ENVIRONMENTAL ASSESMENT

FOR

CONTRACT NO. HO 629-101-771

U.S. ROUTE 29/MARYLAND ROUTE 103

INTERCHANGE

HOWARD COUNTY, MARYLAND

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

and
MARYLAND DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

Report Number: FHWA-MD-EA-84-06-D

Federal Highway Administration
Region III

U.S. Route 29/Maryland Route 103
Interchange in
Howard 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)

Hal Kassoff
Administrator

11/1/84
DATE

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

11/8/84
DATE

Emil Elinsky
Federal Highway Administration
Division Federal Highway
Administrator

TABLE OF CONTENTS

FIGURES

TABLES

SUMMARY

SUMMARY

1. Administrative Action

( ) Environmental Impact Statement

(X) Environmental Assessment

( ) Finding of No Significant Impact

( ) Section 4(f) Evaluation

2. Additional Information:

Additional information concerning this project may be obtained by contacting:

Mr. Louis H. Ege, Jr., Acting
Chief, Bureau of Project
Planning, State Highway
Administration, Room 310
707 North Calvert Street
Baltimore, Maryland 21202
PHONE: (301) 659-1130
HOURS: 8:15 a.m. - 4:15 p.m.

Mr. Edward Terry
District Engineer
Federal Highway Administration
The Rotunda - Suite 220
711 West 40th Street
Baltimore, Maryland 21211
PHONE: (301) 962-4011
HOURS: 7:45 a.m. - 4:15 p.m.

3. Description of Action

This project proposes the construction of an interchange to improve traffic operations at the juncture of U.S. Route 29 with Maryland Route 103 by replacing the existing at-grade intersection. The existing connections accessing U.S. Route 29 to Maryland Route 103, Maryland Route 987, and St. John's Lane operate at or near capacity.

4. Alternates Description

The State Highway Administration has considered several preliminary interchange alternates. Eight (8) alternates incorporating the most feasible environmental and engineering features of the preliminary alignments were developed for presentation at the Alternates Public Meeting held June 12, 1984 at the Ellicott City National Guard Armory. As a result of public comment, coordination with the communities, elected officials and

the evaluation of environmental and engineering studies, three build alternates, Alternates 2, 3, 7 and the No-Build Alternate were recommended for detailed studies. Alternate 7 has been selected as the preferred alternate.

Alternate 2 proposes the construction of a diamond interchange which would provide all movements to and from U.S. Route 29. Alternate 3 proposes an interchange approximately 850' south of existing Maryland Route 103 along U.S. Route 29. This interchange would consist of directional ramps to provide all movements to and from U.S. Route 29.

Alternate 7 (the Preferred Alternate) proposes to relocate Maryland Route 103 approximately 1,700 feet south of the existing intersection of U.S. Route 29 and Maryland Route 103. From this point, the improvement would extend in an easterly direction tying into existing Maryland Route 103 east of the Waterloo Middle School. Under this alternate the proposed interchange would provide all movements by the use of directional ramps to and from U.S. Route 29 and relocated Maryland Route 103 on the east of U.S. Route 29.

The No-Build Alternate consists of routine maintenance and would not offer any improvement in traffic operation or capacity.

5. Summary of Impacts

Benefits associated with Alternate 7 include improved highway capacity and safety, and low right-of-way costs.

A total of three (3) properties will be affected and the acquisition of approximately 22.8 acres of right-of-way will be required. Of the approximately 22.8 acres required, 22.5 acres is residential land and 0.3 acres is commercial land. Four (4) residences will be impacted causing the relocation of four (4)

families. Although no businesses will be acquired, one (1) business property will be affected. No minority individuals or communities will be affected.

This project is consistent with the latest Howard County Master Plan (1982). No public recreational lands or archeological or historical sites will be affected.

There are no significant impacts to any water resources. Construction of either alternate will not impact the 100 year floodplain. Less than 1/2 acre of wetland would be affected by Build Alternate 3. There will be some minor impact to the natural habitat under all of the proposed Build Alternates. There are no known threatened or endangered plant or animal species affected.

No violations of the State or National Ambient Air Quality Standard (S/NAAQS) for carbon monoxide are predicted to occur with all Build Alternates in the project completion year (1990) or design year (2010). The Federal Highway Administration's Noise Abatement Criteria would be exceeded at four (4) noise sensitive areas (NSA's) under Alternate 2, three (3) NSA's under Alternate 3, two (2) NSA's under Alternate 7, and two (2) sites under the No-Build Alternate.

A comparison of impacts resulting from each alternate can be found in the Summary of Impacts Table, on page vii.

TABLE 1
SUMMARY OF IMPACTS

U.S. ROUTE 29/MARYLAND ROUTE 103
INTERCHANGE

	No-Build Alt.	Alt. 2	Alt. 3	Preferred Alt. 7
SOCIO-ECONOMIC IMPACTS				
1. Residential Displacements	0	6	5	4
2. Number of Families Relocated	0	6	5	4
3. Minority Families Relocated	0	0	0	0
4. Business Displacements	0	5	1	0
5. Farm Displacements	0	0	0	0
6. Other Properties Affected (Church)	0	1	1	0
7. Historic and Archeologic Sites	0	0	0	0
8. Public Recreational Lands Affected	0	0	0	0
9. Effect on Residential Access	None	None	None	Improved
10. Consistent with Land Use Plans	No	Yes	Yes	Yes
NATURAL ENVIRONMENT IMPACTS				
1. Loss of Natural Habitat (Woodlands Acres)	None	2.6	11.4	5.5
2. Effect on Wildlife Populations	None	None	None	None
3. Effect on Threatened or Endangered Species	None	None	None	None
4. Stream Crossings	0	4	2	3
5. Wetland Areas Affected (Acres)	0	0	1/2 acre	0
6. Floodplain Areas Affected	0	0	0	0
7. Prime Farmland Soils Affected (acres)	0	9.6	21.3	23.1
8. Air Quality Impacts (Sites exceeding S/NAAQS)	0	0	0	0
9. Noise Sensitive Areas (NSA's) exceeding Federal Noise Abatement Criteria	2	4	3	2
COST - 1984 DOLLARS (x 1,000)				
1. Construction				
Roadway	0	6,237.5	5,845.9	7,064.6
Structures	0	3,205.2	6,205.0	8,264.4
Preliminary Eng.	0	838.6	1,070.2	1,361.4
2. Right-of-Way				
Right-of-way cost	0	3,535.8	2,221.0	2,677.9
Relocation	0	182.6	62.7	35.8
TOTAL (Construction & R/W)	0	13,999.7	15,404.8	19,404.1

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

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

ENVIRONMENTAL ASSESSMENT FORM

	YES	NO	COMMENTS
A. Land Use Considerations			
1. Will the action be within the 100 year flood plain?	___	X	Section IV-C
2. Will the action require a permit for construction or alteration within the 50 year flood plain?	___	X	_____
3. Will the action require a permit for dredging, filling, draining or alteration of a wetland?	___	X	Section I, IV-C
4. Will the action require a permit for the construction or operation of facilities for solid waste disposal including dredge and excavation spoil?	___	X	_____
5. Will the action occur on slopes exceeding 15%?	___	X	_____
6. Will the action require a grading plan or a sediment control permit?	X	___	Section IV-C
7. Will the action require a mining permit for deep or surface mining?	___	X	_____
8. Will the action require a permit for drilling a gas or oil well?	___	X	_____
9. Will the action require a permit for airport construction?	___	X	_____
10. Will the action require a permit for the crossing of the Potomac River by conduits, cables or other like devices?	___	X	_____
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	___	X	Section IV-C

	YES	NO	COMMENTS
12. Will the action affect the use of any natural or man-made features that are unique to the county, state, or nation?	___	X	_____
13. Will the action affect the use of an archeological or historical site or structure?	___	X	Section I, IV-B
B. Water Use Considerations			
14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	___	X	Section I, IV-C
15. Will the action require the construction, alteration, or removal of a dam, reservoir, or waterway obstruction?	___	X	_____
16. Will the action change the overland flow of storm water or reduce the absorption capacity of the ground?	X	___	Section I, IV-C
17. Will the action require a permit for the drilling of a water well?	___	X	_____
18. Will the action require a permit for water appropriation?	___	X	_____
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	___	X	_____
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	___	X	_____

	YES	NO	COMMENTS
21. Will the action result in any discharge into surface or sub-surface water?	X		Section IV-C
22. If so, will the discharge affect ambient water quality parameters and/or require a discharge permit?		X	
C. Air Use Considerations			
23. Will the action result in any discharge into the air?	X		Section IV-E
24. If so, will the discharge affect ambient air quality parameters or produce a disagreeable odor?		X	
25. Will the action generate additional noise which differs in character or level from present conditions?	X		Section IV-D
26. Will the action preclude future use of related air space?		X	
27. Will the action generate any radiological, electrical, magnetic, or light influences?		X	
D. Plants and Animals			
28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?		X	Section I-C, IV-C
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?		X	Section IV-C
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?		X	

	YES	NO	COMMENTS
E. Socio-Economic			
31. Will the action result in a pre-emption or division of properties or impair their economic use?	X		Section IV-A
32. Will the action cause relocation of activities, structures, or result in a change in the population density or distribution?	X		Section IV-A
33. Will the action alter land values?		X	
34. Will the action affect traffic flow and volume?	X		Section II-C, D
35. Will the action affect the production, extraction, harvest or potential use of a scarce or economically important resource?		X	
36. Will the action require a license to construct a sawmill or other plant for the manufacture of forest products?		X	
37. Is the action in accord with federal, state, regional and local comprehensive or functional plans--including zoning?	X		Section IV-A
38. Will the action affect the employment opportunities for persons in the area?		X	
39. Will the action affect the ability of the area to attract new sources of tax revenue?		X	
40. Will the action discourage present sources of tax revenue from remaining in the area, or affirmatively encourage them to relocate elsewhere?		X	

	YES	NO	COMMENTS
41. Will the action affect the ability of the area to attract tourism?	___	X	_____
F. Other Considerations			
42. Could the action endanger the public health, safety or welfare?	___	X	_____
43. Could the action be eliminated without deleterious affects to the public health, safety, welfare or the natural environment?	___	X	_____
44. Will the action be of statewide significance?	___	X	_____
45. Are there any other plans or actions (federal, state, county or private) that, in conjunction with the subject action could result in a cumulative or synergistic impact on the public health, safety, welfare, or environment?	___	X	_____
46. Will the action require additional power generation or transmission capacity?	___	X	_____
47. This agency will develop a complete environmental effects report on the proposed action.	___	X	*See note below

*In accordance with the National Environmental Policy Act and the Federal-Aid Highway Program Manual, Volume 7, Chapter 7, Section 2, this Environmental Assessment has been prepared.

