingo Road)/U.S. Route 1 (Bel Air Bypass) and U.S. Route 1/MD Route 543 intersections during the 1986 a.m. and p.m. rush hours. If no highway improvements are made, unacceptable levels of traffic service would result.

Under Alternate 1, the No-Build Alternate, U.S. Route 1 would operate at Level of Service (LOS) "F" in the year 2015. The existing intersections of U.S. Route 1 Business with Route 1 Bypass and Route 1 with MD Route 543 would also operate at LOS "F". MD Route 543 would operate at LOS "D" in the year 2015 with this alternate.

As shown in Figure 9, Alternate 2 would provide significant relief of traffic along both U.S. Route 1 and MD Route 543. The ADT along U.S. Route 1 would be approximately 9,000 in the year 2015 which is less than the existing traffic volume. Similarly, the volume of MD Route 543 north of Prospect Mill Road would be reduced to approximately 6,000 VPD. With this alternate, U.S. Route 1 Relocated would carry approximately 20,000 to 23,000 VPD and MD Route 23 extended would carry approximately 10,000 VPD.

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**LEGEND**

YEAR 1986
YEAR 2015

**U.S. ROUTE 1/MD. ROUTE 23  
EXTENDED-HICKORY BYPASS**

AVERAGE DAILY TRAFFIC  
ALTERNATE 1 (NO BUILD)

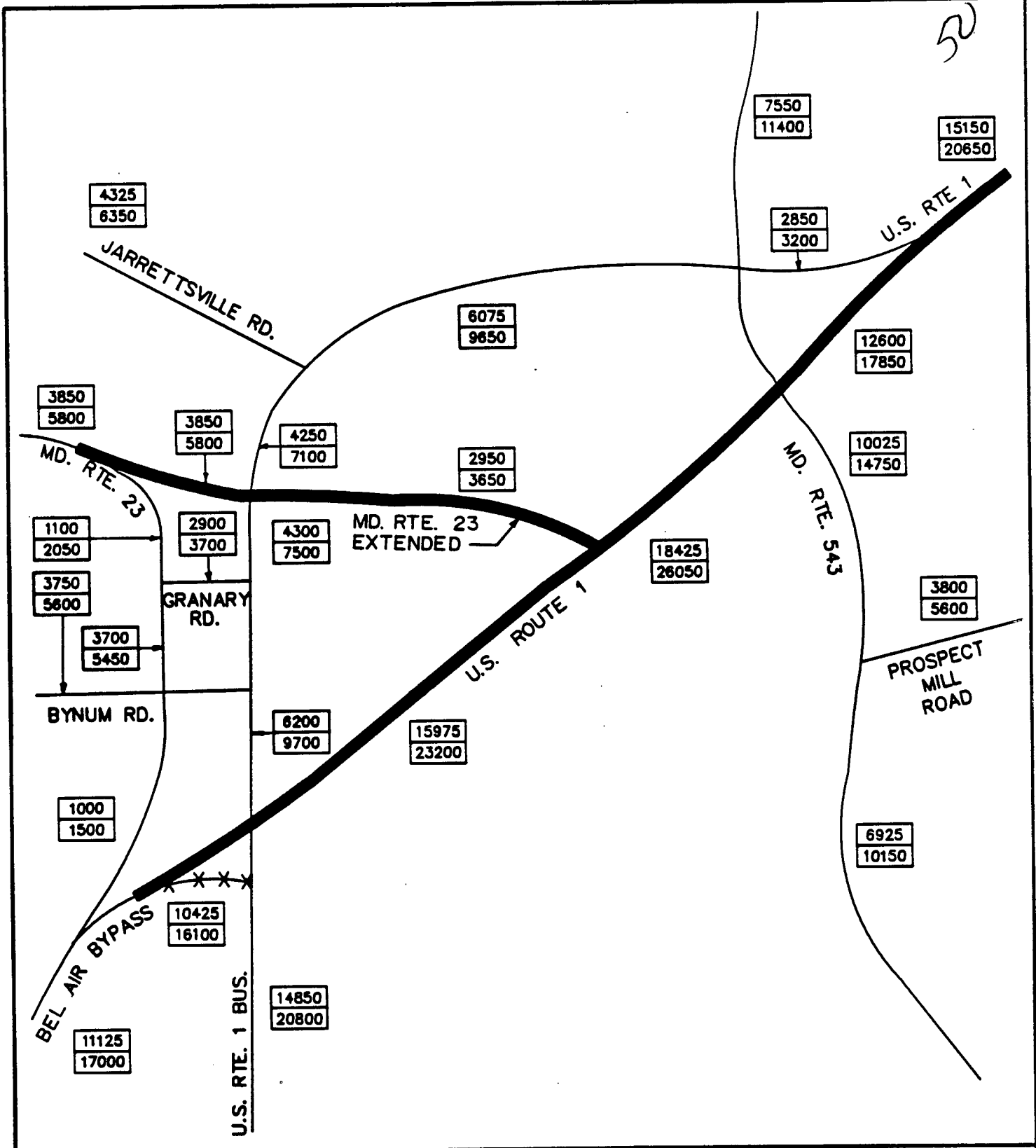
SCALE: NOT TO SCALE

FIGURE 8





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**LEGEND**

YEAR 1995
YEAR 2015

**U.S. ROUTE 1/MD. ROUTE 23 EXTENDED-HICKORY BYPASS**

**AVERAGE DAILY TRAFFIC  
ALTERNATE 3**

SCALE: NOT TO SCALE

FIGURE 10

Projected morning peak hour turning volumes indicate that the majority of traffic using this alternate from the north and from the southeast is travelling south along U.S. Route 1.

Out of the 1,300 vehicles per hour projected to head south on U.S. Route 1 towards Hickory, approximately 60% continue south on U.S. Route 1 past MD Route 23 Extended. Alternate 2, therefore, provides relief for U.S. Route 1 from this commuter traffic and long distance truck traffic. This allows the existing road to handle local southbound traffic from MD Route 543, Jarrettsville Road, MD Route 23 and the Bynum Area. Trucks comprise approximately 8% of the traffic in the study area. Those travelling from Pennsylvania to Bel Air, Baltimore and I-95 development area would be diverted away from the existing road.

There are 835 vehicles entering the project area from the south along MD Route 543 of which approximately 50% are projected to travel south on U.S. Route 1. Alternate 2 would divert through traffic away from MD Route 543. Therefore, MD Route 543 would be able to adequately and safely handle local traffic from Prospect Mill Road and traffic destined for Hickory.

Alternate 2 would provide an improvement in Level of Service (LOS) through the area. With this alternate, the existing road, U.S. Route 1 and MD Route 543, would operate at LOS "C" and the relocated roads, U.S. Route 1 and MD Route 23, would operate at LOS "D". The existing intersection of U.S. Route 1 at U.S. Route 543 would be improved to LOS "C" with this alternate. This alternate would create new intersections of U.S. Route 1 relocated at existing U.S. Route 1 which would operate at LOS "D" and at MD Route 543 which would operate at LOS "A".

Alternate 3, as shown in Figure 10, would result in the same reduction in traffic along U.S. Route 1 that occurred with Alternate 2. However, Alternate 3 would result in an increase in traffic on MD Route 543 north of Prospect Mill Road to 15,000 VPD. With the alternate, U.S. Route 1 Relocated would carry approximately 23,000 to 26,000 VPD.

Projected peak hour traffic volumes indicate that the travel demands for this alternate would be the same as with Alternate 2; however, the east-west travel would be accommodated in a different manner. The absence of a connection of MD Route 23 to MD Route 543 would require that east-west traffic use the segment of existing MD Route 543 between U.S. Route 1 Relocated and the C. Milton Wright High School. This is evidenced by the peak hour volumes at the intersection of MD Route 543 at U.S. Route 1 Relocated where approximately 75% of the traffic on northbound MD Route 543 is turning left onto southbound U.S. Route 1 Relocated.

Alternate 3 would provide an improvement in traffic service along existing U.S. Route 1. Existing U.S. Route 1 and the intersection with MD Route 543 would both operate at Level-of-Service "C". The intersection of Relocated U.S. Route 1 with MD Route 543 would operate at LOS "D" and MD Route 543 south of here would operate at LOS "E".

The options which are proposed in the Bynum area will affect local traffic circulation. These connections would provide a diversion for traffic away from

existing U.S. Route 1 between proposed U.S. Route 1 Relocated and MD Route 23 Extended. If either of these options were selected, the level-of-service on this section of existing U.S. Route 1 would improve from LOS "D" to LOS "C" under both build alternates

E. ACCIDENT STATISTICS

U.S. Route 1 within the study area experienced an average accident rate of 213 accidents for every one hundred million vehicle miles of travel (accidents/100mvm) during the three-year period, 1985 through 1987. This rate is significantly higher than the three year statewide average rate of 174 accidents/100mvm for all similarly designed roadways now under State Maintenance. These accidents resulted in a monetary loss to the motoring and general public of approximately \$1.9 million/100mvm of travel.

The total accident experience for U.S. Route 1 is listed by severity and rate. The statewide average rate for this type design roadway is also listed for comparison purposes.

<u>Severity</u>	<u>Number of Accidents</u>	<u>Rate/100 mvm</u>	<u>Average Rate</u>
Fatal Accidents	1	1.89	3.07
Injury Accidents	67	126.41*	91.84
Prop. Damage Only	45	84.90	78.88
Total Accidents	113	213.20*	173.79

\*Significantly higher than statewide rate

There were three sections of highway within the study area that have been identified as High Accident Sections. These locations, all along U.S. Route 1, are listed below with year qualified and the number of accidents.

1. U.S. Route 1 from 1,200 feet south of U.S. Route 1 Business, 260 feet north of Jarrettesville Road (1986-10 accidents)
2. U.S. Route 1, 260 feet north of Jarrettesville Road to 200 feet south of Evergreen Road (1986-10 accidents)
3. U.S. Route 1, 200 feet south of Evergreen Road to 425 feet north of MD Route 543 (1986-15 accidents).

Along U.S. Route 1, the collision types that significantly exceeded statewide average rates were the angle, rear end, sideswipe and left turn accidents.

All of these are primarily due to the numerous intersections and driveways along the roadways in addition to the poor roadway alignments.

There was one location in the study area which meet our criteria as a High Accident Intersection (HAI). This location, U.S. Route 1 at MD Route 543, experienced 10 accidents during the year 1985. The main collision types were rear end and left turn type accidents.

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Alternate 1, the No-Build Alternate, would involve continued use of these high accident sections and the intersection with MD Route 543. Continued high accident rates would result. Furthermore, the doubling of traffic volumes by the year 2015 would result in at least a doubling of the number of accidents.

For both Build Alternates 2 and 3, the anticipated accident experience along U.S. Route 1 is expected to be similar. With the construction of either of the proposed alternates, we anticipate an accident rate of approximately 114 accidents/100 mvm of travel for the new section of U.S. Route 1. In that, the existing U.S. Route 1 would still be utilized, the projected accident experience for the existing highway must also be considered. In combining the projected accident rate/100 mvm for the newly constructed bypass highway with that of the existing U.S. Route 1, we anticipate a corridor rate of approximately 147 accidents/100 mvm for the entire corridor. The accident cost resulting from the new corridor would be approximately \$0.9 million/100 mvm and would result in an estimated societal cost savings of approximately \$1.0 million/100 mvm as compared to the existing highway.

MD Route 23, from U.S. Route 1 to .76 mile west of U.S. Route 1, experienced a total of 6 accidents during the study period. These accidents resulted in an accident rate of approximately 270 accidents/100 mvm travel. This rate is significantly higher than the statewide average rate of 202 accidents/100 mvm of travel but is not higher due to the low volume of traffic on this route, A monetary loss of approximately \$1.2 million to the motoring and general public resulted from the accidents.

MD Route 543 from U.S. Route 1 to 1,000 feet south of Leeswood Road experienced a total of 36 accidents during the three-year study period. The average accident rate of 275 accidents/100 mvm of travel on this roadway is significantly higher than the statewide average rate of 202 accidents/100 mvm and resulted in an accident cost of \$1.4 million/100 mvm of travel.

Angle and rear end accidents along MD Route 543 significantly exceeded the statewide average the accidents are primarily due to the numerous intersections and driveways along the route in addition to a poor roadway alignment.

Alternate 1, the No-Build Alternate, would involve continued use of the high accident sector along MD Route 543. The number of accidents would be expected to double as traffic volumes double by the year 2015.

All of the build alternates would avoid a portion of MD Route 543. Alternate 2, Option 1, would avoid the majority of this section of MD Route 543. The resultant accident rate of the combination of MD Route 543 and MD Route 23 Extended would be 180 accidents/100 mvm. Alternate 2, Option 2, would result in approximately the same accident rate as Alternate 2, Option 1, however the accident rate between Dogwood Lane and Leeswoods Road would not be improved. With Alternate 3, the section from U.S. Route 1 Relocated to the south would not be improved. The traffic volumes along this sector of MD Route 543 would be higher with Alternate 3 than with the No-Build Alternate and would result in a higher number of accidents. The accident rate that would exist with the combined use of MD Route 543 and U.S. Route 1 Relocated would be 220 accidents/100 mvm. In conclusion, Alternate 1, Option 1 would be preferable from a safety perspective.

Bynum Options 4 and 5, which propose connections to U.S. Route 1 Relocated and MD Route 23 Extended, respectively, would create a greater potential for accidents to occur. If no roadway improvements are made in the Bynum area, the only access to and from U.S. Route 1 and MD Route 23 would be Granary Road. This would limit the access points from a primary route to a secondary route, thus reducing the potential for accidents to occur.

5,

III

**Alternates  
Considered**

III. ALTERNATES CONSIDERED

A. ALTERNATES DROPPED FROM FURTHER STUDY

The following preliminary alternates were presented at the February 19, 1987 Alternates Public Hearing but were dropped from further consideration by the project team for the reasons explained below.

1. Alternate 4

Alternate 4 included the relocation of U.S. Route 1 east of its existing location and the extension of MD Route 23 to U.S. Route 1 (Conowingo Road).

Beginning at the southernmost terminus, U.S. Route 1 Relocated would extend in a northeasterly direction from U.S. Route 1 - Bel Air Bypass and intersect with U.S. Route 1 - Conowingo Road. The roadway continued on new location in a northeasterly direction, intersecting with MD Route 543 (Fountain Green Road), crossed Wyndemedede Farm Road, and ended 1,400' south of Ruffs Mill Road where it would tie into existing U.S. Route 1.

Two options were considered for the portion of the relocated U.S. Route 1 alignment north of MD Route 543. Option 1 located the proposed roadway on the east side of the existing roadway to avoid encroachment of the Grafton-Klein National Register eligible historic site. Option 2 followed an alignment just slightly east of the existing roadway directly behind the historic site.

This alternate also proposed the extension of MD Route 23 from the existing MD Route 23/U.S. Route 1 curvilinear connection north of Granary Road to U.S. Route 1. The total distance of this extension was approximately 1,500'.

Alternate 4 was dropped from further study because the extension of MD Route 23 did not address the need to provide a continuous east-west route through Hickory. Furthermore, Northern Options 1 and 2 of U.S. Route 1 Relocated would have required the displacement of four and two residences, respectively.

2. Bynum Option 1 (Figure 18)

This option proposed that access to the State highways from the Bynum area be provided by a new connection to MD Route 23 Extended. The existing connections of Pritt Lane, Granary Road, and Bynum Road to U.S. Route 1 Business and MD Route 23 southbound to U.S. Route 1 southbound would be eliminated under this option. The new connection provided by reconstructing existing MD Route 23 from south of Bynum Road to MD Route 23 Extended as a two-lane roadway would terminate at MD Route 23 Extended as a "T" intersection.

This option was dropped because it restricted the use of U.S. Route 1 as an access route for local traffic to the Bynum area. Therefore, the option would result in greater conflict between through and local traffic. Furthermore, Granary Road is the main entrance to the Greater Harford Industrial Center from U.S. Route 1. Its closing at U.S. Route 1 would intensify truck traffic through the southern and northern areas of the Bynum community.



3. Bynum Option 2 (Figure 18)

This option would remove all intersecting roadways on U.S. Route 1 between Underwood Lane and U.S. Route 1 Relocated, except Granary Road. Additionally, the existing MD Route 23/Bel Air Bypass connection would be removed. The limited access from U.S. Route 1 in this area as well as the additional turning volumes that would be generated at the proposed U.S. Route 1/U.S. Route 1 Relocated intersection by closing the MD Route 23/Bel Air Bypass connection were reasons for dropping this option.

4. Bynum Option 3 (Figure 18)

This option proposed the retention of existing connections of Pritt Lane and Granary Road to U.S. Route 1 Business and MD Route 23 to U.S. Route 1 southbound. The existing connection of Bynum Road to U.S. Route 1 Business would be eliminated. A portion of the existing MD Route 23 connection between Pritt Lane and Bynum Road would be constructed as a two-lane roadway in which the northbound lane would end at Pritt Lane.

Bynum Option 3 was dropped because it did not address the need to close Pritt Lane at Conowingo Road. This closing of Pritt Lane is warranted due to its proximity to proposed MD Route 23 Extended and inadequate sight distance at the intersection. This option also did not include the removal of the curved portion of MD Route 23/Bel Air Bypass connection to prohibit high speed traffic from MD Route 23 into the Bynum residential area.

B. ALTERNATES RETAINED FOR DETAILED STUDIES

1. No-Build Alternate

No major improvements would be made to the existing roadway. Normal maintenance would continue and spot safety improvements, as scheduled by the State Highway Administration District office, would be undertaken where feasible. The No-Build Alternate will not require any major construction or right-of-way costs. In addition, no residential or commercial displacements would be required. The No-Build Alternate, however, would not provide any improvement in traffic safety or capacity. This will result in increased congestion and accidents as traffic volumes increase.

2. Build Alternates

Two basic Build Alternates have been proposed for the Hickory Bypass study. Both Build Alternates generally follow a common corridor, but the construction limit for the extension of MD Route 23 differs for each of the Build Alternates. No grade separations or interchanges are proposed as part of this project.

a. Alternate 2 - U.S. Route 1 Relocated

This Alternate proposes the construction of U.S. Route 1 Relocated as an initial two lane open section roadway, (ultimate four-lane, divided-section, divided highway) east of the existing alignment of U.S. Route 1. The roadway would provide one 12 foot lane in each direction with 10 foot shoulders and

variable width grading along each side of the roadway. (Figure 19) A minimum right-of-way width of 220 feet is proposed to provide room for future widening of the roadway which would be done as a separate project.

The relocation of U.S. Route 1 would begin approximately at the U.S. Route 1 Bel Air Bypass/MD Route 23 junction and intersect at-grade with U.S. Route 1 (Conowingo Road).

Bynum Road would have to be terminated and replaced with a turn-around area (cul-de-sac) due to its close proximity to the proposed roadway. The existing single lane northbound connection from the Bel Air Bypass to Conowingo Road would be removed.

Construction of the U.S. Route 1 Relocated/Conowingo Road intersection would involve approximately 2,400 feet of reconstruction along Conowingo Road to accommodate double left turn movements from westbound U.S. Route 1 Relocated and to provide single left and right turn lanes in both directions of the Conowingo Road intersection approaches.

Vehicular access will be prohibited on the west side of Conowingo Road between Bynum Road and 200 feet south of Granary Road. Movements to and from the properties would be via a connection at the Bynum Road cul-de-sac. Access would also be denied 1,000' along the east side of Conowingo Road south of U.S. Route 1 Relocated. Access to these properties would be accommodated by a proposed County entrance 1,000 feet south of U.S. Route 1 Relocated. A two-lane frontage driveway for access to the Bel Air Roller Rink would connect with this entrance. Both areas where access would be removed would be reconstructed with a curbed sidewalk section.

The alignment continues northeasterly, forming an at-grade intersection with MD Route 23 Extended, and then proceeds along a curved alignment with an at-grade intersection at MD Route 543 (Fountain Green Road), 1,300 feet south of the existing U.S. Route 1/MD Route 543 intersection. Provision for turning movements at the new U.S. Route 1 Relocated/MD Route 543 intersection warrants reconstruction along MD Route 543 approximately 600' north and 1,000' south of U.S. Route 1 Relocated. A 20' service road is proposed about 700' south of the existing intersection to provide access from MD Route 543 to the rear of two residences and a commercial property.

The alignment continues straight ahead where it would meet with Wyndemede Farm Road. Wyndemede Farm Road would be cul-de-saced on both sides of U.S. Route 1 Relocated. Wyndemede Farm Road would be upgraded to a 20' service roadway at the south cul-de-sac and extended to the south to connect with the existing Harford County Maintenance supply entrance. This connection would provide access to the Wyndemede Industrial Park area south of the proposed highway.

Two Options are proposed for the portion of U.S. Route 1 Relocated north of Wyndemede Farm Road. Northern Option 1 would proceed northeasterly directly behind the Grafton-Klein historic site and tie into Conowingo Road about 2,700' south of Ruffs Mill Road. Two residential displacements would be required by this option.

Northern Option 2 would also proceed northeasterly just behind the Grafton-Klein historic site. However, the alignment would curve slightly to the north, crossing and following Conowingo Road on the west side of its existing location before tying into Conowingo Road 1,500' south of Ruffs Mill Road. Although additional farmland acreage would be required by this option, no displacements would be incurred. A 100-foot long 20-foot wide service road would be constructed between Conowingo Road and U.S. Route 1 Relocated to provide access to the new roadway for all four residences in the vicinity.

Both U.S. Route 1 Relocated northern options would involve provision for access to Conowingo Road by means of a two-lane roadway connection just north of the Grafton-Klein historic site. The existing pavement of Conowingo Road between the roadway connection and the project limit would be removed under both options.

U.S. Route 1 Relocated with Northern Option 1 or Northern Option 2 comprises a total roadway length of 1.8 or 2.0 miles, respectively. A 60 mph design speed (50 mph posted speed) has been proposed. Full access controls would be implemented from the project origin to the Conowingo Road/U.S. Route 1 Relocated northern option connection, except at the new U.S. Route 1 (Conowingo Road), MD Route 23 Extended and MD Route 543 signalized intersections. U.S. Route 1 Relocated would approximately cost \$10.1 million with Northern Option 1 and \$10.3 million with Northern Option 2.

b. Alternate 2 - MD Route 23 Extended

Alternate 2 also includes the extension of MD Route 23 as a two lane open section undivided roadway from west of U.S. Route 1 (Conowingo Road) to MD Route 543. The ultimate design of a four lane divided highway is not being proposed as part of this project. However, right-of-way to accommodate a four lane facility is proposed to account for the traffic volumes which, as a result of planned and potential development, could exceed the capacity of the two lane roadway beyond the 2015 design year. Typical sections are shown on Figure 19.