I. DESCRIPTION OF PROPOSED ACTION

I. DESCRIPTION OF PROPOSED ACTION

A. Project Location

The existing U.S. Route 29/Maryland Route 103 intersection is located in northeastern Howard County, Maryland. (See Figure 1) There is one existing State roadway in the project area, Maryland Route 103 and one other primary roadway, U.S. Route 29. Maryland Route 103 begins just east of I-95 running in a northwesterly direction to its existing terminus at U.S. Route 29. U.S. Route 29 begins at Interstate 70 and runs in a southerly direction to Washington, D.C.. This project proposes the construction of an interchange at the existing intersection of U.S. Route 29/Maryland Route 103.

B. Project Description (Figure 2)

The proposed Build Alternates improvements to the U.S. Route 29/Maryland Route 103 intersection consist of the reconstruction of the existing intersection just south of the existing alignment for all Build Alternates, with the exception of Alternate 2. The proposed interchange alignments are constrained by residential development in three (3) of four (4) quadrants of the existing intersection. The proposed reconstruction includes the improvement of roadway capacity and signalization throughout the intersection area. The proposed relocated Maryland Route 103 consists of a four (4) lane divided highway. Proposed Maryland Route 987 extended and existing Maryland Route 103 would consist of three (3) lane roadways.

C. Description of Existing Environment

1. Social Environment

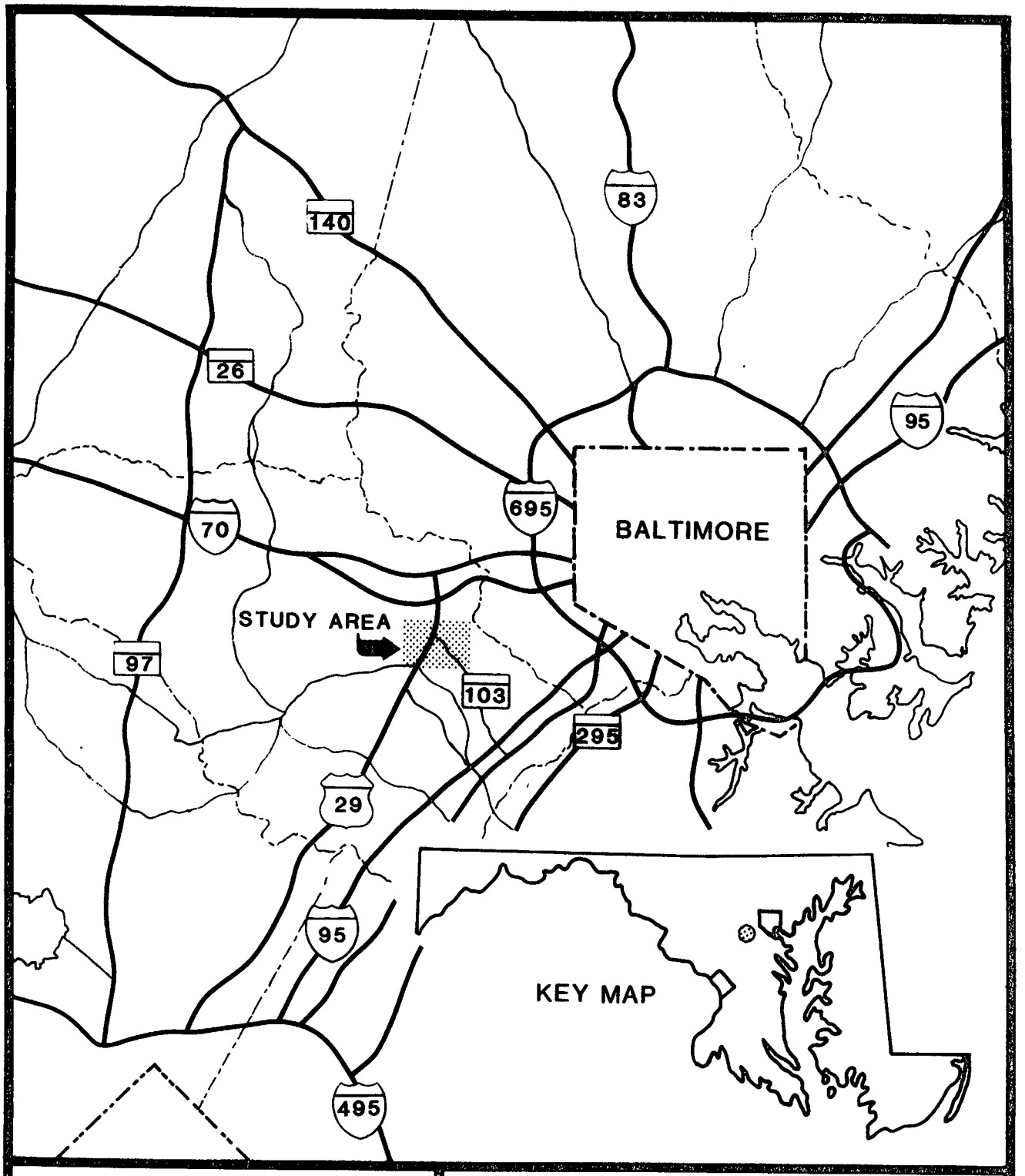
Population

Howard County experienced a tremendous rate of growth, nearly

doubling its population, in the last decade. From 1970 to 1980 the population grew by 90%, the largest growth rate by far among all Maryland Counties. The county's population is projected to double again by the turn of the century (a rate of 103% by 2005). Much of this growth can be attributed to the growth of Columbia and its environments. It is also due to the county's central location in the expanding Baltimore-Washington metropolitan corridor, as well as the improvements to the main traffic routes which traverse the county U.S. Routes 29, 40, and 1, and Interstate 70 and 95. (See Figure 1)

Much of this growth has occurred in the eastern portion of the county, around Columbia and Ellicott City and along U.S. Route 29, U.S. Route 1, and Interstate 95. A host of commercial, light and heavy industrial, and residential uses are located in these areas. The western and central sections of the county have retained their undeveloped, rural character.

The population in Election District #2, Ellicott City, which includes the study area, also continues to grow by a significant amount 35.4% from 1970 to 1980. The study area comprises portions of Census Tracts 6023.01, 6023.02, 6024, and 6025. (See Figure 3) The population in this census tract group has increased too, but at a lesser rate than that for the Election District, 27.9%. The census tracts commprising the area west and south of the immediate study area have experienced the largest rate of growth from 1970 to 1980 - 48.5%. (See Table 2)



SCALE

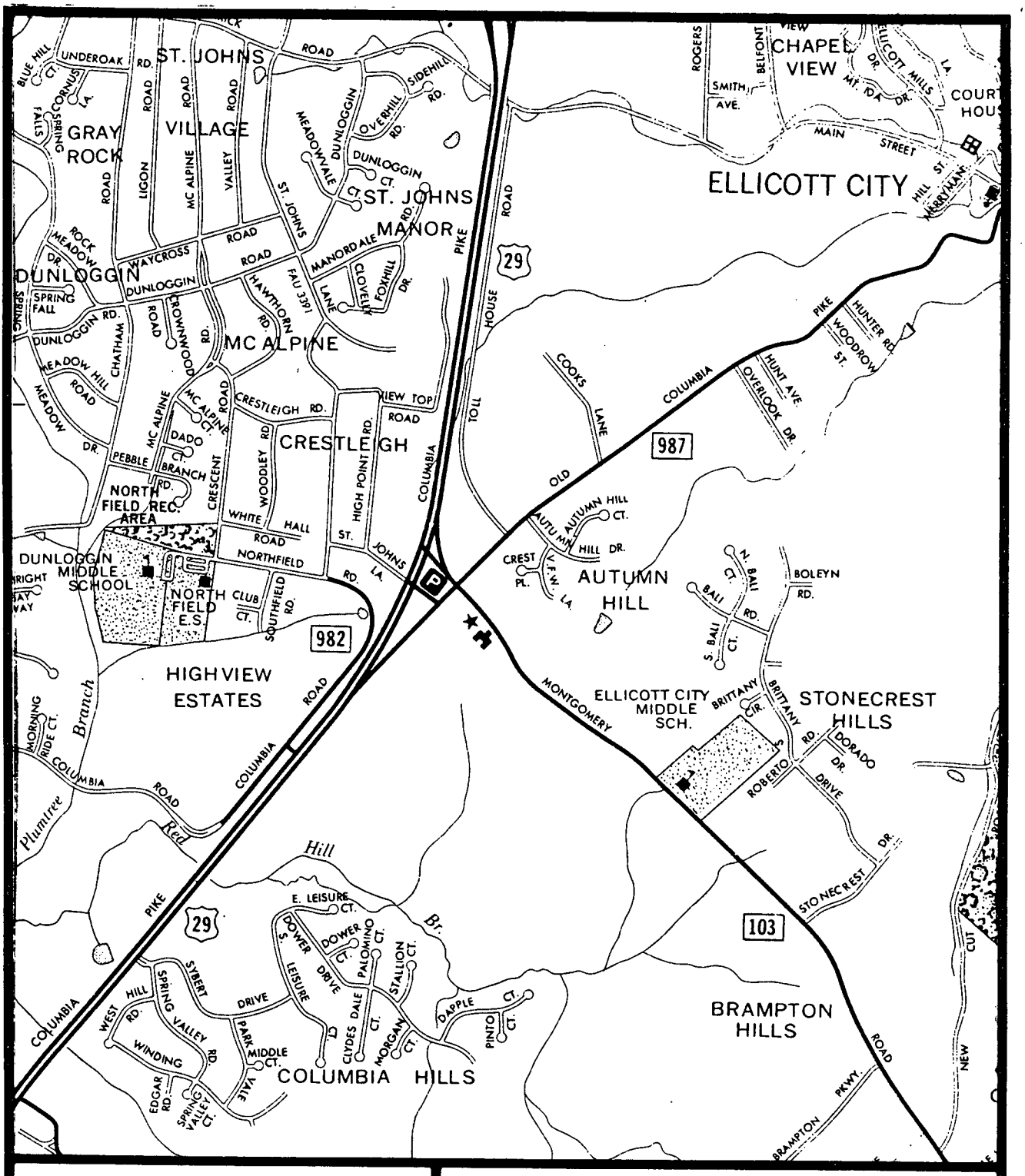
0 6 12

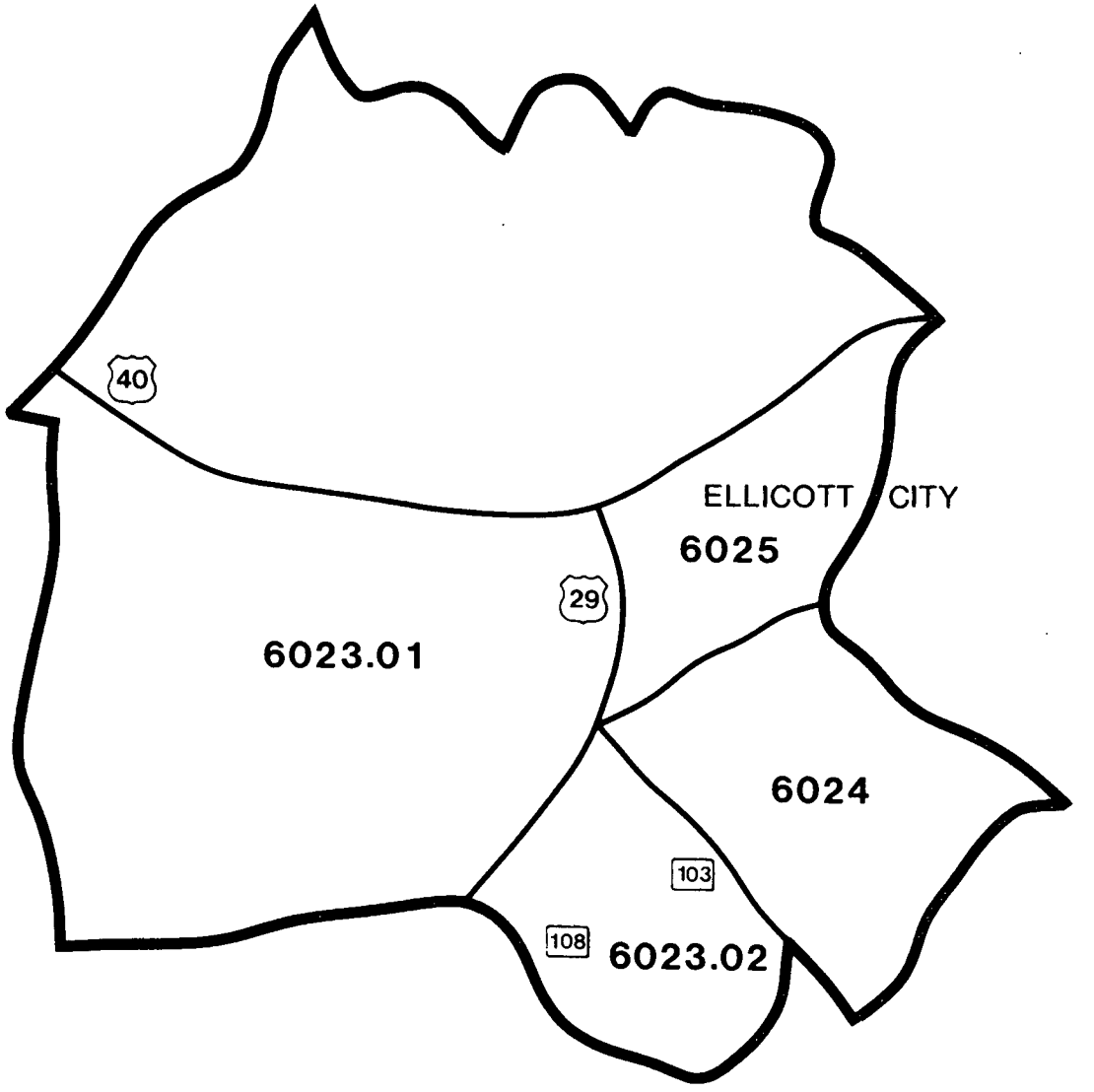
miles

U.S. ROUTE 29/MD.103
INTERCHANGE

STUDY AREA LOCATION

FIGURE 1


ST. JOHNS
GRAY ROCK
VILLAGE
ST. JOHNS MANOR
DUNLOGGIN
MC ALPINE
CRESTLEIGH
NORTH FIELD REC. AREA
DUNLOGGIN MIDDLE SCHOOL
NORTH FIELD E.S.
HIGHVIEW ESTATES
COLUMBIA HILLS
CHAPEL VIEW
ELLICOTT CITY
AUTUMN HILL
ELLICOTT CITY MIDDLE SCH.
STONECREST HILLS
BRAMPTON HILLS
29
987
982
103
COLUMBIA PIKE
MONTGOMERY ROAD
U.S. ROUTE 29/MD.103
INTERCHANGE
STUDY AREA
SCALE
0
2000
feet
FIGURE 2



ELECTION DISTRICT 2

CENSUS TRACTS

not to scale

U.S. ROUTE 29/MD.103
INTERCHANGE

ELECTION DISTRICT
and
CENSUS TRACTS

FIGURE 3

TABLE 2
POPULATION AND GROWTH IN THE STUDY AREA

	1970	1980	% of Growth Rate
Howard County	62,394	118,572	90.0
Election District #2	17.928	24,274	35.4
Census Tract (total)	11,607	14,842	27.9
- 6023.01	6,377*	7,984	48.5*
- 6023.02	6,377*	1,488	48.5*
- 6024	3,140	2,509	-20.1
- 6025	2,090	2,861	36.9

* In 1970 these 2 census tracts were combined as one #6023.
Source: 1980 U.S. Census of Population and Housing.

According to the Census, 94.2% of the total population in these census tracts were white, 3.6% were black, 1.9% were of Oriental origin, and 0.3% were either of Spanish origin and some other ethnic background. Census tract 6023.02 has the highest percentage of Oriental population (3.2%). Census tract 6025 has a significantly higher proportion of blacks (12.2%) in relation to the other census tracts in the group - 12.1% of the population were identified as being age 60 and older, the largest percentage of which can be found in census tract 6025 (15.3%). However, no actual minority or elderly concentrations or communities were identified in the study area. (Table 3)

TABLE 3

RACIAL, ETHNIC, AND AGE COMPOSITION OF THE STUDY AREA
(NUMBER/% OF TOTAL)

	Election District #2	Census Tracts Total	6023.01	6023.02	6024	6025
Total	24280	14842	7984	1488	2509	2861
White	23096(95.1)	13973(94.2)	7621(95.5)	1421(95.5)	2452(97.7)	2479(86.7)
Black	698(2.9)	537(3.6)	132(1.7)	--	57(2.3)	348(12.2)
Oriental Origin	412(1.7)	283(1.9)	210(2.6)	48(3.2)	--	25(0.9)
Other	68(0.3)	49(0.3)	21(0.3)	19(1.3)	--	9(0.3)
American Indian	28	22	--	13	--	9
Other	40	27	21	6	--	--
60+	3052(12.6)	1800(12.1)	856(10.7)	155(10.4)	350(14.0)	439(15.3)

Source: 1980 U.S. Census of Population and Housing

2. Community Facilities

A variety of community facilities and services are situated along Maryland Route 103 and U.S. Route 29 and several local roads. (See Figure 4) They include:

2 churches - The Church of Latter Day Saints and the Bethel Baptist Church

5 public schools - Dunloggin Middle School, Northfield Elementary School, Waterloo Middle School (formerly the Ellicott City Middle School), Worthington Elementary School, and Howard High School. Each school has recreation facilities or is located adjacent to park and recreational areas.

4 parks - Northfield Recreation Area, Worthington Park, Centennial Park, and portions of the Patapsco Valley State Park.

YMCA

Ellicott City Maryland National Guard

Health Facilities - Taylor Manor Psychiatric Hospital in Ellicott City and Howard County General Hospital in Columbia.

Allview Golf Course

MTA Park and Ride Lot

Ellicott City Lions Club Community Hall

VFW Post #7472

Ellicott City Volunteer Fire Department, Ellicott City

Howard County Police Department, Ellicott City

Water and sewage services are available presently or will be extended within the area in the next ten (10) years. The capacity will be adequate to support present and anticipated residential and industrial growth.

3. Economic Environment

There appears to be little employment base in the immediate study area. The Oakland Ridge Industrial Center on the southern

fringe of the study area features a host of business and light industrial concerns. Of those living within the study area census tracts, only 21% worked within their immediate census tract. In addition, over 57% of this population commutes to work outside of Howard County.

The employment base that does exist within the study area is provided by several small clusters of commercial activity, located at or near major intersections. These include the intersections of Maryland Routes 103 and 987, Maryland Routes 103 and 104, and St. John's Lane and Maryland Route 144. Within the study area, commercial activities consist primarily of gas stations, small shopping centers, convenience stores, and restaurants.

The 1979 median household income within the study area census tracts was $28,060, which is comparable with the county median of $27,612.