Construction for the extension of MD Route 23 would begin approximately 2,200' west of Conowingo Road. The two-lane roadway would extend to the east crossing Conowingo Road at grade midway between Underwood and Pritt Lanes. The existing T-intersection of Pritt Lane and Conowingo Road would be removed.

The alignment continues east to U.S. Route 1 Relocated and then curves to the north, crossing the Bynum Run stream 1,100' east of U.S. Route 1 Relocated. The roadway would proceed further east where it would lie in existing woodlands about 200' north of the Vineyard farmland border. Curving south, MD Route 23 Extended would follow along either one of two options before tying into MD Route 543. Both options traverse wetlands and property of the Vineyard Historic Site.

MD Route 23 Extended - Option 1 would follow in a southerly direction approximately 800' west of MD Route 543 behind several residential properties. The roadway would continue along a straight alignment and tie into MD Route 543 at Leeswood Road. Md Route 23 Extended under this option would cost approximately \$10.6 million.

A two-lane 200' roadway connection between MD Route 543 and MD Route 23 Extended would be provided approximately 750' north of Leeswoods Road. This connection would form an at-grade T-intersection with the proposed roadway and would accommodate all turning movements. A 150' driveway would tie into this connection, to serve the existing residential property on MD Route 543. This driveway will be about 600 feet north of Leeswood Road. The existing pavement between the driveway and the MD Route 23 Extended tie-in would be removed.

MD Route 23 Extended - Option 2 would lie further east of Option 1 approximately 250' behind the residences along MD Route 543. The curvilinear roadway would tie directly into MD Route 543 approximately 200' south of Dogwood Lane. Access to the new roadway from the properties along MD Route 543 north of Dogwood Lane would be provided by realigning MD Route 543 to curve westerly into a T-intersection with MD Route 23 Extended. The existing roadway portion between the T-intersection and the MD Route 23 Extended tie-in would connect with the MD Route 543 realignment at the north and terminate with a cul-de-sac at the south. This option would require the displacement of 7 residences. MD Route 23 Extended with Option 2 would cost approximately \$9.4 million.

The total project length of MD Route 23 Extended under Alternate 2 is 2.0 miles with Option 1 and 1.8 miles with Option 2. A 60 mph design speed (50 mph posted) has been proposed for the entire length of the roadway with Option 1; however, MD Route 23 Extended - Option 2 would be designed with a 60 mph design speed from its origin west of Conowingo Road to 1,000' north of its connection with MD Route 543 and with a 50 mph design speed curve along the remaining roadway length. Full access controls for both Options would be imposed from the MD Route 23 Extended origin to the MD Route 543 connection except at the Conowingo Road and U.S. Route 1 Relocated intersections.

c. Alternate 3 - U.S. Route 1 Relocated

Alternate 3, shown on Figure 17, involves the termination of MD Route 23 Extended at U.S. Route 1 Relocated. U.S. Route 1 Relocated, including the two northern options and associated right-of-way requirements, displacements, and environmental impacts, including cost would be identical to that as previously described for Alternate 2.

d. Alternate 3 - MD Route 23 Extended

MD Route 23 Extended under Alternate 3 would be identical to the portion of MD Route 23 Extended from west of U.S. Route 1 Business to U.S. Route 1 Relocated as described in Alternate 2. Since the roadway will not tie directly into MD Route 543, additional lanes would be provided on existing MD Route 543 at the U.S. Route 1 Relocated junction to accommodate turning movements to and from U.S. Route 1 Relocated. Overall, less right-of-way, residential and natural environmental impacts would be incurred. The Vineyard historic property would not be affected by this alternate; however, without the connection of MD Route 23 Extended to MD Route 543, this project would not address the need for a continuous east-west travel route through the rapidly developing areas of Harford County. The cost of MD Route 23 Extended with this alternate would be approximately \$4.0 million.

### Bynum Options

The proposed alternates previously described would establish access controls along a portion of Conowingo Road in the vicinity of the proposed U.S. Route 1 Relocated. For this reason modifications to the existing roadway network in the Bynum area are necessary for compatible access.

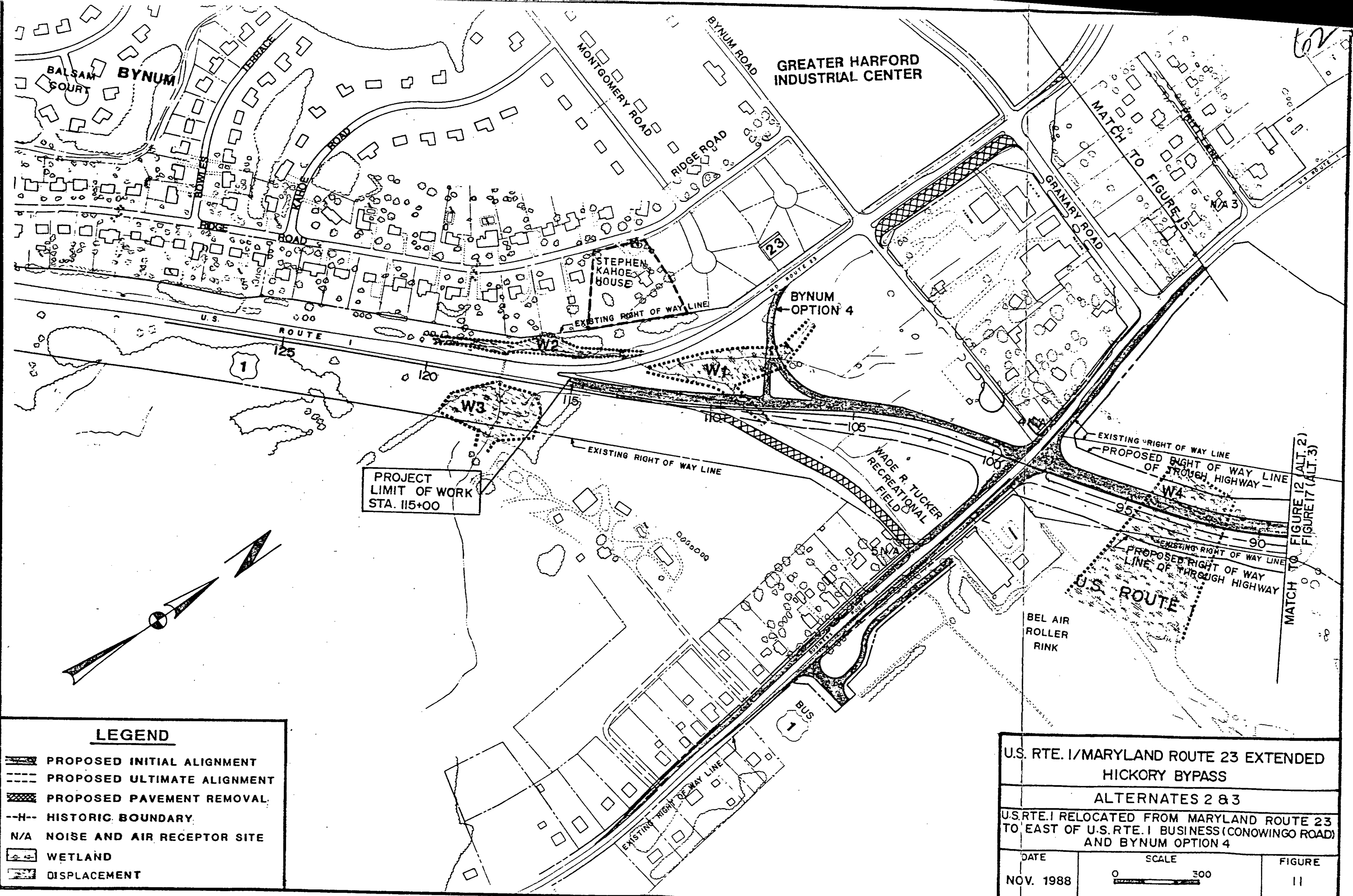
#### Option 4

Bynum Option 4 proposes a single lane channelized connection at U.S. Route 1 Relocated, 900' south of Conowingo Road. The roadway would tie into the existing exclusive southbound MD Route 23/Bel Air Bypass connection, located south of Bynum Road. Consequently, this connection would be converted to a two directional roadway north of Bynum Road. This would allow northbound travel to the Bynum area from either direction of U.S. Route 1 Relocated while allowing the Bel Air Bypass exclusive southbound movement to remain. The existing 24' wide frontage roadway between Granary and Bynum Roads would be removed under both Bynum Options. The cost for Option 4 is \$.4 million.

Both Options would also involve realigning the existing culvilinear MD Route 23 connection between Granary Road and the new MD Route 23 Extended roadway. Option 4 would realign the connection in a north-south direction to Pritt Lane, which would be extended approximately 120' west.

#### Bynum Option 5

Bynum Option 5 would allow access from MD Route 23 Extended to the Bynum area via a proposed T-intersection at the MD Route 23 Extended/MD Route 23 realigned connection junction. With exception to both the removal of the frontage road and conversion of the MD Route 23 connection to a two-lane roadway between Granary and Bynum Roads, the remaining roadway network in the Bynum area would be unaffected. The cost for this Option is \$1.1 million.



62

BALSAM COURT  
BYNUM

GREATER HARFORD INDUSTRIAL CENTER








STEPHEN KAHOE HOUSE


BYNUM OPTION 4

PROJECT LIMIT OF WORK  
STA. 115+00

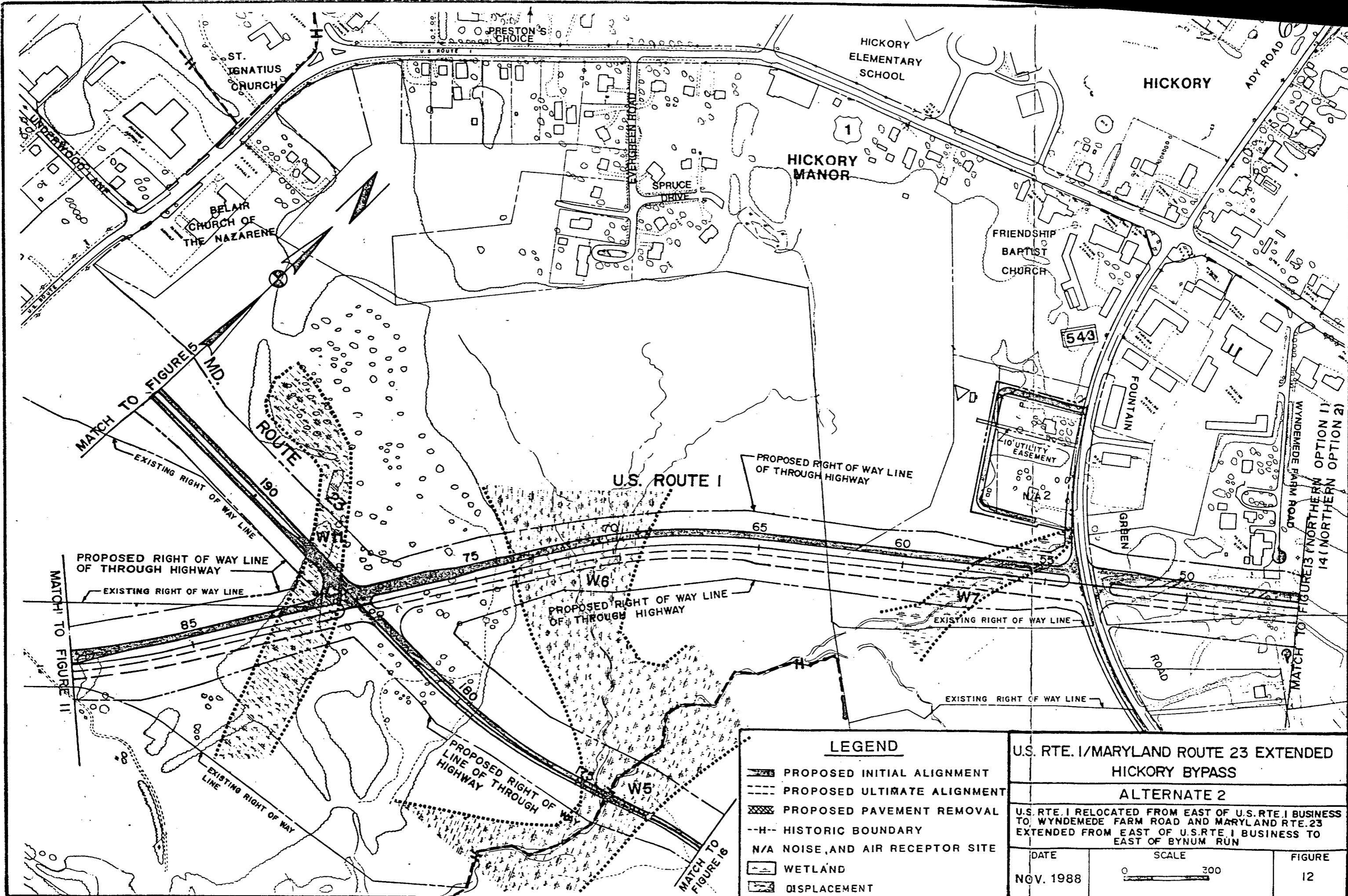
BEL AIR ROLLER RINK

**LEGEND**

-  PROPOSED INITIAL ALIGNMENT
-  PROPOSED ULTIMATE ALIGNMENT
-  PROPOSED PAVEMENT REMOVAL
-  HISTORIC BOUNDARY
-  NOISE AND AIR RECEPTOR SITE
-  WETLAND
-  DISPLACEMENT

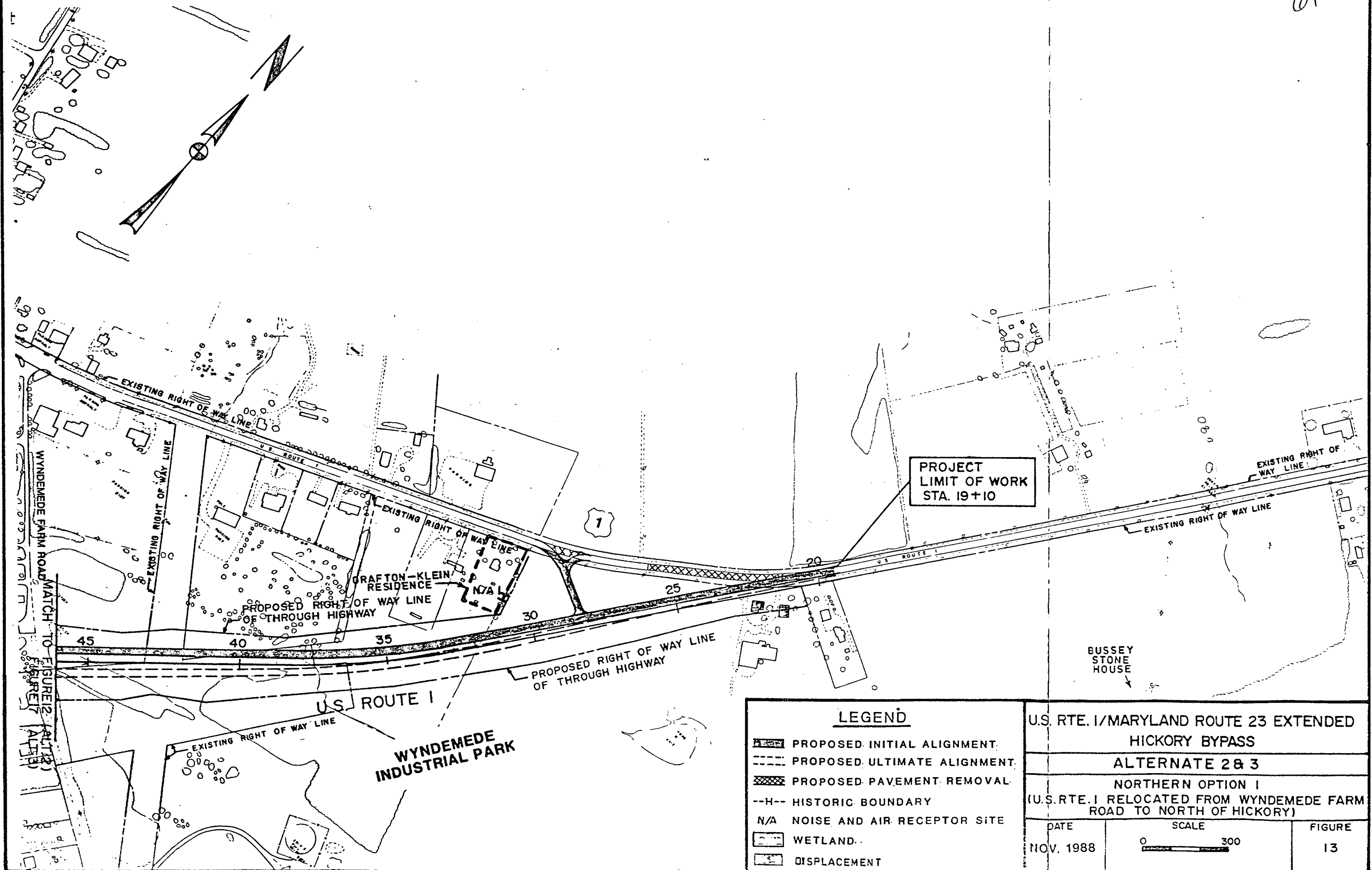
U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS		
ALTERNATES 2 & 3		
U.S. RTE. 1 RELOCATED FROM MARYLAND ROUTE 23 TO EAST OF U.S. RTE. 1 BUSINESS (CONOWINGO ROAD) AND BYNUM OPTION 4		
DATE	SCALE	FIGURE
NOV. 1988	0  300	11

MATCH TO FIGURE 12 (ALT. 2)  
MATCH TO FIGURE 17 (ALT. 3)



LEGEND	
	PROPOSED INITIAL ALIGNMENT
	PROPOSED ULTIMATE ALIGNMENT
	PROPOSED PAVEMENT REMOVAL
	HISTORIC BOUNDARY
	N/A NOISE AND AIR RECEPTOR SITE
	WETLAND
	DISPLACEMENT

U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS		
ALTERNATE 2		
U.S. RTE. 1 RELOCATED FROM EAST OF U.S. RTE. 1 BUSINESS TO WYNDEMEDE FARM ROAD AND MARYLAND RTE. 23 EXTENDED FROM EAST OF U.S. RTE. 1 BUSINESS TO EAST OF BYNUM RUN		
DATE	SCALE	FIGURE
NOV. 1988	0 300	12

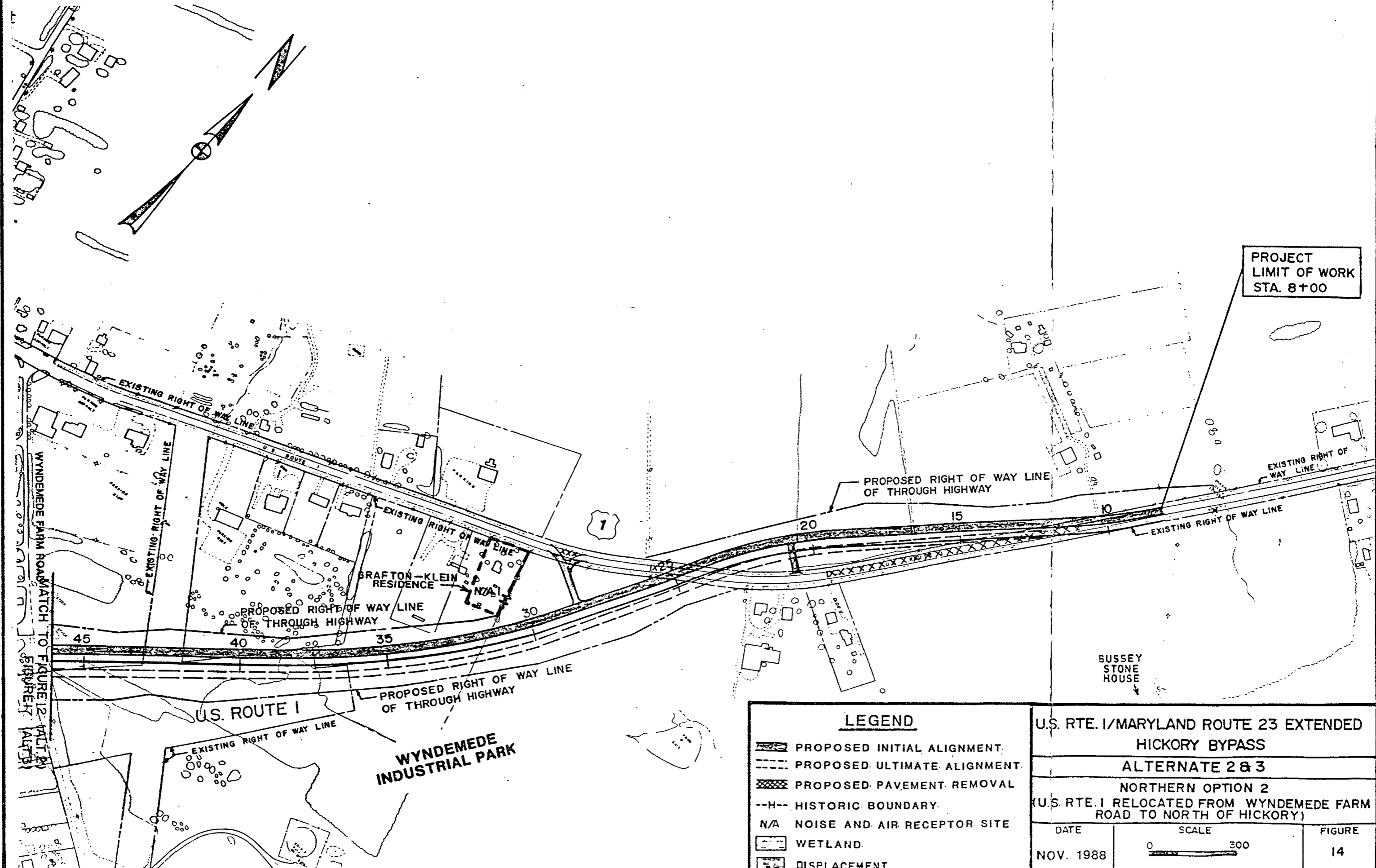


PROJECT  
LIMIT OF WORK  
STA. 19+10

LEGEND	
	PROPOSED INITIAL ALIGNMENT
	PROPOSED ULTIMATE ALIGNMENT
	PROPOSED PAVEMENT REMOVAL
	HISTORIC BOUNDARY
	NOISE AND AIR RECEPTOR SITE
	WETLAND
	DISPLACEMENT