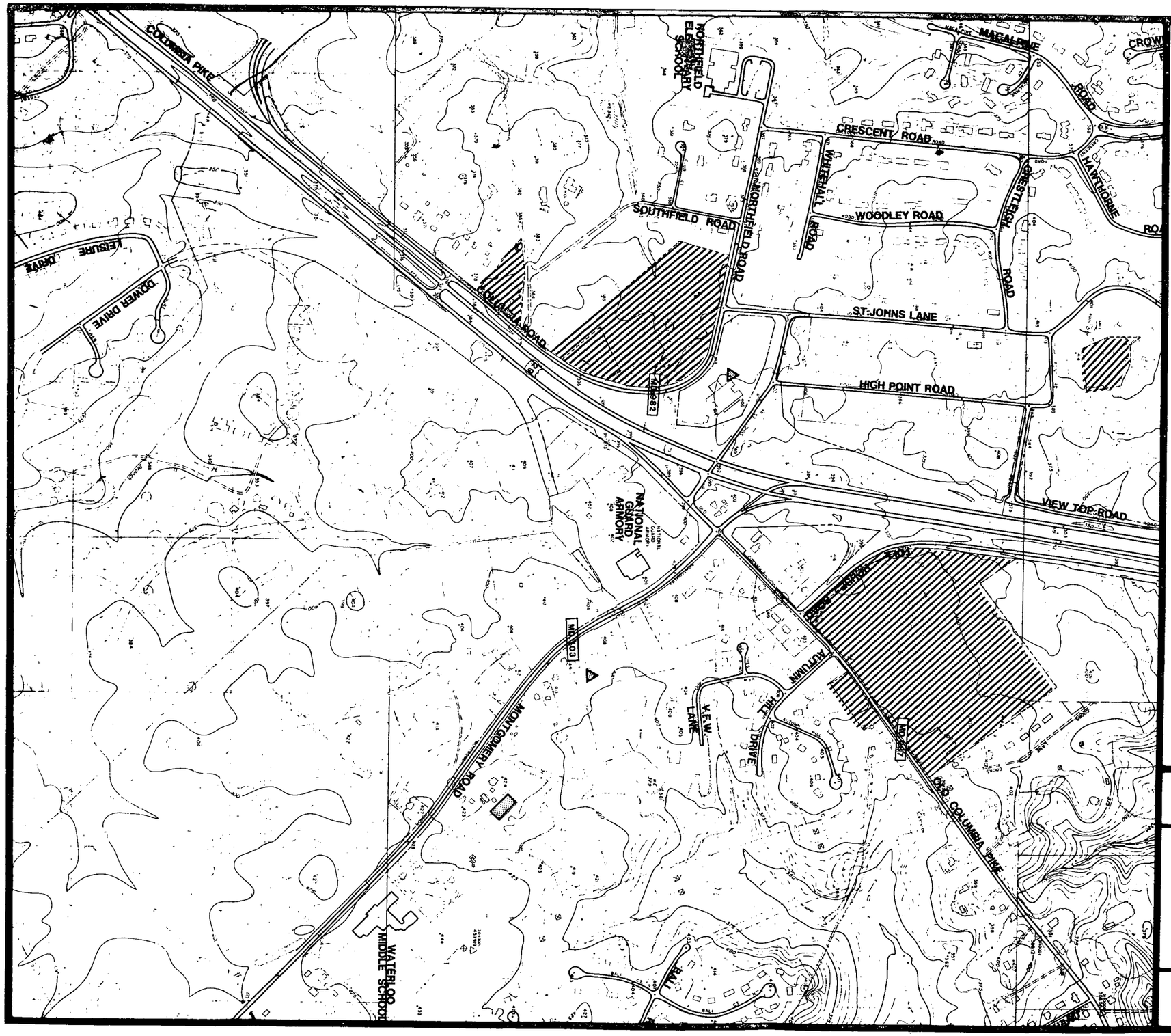
4. Land Use

a. Existing Land Use

The study area includes land uses ranging from suburban to rural. Residential and agricultural uses predominate. Low density residential development is located along the west side of U.S. Route 29 and along both sides of Maryland Route 987 and 103.

Agricultural uses predominate along the eastern side of U.S. Route 29 and along Maryland Route 103 interspersed with low density residential development.

Several commerical areas are clustered at major intersections, such as U.S. Route 29 and Maryland Roue 103, Maryland Routes 103 and 104, and St. John's Lane and Maryland Route 144. (The Oakland Ridge Industrial Center comprises a large expansion of land near



LEGEND

- CHURCH
- Y.M.C.A.
- HISTORIC SITE

U.S. ROUTE 29/MD. 103 INTERCHANGE

ENVIRONMENTAL FEATURES

SCALE 0 2000'

FIGURE 4

the intersection of Maryland Route 108 and U.S. Route 29 along the southern edge of the study area.) The remaining land is undeveloped and vacant. (See Figure 5) Land within the study area is presently zoned for low and medium density residential development, commercial and business uses and a planned employment center (light industrial).

b. Future Land Use

Howard County has developed a long range General Plan (1981) for guiding future growth and development in the county. It's main purpose is to channel orderly development to those areas most suited for future growth. These are areas where public utilities and community facilities and services are available and able to accommodate future service levels.

The Plan also seeks to minimize development outside planned service areas and to maintain the undeveloped agricultural character of areas of the county. (The county has designated these areas (the western and central portions of the county) as places where the natural environment and the rural, agricultural character are to be preserved and protected from development.)

Other county areas, especially the eastern portion, have been designated as a development district. According to the General Plan, this district was delineated to organize urban growth and ensure that future development is consistent with county plans and goals.

Within the district, stable areas have been identified where already developed commercial, industrial, residential and public uses are not expected to change significantly in the future, but where some controlled development may occur. The General Plan has

identified other areas which are not now stable regions where certain types of growth should occur. These areas would involve cluster growth patterns - focal points for development of varying intensities with a balance of nature and the built environment. These areas lie within the ten (10) year planned public utility and community facility service area.

The General Plan gives high priority to attracting new industrial and commerical facilities in the county. Increased residential and industrial expansion is planned for the eastern portion of the county, including the U.S. Route 29/Maryland Route 103 study area.

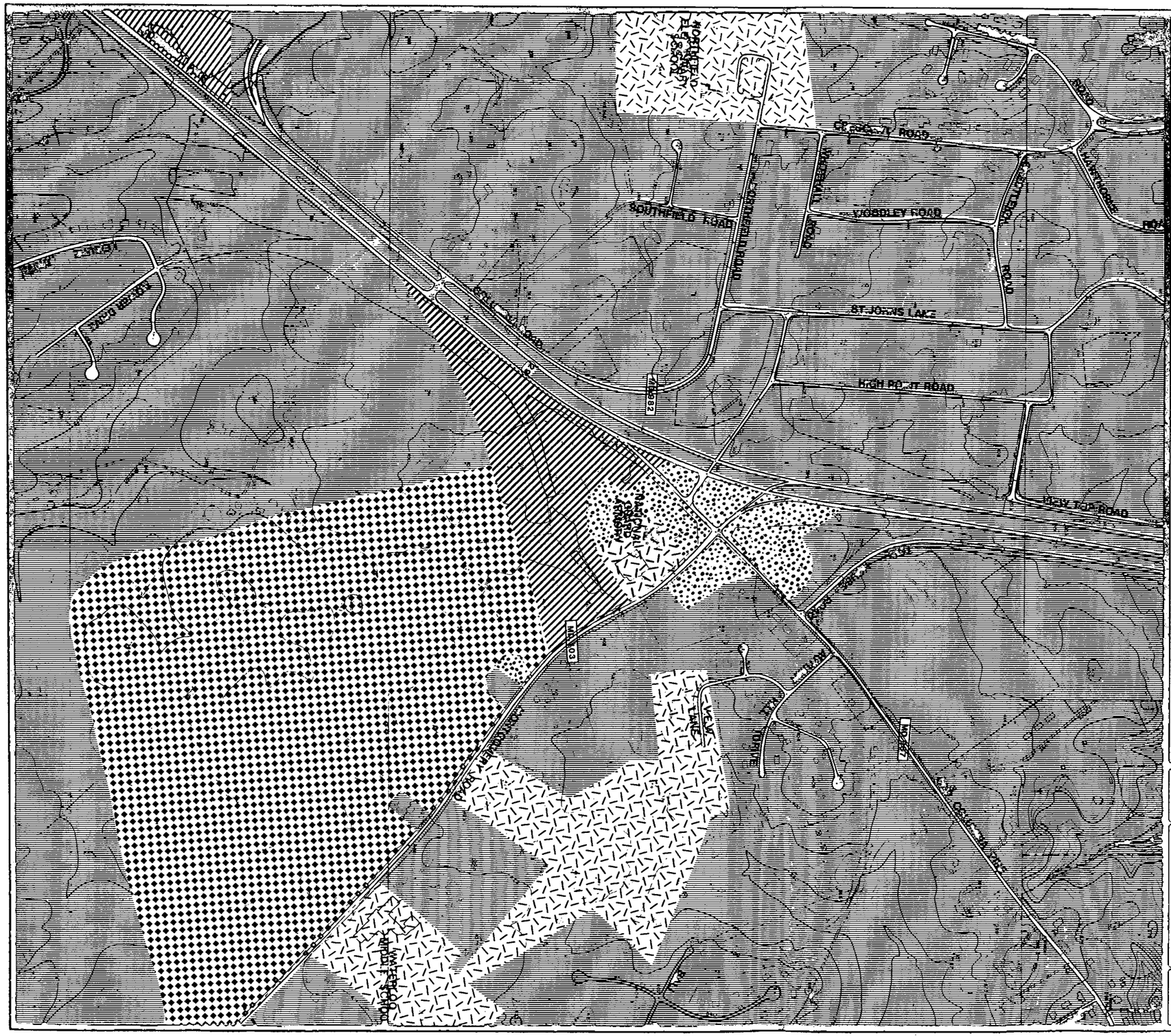
The study area lies within the county's development district and includes both stable and developmental areas. New low to medium density residential development (compatible with present zoning) is planned for much of the land south of the U.S. Route 29/Maryland Route 103 intersection. Continued compatible growth in the stable residential-commercial sectors is expected. Some additional commercial development to support the increased population base will be located along Maryland Route 103 and near its present intersection with U.S. Route 29. In addition, the General Plan identifies a planned employment center (a northerly extension of the Oakland Ridge Industrial Center) south of the Brampton Hills residential section off Maryland Route 103. This center would consist of research and development and high technology employment, offices, light manufacturing and assembly, warehousing, and minimal commercial development. (See figure 6) The county feels that this development would be consistent with the existing land use and would expand the tax, employment and service

U.S. ROUTE 29/MD. 103 INTERCHANGE

EXISTING LAND USE

SCALE 0 2000'

FIGURE 5



LEGEND

- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- COMMERCIAL
- EMPLOYMENT AREAS
- PUBLIC USE

U.S. ROUTE 29/MD. 103 INTERCHANGE

FUTURE LAND USE

SCALE 0 — 2000'

FIGURE 6

base within the county.