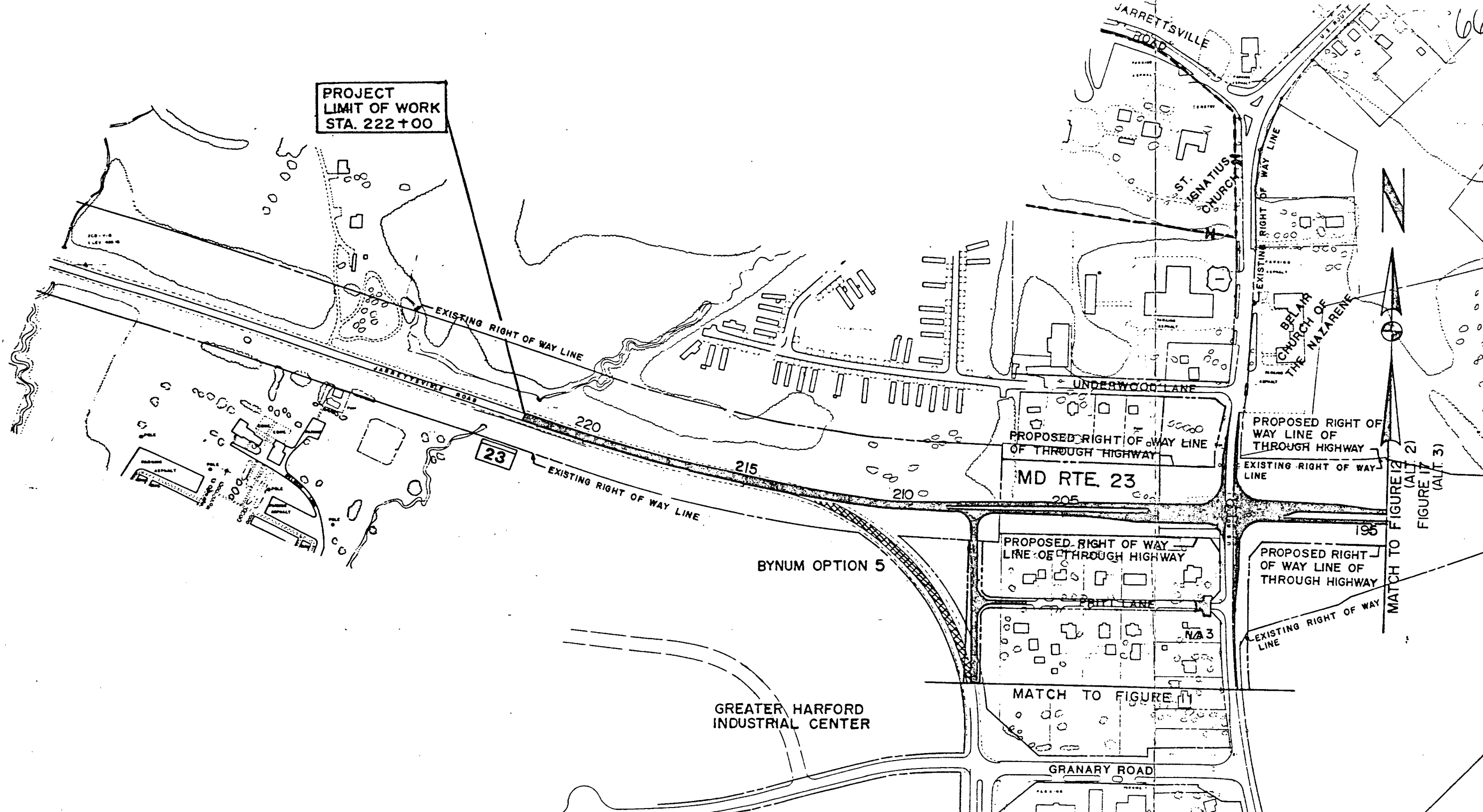
U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS		
ALTERNATE 2 & 3		
NORTHERN OPTION 1 (U.S. RTE. 1 RELOCATED FROM WYNDEMEDE FARM ROAD TO NORTH OF HICKORY)		
DATE	SCALE	FIGURE
NOV. 1988	0 300	13





LEGEND	
	PROPOSED INITIAL ALIGNMENT
	PROPOSED ULTIMATE ALIGNMENT
	PROPOSED PAVEMENT REMOVAL
	HISTORIC BOUNDARY
	NOISE AND AIR RECEPTOR SITE
	WETLAND
	DISPLACEMENT

U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS ALTERNATE 2 & 3 NORTHERN OPTION 2 (U.S. RTE. 1 RELOCATED FROM WYNDEMEDE FARM ROAD TO NORTH OF HICKORY)		
DATE	SCALE	FIGURE
NOV. 1988	0 300	14



PROJECT  
LIMIT OF WORK  
STA. 222+00

23

MD RTE. 23

PROPOSED RIGHT OF WAY LINE OF THROUGH HIGHWAY

PROPOSED RIGHT OF WAY LINE OF THROUGH HIGHWAY

PROPOSED RIGHT OF WAY LINE OF THROUGH HIGHWAY








MATCH TO FIGURE 11

MATCH TO FIGURE 12 (ALT. 2)  
FIGURE 17 (ALT. 3)

BYNUM OPTION 5

GREATER HARFORD INDUSTRIAL CENTER

**LEGEND**

-  PROPOSED INITIAL ALIGNMENT
-  PROPOSED ULTIMATE ALIGNMENT
-  PROPOSED PAVEMENT REMOVAL
-  HISTORIC BOUNDARY
-  N/A NOISE AND AIR RECEPTOR SITE
-  WETLAND
-  DISPLACEMENT

U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED  
HICKORY BYPASS

ALTERNATES 2 & 3  
MARYLAND RTE. 23 EXTENDED FROM WEST OF  
U.S. RTE. 1 BUSINESS TO EAST OF U.S. RTE. 1 BUSINESS

DATE  
NOV. 1988

SCALE  
0 300

FIGURE  
15

66

BYNUM ROAD

GRANARY ROAD

195

220

215

210

205

N/A 3

UNDERWOOD LANE

ST. IGNATIUS CHURCH

CHURCH OF THE NAZARENE

JARRETTSVILLE ROAD

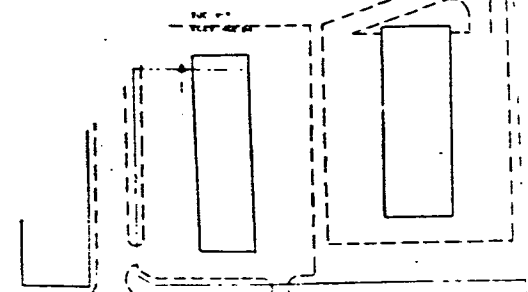
EXISTING RIGHT OF WAY LINE

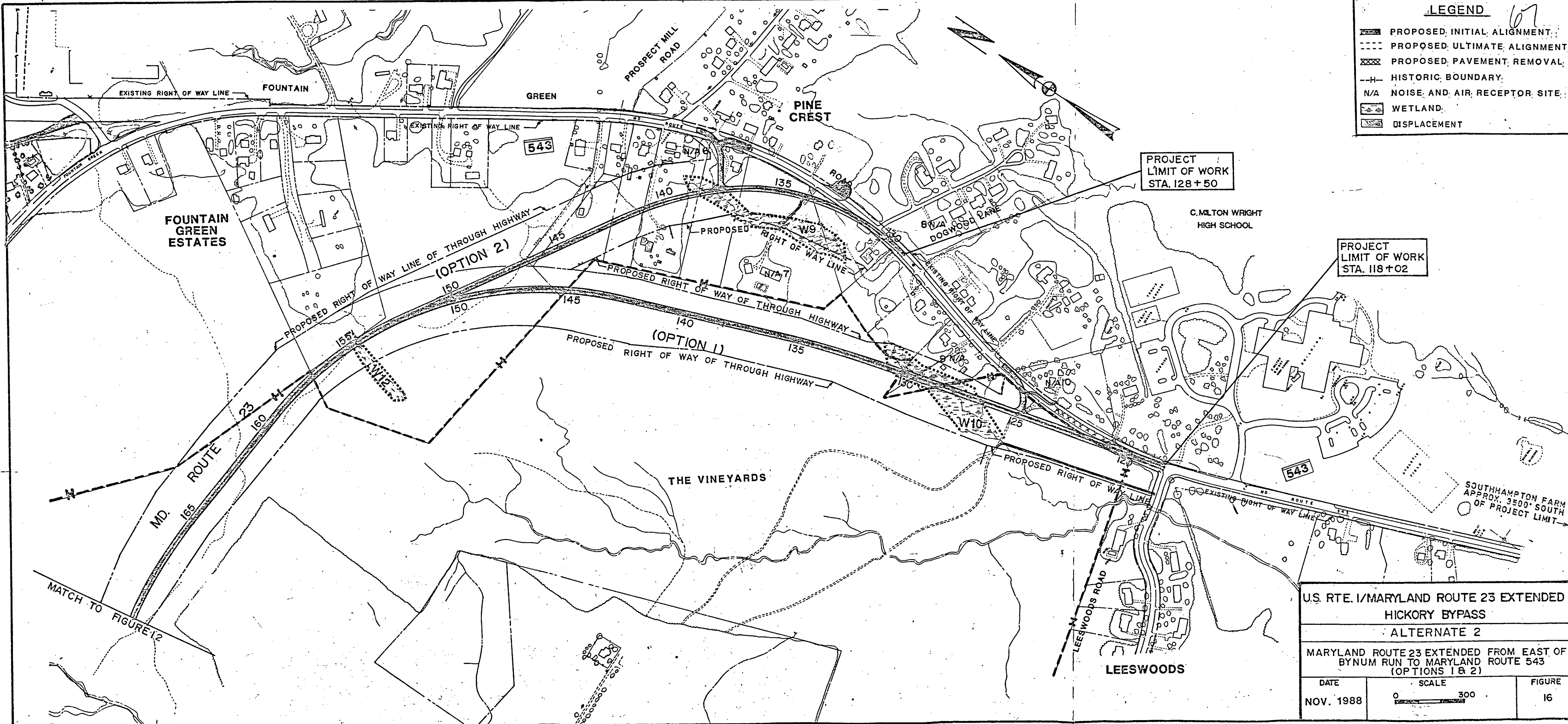
EXISTING RIGHT OF WAY LINE

EXISTING RIGHT OF WAY LINE

EXISTING RIGHT OF WAY LINE

EXISTING RIGHT OF WAY LINE





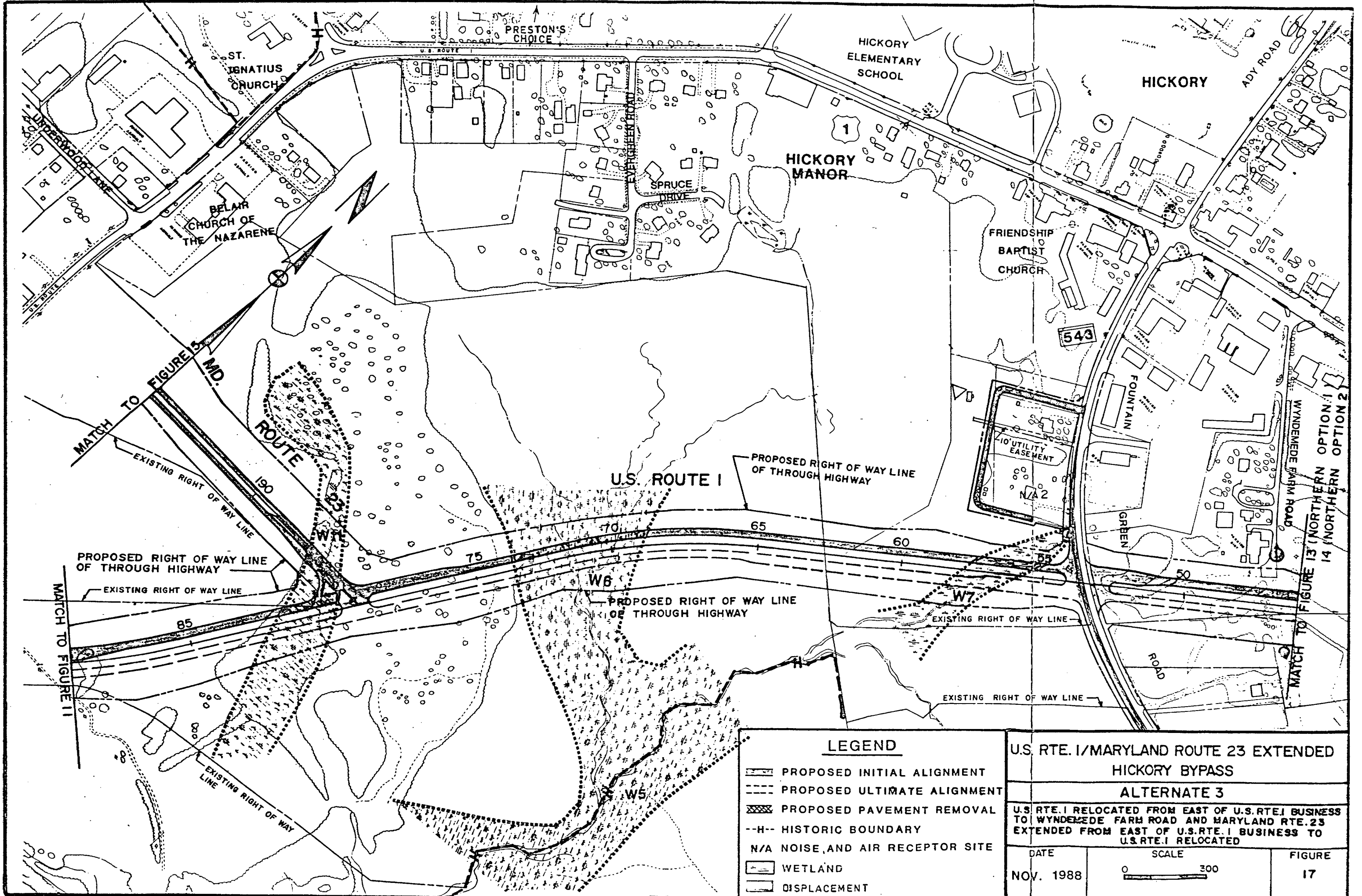
**LEGEND**

- PROPOSED INITIAL ALIGNMENT
- PROPOSED ULTIMATE ALIGNMENT
- PROPOSED PAVEMENT REMOVAL
- HISTORIC BOUNDARY
- NOISE AND AIR RECEPTOR SITE
- WETLAND
- DISPLACEMENT

PROJECT  
LIMIT OF WORK  
STA. 128+50

PROJECT  
LIMIT OF WORK  
STA. 118+02

U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS		
ALTERNATE 2		
MARYLAND ROUTE 23 EXTENDED FROM EAST OF BYNUM RUN TO MARYLAND ROUTE 543 (OPTIONS 1 & 2)		
DATE	SCALE	FIGURE
NOV. 1988	0 300	16

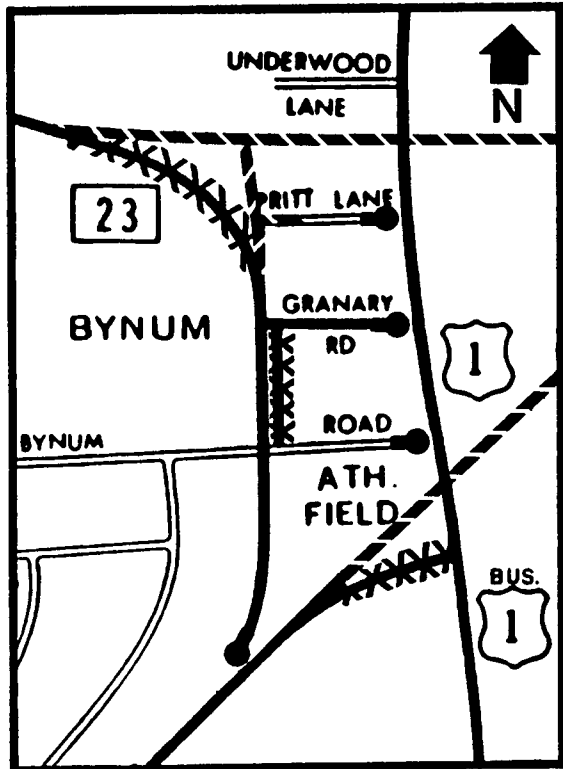


LEGEND	
	PROPOSED INITIAL ALIGNMENT
	PROPOSED ULTIMATE ALIGNMENT
	PROPOSED PAVEMENT REMOVAL
	HISTORIC BOUNDARY
	N/A NOISE AND AIR RECEPTOR SITE
	WETLAND
	DISPLACEMENT

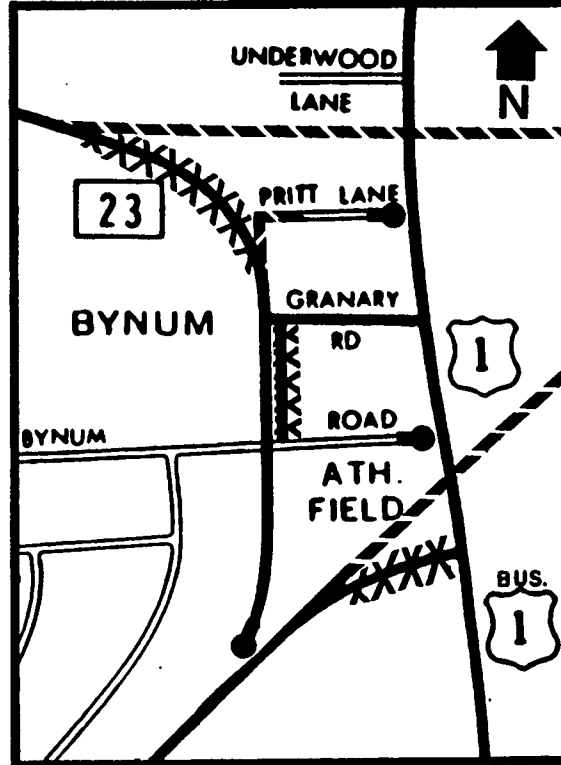
U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS		
ALTERNATE 3		
U.S. RTE. 1 RELOCATED FROM EAST OF U.S. RTE. 1 BUSINESS TO WYNDEDE FARM ROAD AND MARYLAND RTE. 23 EXTENDED FROM EAST OF U.S. RTE. 1 BUSINESS TO U.S. RTE. 1 RELOCATED		
DATE	SCALE	FIGURE
NOV. 1988	0 300	17

# OPTIONS IN BYNUM AREA (DROPPED FROM FURTHER STUDY)

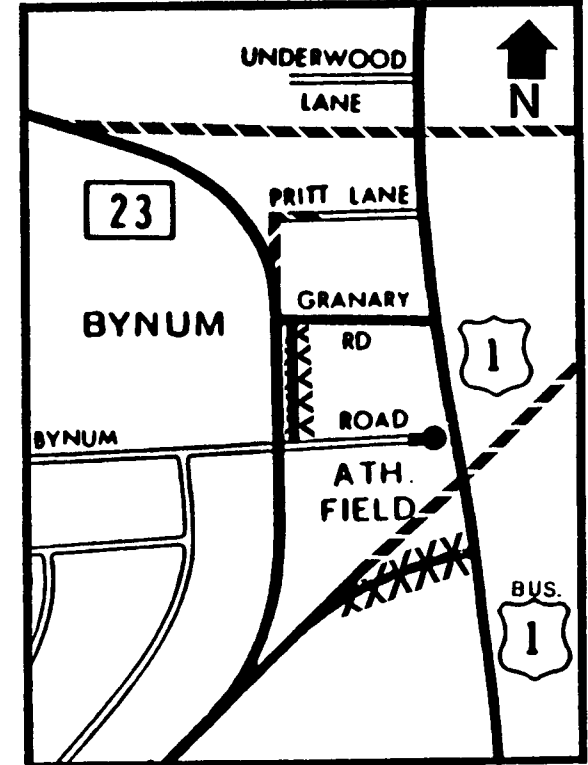
FIGURE 18



**OPTION 1**



**OPTION 2**



**OPTION 3**

## LEGEND



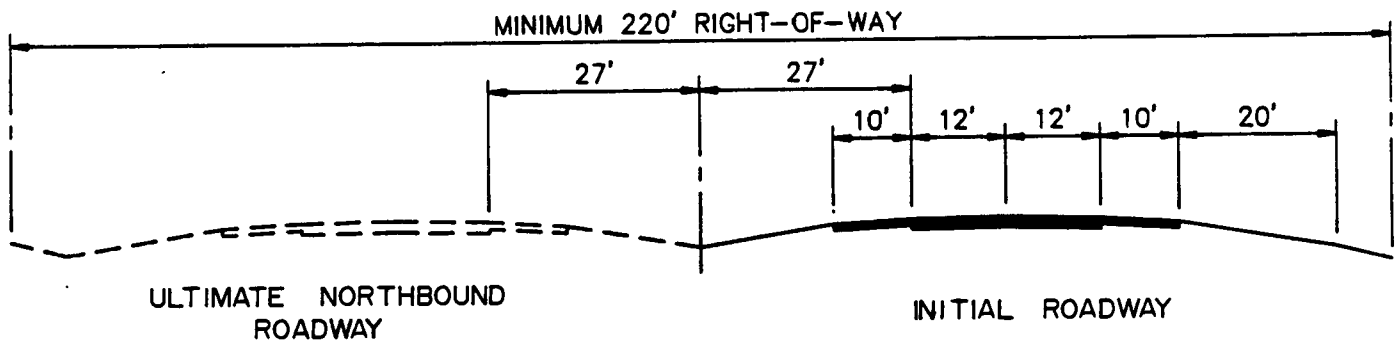
PROPOSED IMPROVEMENT



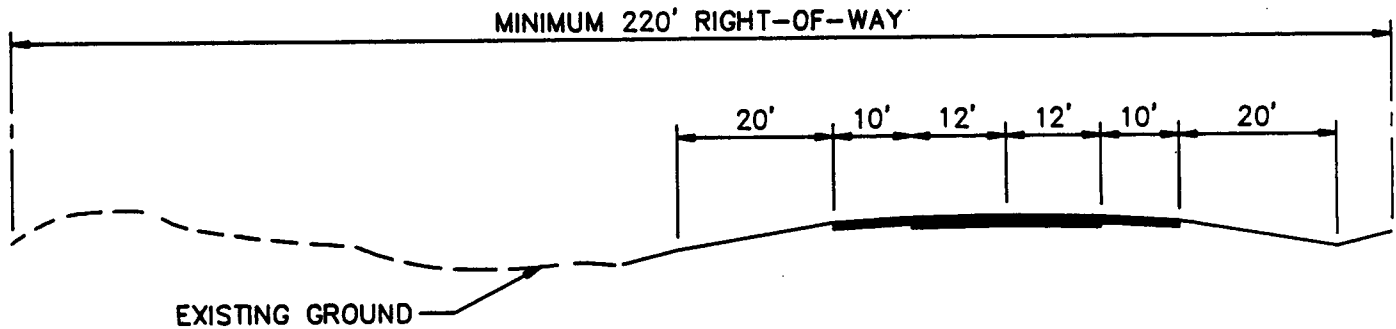
PROPOSED CUL-DE-SAC



PROPOSED REMOVAL OF EXISTING ROADWAY



U.S. ROUTE 1 RELOCATED



MARYLAND ROUTE 23 EXTENDED

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

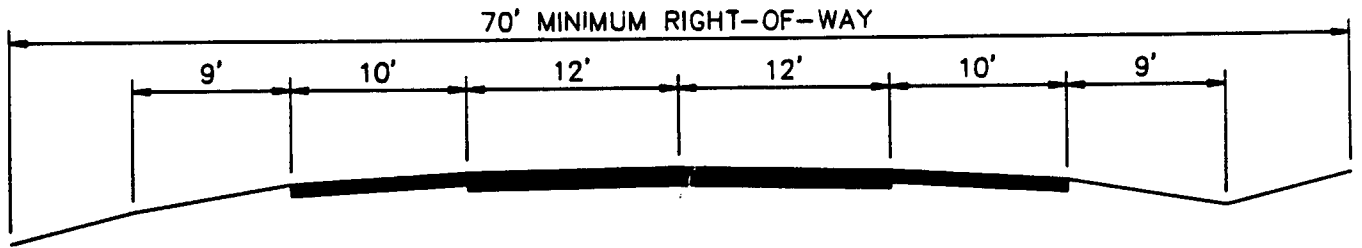
U.S. ROUTE 1/MD. ROUTE 23  
EXTENDED-HICKORY BYPASS

TYPICAL SECTIONS

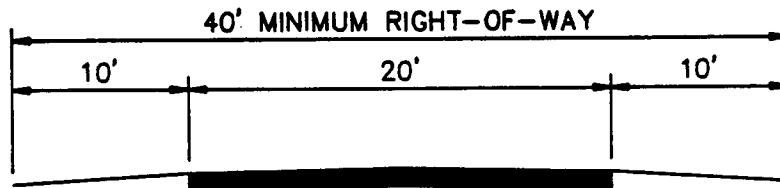
SCALE: NOT TO SCALE

FIGURE 19

71



CONNECTING ROADS AT BYNUM



ENTRANCE TO ROLLER RINK  
ENTRANCE NORTH OF  
U.S. 1/MARYLAND ROUTE 543 INTERSECTION

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

U.S. ROUTE 1/MD. ROUTE 23  
EXTENDED-HICKORY BYPASS

TYPICAL SECTIONS

SCALE: NOT TO SCALE

FIGURE 20

IV

**Environmental  
Impacts**



IV. ENVIRONMENTAL IMPACTS

A. SOCIAL IMPACTS

1. Relocations

An analysis of possible relocations caused by the proposed alternates has been made and is based on preliminary relocation and right-of-way studies.

Alternate 1 (No-Build) would not result in any residential displacements or acquisition of strip right-of-way from the properties.

Both Alternate 2 and Alternate 3 would require residential replacements as well as strip property from residences and businesses abutting the existing roadways where the new intersections are proposed.

Alternate 2

U.S. Route 1 Relocated with Northern Option 1

The area affected by this option is a rural residential neighborhood with low density housing at present. Two residences occupied by two tenant families and one (1) owner-occupied residence/business will be displaced. This multi-use operation should be able to be relocated successfully although perhaps not in the immediate area. An estimated total of (9) nine people will be relocated by this option.

U.S. Route 1 Relocated with Northern Option 2

One (1) owner-occupant residence/business will be affected by this option.

MD Route 23 Extended with Option 1

No families will be relocated by this option. However, two sheds belonging to one family will be displaced.

MD Route 23 Extended with Option 2

This option will displace 6 buildings with seven (7) families including an estimated total of thirty (30) people. Approximately four (4) of these families appear to be tenants.

No known minorities will be affected. Approximately two (2) elderly families will be affected. No businesses, farms, or profit organizations are affected by this option.

Alternate 2 with MD Route 23 Extended options would create a proximity impact to homes fronting MD Route 543 by being located between the two roadways. Due to the alignment of MD Route 23 Extended, a loss of privacy would be experienced by these residents as a result of proposed right-of-way takes in the forested areas behind these properties.

Alternate 3

U.S. Route 1 Relocated with Northern Option 1

The area affected by this option is a rural residential neighborhood with low density housing at present. Two (2) residences occupied by tenant families and one (1) owner-occupied residence/business will be displaced. This multi-use operation should be able to be relocated successfully although perhaps not in the immediate area. An estimated total of nine (9) people will be displaced by this option.

U.S. Route 1 Relocated with Northern Option 2

One (1) owner occupant residence/business will be affected by this option.

MD Route 23 Extended

No improvements affected.

Bynum Option 4

No improvements affected.

Bynum Option 5

No improvements affected.

All individuals and families would be relocated in accordance with the provisions of the "Uniform Relocation Assistance and Land Acquisition Policies Act of 1970." A summary of the state's relocation assistance program is located in Section VII, Appendix B, at the end of this document. All the required relocations are expected to be completed in a timely, orderly, and humane manner and without any undue hardship to the affected individuals. A reasonable lead time of 6 to 12 months would be required to accomplish the relocations. Although it would be difficult to find replacement rental units in the immediate vicinity, there is ample housing in nearby areas. A number of last resort housing cases may be anticipated.

The State Highway Administration is planning two other projects in the area, but this should not affect the supply of housing.

Title VI Statement

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

assistance. This policy has been incorporated into all levels of the highway planning process in order that proper consideration may be given to the social, economic, and environmental effects of all highway projects. Alleged discriminatory actions should be addressed to the Equal Opportunity Section of the Maryland State Highway Administration for investigation.

2. Community Facilities and Services

Alternate 1 (No-Build) does not address the frequency of accidents at the U.S. Route 1 and MD Route 543 intersection at Hickory. Consequently, both motorists and pedestrians would continue to encounter high accident risks. Vehicular access to and from residential, commercial and institutional development along U.S. Route 1 would become increasingly dangerous with passing vehicles. Also, Alternate 1, would not safely accommodate projected residential and industrial development in the area, nor would it be consistent with the 1977 Harford County Master Plan.

Alternate 2 or Alternate 3 would improve local access and travel times by separating local traffic from most through traffic. Reducing the number of trucks and vehicles in the Hickory town area would decrease the potential for vehicular and/or pedestrian conflicts and travel delays.

Both Alternate 2 and Alternate 3 would provide the bypass route facilitating speed continuity for intercounty travelers and truck traffic between local industrial sources and travelers' destinations. The Hickory Bypass would also reduce noise and traffic volumes along the existing U.S. Route 1.

The elimination of congestion in and around Hickory would have a beneficial effect on the provision of emergency and public services throughout the area by improving travel time and costs. This would be more efficiently provided by Alternate 2.

B. ECONOMIC IMPACTS

Alternate 1 (the No-Build Alternate) does not address the projected traffic volume increases due to planned industrial development within the study area. Alternate 1 would also negatively impact the regional economic plan which incorporates an efficient transportation network system throughout the County for the transportation of goods and services.

Alternate 2 or Alternate 3 would facilitate traffic flow and provide a safer access to business and services within the Hickory area. Local residents would be encouraged to frequent the small commercial area due to safer travel patterns and a return to a rural community atmosphere.

Both Alternates would require the acquisition of one business/residence. It is anticipated that this business should be able to relocate successfully but perhaps not in the immediate area.

Businesses located at the crossroads of Hickory, such as gas stations, restaurants and convenience stores which are in part dependent on passing motorists, would experience reduction in businesses activity under both Build

Alternates. Other businesses which serve the local residents such as video rentals, hardware supply and TV sales and service, etc. would not be expected to experience any adverse effects.

C. LAND USE

Alternate 2, MD Route 23 Extended is consistent with the Harford County Master Plan (1977) whereas Alternate 3 which proposes only the bypass of U.S. Route 1 is partially consistent with the Master Plan. The relocation of U.S. Route 1 and the extension of MD Route 23 are major elements in this plan for improving traffic circulation and easing congestion in the Hickory area.

The bypass is compatible with Harford County's planned commercial and residential development as well as MD Route 23 Extended to accommodate the planned residential development along MD Route 543. (See Figure 7).

Alternate 1, the No-Build Alternate is not consistent with the Harford County land use plans.

D. HISTORIC AND ARCHEOLOGICAL RESOURCES

1. Historic Sites

Seven historic sites have been identified as possibly eligible for listing in the National Register of Historic Places. Three of these (Southampton, St. Ignatius Church and Preston's Choice) are outside of the area of possible environmental impact of Alternates 2 and 3. The Bussey Stone House is located at the U.S. Route 1 Bypass northern terminus of Alternates 2 and 3, Options 1 and 2. It is located considerably east of this tie-in and thus will not be affected. Likewise, the Stephen Kahoe House is located at the southern terminus. It is not only west of the proposed improvements, but the hill into which it is built, extensive vegetation, and existing MD Route 23 intervene between the site and any changes anticipated with this project. None of these sites will be affected by Alternates 2 and 3.

The Grafton/Klein house is located close to the point where the proposed bypass will tie into existing U.S. Route 1. See Figures 13 and 14 in Section III. The proposed roadway would be located approximately 200 feet from the dwelling with Options 1 and 2. SHA believes landscaping provided within the right-of-way would effectively mitigate the adverse visual effects of Alternatives 2 and 3, Options 1 and 2 thus, a no adverse effect determination conditional on landscaping was agreed to by the State Historic Preservation Officer (SHPO).

However, under Alternate 2, Option 1 and Option 2, right-of-way acquisition is required from the Vineyards historic property. The SHPO has determined that Alternate 3 would not affect Vineyards while Alternate 2 Options 1 and 2 both have an adverse effect on this site. Discussion of this impact is contained in the Section 4(f) evaluation in this document.

## 2. Archeological Resources

At site 18 HA 167, Phase II archeological investigations will be carried out to determine the extent and eligibility of the site, and to determine appropriate mitigation if the site meets the criteria for listing in the Register. This site is important only for information it contains. It is not necessary to retain the site in place in order to mitigate its being destroyed as long as the information it contains is scientifically removed prior to destruction. All work will be closely coordinated with the Maryland State Historic Preservation Officer.

The March 3, May 21, 1987, the May 3, 1988 letter concerning historic sites and the March 6, 1988 letter about archeological sites, all generated by the State Historic Preservation Officer are included in the Comments and Coordination Section.

## E. NATURAL ENVIRONMENT

### 1. Prime Farmland

Pursuant to the Farmland Policy Protection Act, a review of the total acreage of Prime Farmland that will be impacted by the proposed construction was conducted. It is estimated that a maximum of 19.1 acres of prime and unique farmland soils would be impacted by the construction of Alternate 2 and 17 acres by Alternate 3. Approximately 4.4 acres of this land are forested and not being farmed at this time (see Table 7). Alternate 2 would impact approximately 34 acres of Statewide and Local Important Farmland whereas Alternate 3 would impact approximately 11 acres.

### 2. Surface Water

Several stream crossings would be required for construction. The construction of Alternate 3 would require five stream crossings. The construction of Alternate 2 (Alternate 3 and MD Route 23 Extended to MD Route 543) would cross two additional streams for a total of seven stream crossings. Waterway construction permits would be required during the final design phase for each of the crossings affected. In addition, no in-stream work will be permitted from October 1, to April 30 inclusive for Class III waters.

The increase in the amount of impervious surface resulting from the proposed improvements would produce a proportionate increase in the amount of roadway runoff. Stormwater runoff would be managed in accordance with Department of the Environment Stormwater Management Regulations. These regulations would require stormwater management practices in the following order of preference:

- o On-site infiltrations
- o Flow attenuation by open vegetated swales and natural depressions
- o Stormwater retention structures
- o Stormwater detentions structures.

It has been proven that these measures can substantially reduce pollutant loads and control runoff.

The final design for the proposed improvements would include plans for grading, erosion and sediment control in accordance with state and federal laws and regulations. These plans would be reviewed and approved by the Maryland Department of the Environment, and the DNR, Water Resources Administration.

3. Habitat

Estimates of impact to the various habitats were calculated using a full 300' right-of-way for the U.S. Route 1 Bypass and MD Route 23 Extended. This method utilizes a worst-case scenario for estimating impacts.

a. Terrestrial Habitat

Alternate 3 would affect approximately 8 acres of mature upland deciduous forest, plus 7 acres of mature forested wetland. Construction of Alternate 2 would disturb 21.6 acres of mature upland forest if MD Route 23, Option 2 is selected, and 25.3 acres if MD Route 23 Extended Option 1 is selected. In addition, 9-10 acres of mature forested wetlands would also be impacted. About 4 acres of young maple and sweet gum woodlands, about 5-10 years old, would also be impacted by both alternates.

All Alternates would impact old field habitats and farm game wildlife habitats. Several climax deciduous forest habitats would be affected by forest fragmentation. Many species of birds depend on extensive forest systems for successful breeding and feeding. These species, described as forest interior dwelling birds, need more than 100 acres of contiguous deciduous forests. These large forests also contribute to the stabilization of the entire watershed.

Every effort has been made to minimize the effects to the terrestrial environment. Forest clearcutting would be kept to a minimum where possible. Even though some wildlife and vegetation habitats would be destroyed, given the number of available habitats in the region, the subject project would not have a significant adverse impact to the study area terrestrial ecosystem.

b. Endangered Species

Coordination with DNR, Wildlife Administration, and the U.S. Fish and Wildlife Service indicates that there are no known populations of federally-listed threatened or endangered plant or animal species in the study area. (See correspondence from the agencies in Section V.)

c. Aquatic Habitat

Several non-tidal wetlands would be affected by the proposed construction. Alternate 3 would impact approximately 10 acres of wetlands, whereas Alternate 2 would impact approximately 11-13 acres of wetlands.

On November 24, 1987 and January 16, 1988 wetland field reviews were held with agency representatives from the Army Corps of Engineers. Minutes of these meetings may be found in the Appendix Section.

A total of 9 wetlands were identified in the field survey as being affected by the proposed construction (See Table 5).

TABLE 5

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Non-Tidal Wetlands  
U.S. Route 1 Hickory Bypass/MD Route 23 Extended

Wetland Number	F&WS Class.	Dominant Vegetation	Hydrology	Watershed	Soils	Value	Approx. Impact
W-1	PEM5C SS	cattail Softstemmed bulrush	stream	Bynum's Run	mottled gleyed	med.	1.1 ac
W-2	PF01A EM	sycamore red maple black willow spicebush cattail seedbox	roadside ditch small swale	Bynum's Run	mottled	low	none
W-3	PF01A	red maple spicebush highbush blueberry arrowwood winterberry	stream/ floodplain	Bynum's Run	gleyed mottled	med.	none
W-4	PSS1A	black willow red maple Juncus sp. softstemmed bulrush spicebush	drainage blocked by farm road	Bynum's Run	mottled	med.	2.3 ac
W-5	*PF01A	red maple pin oak Am. beech white oak ironwood arrowwood spicebush	stream/ floodplain	Bynum's Run	mottled	high	1.0 ac
W-6	PF01A	red maple ironwood pin oak Am. beech arrowwood spicebush	stream/ floodplain	Bynum's Run	mottled	high	2.5 ac
W-7	PF01A	red maple sweet gum tulip poplar Am. beech	stream & banks	Bynum's Run	alluvial	med.	1.1 ac

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TABLE 5  
 Non-Tidal Wetlands  
 U.S. Route 1 Hickory Bypass/MD Route 23 Extended

Wetland Number	F&WS Class.	Dominant Vegetation	Hydrology	Watershed	Soils	Value	Approx. Impact
W-8	*POWH	Outside of	project area				none
W-9	PF01A	pin oak red maple Am. elm arrowweed elderberry	stream/ floodplain	Bynum's Run	mottled gleyed	med.	.62 ac
W-10	*PF01A	red maple pin oak tulip poplar white oak arrowwood	stream/ floodplain	Bynum's Run	mottled	high	2.1 ac
W-11	PF01A	red maple pin oak swamp sweetbells highbush blueberry royal fern	hummocks	Bynum's Run	mottled	med.	2.8 ac
W-12	PF01A	red maple	drainage swale	Bynum's Run	mottled	med.	.09 ac



Alternate 2 and Alternate 3 are located in the vicinity of wetlands W-1, W-2, W-3, W-4, W-6, W-7 and W-11.

Wetland W-1 (Figure 11) is located near the Bynum Road athletic field and existing U.S. Route 1 Bypass. Approximately 0.90 acres would be impacted by the construction of U.S. Route 1 and an additional .21 acres if Bynum Option 4 is selected. Impacts to this wetland have been reduced since the November, 1987 field review by realigning the intersection of U.S. Route 1 Bypass and U.S. Route 1 Business. This allowed the proposed alignment to be shifted to the south in the vicinity of this wetland. Shifting Bynum Option 4 to the north would result in an additional stream crossing.

Wetlands W-2 and W-3 (Figure 11) are located outside of the study area, and therefore would not be impacted by the proposed action.

Wetland W-4 (Figure 11) is located east of Conowingo Road on active farmland. The proposed construction would impact approximately 2.3 acres of this wetland located at the upper end of the system, and isolate a small area of wetlands from the rest of the system. The alignment of the proposed U.S. Route 1/U.S. Route 1 Business intersection was shifted slightly to the north after the November 1987 field review through this wetland. Therefore, the amount of wetland severed from the main stream was reduced 0.45 acres. Further shifting of the alignment to the north would result in additional impacts to wetlands W-1, W-11 and W-6.

Wetland W-6 (Figure 12) is located approximately 600' north where the U.S. Route 1 Relocated/MD Route 23 Extended intersection is proposed. Construction of either build alternate would require crossing this large wetland system, impacting about 2.5 acres of high value forested wetlands. Shifting the alignment in either direction would result in additional impacts to Wetland W-6 and/or related streams including W-11 (see Figure 12 and Figure 13).

Wetland W-7 (Figure 12) is located just west of MD Route 543, about 1,200 feet south of its intersection with existing U.S. Route 1. Construction of either alternate would impact 1.1 acres at the upper end of this wetland system. Shifting the alignment southerly would not lessen the wetland impacts due to the length of the wetland. A shift to the north would lessen or avoid impacts to this wetland but would impact three (3) residences and two (2) businesses in the vicinity of MD Route 543.

Wetland W-5 (Figure 12) is located southwest of Wetland 6 in the vicinity of the MD Route 23 Extended alignment and approximately 1,000 feet east where U.S. Route 1 Relocated/MD Route 23 Extended intersection is proposed. Construction of Alternate 2 would require crossing this wetland system, impacting about 1 acre of these wetlands. Shifting the alignment to the south to reduce the area impacted would result in increased impacts to W-5 wetland system within the Vineyard historic site boundary. Additionally more of the wooded area within the boundary of this National Register historic site would be destroyed.

Wetland W-8 is outside the project area.

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Wetland W-9 (Figure 16) is another of the small streams forming the headwaters of Bynum Run. The construction of MD Route 23 Extended, Alternate 2, Option 2 would impact .62 acres of these forested wetlands. A complete avoidance of impacts to this wetland site would be by selection of MD Route 23 Extended, Option 1 or Alternate 3. Shifting Option 2 alignment further north would require the relocation of seven (7) residences and one (1) business.

Wetland W-10 (Figure 16) is part of the same stream system as Wetland 9. It is located along MD Route 543 north of Leeswood Road. On January 16, 1988 at the wetland field review, the Army Corps of Engineers requested additional studies for alternative alignments which would avoid or reduce wetland impacts at the MD Route 23 Extended/MD Route 543 tie-in (see Appendices).

The avoidance alternatives (Figures 21-23) for W-10 were requested to reduce the approximate 2.1 acres which would be impacted to the wetland stream system identified as W-10.

Although the avoidance alignments developed for this area would minimize stream and wetland impacts, additional acreage would be required from the PNRE Vineyard historic property and/or additional residences would be replaced. Results of these studies and their associated impacts are as follows.

MD Route 23, Option 1 (Figure 16) would impact 2.1 acres of W-10 wetlands and relocate one shed.

Avoidance Alignment I (Figure 21) would impact 1.6 acres of W-10 wetlands but would require an additional 7.2 acres from the Vineyard historic property.

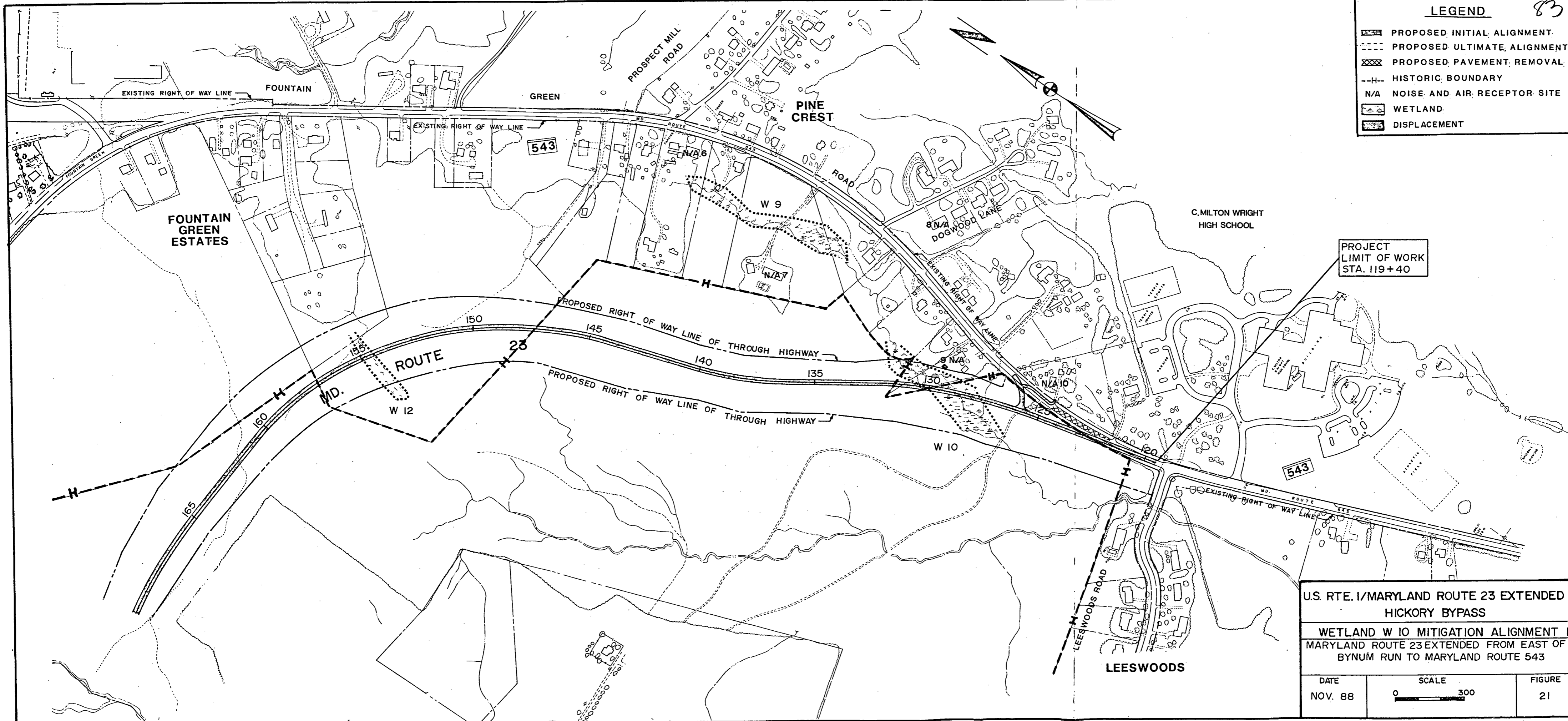
Avoidance Alignment II (Figure 22) would require 1.7 acres of W-10 wetlands, two (2) residences and an additional 3.2 acres from the Vineyards.