The study area overlaps two (2) major centers for further development - the greater Ellicott City area and Columbia. As previously noted, population figures indicate increased growth in these areas. This population growth along with developmental pressures will definitely impact U.S. Route 29 and Maryland Route 103 as these two (2) routes provide major access to both areas. Future growth is inevitable and the population will demand adequate access to major transportation routes. Improvements to these roads will also help fulfill the land use objectives of the General Plan, as they concern the study area.

5. Historic and Archeological Resources

There are five (5) historic sites located in the vicinity of the proposed interchange improvement (See Figures 4, 17-22) that are on or eligible for the National Register of Historic Places.

Historic Sites

1. Temora, on the National Register (West of U.S. Route 29 on Maryland Route 982).
2. Wayside Inn, National Register Eligible (West of U.S. Route 29 on Maryland Route 982).
3. Keewaydin Farm, National Register Eligible (East of U.S. Route 29, North of Existing Maryland Route 103 on Maryland Route 987).
4. Omar Jones House, National Register Eligible (East of U.S. Route 29, North of Existing Maryland Route 103 on Maryland 987).
5. Woodley, National Register Eligible (West of U.S. Route 29, on St. John's Lane).

556 Howard County Inventory Tax Map 24

Confirmation of the eligibility of these sites was received in a letter dated January 11, 1984 from the Maryland Historical Trust. (See Section VII).

6. Natural Environment

a. Topography/Physiography

The terrain varies from gentle to moderate slopes of 5% to 25%. The entire area lies within the Eastern Division of the Piedmont Province with elevations in the study area ranging from 300 to 500 feet above sea level.

b. Geology

The Eastern Piedmont Province is primarily composed of metasedimentary rocks, underlain by a complex of metamorphosed rocks including gneisses, slates, phyllites, schists, marble, serpentine, granite and gabbroic rocks. Most of the granitic and gabbroic bodies are intrusive masses that have cut through the older rocks.

Lower Pelatic Schist of the Wissakickon Formation is a medium to course-grained oligoclase-mica schist of the mica group. It contains thin bands of quartzite intercalated between the silty and shaley strata from which schists developed. Garnet, staurolite, and kyanite are common accessory minerals.

The Baltimore Gabbro Complex occurs in a west - southwest direction from Baltimore City extending across Howard County to the vicinity of Laurel. The gabbro is a granular, completely crystalline rock of medium to coarse-grained texture, usually of a dark gray to purplish - black or green color. It is composed of soda-lime feldspars and pyroxenes, mainly diallage but also including hypersthene. Commonly present are hornblende, olivine

and magnetite.

Ellicott City granite, chiefly or biotite granodiorite, crops out in a horseshoe-shaped mass extending northwestward from Ilchester in Baltimore County to Ellicott City, then northwestward to the Little Patuxent River and southward to Columbia in Howard County. Granite is a rock of even granular texture whose essential constituent minerals are quartz, feldspars and usually biotite mica or hornblende.

The ancient crystalline rocks of the Piedmont region have yielded varied mineral products. Slate, granite, gneiss, gabbro, serpentine and marble have been used as both building stone and crushed stone, some of which is still quarried in parts of Howard County. Metals include areas of iron, copper, chrome, lead and zinc. Non-metals include flint (quartz), feldspars, kaolin, talc, asbestos and mica. No mining activity is currently in progress in the study area.

c. Soils

The soils in the study area belong to three (3) major soil associations:

Relay-Brandywine-Legore Association - Consists of deep and moderately-deep, well drained, steep and very steep soils, mostly very stony.

Glenelg-Chester-Manor Association - Contains deep, well drained, gently sloping soils.

Neshaminy-Montalto Association - Comprised of deep, well drained, moderately slowly permeable, gently sloping to steep soils.

Prime Farmland Soils - A large portion of the study area has

been classified by the U.S. Department of Agriculture, Soil Conservation Service as Prime Farmland Soils. (Refer to Figure 7)

d. Groundwater

Groundwater is not uniformly distributed throughout the metamorphised and crystalline formations typical of the Piedmont Province. Water is generally confined to joints and other fractures which occur randomly throughout these formations. The size of the joints, and hence the amount of water in them varies considerably. Groundwater in the study area is provided by wells in Hydrologic Unit III of the Piedmont Aquifers. These are some of the poorest aquifers within the mapped area.

The Patuxent Formation outcrops the area generally east of U.S. Route 1 outside of the study area.

e. Surface Water

The Patuxent River watershed provides drainage for the majority of the study area through Red Hill Branch and Plumtree Branch, two (2) tributaries of the Little Patuxent River. The Patapsco River watershed drains the northeast portion of the study area through two (2) unnamed tributaries. (See Figure 8)

The Maryland Department of Natural Resources (DNR), Water Resources Administration has classified all surface waters of the state into four (4) categories, according to desired use. These categories are:

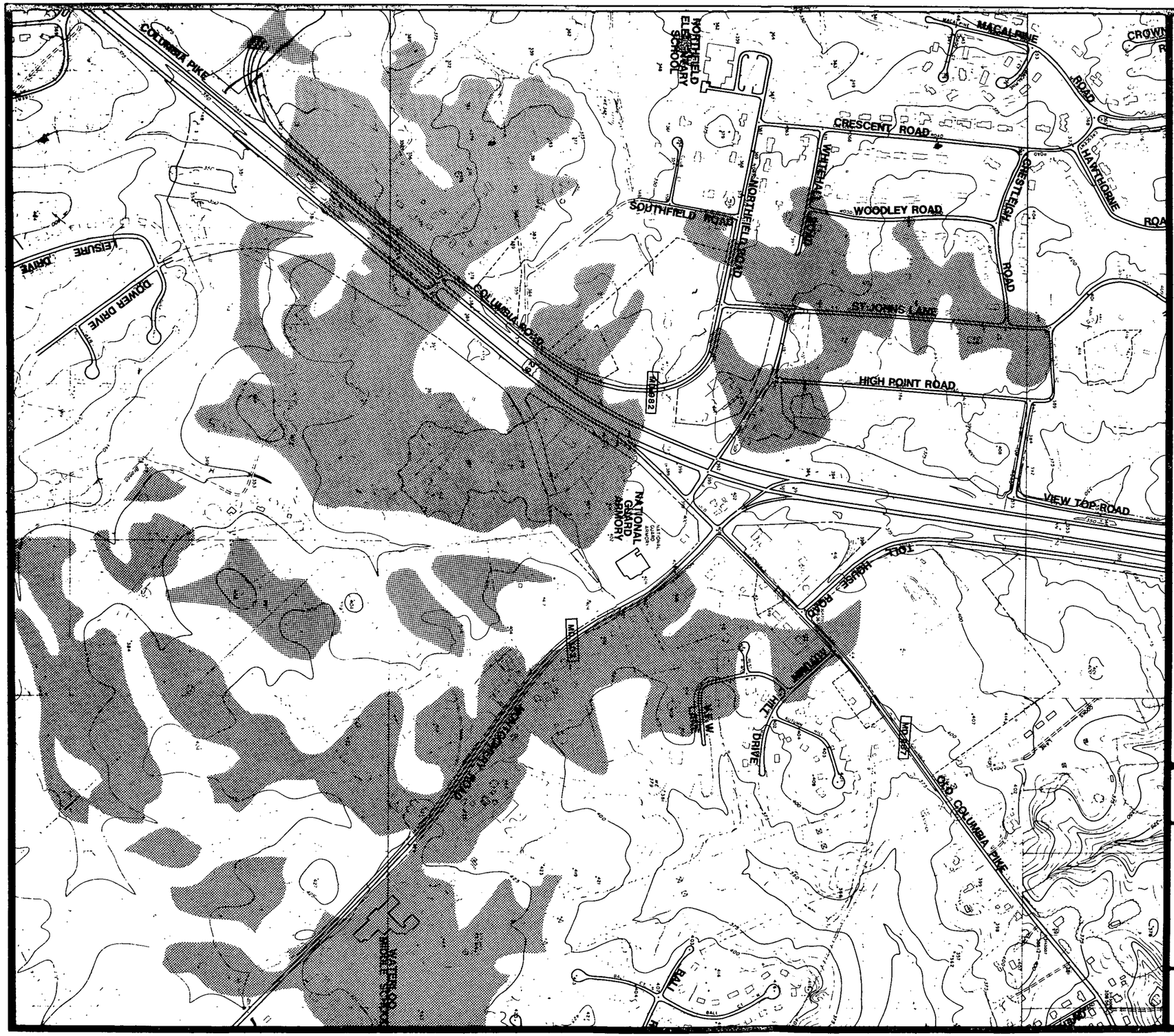
Class I-Water contact recreation for fish, other aquatic life and wildlife.