Avoidance Alignment III (Figure 23) would affect 1.2 acres of W-10 wetlands, require three (3) residential relocations and would lessen the impacts to the Vineyard by 5.1 acres.

Wetland W-12 (Figure 16) is located southwest of U.S. Route 543 approximately 1,200 yards south of the U.S. Route 543/U.S. Route 1 intersection and only would be impacted by Alternate 2. The construction would impact .09 acre of forested wetlands. Shifting the alignment further south of the proposed alignment to avoid W-12 would substantially increase impacts to the Vineyards historic property. Shifting the alignment further north would increase impacts to residential properties fronting MD Route 543.

Planning has attempted to minimize the impacts on the wetlands systems by realignment of the highway corridor.

There will be some loss of finfish and aquatic habitat from the various stream crossings, however, special coordination has been conducted with the DNR, Tidewater Administration Fisheries Division and the U.S. Fish and Wildlife Service to minimize impacts to aquatic life. With implementation of state-of-



**LEGEND**

- PROPOSED INITIAL ALIGNMENT
- PROPOSED ULTIMATE ALIGNMENT
- PROPOSED PAVEMENT REMOVAL
- HISTORIC BOUNDARY
- NOISE AND AIR RECEPTOR SITE
- WETLAND
- DISPLACEMENT








83

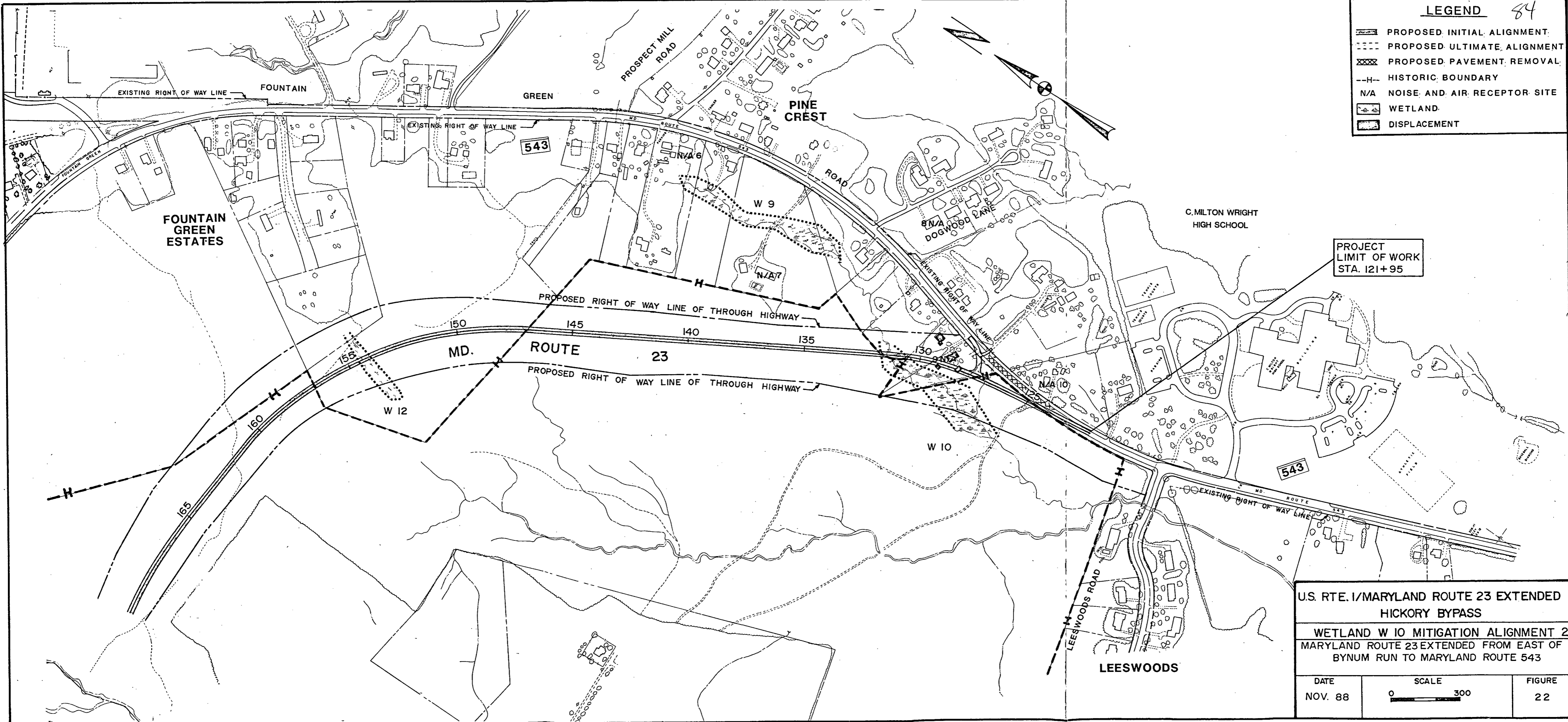
PROJECT  
LIMIT OF WORK  
STA. 119+40

**U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED  
HICKORY BYPASS**

**WETLAND W 10 MITIGATION ALIGNMENT |  
MARYLAND ROUTE 23 EXTENDED FROM EAST OF  
BYNUM RUN TO MARYLAND ROUTE 543**

DATE	SCALE	FIGURE
NOV. 88	0 300	21








-  PROPOSED INITIAL ALIGNMENT
-  PROPOSED ULTIMATE ALIGNMENT
-  PROPOSED PAVEMENT REMOVAL
-  HISTORIC BOUNDARY
-  NOISE AND AIR RECEPTOR SITE
-  WETLAND
-  DISPLACEMENT

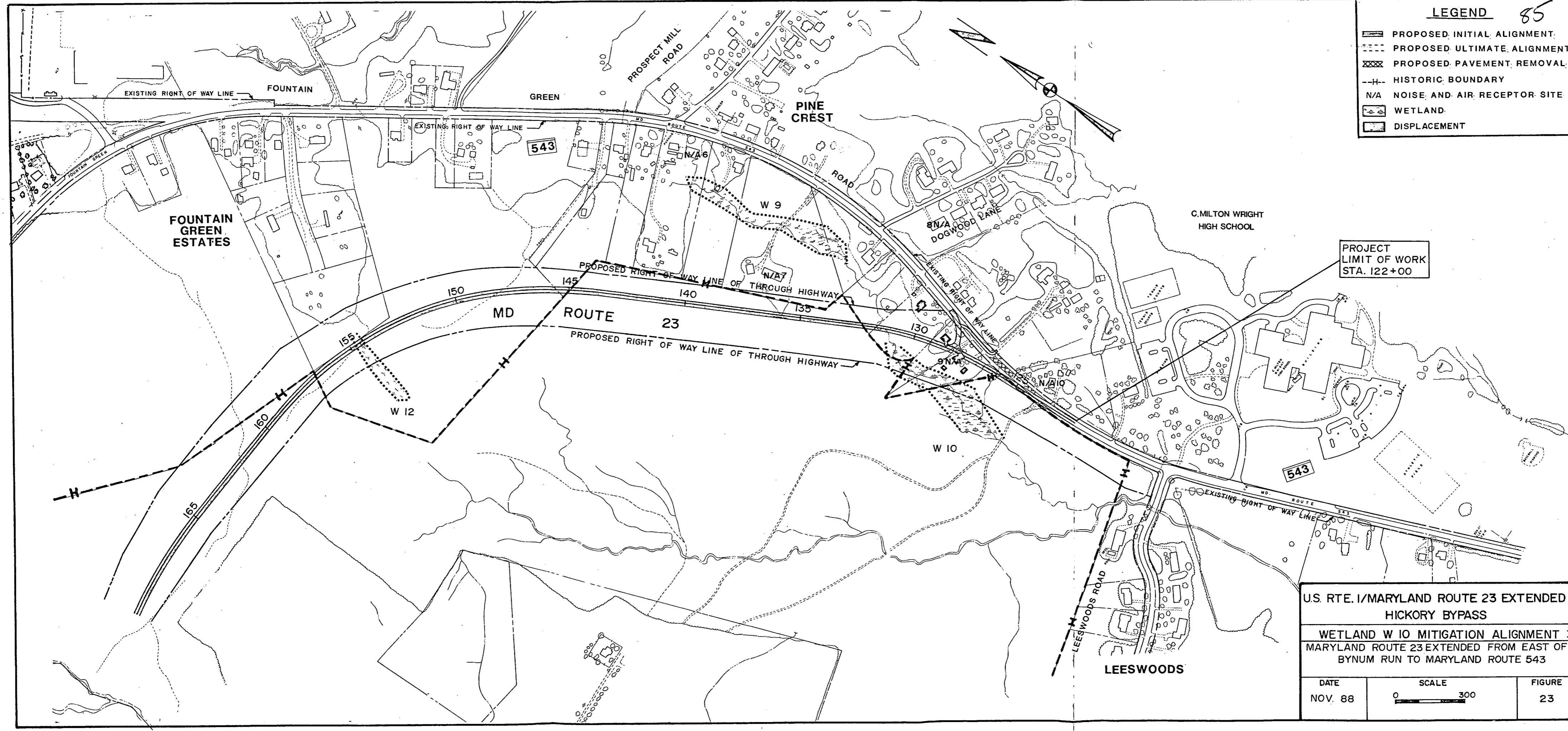


PROJECT  
LIMIT OF WORK  
STA. 121+95


U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED  
HICKORY BYPASS  
WETLAND W 10 MITIGATION ALIGNMENT 2  
MARYLAND ROUTE 23 EXTENDED FROM EAST OF  
BYNUM RUN TO MARYLAND ROUTE 543

DATE	SCALE	FIGURE
NOV. 88	0 300	22

-  PROPOSED INITIAL ALIGNMENT
-  PROPOSED ULTIMATE ALIGNMENT
-  PROPOSED PAVEMENT REMOVAL
-  HISTORIC BOUNDARY
-  N/A NOISE AND AIR RECEPTOR SITE
-  WETLAND
-  DISPLACEMENT



PROJECT  
LIMIT OF WORK  
STA. 122+00

<b>U.S. RTE. 1/MARYLAND ROUTE 23 EXTENDED HICKORY BYPASS</b>		
<b>WETLAND W 10 MITIGATION ALIGNMENT 3</b>		
MARYLAND ROUTE 23 EXTENDED FROM EAST OF BYNUM RUN TO MARYLAND ROUTE 543		
DATE NOV. 88	SCALE 0  300	FIGURE 23

the-art techniques, there should be no significant longterm adverse impacts to the aquatic environment.

## F. NOISE IMPACTS

### 1. Noise Abatement Analysis

The method used to predict the future noise levels from the proposed U.S. Route 1/MD Route 23 improvements was developed by the Federal Highway Administration (FHWA) of the U.S. Department of Transportation. The FHWA Highway Traffic Noise Prediction Model (FHWA Model) incorporates data pertaining to normal traffic volume increases over time, utilizes an experimentally and statistically determined reference sound level for three classes of vehicles (auto, medium duty trucks, and heavy duty trucks), and applies a series of adjustments to each reference level to arrive at the predicted sound level. The adjustments include: 1) traffic flow corrections, taking into account the number of vehicles, average vehicle speed, and a specified time period of consideration; 2) distance adjustment comparing a reference distance and actual distance between receiver and roadway, including roadway width and number of traffic lanes; and 3) adjustments for various types of physical barriers that would reduce noise transmissions from source (roadway) to receiver.

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

The determination of environmental noise impacts is based on the relationship between the predicted noise levels, the established noise abatement criteria, and the ambient noise levels in the project area. The applicable standard is the Federal Highway Administration's noise abatement criteria/activity relationship (see Table 4 in Section I) published in 23 CFR, 771.

The evaluation was completed in accordance with the State Highway Administration's Type I noise program. The Type I program provides evaluation of noise mitigation for major construction or reconstruction highway projects. The activity category utilized for the project analysis is Category B which includes the sensitive land use activities throughout the corridor, i.e., residences, schools, parks, etc.

The factors which will be considered when determining whether mitigation will be required and whether the mitigation will be considered reasonable and feasible will be:

- o Whether Federal Highway Administration Noise Abatement Criteria are approached or exceeded - 67 dBA for residential areas
- o Whether a substantial (10 dBA or more) increase over ambient levels would occur
- o Whether a substantial noise increase would result from the highway project - minimum of 5-dBA increase - of Build over No-Build levels in the design year of the project

TABLE 6

Project Noise Levels

U.S. Route 1 and MD Route 23 Extended

NSA	Description	Ambient Leq	Design Year (2015) Leq			
			No-Build	Build	Build Option 1	Build Option 2
1	Residential	56	57	N/A	70	70
2	Residential	66	55	N/A	63	62
3	Residential	67	67	N/A	67	67
5	Residential	62	59	65	N/A	N/A
6	Residential	64	65	N/A	64	65
7	Residential	47	47	N/A	62	58
8	Residential	56	58	N/A	57	60
9	Residential	57	60	N/A	66	63
10	Residential	71	68	N/A	69	69

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- o Whether a feasible method is available to reduce the noise
- o Whether the noise mitigation is cost effective for those receptors that are impacted - approximately \$40,000 per residence
- o Whether the mitigation is acceptable to affected property owners

When design year  $L_{eq}$  noise levels are projected to exceed the abatement criteria (Table 6) or increase ambient conditions by 10 dBA or more, noise abatement measures (in general, noise barriers) are considered to minimize impacts. Consideration is based on the size of the impacted area (number of structures, spatial distribution of structures, etc.), the predominant activities carried on within the area, the visual impact of the control measure, practicality of construction, feasibility, and reasonableness. A reasonableness determination includes the effects on noise levels of the project when comparing the Build Alternate to the No-Build Alternate.

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

## 2. No-Build Alternate

Under the No-Build Alternate, only noise sensitive area 10 would exceed the noise abatement criteria of 67 dBA,  $L_{eq}$ . NSAs 2, 5 and 10 would have projected No-Build noise levels lower than current ambient levels. At NSA 2, active tree cutting and wood chipping activities were present during the monitoring period which contributed measureably to the ambient level. The predicted No-Build level is likely a more accurate representation of the actual ambient noise level. The monitored ambient levels at NSA 5 included noise contribution from U.S. Route 1 Bypass and Bynum Road, where as the predicted levels did not receive a contribution from these roadways. The ambient noise level at NSA 10 can be attributed to fluctuations in traffic volumes and truck percentages that occurred during the monitoring period. These fluctuations could cause a 1-3 dBA difference between existing and No-Build noise levels.

## 3. Build Alternate (U.S. Route 1 Relocated, Option 1 and 2)

Under the Build Alternate, the FHWA Noise Abatement Criteria would be exceeded only at NSA 1 and 3. Therefore, abatement was considered for this noise sensitive area.

The following is a discussion regarding the feasibility of abatement for this site:



NSA 1

This noise sensitive area would have projected 2015 noise level 3 dBA above the FHWA noise abatement criteria of 67 dBA. In addition, there is a 13 dBA difference between predicted Build and No-Build levels. A barrier 2,390' in length, by 20' in height with a total cost of \$1,290,600 was analyzed. This barrier would provide at least a 5 dBA reduction for two (2) residences in Option 1 and four (4) residences in Option 2 with projected levels above 67 dBA, at a cost per residences of \$645,300 and \$322,650 respectively. Mitigation at this location would not be reasonable.

NSA 3

This noise sensitive area is located in the vicinity of Pritt Lane and existing U.S. Route 1. Abatement of projected noise levels for this NSA would not be physically feasible due to residential driveway and street access along Pritt Lane and U.S. Route 1. A barrier would prevent access to these areas and is not considered feasible. In addition, this NSA is used as a business, therefore mitigation is not reasonable.

4. Build Alternate (MD Route 23 Extended)

Under the Build Alternate, the FHWA noise abatement criteria would be exceeded at NSAs 7 and 10. Therefore, abatement was considered for these NSAs. The following is a discussion regarding the feasibility of abatement for these two sites:

NSA 7

This noise sensitive area would have a projected 2015 noise level 15 dBA above the ambient level for Option 1 and 11 dBA above ambient level for Option 2. In addition, there is a 11 and 15 dBA difference between predicted Build and No-Build levels. A barrier 412' in length, by 20' in height with a total cost of \$222,480 was analyzed.

This barrier would provide at least a 5 dBA reduction for one (1) residence with projected levels above 67 dBA at a cost per residence of \$222,480. Mitigation at this location would not be reasonable.

NSA 10

Noise sensitive area 10 would have projected 2015 noise level 2 dBA above the noise abatement criteria for both Option 1 and 2. There is only a one decibel difference between the Build and No-Build noise levels at this site. NSA 10 is currently located approximately 50-60' from existing Fountain Green Road and is the primary source for highway noise for both existing and future conditions at this location. Additionally, access control is not possible along this road and the need for driveway access would degrade the reduction potential of a noise barrier system. Thus a segmented barrier would only reduce projected levels 1-2 dBA at this location. Mitigation would not be reasonable at this NSA.

TABLE 7

Noise Abatement Analysis Summary  
U.S. Route 1 Hickory Bypass

Noise Sensitive Area	# of Homes w/ Greater than 5 dBA Reduction and Greater than 67 dBA <sup>1</sup>	Noise Levels Range (Leq)				Barrier			Cost Per Residence (\$)	Cost With Berm	
		Ambient	No-Build (Design Year)	Build (Design Year)	Build W/ Barrier (Design Year)	Length (Ft.)	Average Height (Ft.)	Cost (x 1000)		Total (\$ Mil)	Per Residence
1	4	56	57	70	61	2390'	20'	1,290	322,650	---2	---
2	---3	66	55	62-63	N/A	---	---	---	---	---2	---
3	---5	67	67	67	67	---	---	---	---	---2	---
5	---3	62	59	65	N/A	---	---	---	---	---2	---
6	---3	64	65	64-65	N/A	---	---	---	---	---2	---
7	14	47	47	58-62	50-55	412'	20'	222.4	227,480	---2	---
8	---3	56	58	57-60	N/A	---	---	---	---	---2	---
9	---3	57	60	63-66	N/A	---	---	---	---	---2	---
10	---5	71	68	69	67-68	---	---	---	---	---2	---

## Notes:

- All of the residences along the existing U.S. Route 1 and Fountain Green Road were constructed after the roads were in use.
- The feasibility of earth berms will be investigated during final design.
- Noise levels do not exceed FHWA Noise Abatement Criteria
- Projected levels do not equal or exceed 67 dBA; projected increases of 10 dBA or greater were predicted.
- Noise barriers not physically feasible or effective due to driveway and local access.

5. Other Mitigation Measures

- a. Traffic Management Measures (e.g. traffic control devices and signing for prohibition of certain vehicles [heavy trucks], time use restrictions for certain types of vehicles, modified speed limits and exclusion lane designations).

It may be possible to prohibit heavy trucks from utilizing MD Route 23 Extended if warranted.

- b. Alterations of Horizontal and Vertical Alignment

This may be feasible and will be investigated during the design phase of the project.

- c. Acquisition of Real Property or Property Rights to Establish Buffer Zones or Install Earth Berms.

Existing residential development immediately adjacent to the roadway makes it infeasible to acquire significant amounts of property for buffer areas.

- d. Noise Sensitive Area 1 was analyzed for berm feasibility and it was determined that an 800-foot long berm five feet in height could be constructed within the proposed State right-of-way along relocated U.S. Route 1. There would need to be 15 feet of noise wall atop this berm in addition to 1,590 feet of 20-foot high noise wall to effectively abate this area. Using the \$27 per-square-foot multiplier for the cost of the noise wall and neglecting the cost of the berm, this berm/wall combination would cost \$1,182,600. Providing protection for four residences, the corresponding cost-per-residence is \$295,650. The previously modeled "all-wall" configuration had a projected cost of \$1,290,600 and cost-per-residence of \$322,650. There is not sufficient room between the edge of existing road and right-of-way to provide a berm along the existing U.S. Route 1.

In Noise Sensitive Area 7, a 12-foot high berm could be constructed where a previously modeled 20-foot high, 412 foot long noise wall was to be located. An 8-foot noise wall would need to be constructed atop the berm. Utilizing the \$27 per-square-foot multiplier for noise walls and neglecting berm costs, the resulting cost of this berm/wall combination is \$89,000. The "all-wall" configuration previously modeled had a projected cost of \$222,480. These costs reflect both total costs and cost-per-residence.

Located at the connection of MD Routes 23 and 543, noise barriers for Noise Sensitive Area 10 were not considered physically feasible or effective in the previous noise study due to driveway and local access. An earthen berm approximately 400 feet in length varying from 2 to 10 feet in height could be constructed

within State right-of-way. This limited height berm would only have a 2 dBA insertion loss for Noise Sensitive Area 10.

## 6. Construction Impacts

As with any major construction project, areas around the construction site are likely to experience varied periods and degrees of noise impact. This type of project would probably employ the following pieces of equipment that would be likely sources of construction noise:

- o Bulldozers and earth movers
- o Graders
- o Front end loaders
- o Dump and other diesel trucks
- o Compressors.

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

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

## G. AIR QUALITY IMPACTS

### 1. Analysis Objectives, Methodology, and Results

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

A microscale CO pollution diffusion analysis was conducted using the third generation California Line Source Dispersion Model, CALINE 3. This microscale analysis consisted of projections of 1-hour and 8-hour CO concentrations at sensitive receptor sites under worst-case meteorological conditions for the No-Build and the Build Alternates for the design year (2015) and the estimated year of completion (1995).

#### a. Analysis Inputs

A summary of analysis inputs is given below. More detailed information concerning these inputs is contained in the U.S. Route 1/MD Route 23 Extended, Air Quality Analysis which is available for review at the Maryland State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

#### Background CO Concentrations

In order to calculate the total concentration of CO which occurs at a particular receptor site during worst-case meteorological conditions, the

background CO concentrations are considered in addition to the level directly attributable to the facility under consideration. The background concentrations were derived from the application of rollback methodology to on-site monitoring conducted by the Maryland Department of the Environment, Air Management Administration at their Essex Monitoring Station during the period of 1985. The resulting concentrations are as follows:

	CO, PPM	
	1-hour	8-hour
1995	7.6	4.3
2015	6.8	3.8

Traffic Data, Emission Factors, and Speeds

The appropriate traffic data were utilized as supplied by the Bureau of Highway Statistics (August 1987 and February 1988) of the Maryland State Highway Administration.

The composite emission factors used in the analysis were derived from the Environmental Protection Agency (EPA) Mobile Source Emission Factors and were calculated using the EPA MOBILE 3 computer program. An ambient air temperature of 20°F was assumed in calculating the emission factors for the 1-hour analysis and 35°F for the 8-hour analysis in order to approximate worst-case results for each analysis case. Credit for a vehicle inspection maintenance (I/M) emission control program beginning in 1984 was included in the emission factor calculations.

Average vehicle operating speeds used in calculating emission factors were based on the capacity of each roadway link considered, the applicable speed limit, and external influences on speed through the link from immediately adjacent links. Average operating speeds ranged from 5 mph to 50 mph depending upon the roadways and alternate under consideration.

Meteorological Data

Worst-case meteorological conditions of 1 meter/second for wind speed and atmospheric stability class F were assumed for the 1-hour analysis and a combination of 1 meter/second and 2 meters/second wind speed and Class D and F stability classes were used for the 8-hour calculations.

The wind directions utilized as part of the analysis were rotated to maximize CO concentrations at each receptor location. Wind directions varied for each receptor and were selected through a systematic scan of CO concentrations associated with different wind angles.

b. Sensitive Receptors

Site selection of sensitive receptors were made on the basis of proximity to the roadway, type of adjacent land use, and changes in traffic patterns on the roadway network. Nine (9) receptor sites were chosen for this analysis consisting of nine (9) residences. The receptor site locations were

verified during study area visits by the analysis team. The receptor sites are shown on Figures 12 through 17.

<u>Site No.</u>	<u>Description/Location</u>
1	Residence (Historic), 2 story frame U.S. Route 1
2	Residence, 1 story brick Fountain Green Road
3	Residence, 2 story brick and frame U.S. Route 1
4	Residence, 2 story frame U.S. Route 1
5	Residence, 1 story frame Fountain Green Road
6	Residence, 1 story frame Fountain Green Road
7	Residence, 1 story stone Dogwood Lane
8	Residence, 1 story brick Fountain Green Road
9	Residence, 2 story frame Fountain Green Road

#### c. Results of Microscale Analysis

The results of the calculations of CO concentrations at each of the sensitive receptor sites for the No-Build and Build Alternates are shown on Tables 8 and 9. The values shown consist of predicted CO concentrations attributable to traffic on various roadway links plus projected background levels. A comparison of the values in Tables 10 and 11 with the S/NAAQS shows that no violations would occur for the No-Build or Build Alternates in 1995 or 2015 for the 1-hour or 8-hour concentrations of CO. The projected CO concentrations vary between alternates depending on receptor locations as a function of the roadway locations and traffic patterns associated with each alternate.

The background CO concentrations account for a majority of the predicted levels and range from 35% to 100% of the predicted concentrations. The concentrations remain well below the S/NAAQS for all alternates under consideration.

In conclusion, the No-Build Alternate and Build Alternates will not result in violations of the 1-hour or 8-hour S/NAAQS in 1995 or 2015.

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2. Construction Impacts

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

The Maryland Air Management Administration was consulted to determine the adequacy of the Specifications in terms of satisfying the requirements of the Regulations Governing the Control of Air Pollution in the State of Maryland. The Maryland Air Management Administration found that the specifications are consistent with the requirements of these regulations. Therefore, during the construction period, all appropriate measures (Code of Maryland Regulations 10.18.06.03D) would be taken to minimize the impact on the air quality of the area.

3. Conformity with Regional Air Quality Planning

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

4. Agency Coordination

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

TABLE 8

1-hour Carbon Monoxide Concentrations at Each Receptor Site\* (PPM)

Receptor Number	1995					2015				
	Back-ground	Alt. No-Build	Alt. 2 Option 1	Alt. 2 Option 2	Alt. 3	Back-ground	Alt. No-Build	Alt. 2 Option 1	Alt. 2 Option 2	Alt. 3
1	7.6	7.9	8.2	8.2	8.3	6.8	8.7	7.7	7.7	7.8
2	7.6	8.2	7.8	7.8	7.9	6.8	9.1	7.2	7.1	7.2
3	7.6	9.9	8.0	8.0	8.0	6.8	14.4	7.4	7.4	7.4
4	7.6	11.5	8.9	8.9	8.9	6.8	19.3	8.9	8.9	9.0
5	7.6	7.9	7.9	8.2	7.9	6.8	7.6	7.2	7.7	7.2
6	7.6	7.8	8.0	7.9	7.8	6.8	7.4	7.4	7.1	7.1
7	7.6	7.9	7.9	7.9	7.9	6.8	7.5	7.2	7.3	7.3
8	7.6	8.2	8.0	8.6	8.3	6.8	7.8	7.5	8.4	7.9
9	7.6	8.0	8.0	8.5	8.1	6.8	7.8	7.5	8.1	7.5

\*Including Background Concentrations

The S/NAAQS for CO: 1-hour - 35 ppm



TABLE 9

## 8-hour Carbon Monoxide Concentrations at Each Receptor Site\* (PPM)

Receptor Number	1995					2015				
	Back-ground	Alt. No-Build	Alt. 2 Option 1	Alt. 2 Option 2	Alt. 3	Back-ground	Alt. No-Build	Alt. 2 Option 1	Alt. 2 Option 2	Alt. 3
1	4.3	4.4	4.4	4.4	4.4	3.8	4.0	3.9	3.9	3.9
2	4.3	4.3	4.3	4.3	4.3	3.8	3.9	3.9	3.9	3.8
3	4.3	4.5	4.3	4.3	4.3	3.8	4.1	3.9	3.9	3.9
4	4.3	4.6	4.6	4.6	4.6	3.8	4.5	4.2	4.2	4.2
5	4.3	4.3	4.3	4.4	4.3	3.8	3.9	3.9	3.9	3.8
6	4.3	4.3	4.3	4.3	4.3	3.8	3.8	3.8	3.8	3.8
7	4.3	4.3	4.3	4.3	4.3	3.8	3.8	3.8	3.8	3.8
8	4.3	4.4	4.4	4.5	4.5	3.8	4.0	3.9	4.1	4.0
9	4.3	4.4	4.3	4.4	4.4	3.8	3.9	3.9	4.0	3.9

\*Including Background Concentrations

The S/NAAQS for CO: 1-hour - 35 ppm

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## H. SECTION 4(f) EVALUATION

### 1. Introduction

Section 4(f) of the Department of Transportation Act (now Section 303c of Title 49 USC) states that the use of land from a significant public park, recreation area, wildlife or waterfowl refuge or any significant historic site is not permissible unless there is no feasible and prudent alternate to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use.

### 2. Proposed Action

The proposed action consists of the construction of U.S. Route 1 Relocated and the extension of MD Route 23 to U.S. Route 1 Relocated or to MD Route 543 to bypass Hickory. Three alternates, the No-Build and two-Build Alternates are being considered for the bypass, and a partial or full extension of MD Route 23. A detailed description of the alternates is contained in Section III of this document.

The No-Build would not require the acquisition of property from any 4(f) resources. Of the two Build Alternates, only Alternate 2 would require the acquisition of property from one historic site, the Vineyards, which is possibly eligible for the National Register of Historic Places.

### 3. Description of 4(f) Resources

Vineyards in a large farm consisting of approximately 310 acres. It was established in the 18th century by James Preston, whose descendents were important in the history of Harford County. Among those descendents were the younger James Preston, who was a corporal in the Revolutionary War. Jacob Preston, a physician, served in the House of Representatives from 1843 to 1845. J. Bond Preston operated a mill on Deer Creek.

The Vineyards is the most extensive landholding by a single owner in the project area. It is privately owned by the Wysong family and is not open to the public.

This historic site is significant architecturally for the early 19th century large stone dwelling and its numerous period outbuildings. The dwelling, which is prominently located on a hill overlooking the farmland to the south, has a Georgian floor plan. It is a two-story structure of coarsed rubble, with quined corners, and is 5 bays wide on the entrance facade, and 3 bays deep. The gable runs parallel to the entrance facade with a wide cross gable centrally located over the entrance in the middle bay. The fenestration is regular, with 3 light cellar windows corresponding to those on the floors above. There is a round arched window high in the cross gable. The trim consists of a box cornice with frieze. The two brick chimneys are inside the northern and southern end walls. There is a 1 1/2 story frame addition on the east side.

The oldest outbuildings are located close to the house. Directly behind the structure is a combination milk cooler/smokehouse. It is a two-story building

with separate entrances to both floors. East of this is the ice house, with a modern garage between it and the slave quarter. All three buildings are generally arranged in a row. In a group to the east of the house are mostly twentieth century farm buildings, among them a granary, dairy corn crib, barn and equipment shed. A tenant house is located a considerable distance from the house on the ridge to the east.

The historic site is significant as a remarkably intact farmstead which retains some traditional farm buildings which are arranged to the rear and east of the main dwelling on a prominent ridge overlooking an open farmland setting which is framed by extensive woodland on the periphery of the farm.

The site is also significant as a working farm which has been in the same family since the eighteenth century. The historic boundary of the site encompasses all of the property which has been a part of the working farm since 1878.

4. Impacts to Resources

The Vineyards

Alternate 2, which constitutes the full extension of MD Route 23 from U.S. Route 1 Relocated to MD Route 543, would require 11.10+ acres from the wooded northern perimeter of the Vineyards historic site. Alternate 2, Option 1 would connect with MD Route 543 opposite the C. Milton Wright School and would require an additional 17.11+ acres of forested land on the eastern edge of the historic property.

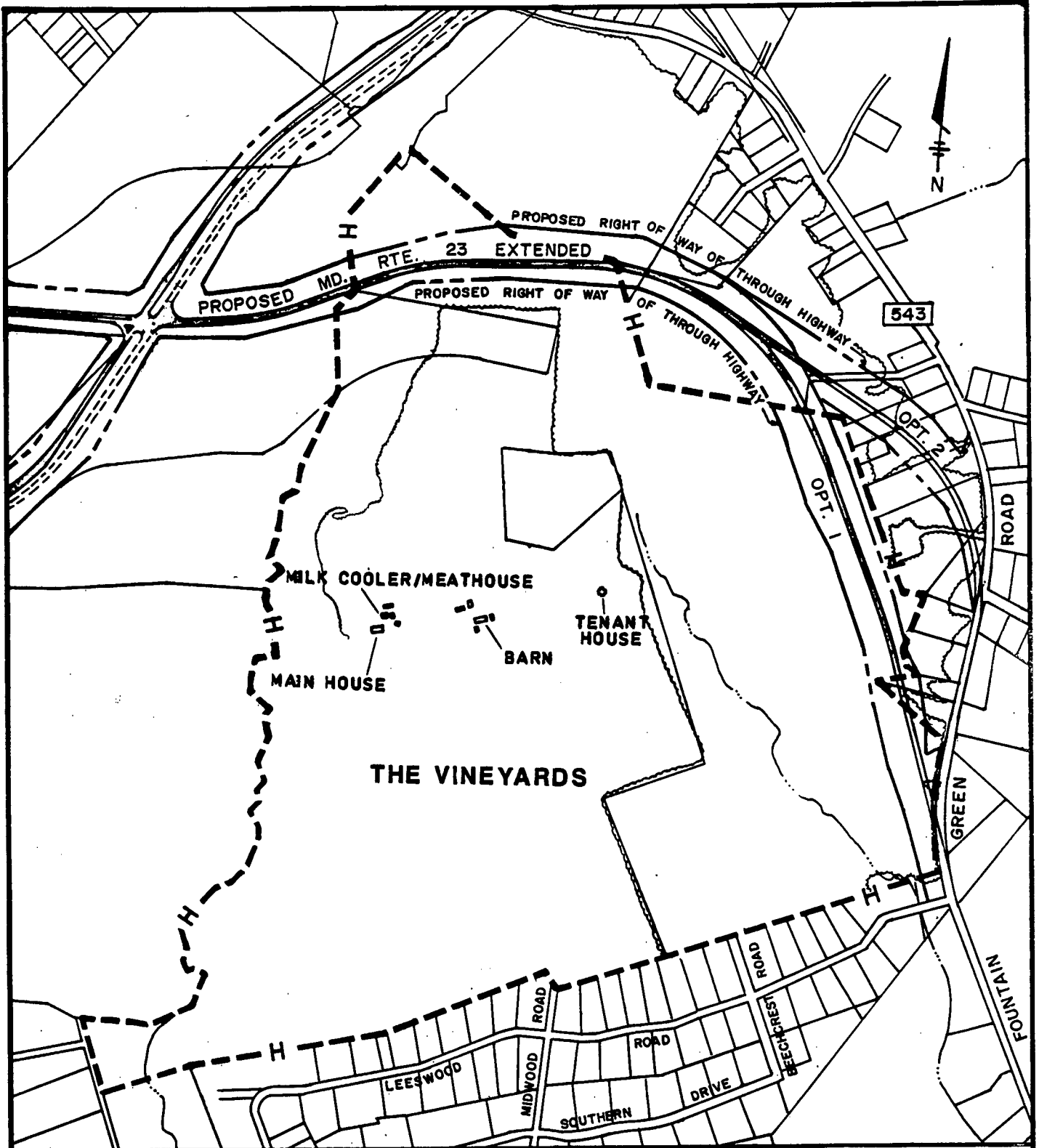
Alternate 2, Option 2 would connect with MD Route 543 900'+ north of Option 1 and would require an additional .05+ acres.

The acquisitions required for Alternate 2, Option 1, totaling 28.21+ acres, would constitute only 9.1+% of the 310+ acre site, and are located on the perimeter of the site. Alternate 2, Option 2 would require 11.15+ acres from the perimeter of the site. This constitutes only 3.5+% of the total acreage of the Vineyards' property. The acquisition required for Alternate 2 would not impact those areas of the farm used for cultivation since it is all forested. Therefore, the farm would continue as a viable operating farm.

Other impacts to the historic site consist of some loss of privacy by having the highway along the property with the possibility of intruders to the property due to the roadway.

In addition, access to the east side of the property, for emergency services and farm equipment which is currently provided by a road off MD Route 543 north of Leeswood Road, would be relocated by Alternate 2, Option 1.

The State Historic Preservation Officer, in his May 3, 1988 letter included in the Comments and Coordination Section, states that Alternate 2 Option 1 would have severe adverse effects. Alternate 2, Option 2 would have adverse effects which are mitigable.



**LEGEND**

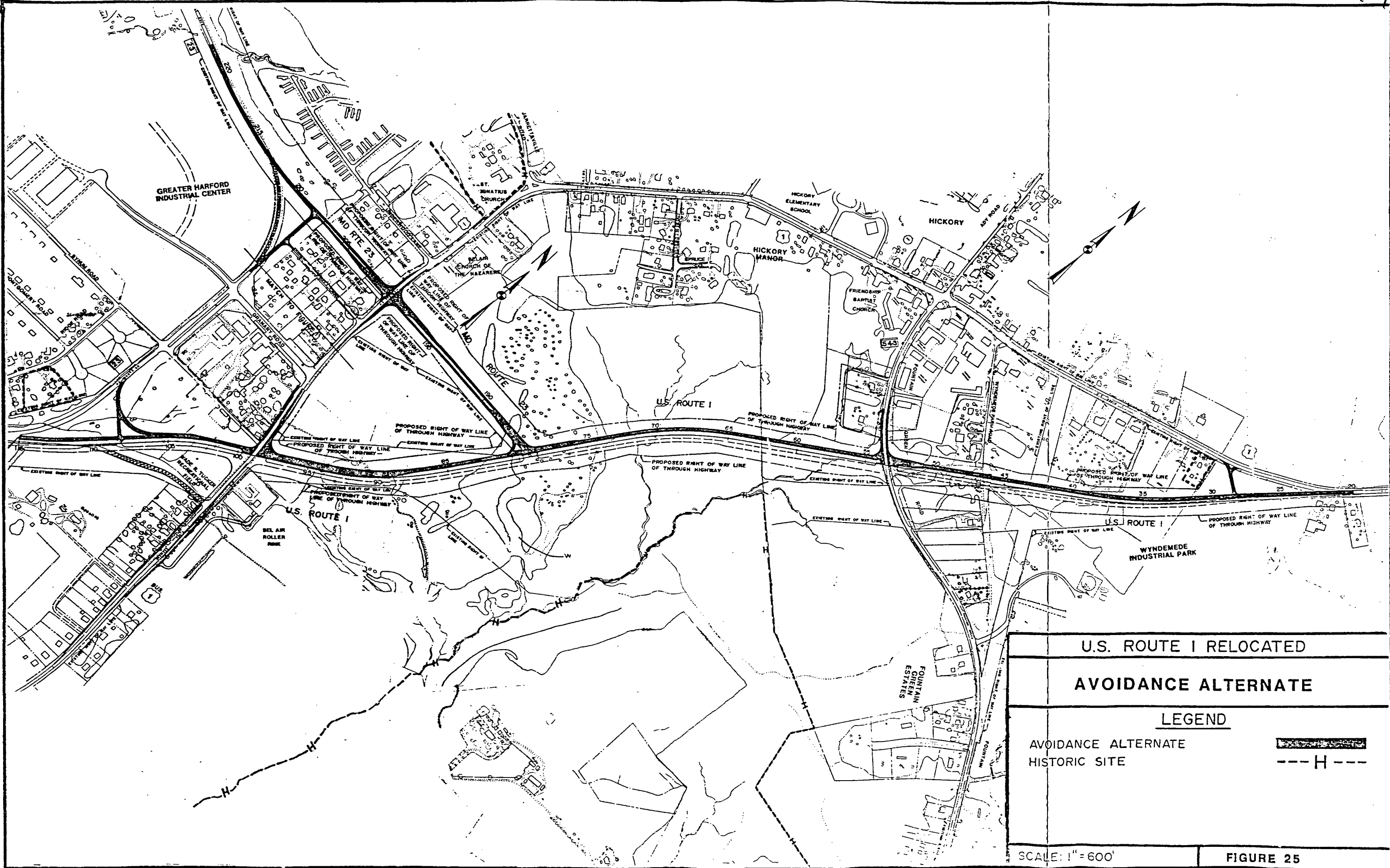
- H--- HISTORIC SITE BOUNDARY
- ==== ALTERNATE 2, OPTION 1 AND OPTION 2

**U.S. ROUTE 1 / MD. ROUTE 23  
EXTENDED HICKORY BYPASS**

**HISTORIC SITE BOUNDARY**

SCALE: 1" = 800'

FIGURE 24



U.S. ROUTE 1 RELOCATED

AVOIDANCE ALTERNATE

LEGEND

AVOIDANCE ALTERNATE  
HISTORIC SITE



SCALE: 1" = 600'

FIGURE 25

5. Avoidance Alternates (Figure 25)

The No-Build Alternate (Alternate 1) and Alternate 3 would avoid taking property from the Vineyard historic property. Alternate 1 would not involve any major construction or reconstruction in the project area and would therefore have no impact upon the historic site. This alternate does not satisfy the project need as it would not improve the current safety and geometric deficiencies along U.S. Route 1.

The section of U.S. Route 1 in the study area is a high accident section including the intersection with MD Route 543. MD Route 543 in the study area has an accident rate substantially higher than the statewide average. With Alternate 1 it is projected that traffic would double on the existing roads which would result in a doubling of the number of accidents. This alternate would not adequately accommodate existing traffic volumes. With Alternate 1, U.S. Route 1 would operate at level of service "F" and MD Route 543 would operate at LOS "D".

Alternate 3 would terminate MD Route 23 Extended at U.S. Route 1 relocated and would not require the traversing of the Vineyard property. This alternate would not satisfy the need for the project as it would not provide the east-west roadway necessary to accommodate projected traffic volumes. Increased demand for east-west travel based on regional land use, combined with the additional traffic attracted to this area by the relocation of U.S. Route 1, would result in higher traffic volumes than the No-Build Alternate. Traffic service on MD Route 543 would be reduced to LOS "E" with this alternate. In addition, the number of accidents along MD Route 543 would be expected to be higher than that of any other alternate.

Neither of these alternates are fully consistent with the Harford County Master Plan 1977.

6. Measures to Minimize Harm

Coordination with the property owners of the Vineyards after the Alternates Meeting has resulted in a number of modifications to Alternate 2, Option 1, that addressed their concerns.

The alignment of MD Route 23 Extended was shifted approximately 415 feet to the north away from the nucleus of farm buildings which are over 1,500 feet to the south. The buildings are located on a ridge in the center of the 310+ acre site and are oriented to the south which is opposite the area where the road acquisition would occur. A band of woods between the buildings and the road, would buffer the buildings from a view of the new road. The alignment was shifted in order to avoid acquiring the cultivated portion of the property, thereby reducing the acreage required from the northern portion of the historic site from 11.10 acres to 11.6 acres. Thus, the woodland which would be landlocked by Alternate 2 was reduced.

A new access road to MD Route 543 on the east side of the property would be provided. The current access from MD Route 543 (north of Leeswood Road) would be terminated by Alternate 2 and would be replaced with a road parallel to MD Route 23 Extended and then connect onto Leeswood Road (shown on Figure 16).

The property owners concern regarding safety for themselves and their livestock will be addressed by providing chain-link fencing along the length of MD Route 23 relocated through the historic site.

A right-of-way width sufficient to accommodate 4 lanes is being considered because it would be consistent with current and proposed roadway improvements in the area. MD Route 23 to the west exists as a 2-lane roadway within 300 feet of right-of-way which is sufficient for the planned multi-lane highway. MD Route 543 to the south of MD Route 23 Extended is being considered for upgrading to a multi-lane highway within 120 feet of the right-of-way plus slope easements. The right-of-way shown for MD Route 23 Extended in Alternate 2 would provide for a multi-lane highway with no additional impacts beyond the proposed right-of-way.

Alternate 2, Option 2 would reduce impacts to the historic site as compared to Alternate 2, Option 1. Alternate 2, Option 2 would be less desirable than Option 1 because it would utilize a greater portion of MD Route 543 which is currently experiencing high accident rates. Therefore, Alternate 2, Option 2 is likely to result in more accidents than Option 1 since it ties in further north along MD Route 543 than Option 1. Option 2 also has less desirable roadway geometrics. The sharper horizontal curve meets a design speed of 50 miles-per-hour (MPH) as opposed to 60 MPH for the rest of the project. Option 2 also requires 6 residential displacements.