Class II-Shellfish harvesting

Class III-Natural Trout Waters

Class IV- Recreational Trout Waters

All waters of the state are Class I, with additional protec-



LEGEND

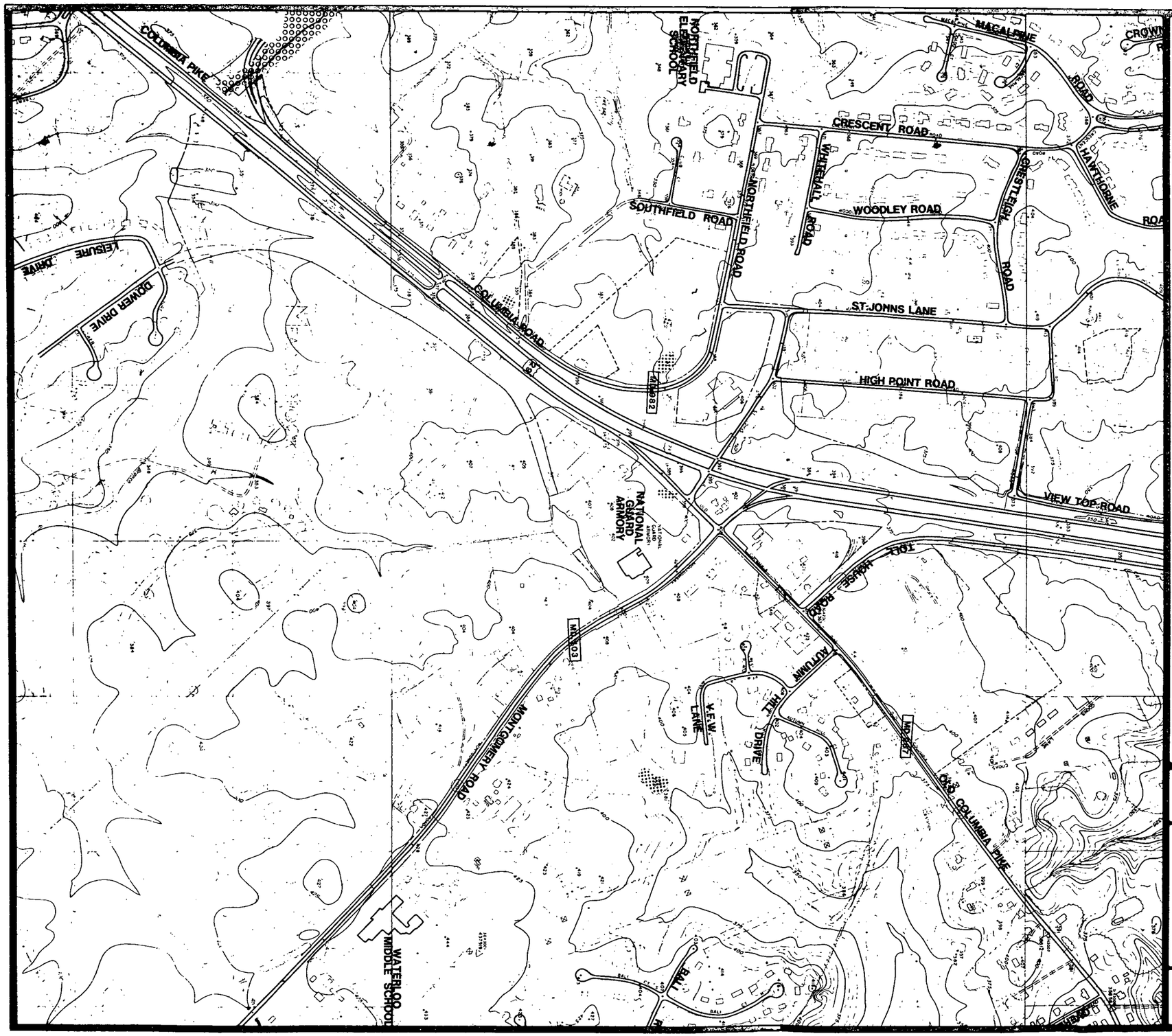
PRIME FARMLAND SOIL

U.S. ROUTE 29/MD. 103 INTERCHANGE

PRIME FARMLAND SOILS

SCALE 0 — 2000'

FIGURE 7



LEGEND

FLOOD PLAIN

WETLAND

U.S. ROUTE 29/MD. 103 INTERCHANGE

FLOOD PLAINS AND WETLANDS

SCALE 0 — 2000'

FIGURE 8

tion provided by higher classifications. All waters in the study area are designated Class I.

f. Floodplains

100-year floodplains for surface waters within the study area shown on figure 8 are based on U.S. Department of Housing and Urban Development (HUD) floodplain mapping for the area. According to the floodplain limits shown, no areas of 100 year floodplain would be affected under any of the proposed build alternates.

g. Ecology

1. Terrestrial

Much of the study area has been developed into residential areas with commercial activity along the highways. However, woodland or forested areas within the study limits can be subdivided into and identified by the vegetation associations listed below:

Tulip Poplar Association - Is characterized by the presence of tulip popular in the absence of any other characteristic species. Common associated species include red maple, sweet gum, green ash, greenbriers, coast pepperbush, poison ivy, Virginia creeper, black gum, southern arrowwood, American holly, common winterberry holly, flowering dogwood, grape, sweetbay magnolia, common highbush blueberry, elderberry, rose, spicebush, tassel-white and wax myrtle.

Sycamore - Green Ash, Box Elder, Silver Maple Association - This association is defined by the presence of any two (2) of the sycamore, green ash, box elder, or silver maple. Common associated species include red maple, Virginia creeper, white oak, flowering dogwood, grape, black cherry, northern red oak, spicebush, tulip

poplar, black gum, Japanese honeysuckle, sassafrass, white ash, mockernut hickory, poison ivy, southern arrowwood, black oak, pignut hickory, brambles, greenbrier and ironwood.

Old-Field - is a younger successional stage of forest communities. The flora of these areas are varied but typically contain numerous grasses, osters, golden rods, sumac, various shrubs and saplings. This habitat is distributed throughout the study area.

Cultivated Field - some agricultural land is located within the study area, primarily to the south between U.S. Route 29 and Maryland Route 103. These cultivited areas are generally surrounded by woodlands.

2. Aquatic Habitat

Several wetland areas are located within the study area and are generally associated with area tributaries. Wetlands in the study area have been identified by field inspections and the U.S. Department of the Interior, National Wetland Inventory (Draft, June, 1983).

The predominant wetland types in the study are briefly described below. Wetlands in the study areas are identified in figure 8.

> Palustrine Emergent - characterized by erect, rooted, herbaceous hydrophytes including cattails (Typha spp.), bulrushes (Scirpus, spp.), sedges (Carex spp.), reed (Phragmites communis), and a variety of broad-leaved persistent emergents; may also contain nonpersistent emergents such as arrow arum (Peltandra virginica) and arrowheads (Saggitaria spp.).
>
> Palustrine Scrub-Shrub (broad-leaved deciduous) - areas dominated by woody vegetation less than 6 meters tall; including true shrubs, young trees, and environmentally small or stunted trees; typical dominants are alders (Alnus, spp.), willows (Salix spp.), buttonbush (Cephalanthus spp.), and young trees such as red maple (Acer rubrum).

Palustrine Open Water - areas characterized by diked or impounded water; with inconsolidated bottom; common vegetation near shoreline is similar to Plaustrine Emergent vegetation.

h. Endangered Species

Coordination with the U.S. Fish and Wildlife Service and the Maryland Department of Natural Resources indicates that no threatened or endangered species are known to inhabit the study area.

7. Existing Noise Conditions

Seven (7) noise sensitive areas (NSA) have been identified in the U.S. Route 29/Maryland Route 103 study area. Descriptions of the noise sensitive areas are provided in Table 4. The location of the NSA's are shown in Figures 17-22. A copy of the technical Analysis report is available at the State Highway Administration, 707 North Calvert Street, Baltimore, Maryland, 21202.

Highway traffic noise is usually measured on the "A" weighted decibel scale "dBA", which is the scale that has 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 a 2-3 dBA can barely be detected, with a 5 dBA change readily noticeable. A 10 dBA increase is judged by most people as a doubling of sound loudness. (This information is presented in the "Fundamentals and Abatement of Highway Traffic Noise" by Bolt, Beranek & Newman, Inc. for FHWA, 1980).

The Federal Highway Administration has established, through Federal-Aid Highway Program Manual (FHPM) 7-7-3, noise abatement criteria for various land uses. (See Table 5)

TABLE 4
NOISE SENSITIVE AREAS
U.S. ROUTE 29/MARYLAND ROUTE 103
INTERCHANGE

Noise Sensitive Area	Activity Category	Description
1	B	One (1), two-story single family frame residence on Montgomery Road (Maryland 103)
2	B	One (1), two story single family frame residence on Montgomery Road (Maryland 103)
3	B	Ellicott City National Guard Armory. Brick structure on Montgomery Road (Maryland 103)
4	B	Wayside Inn (Historic). One (1) two-story single family stone residence on North Field Road (Maryland Route 103)
5	B	One (1) two/three story, air conditioned, brick church located between St. John's Lane and North Field Road
6	B	One (1) one-story single family brick/frame residence located on Highpoint Road
7	B	One (1) one-story single family brick residence on Crest Circle with access to Maryland 987

TABLE 5

NOISE ABATEMENT CRITERIA AND LAND USE RELATIONSHIPS
SPECIFIED IN FHPM 7-7-3

ACTIVITY CATEGORY	Leq (h)	L10 (h)	DESCRIPTION OF ACTIVITY CATEGORY
A	57 (Exterior)	60 (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)	70 (Exterior)	Picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	75 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	--	--	Undeveloped lands.
E	52 (Exterior)	55 (Exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

These levels are expressed in terms of an L10 noise level which describes a noise level that is exceeded for 10% of a given time period. All ambient and predicted levels in this report are L_{10} exterior noise levels unless otherwise noted.

Measurement of ambient noise levels is intended to establish the basis for impact analysis. The ambient noise levels as recorded represent a generalized view of present noise levels. Variations with time of total traffic volume, truck traffic volume, speed, etc., may cause fluctuations in ambient noise levels of several decibels. However, for the purposes of impact assessment, these fluctuations are not sufficient to significantly affect the assessment. Ambient noise levels were measured at noise sensitive areas in the U.S. Route 29/Maryland Route 103 study area during two (2) different periods of the "typical" day based on the diurnal traffic curve:

1) non-rush hour (7:00 a.m.-4:00 p.m.) and
2) evening rush hour (4:00 p.m.-6:00 p.m.).

This was done to establish and quantify diurnal variations in noise levels resulting from changes in traffic volumes or vehicle mix. It was determined for all of the noise sensitive areas, the most typical noise conditions occur during the non-rush hour period (7:00 a.m.-4:00 p.m.). During this time, the highest noise levels are experienced for the greatest length of time.

The results of the ambient measurements are included in Table 7, Section IV-D along with the predicted noise levels; also see figures 17-22 for NSA receptor locations.

8. Existing Air Quality

The U.S. Route 29/Maryland Route 103 interchange 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-E.

II. NEED FOR THE PROJECT

II. NEED FOR THE PROJECT

A. Purpose

The main purpose of this project is to improve traffic operations at the juncture of U.S. Route 29 with Maryland Route 103 by providing an interchange to replace the existing at-grade intersection. The existing intersection operates with considerable difficulty in handling the high volumes of through and turning traffic resulting from recent development, thus creating delays during peak hour travel. The existing connections accessing U.S. Route 29 to Maryland Route 103, Maryland Route 987, and St. John's Lane operate at or near capacity. Recent zoning changes in the area will increase developmental pressures which will increase vehicular traffic causing further congestion.

While short term improvements have recently been made to increase turning movement capacity through improved signalization and additional lanes, the present delays and anticipated increases in traffic volumes warrant the study of an interchange at this location.

B. Background

Improvement of the major intersections along U.S. Route 29 is a long-range goal of the State Highway Administration. In conjunction with this goal, the U.S. Route 29/Maryland Route 103 intersection is considered by Howard County Elected Officials as one of their highest transportation improvement priorities.

The current 1982 Highway Needs Inventory lists improvements to the U.S. Route 29/Maryland Route 103 intersection as a part of that study. In addition, the 1982 Howard County Master Plan includes the improvement of this intersection in its transportation plan.

This project is included in the Maryland Department of Transportation's Consolidated Transportation Program (CTP) for 1984-1989, with construction tentatively scheduled to begin in Fiscal Year 1989.

C. Existing and Projected Traffic Conditions

With the ongoing residential development throughout the study area, traffic projections indicate an increase of 43,000 vehicles/day for U.S. Route 29 and 10,600 vehicles/day for Maryland Route 103 between 1982 and 2010 under No-Build conditions. This projected traffic increase will cause additional congestion and delays at the existing intersection of U.S. Route 29 to Maryland Route 103, Maryland Route 987 and St. John's Lane.

The existing daily truck useage which comprises 6% of the average daily traffic (ADT) for U.S. Route 29 and 9% of the ADT for Maryland Routes 103 and 987, will remain the same under the 2010 No-Build condition.

The average daily traffic for the No-Build Alternate is shown in Figure 9. The ADT for the proposed Build Alternates is shown in Figures 10-12.

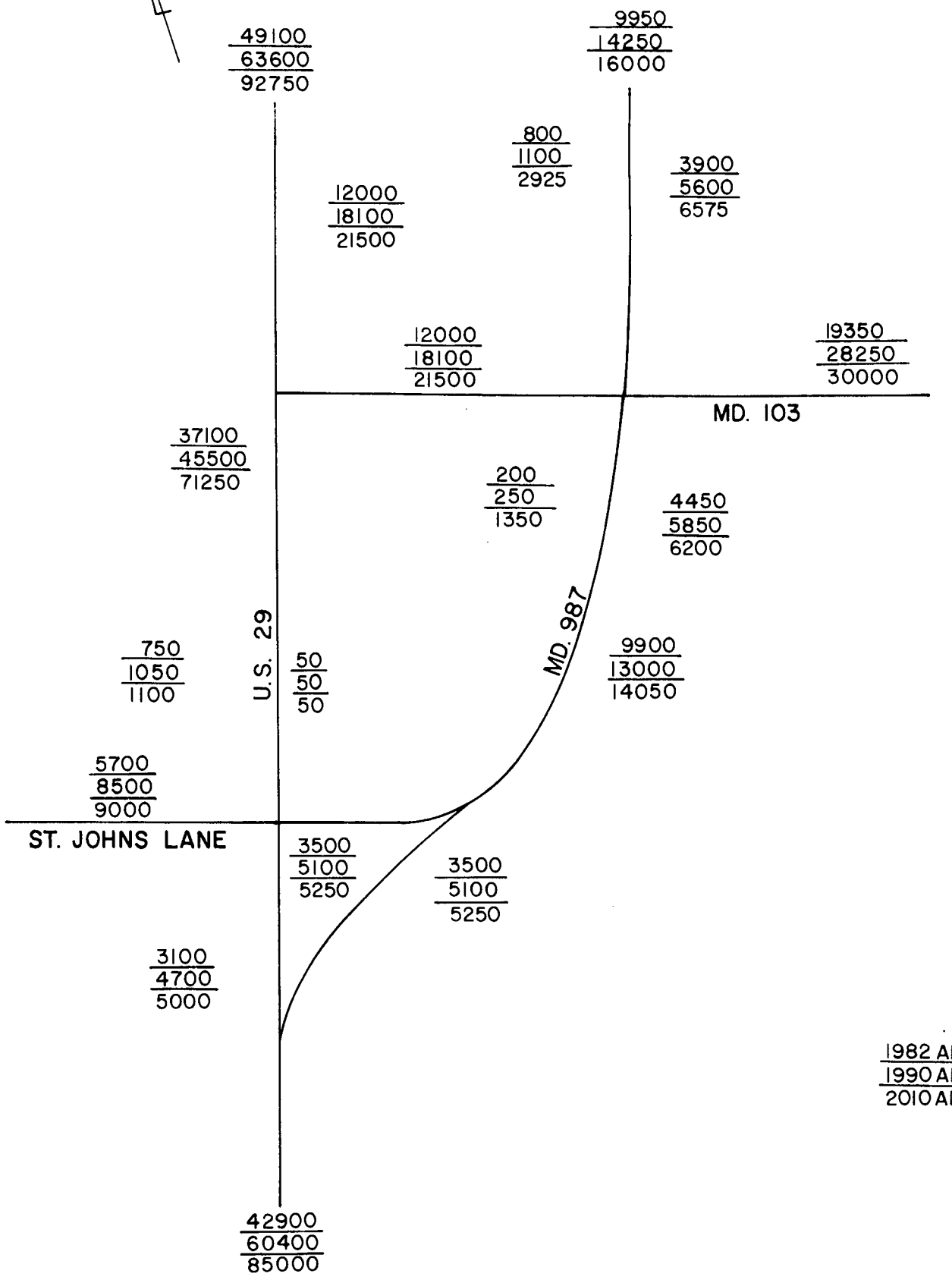
Quality of traffic flow along a highway is measured in terms of level of service (L/S). This measure is dependent upon highway geometry and traffic characteristics and ranges from L/S "A" (Best) to L/S "C" (Minimum Desirable), to L/S "E" (capacity), and L/S "F" (Worst or Forced Flow).

Table 6 indicates a comparison of existing level of service conditions projected for 2010 No-Build conditions at the major intersection in the study area. It is projected that all of the major intersections will operate at level of service "F" by the

US.29 / MD.103 INTERCHANGE

Average Daily Traffic

Alt. 1 (No Build)