Wetland W10 Mitigation Alignment 3 would reduce impacts as compared to Option 1 by 5.1 acres but not as much as Option 2. This alignments would require 3 residential displacements and has a reduced design speed of 50 MPH.

7. Coordination

The March 3, May 21, 1987 and May 3, 1988 letter concerning historic sites, and the March 16, 1988 letter about archeological sites, both generated by the State Historic Preservation Officer, are included in the Comments and Coordination Section.

Copies of this document will be circulated to the Department of Interior (DOI) and other appropriate agencies.

v

**Comments and  
Coordination**



V. COMMENTS AND COORDINATION

Coordination of this project with the public consisted of the Alternates Public Meeting held at the C. Milton Wright High School on February 8, 1987. Citizens expressed concern about maintaining access to U.S. Route 1 from Granary Road.

Coordination of this project with appropriate resource agencies was begun July 2, 1986 at the Inter-Agency Quarterly Review held by the State Highway Administration. Representatives from the Maryland Department of Natural Resources, U.S. Fish and Wildlife Services and the Corps of Engineers attended this meeting.



PROJECT DEVELOPMENT DIVISION

William Donald Schaefer  
Governor

Jacqueline H. Rogers  
Secretary, DHCD

MAY 3 3 33 PM '88

May 3, 1988

Ms. Cynthia Simpson, Chief  
 Environmental Management  
 Maryland Department of Transportation  
 State Highway Administration  
 P. O. Box 717  
 707 North Calvert Street  
 Baltimore, Maryland 212030-0717

RE: Contract No. H 873-101-470  
 U.S. Route 1 Relocated  
 (Hickory) from U.S. Route 1  
 (Business) and Maryland  
 Route 543  
 PDMS No. 122040

Dear Ms. Simpson:

Thank you for your letter of February 10, 1988 concerning the subject project, and the corrected copy supplied by Rita Suffness in March. Our office concurs with the following determinations of effect (excepting those with asterisks):

	<u>Alt 3</u>	<u>Alt 2 (01)</u>	<u>Alt 2 (02)</u>
Bussey Stone House - 3	NE	NE	NE
Grafton-Klein House - 6	CNAE	CNAE	CNAE
Southampton (HA 1092) - 10	NE	NE	NE
Vineyard (HA 417-20) - 11	NE	ADV*	ADV*
Kahoe House (HA 1537) - 12	NE	NE	NE
St. Ignatius Church (HA 41) - 13	NE	NE	NE
Preston's Choice - 14	NE	NE	NE

In the opinion of our office, Alternate 2 Option 1 would have severe adverse effects on the Vineyard property, while Alternate 2 Option 2 would have adverse effects capable of mitigation.

*Maryland*

Department of Housing and Community Development  
 Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-4450, 757-9000  
 Temporary Address: Arnold Village Professional Center, 1517 Ritchie Highway, Arnold, Maryland 21012

Ms. Cynthia Simpson, Chief  
May 3, 1988  
Page 2

We thank you for your continued cooperation. If you have any questions, please contact Dr. Al Luckenbach at 757-9000.

Sincerely,

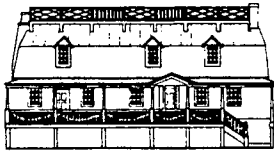


J. Rodney Little  
Director  
State Historic Preservation Officer

JRL/AHL/mmc

cc: Mr. Paul Wettlaufer  
Ms. Rita Suffness  
Ms. Sallie Van Rensselaer  
Mr. Charles Montgomery

MARYLAND  
HISTORICAL



TRUST

William Donald Schaefer  
Governor

J. Randall Evans  
Secretary, DECD

May 21, 1987

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

RE: Contract No. H 873-101-470  
U.S. Route 1 Relocated from  
U.S. Route 1 (Business) to  
U.S. Route 1 north of Hickory  
PDMS No. 122040

Dear Ms. Simpson:

Thank you for your letter of April 13, 1987 concerning the above-referenced project, and the accompanying photographs which were received on May 19, 1987.

Our office concurs with your determinations of significance for the following structures:

- 13 - St. Ignatius (HA-41) - PNRE
- 14 - Preston's Choice - "
- 15 - Grace Chapel - MI
- 16 - Hickory School - "
- 17 - J. Minnick Dwelling - "
- 18 - B. Minnick Dwelling - "
- 19 - Kennedy Store - "
- 20 - Fowler Residence - "
- 21 - Barrow Farm - "
- 22 - Farm - "

Your cooperation is appreciated.

Sincerely,

J. Rodney Little  
Director-State Historic  
Preservation Officer

JRL/AHL/jja

cc: Mrs. Jane J. Foard  
Mr. Charles Keenan



Department of Economic and Community Development  
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-4450, 757-9000  
Temporary Address: Arnold Village Professional Center, 1517 Ritchie Highway, Arnold, Maryland 21012

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March 3, 1987

Maryland Historical Trust

PROJECT  
DEVELOPMENT  
DIVISION  
MAR 9 10 09 AM '87

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

Re: Contract No. H 873-101-471  
U.S. Route 1 Relocated from  
U.S. Route 1 (Business) and  
Maryland Route 543/Southhampton  
Road Intersection to North of  
Ruffs Mill Road  
PDMS No. 122040

Dear Ms. Simpson:

Thank you for your letter of February 10, 1987 which was received by our office on February 27th. Our office concurs with your evaluations of the following properties:

1. Hoops Residence - MI
2. Mt. Tabor Church - MI
3. Bussey Stone Dwelling - PNRE
4. Frame Residence - MI
5. Grafton (Sunshine) - MI
7. HA 1269 Anderson House - MI
8. Butt Dwelling - MI
9. Thompson Residence - MI
10. HA 1092 Southhampton - PNRE
11. HA 417-20 Vinyard - PNRE
12. HA 1537 Kahoe House - PNRE

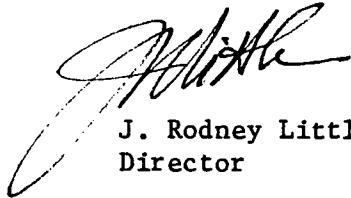
We disagree with your evaluation of #6 the Grafton-Klein residence, however. Based on the limited information available, this structure appears to be an excellent example of Vernacular Victorian architecture and is possibly National Register eligible.

Our office further concurs with the proposed boundaries for #10 Southhampton and #12 Kahoe House. The boundary for #3 the Bussey Dwelling was incomplete and difficult to evaluate. The boundary for #11 the Vinyard may be appropriate, but we request a written rationale, especially for the northern border.

Ms. Cynthia Simpson  
March 3, 1987  
Page 2

We appreciate your cooperation in this matter and look forward to your responses to our queries. If you have any questions or comments, do not hesitate to contact Al Luckenbach at 974-4450.

Sincerely,



J. Rodney Little  
Director

JRL: AHL:lcb

cc: Ms. Rita Suffness  
Mr. Paul Wettlaufer  
Mrs. Jane M. Foard  
Mr. Charles Keenan

MARYLAND  
HISTORICAL



TRUST

PROJECT William Donald Schaefer  
DEVELOPMENT Governor  
DIVISION

Jacqueline H. Rogers  
Secretary, DHCD  
MAR 22 4 26 PM '88

March 16, 1988

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

RE: Contract No. H 873-101-470  
U.S. Route 1  
Hickory Bypass  
PDMS No. 122040  
Harford County, Maryland

Dear Mr. Ege:

Thank you for sending us a copy of the executive summary of the Phase I archeological survey conducted of the above-referenced project. The summary was prepared by the Maryland Geological Survey and is dated January 28, 1988. This office received its review copy from the State Highway Administration on March 3, 1988.

The executive summary presents a concise documentation of the goals, methodology, results and recommendations of the survey. The survey identified and recorded three prehistoric sites, two mixed prehistoric/historic sites, one historic site and four artifact scatters. Based upon the data presented in the executive summary, this office concurs that the following sites and all four artifact scatters are not eligible for inclusion on the National Register of Historic Places: 18HA165, 18HA166, 18HA168, and 18HA170. The above-referenced archeological sites and artifact scatters are not likely to provide additional important information regarding the history or prehistory of the area under consideration. This office does not recommend additional archeological research of these sites or scatters.

The mixed historic/prehistoric site 18HA167 may be eligible for listing on the National Register of Historic Places. The prehistoric component of 18HA167 may provide important information regarding settlement patterns, site function, and artifact chronology in this region of Maryland. If an alternate alignment is selected that may impact this site, Phase II archeological testing will be necessary to better assess its eligibility for the National Register. Further consultation with this office will be necessary to complete the Section 106 review of this project.

*Maryland*

Department of Housing and Community Development  
Shaw House, 21 State Circle, Annapolis, Maryland 21401 (301) 974-4450, 757-9000  
Temporary Address: Arnold Village Professional Center, 1517 Ritchie Highway, Arnold, Maryland 21012

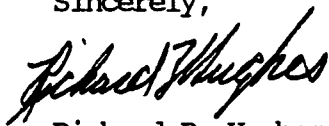
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Mr. Louis H. Ege, Jr.  
March 16, 1988  
Page 2

If you have any questions or require additional information, please contact Ms. Beth Cole of our staff at (301) 974-4450. We look forward to receiving a copy of the final report, when available.

Thank you for your continued cooperation and support.

Sincerely,



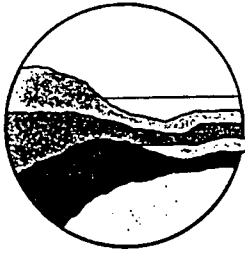
Richard B. Hughes  
Chief Administrator,  
Archeological Programs  
Office of Management and Planning

REH/RJH/EJC/mmc

cc: Dr. Jody Hopkins  
Mr. Tyler Bastian  
Ms. Sallie Van Rensselaer  
Mr. Charles Montgomery



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Maryland Department of Natural Resources

Maryland Geological Survey

2300 St. Paul Street  
Baltimore, Maryland 21218  
Telephone: (301) 554-5500

William Donald Schaefer  
Governor

Torrey C. Brown, M.D.  
Secretary

Kenneth N. Weaver  
Director

Emery T. Cleaves  
Deputy Director

PROJECT DEVELOPMENT DIVISION  
JAN 29 9 34 AM '88

Division of Archeology  
(301) 554-5530

28 January 1988

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

RE: Hickory Bypass, Harford County, Maryland  
Contract No. H 873-101-470N

Dear Mr. Ege:

At the request of the State Highway Administration, the Division of Archeology conducted a Phase I archeological survey of the proposed Hickory Bypass, Harford County, Maryland (Contract No. H 873-101-470N; Figure 1). The project involves relocation of U.S. Route 1 and Maryland Route 23. State Highway Administration is evaluating two similar alternates (numbers 2 and 3); Alternate 3 differs from 2 by excluding the southeast segment of Maryland Route 23. Several parallel, partially overlapping alignments were surveyed for each alternate. Three alignments of U.S. Route 1 were surveyed (2750 m long and a width ranging from 50 to 240 m), as were two alignments of Maryland Route 23 (2750 m long and a width ranging from 50 to 120 m; the entire area surveyed is illustrated in Figure 1). Each alignment is about 50 m wide. The project was carried out between 15 and 22 July 1987, and 16 and 19 November 1987, by archeologists Richard Ervin, Spencer Geasey, and William Huser.

The survey area crosses nearly level to moderately sloping land near several stream headwaters, and is in the eastern Piedmont physiographic region. Soils range from poorly-drained to well-drained, and are mostly silt loams underlain by clay loams. Over half of the project area is wooded, and much of the rest is grass-covered. Untilled agricultural fields make up about 17% of the project area.

Four sites previously had been recorded within 5 km of the survey area. These include two historic sites - a cemetery (18HA23) and a late nineteenth century trash dump (18HA96) - and two prehistoric sites - a sparse flaked stone scatter (18HA97) and a late Archaic/late Woodland site (18HA137). The latter is on a ridgetop 0.7 km east of the project area.

Two alignments of U.S. Route 1 (alignments A and B) and one alignment of Maryland Route 23 (alignment C) were surveyed in July. Plowed fields and other surface exposures were visually inspected. Within forested or grassy areas, shovel test pits were excavated in areas of high or moderate archeological site potential (including well-drained stream terraces, hilltops, and ridgetops). No testing was conducted in poorly-drained areas or on slopes greater than 4%. A housing area disturbed by grading also was not tested.

The third alignment of U.S. Route 1 (alignment D) and second alignment of Maryland Route 23 (alignment E) were surveyed more intensively as a control sample (these alignments constitute revised Alternates 2 and 3). Shovel test pits were excavated at 20 m intervals in high probability areas, defined as: a) terraces, floodplains, or ridges, within 50 m of waters, b) with level topography, less than 4% gradient, c) and well-drained soils. A transect of STPs spaced 30 m apart was excavated in medium probability areas (hilltops and ridgetops under 4% grade, which are more than 50 m from water). A transect of STPs spaced 60 m apart was excavated in a 25% sample of low probability areas (undisturbed areas under 15% grade, not meeting the criteria of high or medium probability areas). No test pits were placed in disturbed areas or on slopes greater than 15%.

Shovel test pits were 40 cm in diameter and excavated to clay subsoil, indicative of Pleistocene soil development. Excavated material was screened through 1/4 inch mesh hardware cloth.

SURVEY RESULTS

Three prehistoric sites, one historic site and two mixed historic/prehistoric site were found in the right-of-way. Four artifact scatters or isolated artifacts were also found within the right-of-way.

Site 18HA165 (Figures 1 and 2) is a small concentration of quartz flakes near two other sites (18HA166 and 18HA167). The site is outside the right-of-way of revised Alternates 2 and 3, which are now being considered for construction. It is on a moderate slope (3.7%) grading to a small stream 80 m away. The artifacts were exposed by heavy logging equipment, which had stripped off the humus layer and churned the soil. Twenty-three quartz flakes and a rhyolite flake were found within a 10 m diameter area (see attached catalog sheets, Appendix I). Because an intensive surface collection was conducted, the recovered material probably represents most of the artifacts not removed with the humus. The homogeneous appearance and concentration distribution of the quartz flakes suggests they may represent reduction of a single cobble.

Site 18HA166 (Figures 1 and 2) is a small site (15 m by 25 m) near 18HA167 and 18HA165. It is also outside the right-of-way of revised Alternates 2 and 3. The site is situated on a low, poorly to moderately-well drained stream terrace. Four flakes and several fragments of fire-spalled jasper were found in two shovel test pits; a third test pit contained no cultural material (Appendix I).

Site 18HA167 (Figures 1 and 2) is a large (250 m by 100 m), moderately dense prehistoric and historic site near 18HA165 and 18HA166. The site is within the right-of-way of revised Alternates 2 and 3. It is on a 2 to 3 m high, well-drained terrace overlooking an active stream intersection. Thirty-six shovel test pits were excavated, of which twenty-three contained cultural material (Appendix I). Prehistoric artifacts included 4 steatite vessel sherds, a biface, a scraper, 3 cores, and 63 flakes. Artifacts were composed of seven material types: quartz, argillite, jasper, chalcedony, rhyolite, sandstone, and chert. The size of the artifact assemblage; presence of steatite vessel sherds and stone tools, and the wide variety of material types are indicative of more intensive occupation than characterizes the other recorded sites.

Scattered shovel test pits throughout the north half of the site contained small quantities of historic as well as prehistoric artifacts; the former include earthenware sherds, can fragments, window and bottle glass, and nails. Several historic features were also found. A 1 m by 2 m mortared stone hearth is close to the site center. The feature was disturbed by logging after it had been recorded. Nearby is what may be an abandoned farm road. Fifty meters northwest of these features is a 2 m by 3 m depression of unknown function.

The site recently has been logged, causing variable degrees of disturbance to a depth of about 10 cm. Between July and November, a 6 m wide path was cleared and graded to construct a gravel road. This action heavily disturbed part of the north end of the site. Shovel test pits also showed the north end of the site had been plowed, although the south part is untilled.

Site 18HA168 (Figures 1 and 3) is a small (35 m by 60 m) prehistoric and historic site on the toe of a ridge. It is partially within the right-of-way of revised Alternate 2. The site is about 150 m distant and 6 m above the nearest drainage, a dry streambed. Four quartz flakes and a core were found on the surface. Eleven shovel test pits were excavated in a 20 m grid across the ridge toe. Five test pits yielded a total of eleven flakes (Appendix I). Several mid-twentieth century historic features were also found. A recent cobble hearth containing charcoal and the remains of a small wood-frame, corrugated roof structure were on the ridgetop. The structure had a foundation of mortared cobbles and a frame of unmilled wood fastened with wire nails. A second cobble hearth was found below the edge of the knoll, within a depression possibly excavated as a source of sand or gravel. No evidence of plowing or other subsurface disturbance was found.

Site 18HA169 (Figures 1 and 4) is a small (30 m by 60 m) flaked stone site on a low (1 m), moderately well-drained terrace next to a small stream. Nine shovel test pits were excavated on a 20 m grid across the terrace. Twelve quartz, rhyolite and quartzite flakes were found in four of the nine shovel test pits (Appendix I).

Site 18HA170 (Figures 1 and 5) is a medium size (50 m by 75 m) historic site consisting of an artifact scatter and the remains of two structures. The structures are depicted on maps as a domestic dwelling and a barn. Both are shown on the 1956 (photorevised) USGS 7.5' Bel Air quadrangle, while the house alone appears on the 1901 USGS 15' Belair (sic) quadrangle.

A u-shaped quartz cobble alignment (Feature 1) and several piles of quartz cobbles apparently represent the domestic structure. A 1 m diameter ring of mortared quartz cobbles and a poured concrete footing were also recorded. Twenty-five m southeast of the right-of-way is a second quartz cobble foundation and a pile of structural debris (Feature 2). This is the location of the barn shown on the 1956 7.5' Bel Air quadrangle.

Much of the area around the quartz cobble features has been cultivated. Surface exposures were carefully inspected, and a small, moderate-density scatter of domestic artifacts was found about 7 m north of the house site. Five shovel test pits were excavated around the features, and four produced late nineteenth through mid-twentieth century historic material (Appendix I). Significant amounts of structural debris was found (asbestos tile, asphalt roof shingles, mortar, brick and nails). Domestic refuse includes bottle glass stoneware and whiteware ceramics, coal, bone, and plastic.

Four artifact scatters or isolated artifacts were also recorded - Two prehistoric and two historic. Artifact tabulations are provided in Appendix I. Artifact scatter 18HAX13 consists of three quartz flakes found on a prominent ridgetop (Figures 1 and 6). Two were found on a vehicle trail, and one in a shovel test pit 70 m away. Five other shovel test pits produced no cultural material. Artifact scatter 18HAX14 consists of two bottle glass fragments from two shovel test pits located 60 m apart (Figures 1 and 7). Artifact scatter 18HAX15 includes a whiteware sherd and clay pigeon fragments from two shovel test pits on a low hilltop 300 m from water (Figures 1 and 8). Soil profiles show the area had been plowed. Isolated artifact 18HAX16 is a single flake found in a logging road 50 m north of 18HA165 (Figures 1 and 2).

INTERPRETATIONS AND RECOMMENDATIONS

Site 18HA167 is a large, moderately-dense prehistoric and historic site. A portion of the site has been disturbed by road construction, and other areas have been affected by plowing and logging. However, shovel test pits indicate that much of the site is relatively undisturbed. Prehistoric artifacts include steatite sherds diagnostic of the Late Archaic. The quantity, density and variety of prehistoric material suggest the site served as a base camp, perhaps occupied on a seasonal basis. This interpretation is consistent with

evidence that bulky steatite vessels were used on the site. Bifacial and unifacial flaked stone artifacts were also found. Scattered historic artifacts were found in the north half of the site, near a stone hearth and an abandoned farm road. The hearth is an isolated feature, with no indications of a nearby dwelling.

The scattered historic artifacts are not thought to be significant. There are no indications of a structure on or near the site, and the artifacts may represent discarded trash near the farm road. However, the prehistoric assemblage is indicative of a substantial occupation. 18HA167 may be able to provide useful information about prehistoric settlement patterns, site function, and chronology. If the site is within the alignment chosen for construction and cannot be avoided, it is recommended that Phase II test excavations be undertaken to evaluate its eligibility to the National Register of Historic Places.

Site 18HA169 is a small, low-density flaked stone scatter on a low stream terrace. Twelve flakes were recovered from nine shovel test pits. Because the site represents a limited occupation, it is not likely to yield information important in prehistory. No further work is recommended.

18HA168 is a prehistoric and twentieth century historic site. The twentieth century features include the remains of a small shed and an excavated depression; no historic artifacts were associated with the features. The historic material is not likely to yield important information about history. The prehistoric component is a low-density flaked stone scatter representing a limited occupation. Artifacts consisted of 15 flakes and a core fragment. It is unlikely that such a low-density site could yield important information, and no further work is recommended.

Site 18HA170 is made up of several quartz cobble and poured concrete features along with associated features and artifacts. Twentieth century maps suggest the structures may have been standing as recently as 1974. Most of the artifact assemblage dates to the twentieth century, including some material from the second half of the twentieth century (plastic, aluminum foil, and a metal screw-on bottle cap). Investigations do not suggest 18HA170 is likely to yield important information, and no further archeological work is recommended.

Site 18HA165 is a small concentration of flakes that probably represents reduction of one or several cobbles. Such a site might be expected to yield information on lithic reduction techniques. However, the site has been disturbed by heavy equipment used during logging. Because the site lacks integrity, no further work is recommended.

Site 18HA166 is a small, very low density flaked stone site. It is outside the rights-of-way of revised Alternates 2 and 3, which are now being considered for construction. The sparse scatter of artifacts is suggestive of brief use of the area, perhaps on occasions widely separated in time. The site is unlikely to yield important information, and no further work is recommended.

18HAX13 through 18HAX16 are isolated artifacts or scatters of artifacts with little temporal or functional value. They are unlikely to yield important information about the past, and no further work is recommended.

SUMMARY OF RECOMMENDATIONS

Six archeological sites and four artifact scatters were identified within the proposed right-of-way of US Route 1 and Maryland Route 23 Hickory Bypass, Harford County, Maryland. Mixed prehistoric/historic site 18HA167 is considered to be potentially eligible to the National Register of Historic Places. Depending on the choice of alignment for construction, Phase II evaluations of this site may be warranted. Prehistoric sites 18HA165, 18HA166, and 18HA169, historic site 18HA170, mixed prehistoric/historic site 18HA168, and artifact scatters 18HAX13, 18HAX14, 18HAX15, and 18HAX16 are not considered likely to yield information important in history or prehistory, and no further work is recommended on them.