1982 ADT
1990 ADT
2010 ADT

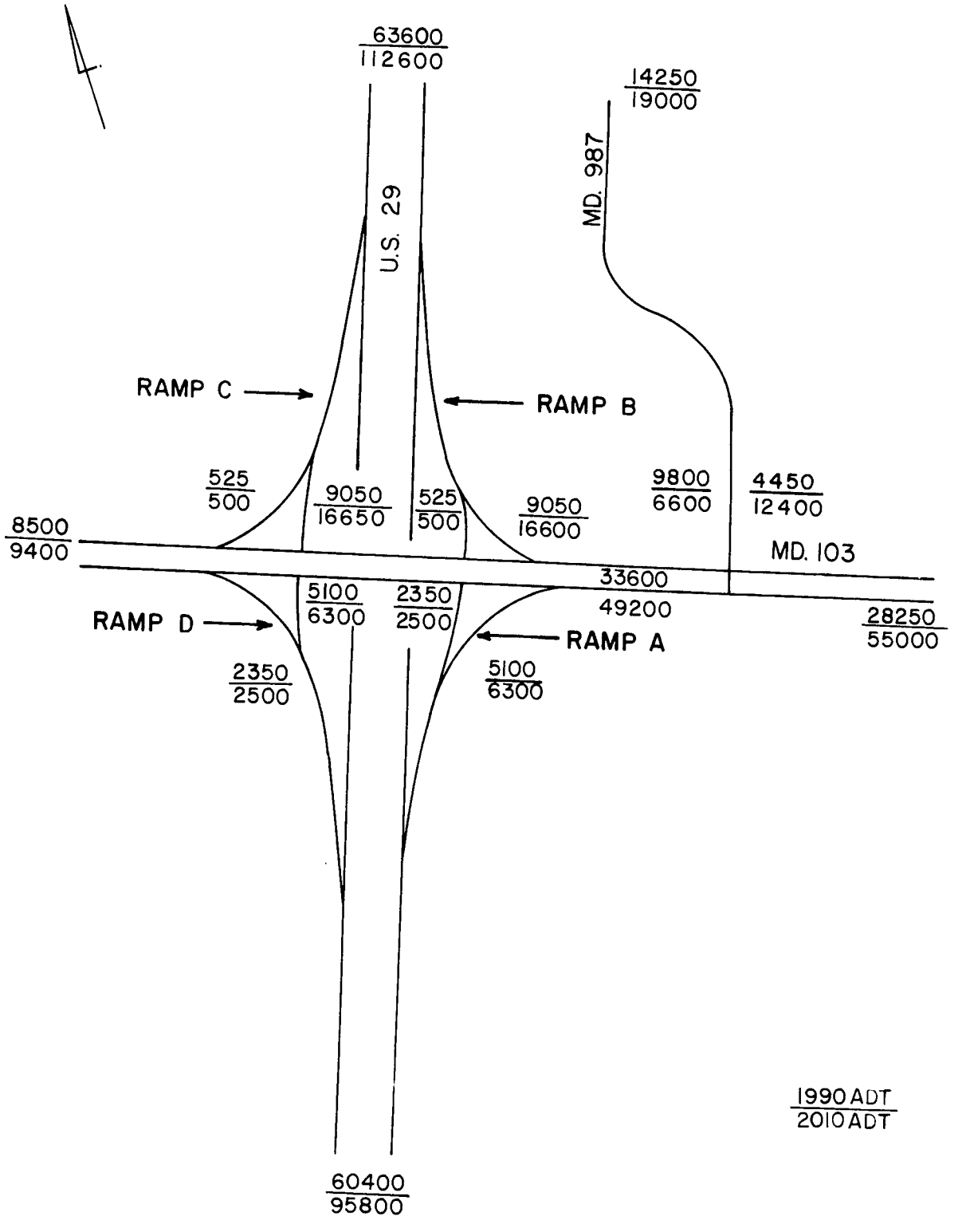
Aug. 1984 Data

FIGURE 9

U.S.29 / MD.103 INTERCHANGE

Average Daily Traffic

Alt. 2



Aug. 1984 Data

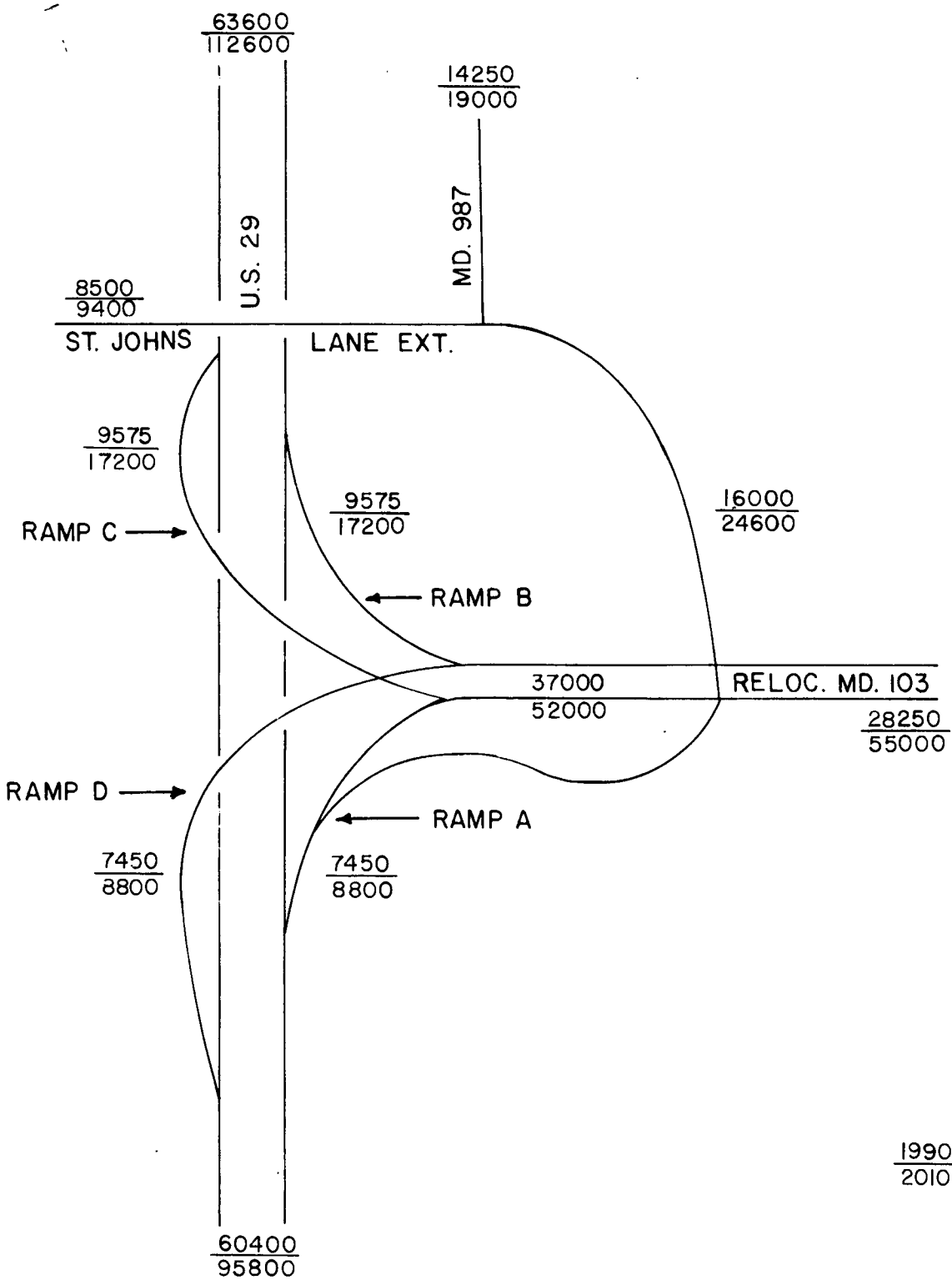
FIGURE 10

U.S.29 / MD.103 INTERCHANGE

Average Daily Traffic

Alt. 3

58



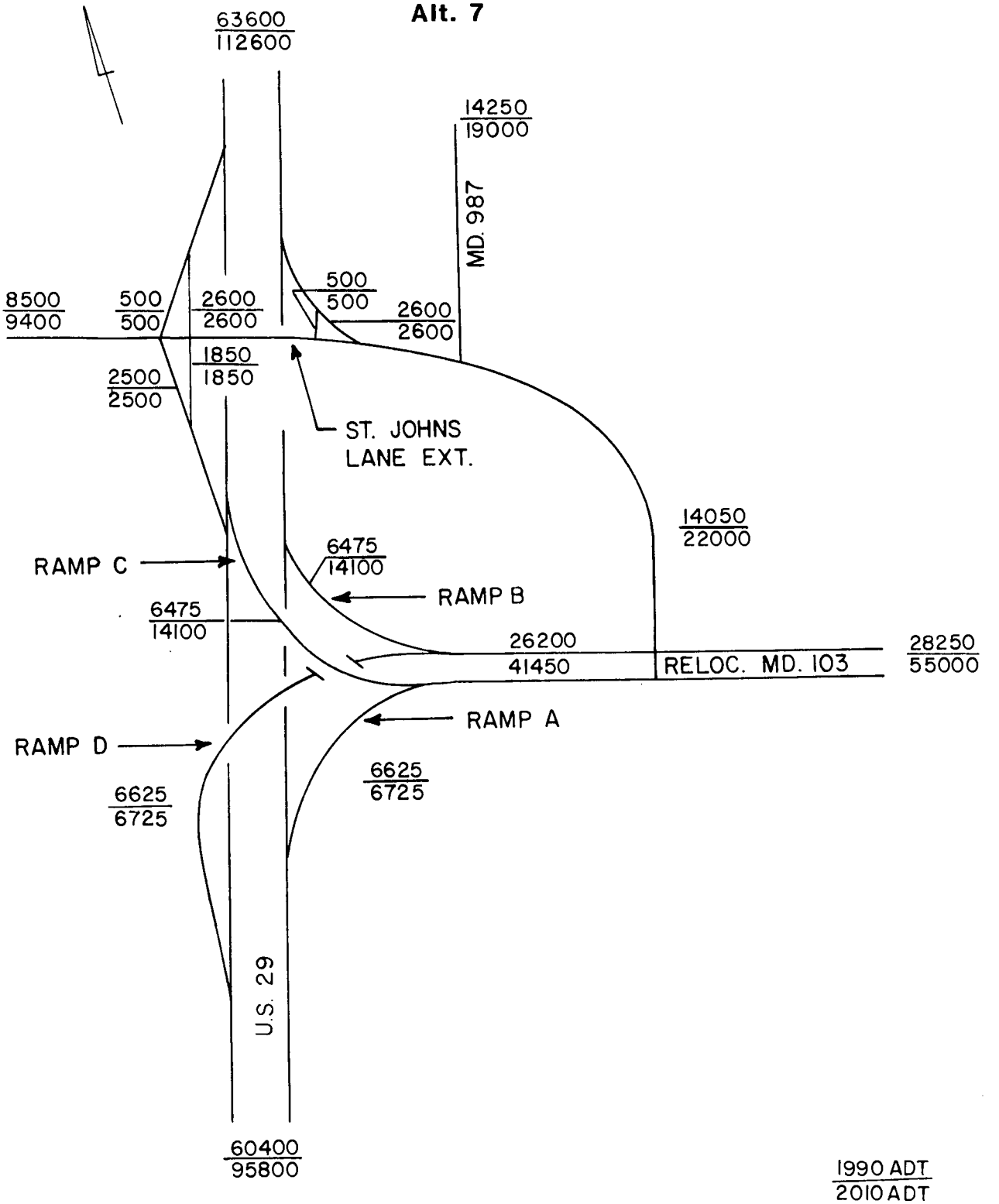
Aug. 1984 Data

FIGURE 11

U.S.29 / MD.103 INTERCHANGE

Average Daily Traffic

Alt. 7



Aug. 1984 Data

FIGURE 12

Design Year 2010 under the No-Build Alternate. Figures 13-16 show the levels of service for the three proposed Build Alternates.

TABLE 6
U.S. ROUTE 29/MARYLAND ROUTE 103
TRAFFIC SUMMARY

Intersections	1982 Levels of Service	2010 Level of Service No-Build Alternate
U.S. Route 29/ Maryland Route 103	D/E	F (1.23)-(1)
U.S. Route 29/ St. John's Lane	E	F (1.5)
Maryland Route 103/ Maryland Route 987	A	F (1.06)

Level of service along the various segments is determined by operating characteristics at the intersections. The level of services shown are for the peak hour condition.

L/S A is free flow, with low volumes and high speeds.

L/S B is the zone of stable flow, with operating speeds beginning to be restricted somewhat by traffic conditions; drivers, however, still have reasonable freedom to select their speed and lane of operation.

L/S C is still in the zone of stable flow, but speeds and maneuverability are more closely controlled by the higher volumes.

L/S D approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by changes in operating conditions.

L/S E cannot be described by speed alone, but represents operations at even lower operating speeds than in level D, with volumes at or near the capacity of the highway.

L/S F describes forced flow operation at low speeds, where volumes are below capacity.

(1)-(Percent of Saturation)

D. Existing and Projected Safety Conditions

The existing roadway system within the study area experienced 85 reported accidents from 1980 through 1982, resulting in an accident rate of 160 accidents per one hundred million vehicle miles of travel (ACC/100 MVM). This rate is significantly lower than the statewide average accident rate of 239 ACC/100MVM, for all similar types of highways under state maintenance. The resulting accident costs to the motoring and general public attributed to these accidents is approximately $930,000/100 MVM.

Two (2) of the intersections in the study area met the criteria for High Accident Intersections (HAI) during the study period. These intersections are listed below, indicating the number of accidents for each year identified as an HAI.