If you have any questions about the matter, please contact Richard Ervin at 554-5534.

Sincerely,

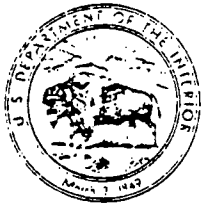


Richard G. Ervin  
Archeologist

RGE:lw

cc: Cynthia D. Simpson  
Joseph Hopkins

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# United States Department of the Interior

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

JUL 31 9 49 AM '86  
PROJECT  
DEVELOPMENT  
DIVISION

July 29, 1986

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

Dear Ms. Simpson:

This responds to your letter of July 2, 1986, requesting endangered species distribution information for the area of the proposed relocation of U.S. Route 1 and MD Route 23 extension, Harford County, Maryland (P.D.M.S. 122040).

Our records indicate no endangered, threatened or other rare species in the immediate project area. However, streams bordering the area on the northeast and east are tributaries of Deer Creek. The endangered Maryland darter (Etheostoma sellare) is known from a single riffle near the mouth of Deer Creek. Due to its distance from the project site, this riffle is unlikely to be affected by any aspect of project activity. However, due to the vulnerability of this endangered fish, you should ensure that thorough silt and erosion control measures are taken, particularly in the vicinity of streams tributary to Deer Creek.

We appreciate your concern for endangered species. If you have any further questions, please contact Andy Moser or Judy Jacobs of my staff (269-6324).

Sincerely yours,

*Glenn A. Kinser*

Glenn Kinser  
Supervisor  
Annapolis Field Office

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STATE OF MARYLAND  
DEPARTMENT OF  
PUBLIC SAFETY AND CORRECTIONAL SERVICES  
MARYLAND STATE POLICE

WILLIAM DONALD SCHAEFER  
GOVERNOR

MELVIN A. STEINBERG  
LT. GOVERNOR

Barrack "D", Bel Air, Maryland  
838-4101 879-2101

February 16, 1988

BISHOP L. ROBINSON  
SECRETARY  
PUBLIC SAFETY AND  
CORRECTIONAL SERVICES

COLONEL ELMER H. TIPPETT  
SUPERINTENDENT  
MARYLAND STATE POLICE

Mr. Neil J. Pedersen, Director  
Office of Planning and Engineering  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21202

Dear Mr. Pedersen,

I have reviewed the Alternates Workshop proposals for U. S. Route 1/Maryland Route 23 extended Hickory Bypass.

We feel the best proposal would be alternate #2. It relieves the traffic problems at U. S. Route 1 Bypass and U. S. Route 1-B. It also provides a direct route for traffic from Maryland Route 23 to Maryland Route 543 on to Maryland Route 22. This would indeed take some of the traffic volume away from Maryland Route 152 and Maryland Route 24. Basically, this proposal would solve current problems and open new access for commuters to go to Interstate 95.

Sincerely,

*RLH*  
R. L. Holt - 1st Lieut.  
Commander, Barrack "D"

RLH/lw

RECEIVED

#357  
FEB 19 1988

DIRECTOR, OFFICE OF  
PLANNING & PRELIMINARY ENGINEERING

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DIVISION





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

TORREY C. BROWN, M.D.  
SECRETARY

DONALD E. MACLAUHLAN  
DIRECTOR

July 17, 1986

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

PROJECT  
DEVELOPMENT  
DIVISION  
JUL 23 10 36 AM '86

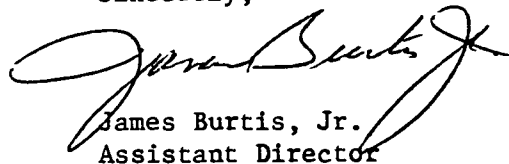
RE: Contract No. H 873-101-470  
U.S. Rt. 1 Relocated from  
U.S. Rt. 1 (Bus) to U.S. Rt. 1  
north of Hickory and Md. Rt. 23  
extended from U.S. Rt. 1 to Md.  
Rt. 543 - Harford County

Dear Ms. Simpson:

Your request for information we may have concerning threatened or endangered species has been reviewed by Gary J. Taylor.

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

Sincerely,

  
James Burtis, Jr.  
Assistant Director

JB:emp

cc: G. Taylor  
C. Brunori

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

TORREY C. BROWN, M.D.  
SECRETARY

DONALD E. MACLAUHLAN  
DIRECTOR

August 15, 1986

Cynthia D. Simpson  
State Highway Administration  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

Subject: U.S. Rt. 1 relocated north of Hickory and Md. Rt. 23 extended

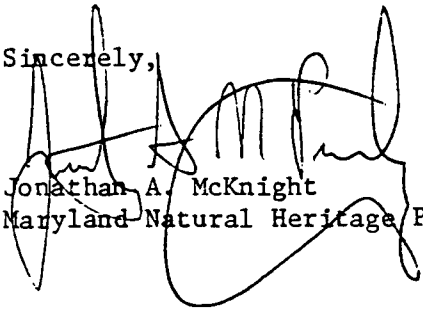
PROJECT  
DEVELOPMENT  
DIVISION  
Aug 19 3 30 PM 1986

Dear Ms. Simpson,

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

Species and habitats of special concern to the state are listed and discussed in the following 1984 Department of Natural Resources publication: Threatened and Endangered Plants and Animals of Maryland, available through this office. A site evaluation should include a consideration of these species and their habitats.

Sincerely,

  
Jonathan A. McKnight  
Maryland Natural Heritage Program

JAM:nl t

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TORREY C. BROWN, M.D.  
SECRETARY

JOHN R. GRIFFIN  
DEPUTY SECRETARY

STATE OF MARYLAND  
DEPARTMENT OF NATURAL RESOURCES  
**TIDEWATER ADMINISTRATION**  
TAWES STATE OFFICE BUILDING  
ANNAPOLIS 21401

PROJECT  
DEVELOPMENT  
DIVISION  
JUL 15 2 27 PM '86

July 11, 1986

Ms. Cynthia D. Simpson, Chief  
Environmental Management  
State Highway Administration  
P.O. Box 717  
707 North Calvert Street  
Baltimore, Maryland 21203-0717

RE: Contract No. H 873-101-470

Dear Ms. Simpson:

Bynum Run was surveyed as part of the Cold Water Fisheries survey of the Bush River Basin, Federal Aid Project F-36-R, July 1985. The attached species list was developed during that study. Forage fish composition and water quality in this tributary are capable of supporting trout populations. Bynum Run is one of two streams in this basin that were recommended for study as trout management areas.

Sincerely,

Larry Lubbers  
Environmental Review

LL:kcyj

VI

**Appendices**



COASTAL  
RESOURCES  
INC.

MINUTES OF CORPS FIELD REVIEW

Date: November 24, 1987

Place: Hickory, Harford County, MD

Attendance: Sharon Preller, SHA  
Cathy Pecora, SHA  
Steve Harmon, COE  
Michele Henson, DNR  
Peter Knight, FWS  
Nancy Kelly, CRI

Project: U.S. Rt. 1/ MD Rt. 23 Extended, Hickory Bypass  
Contract No. H 873-101-470 N

Subject: Non-tidal Wetlands Boundaries

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A field review of Wetlands 1, 4, 5, 6 and 11 was conducted. It was agreed that Wetlands 2 and 3 would not be impacted by the highway construction, so no review of their boundaries was needed.

The wetland boundary for Wetland 1 was expanded to include an area in the southwestern corner near the junction of Md. Rt. 23 south and U.S. Rt. 1 north. Wetland 4 was expanded to include an adjacent area to the west which is dominated by rushes and sedges. The edges of Wetland 11 were more clearly defined, during the field review, and reduced in size. It was noted that this wetland needs to be added to the 300 scale Wetland Review maps. The southern Wetland 6 boundary was revised northward about 50 ft. There was concurrence with the Wetland 5 boundary as flagged in the field with only minor revisions. It was noted that the Wetland Review Maps had not been revised to reflect the field flagging. It was noted that the soils on the eastern side of the river of Wetland 5 were hydric beyond the area

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flagged, but that there was not a dominance of wetland vegetation in that area, with tulip poplar and white oak being the predominant species.

All changes in the wetland boundaries agreed to in the field are shown on the attached maps. The areas to be impacted are highlighted on the Wetland Review maps. The Table has been revised as well to reflect these changes. Impacted areas were enlarged in some cases from the original estimates, to include possible fill areas and to be conservative. The estimates of acreage impacted are approximate and will be refined, when more detailed drawings are available, for the final document.

There were discussions of alternative alignments which could avoid or reduce impacts to certain wetlands. Cathy Pecora indicated that she would be reviewing the drawings to determine what alternatives may be possible.

Mitigation options were also discussed. Nancy Kelly indicated that she would not want to see mature woodlands destroyed in order to create wetlands. There was general agreement on this point. An area of old field growth to the north of the intersection of the Rt. 1 bypass and Md. Rt. 23 extended was considered as a possible location for mitigation, since it could be regraded by removing about 4-8 ft. of material and stormwater runoff from the highway directed into it. It is vegetated primarily with young trees, less than 6 years old. Another option would be to convert some of the adjacent agricultural land into wetlands. Further study will be necessary to determine the feasibility of such options, and to identify other options.

It will be necessary to schedule another field visit to complete the review of wetlands in the project corridor. This was requested as soon as possible.

Please review these minutes and call or send comments to Nancy Kelly as soon as possible.



COASTAL  
RESOURCES  
INC.

MINUTES OF CORPS FIELD REVIEW

Date: January 16, 1988

Place: Hickory, Harford County, MD

Attendance: Sharon Preller, SHA  
Lorenzo Bryant, SHA  
Joe Faro, SHA, Highway Design  
Steve Harmon, COE  
Peter Knight, FWS  
Kathi Kooon, FWS  
Mike Slattery, DNR/CRD  
Nancy Kelly, CRI

Project: U.S. Rt. 1/ MD Rt. 23 Extended, Hickory Bypass  
Contract No. H 873-101-470 N

Subject: Non-tidal Wetlands Boundaries

A field review of Wetlands 7, 9, 10, and 12 was conducted. The wetland boundaries of W-7 and W-12 were agreed to be as shown on the plans. It was agreed that W-9 was approximately 75' wide and the plans were so adjusted. The boundaries of W-10 were enlarged on the plans to reflect a more accurate estimate of their width in the field.

All changes in the wetland boundaries agreed to in the field are shown on the attached maps. The areas to be impacted are highlighted on the Wetland Review maps. Due to further discussions concerning the width of the highway construction and fill, estimates of impact have been revised to reflect a full 300' width impact for the U.S. 1 Bypass, and a 180' width impact for Rt. 23 Extended. These numbers are therefore very conservative, estimating the maximum impact expected. The attached Table has been revised as well to reflect these changes. The estimates of acreage

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impacted are still approximate and will be refined, when more detailed drawings are available for the final document.

There were discussions of alternative alignments which could avoid or reduce impacts to certain wetlands. Lorenzo Bryant presented an alternative which will avoid impacts to some prime farmland soils to the south. It will require crossing W-12 more directly, but the impacts to wetlands are not expected to change.

Alternative alignments for Rt. 23 Extended near where it joins Md. Rt. 543 were discussed. It was felt by the environmental agencies that efforts should be made to cross more perpendicularly to the wetland/stream system in order to reduce the length of stream impacted. State Highways agreed to look at those alternatives.

Please review these minutes and call or send comments to Nancy Kelly as soon as possible.



TABLE 3  
BIRD SPECIES DOCUMENTED IN THE PROJECT VICINITY  
BY THE MARYLAND BREEDING BIRD ATLAS SURVEY

COMMON NAME -----	TYPE -----
Great blue heron	O
Green heron	P
Canada goose	FL
Wood duck	P
Mallard	P
Black vulture	X
Turkey vulture	X
Red-tailed hawk	NY
Red -shouldered hawk	NY
American kestrel	FL
Ringnecked pheasant	X
Bobwhite	X
Killdeer	FL
Rock dove	FL
Mourning dove	FY
Yellow-billed cuckoo	NB
Great horned owl	T
Barred owl	X
Whip-poor-will	X
Chimney swift	NY
Ruby-throated hummingbird	FL
Belted kingfisher	P
Red-bellied woodpecker	FY
Downy woodpecker	FY
Hairy woodpecker	X
Northern flicker	FY
Pileated woodpecker	X
Eastern wood pewee	NY
Acadian flycatcher	FY
Eastern phoebe	P
Great crested flycatcher	X
Eastern kingbird	NB
Purple martin	NB
Tree swallow	FL
Barn swallow	FL
Blue jay	ON
American crow	FY
Fish crow	X
Carolina chickadee	NE
Tufted titmouse	NB
White-breasted nuthatch	P
Carolin wren	T
House wren	NY
Eastern bluebird	FL
Veery	NB
Wood thrush	FL
American robin	FY

TABLE 3 (continued)

Common Name -----	Code -----
Gray catbird	FL
Mockingbird	FL
Brown thrasher	NB
Cedar waxwing	P
Starling	FY
White-eyed vireo	FL
Red-eyed vireo	FL
Yellow warbler	X
Black and white warbler	P
American redstart	P
Ovenbird	T
Louisiana waterthrush	X
Kentucky warbler	FL
Common yellowthroat	T
Scarlet tanager	FY
Northern cardinal	FL
Blue grosbeak	C
Indigo bunting	P
Rufous-sided towhee	P
Chipping sparrow	FL
Field sparrow	FY
Song sparrow	FL
Red-winged blackbird	FL
Eastern meadowlark	FL
Common grackle	FY
Brown-headed cowbird	FL
Northern oriole	FY
House finch	FL
American goldfinch	FL
House sparrow	FY

- CODE: C = Probable: courtship or copulation observed.  
 FL = Confirmed: recently fledged young or downy young.  
 FY = Confirmed: adult carrying food for young.  
 NE = Confirmed: nest with eggs or shells on ground.  
 NY = Confirmed: nest with young seen or heard.  
 O = Possible: observed in block, but not in breeding habitat.  
 ON = Confirmed: occupied nest presumed by activity of parents.  
 P = Probable: pair observed in suitable breeding habitat within "safe dates".  
 T = Probable: territorial behavior or singing male present at same location on at least two different days.  
 X = Possible: heard or seen in breeding habitat within "safe dates".

Data taken from Maryland Breeding Bird Atlas Project, Belair Quad, Block 3, 1985.

Attachment for Environmental  
Impact Documents  
Revised: February 1, 1988  
Bureau of Relocation Assistance

"SUMMARY OF THE RELOCATION ASSISTANCE PROGRAM OF THE  
STATE HIGHWAY ADMINISTRATION OF MARYLAND"

All State Highway Administration projects must comply with the provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" (Public Law 91-646 and amendments as published in CFR Vol. 51, No. 39 on February 27, 1986) and/or the Annotated Code of Maryland, Real Property, Title 12, Subtitle 2, Sections 12-201 thru 12-212. The Maryland Department of Transportation, State Highway Administration, Bureau of Relocation Assistance, administers the Relocation Assistance Program in the State of Maryland.

The provisions of the Federal and State Law require the State Highway Administration to provide payments and services to persons displaced by a public project. The payments that are provided include replacement housing payments and/or moving costs. The maximum limits of the replacement housing payments are \$15,000 for owner-occupants and \$4,000 for tenant-occupants. Certain payments may also be made for increased mortgage interest costs and/or incidental expenses, provided that the total of all housing benefits does not exceed the above mentioned limits. In order to receive these payments, the displaced person must occupy decent, safe and sanitary replacement housing. In addition to the replacement housing payments described above, there are also moving cost payments to persons, businesses, farms and non-profit organizations. Actual moving costs for residences include actual moving costs up to 50 miles or a schedule moving cost payment, including a dislocation allowance, up to \$500.

The moving cost payments to businesses are broken down into several categories, which include actual moving expenses and payments "in lieu of" actual moving expenses. The owner of a displaced business is entitled to receive a payment for actual reasonable moving and related expenses in moving his business, or personal property; actual direct losses of tangible personal property; and actual reasonable expenses for searching for a replacement site.

The actual reasonable moving expenses may be paid for a move by a commercial mover or for a self-move. Generally, payments for the actual reasonable expenses are limited to a 50 mile radius. The expenses claimed for actual cost commercial moves must be supported by receipted bills. An inventory of the items to be moved must be prepared in all cases. In self-moves, the State will negotiate an amount for payment, not to exceed the lowest acceptable bid obtained. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business' own vehicles or equipment, wages paid to persons who physically participate in the move, the cost of actual supervision of the move, replacement insurance for the personal property moved, costs of licenses or permits required, and other related expenses.

In addition to the actual moving expenses mentioned above, the displaced business is entitled to receive a payment for the actual direct losses of tangible personal property that the business is entitled to relocate but elects not to move. These payments may only be made after an effort by the owner to sell the personal property involved. The costs of the sale are also reimbursable moving expenses. If the business is to be reestablished, and the personal property is not moved but is replaced at the new location, the payment would be the lesser of the replacement cost minus the net proceeds of sale (or trade-in value) or the estimated cost of moving the item. If the business is being discontinued or the item is not to be replaced in the reestablished business, the payment will be the lesser of the difference between the value of the item for continued use in place and the net proceeds of the sale or the estimated cost of moving the item. When personal property is abandoned without an effort by the owner to dispose of the property for sale, unless permitted by the State, the owner will not be entitled to moving expenses, or losses for the item involved.

The owner of a displaced business may be reimbursed for the actual reasonable expenses in searching for a replacement business up to \$1,000. All expenses must be supported by receipted bills. Time spent in the actual search may be reimbursed on an hourly basis, within the maximum limit.

In lieu of the payments described above, the business may elect to receive a payment equal to the average annual net earnings of the business. Such payment shall not be less than \$2,500 nor more than \$10,000. In order to be entitled to this payment, the State must determine that the business cannot be relocated without a substantial loss of its existing patronage, the business is not part of a commercial enterprise having at least one other establishment in the same or similar business that is not being acquired, and the business contributes materially to the income of a displaced owner during the two taxable years prior to displacement.

Considerations in the State's determination of loss of existing patronage are the type of business conducted by the displaced business and the nature of the clientele. The relative importance of the present and proposed locations to the displaced business, and the availability of suitable replacement sites are also factors.

In order to determine the amount of the "in lieu of" moving expenses payment, the average annual net earnings of the business is considered to be one-half of the net earnings, before taxes, during the two taxable years immediately preceding the taxable year in which the business is relocated. If the two taxable years are not representative, the State may use another two-year period that would be more representative. Average annual net earnings include any compensation paid by the business to the owner, his spouse, or his dependents during the period. Should a business be in operation less than two years, the owner of the business may still be eligible to receive the "in lieu of" payment. In all cases, the owner of the business must provide information to support its net earnings, such as income tax returns, for the tax years in question.

For displaced farms and non-profit organizations, the actual reasonable moving costs generally up to 50 miles, actual direct losses of tangible personal property, and searching costs are paid. The "in lieu of" actual moving cost payments provide that the State may determine that a displaced farm may be paid from a minimum of \$2,500 to a maximum of \$10,000, based upon the net income of the farm, provided that the farm has been discontinued or relocated. In some cases, payments "in lieu of" actual moving costs may be made to farm operations that are affected by a partial acquisition. A non-profit organization is eligible to receive "in lieu of" actual moving cost payments, in the amount of \$2,500.

A more detailed explanation of the benefits and payments available to displaced persons, businesses, farms, and non-profit organizations is available in Relocation Brochures that will be distributed at the public hearings for this project and will also be given to displaced persons individually in the future along with required preliminary notice of possible displacement.

In the event comparable replacement housing is not available to rehouse persons displaced by public projects or that available replacement housing is beyond their financial means, replacement "housing as a last resort" will be utilized to accomplish the rehousing. Detailed studies must be completed by the State Highway Administration before "housing as a last resort" can be utilized.

The "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" requires that the State Highway Administration shall not proceed with any phase of any project which will cause the relocation of any persons, or proceed with any construction project, until it has furnished satisfactory assurances that the above payments will be provided and that all displaced persons will be satisfactorily relocated to comparable decent, safe, and sanitary housing within their financial means or that such housing is in place and has been made available to the displaced person.

RECEIVED 5/21/88

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U.S. Department of Agriculture

# FARMLAND CONVERSION IMPACT RATING

<b>PART I (To be completed by Federal Agency)</b>		Date Of Land Evaluation Request May 12, 1988	
Name Of Project U.S. Route 1/Maryland Route 23 Extended		Federal Agency Involved State Highway Administration	
Proposed Land Use See attachment		County And State Harford County, Maryland	
<b>PART II (To be completed by SCS)</b>		Date Request Received By SCS 5/21/88	

Does the site contain prime, unique, statewide or local important farmland? (If no, the FPPA does not apply - do not complete additional parts of this form.)		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Acres Irrigated None	Average Farm Size 148
Major Crop(s) Corn, Small grains, Hay, Soybeans	Farmable Land In Govt. Jurisdiction Acres: 151,300 % 62.0	Amount Of Farmland As Defined in FPPA Acres: 128,100 % 84.7		
Name Of Land Evaluation System Used Harford County Land Evaluation System	Name Of Local Site Assessment System Use FPPA Systems	Date Land Evaluation Returned By SCS June 10, 1988		

PART III (To be completed by Federal Agency)	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	72.8	30.84		
B. Total Acres To Be Converted Indirectly				
C. Total Acres In Site	72.8	30.84		

PART IV (To be completed by SCS) Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	19.1	16.7		
B. Total Acres Statewide And Local Important Farmland	33.7	10.7		
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.04	0.02		
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	89.2	43.3		

PART V (To be completed by SCS) Land Evaluation Criterion				
Relative Value Of Farmland To Be Converted (Scale of 0 to 100 Points)	60	82		

PART VI (To be completed by Federal Agency)		Maximum Points			
Site Assessment Criteria (These criteria are explained in 7 CFR 658.5(b))					
1. Area In Nonurban Use					
2. Perimeter In Nonurban Use					
3. Percent Of Site Being Farmed					
4. Protection Provided By State And Local Government					
5. Distance From Urban Builtup Area					
6. Distance To Urban Support Services					
7. Size Of Present Farm Unit Compared To Average					
8. Creation Of Nonfarmable Farmland					
9. Availability Of Farm Support Services					
10. On-Farm Investments					
11. Effects Of Conversion On Farm Support Services					
12. Compatibility With Existing Agricultural Use					
<b>TOTAL SITE ASSESSMENT POINTS</b>		160			

PART VII (To be completed by Federal Agency)				
Relative Value Of Farmland (From Part V)		100		
Total Site Assessment (From Part VI above or a local site assessment)		160		
<b>TOTAL POINTS (Total of above 2 lines)</b>		260		

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes <input type="checkbox"/> No <input type="checkbox"/>
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Reason For Selection: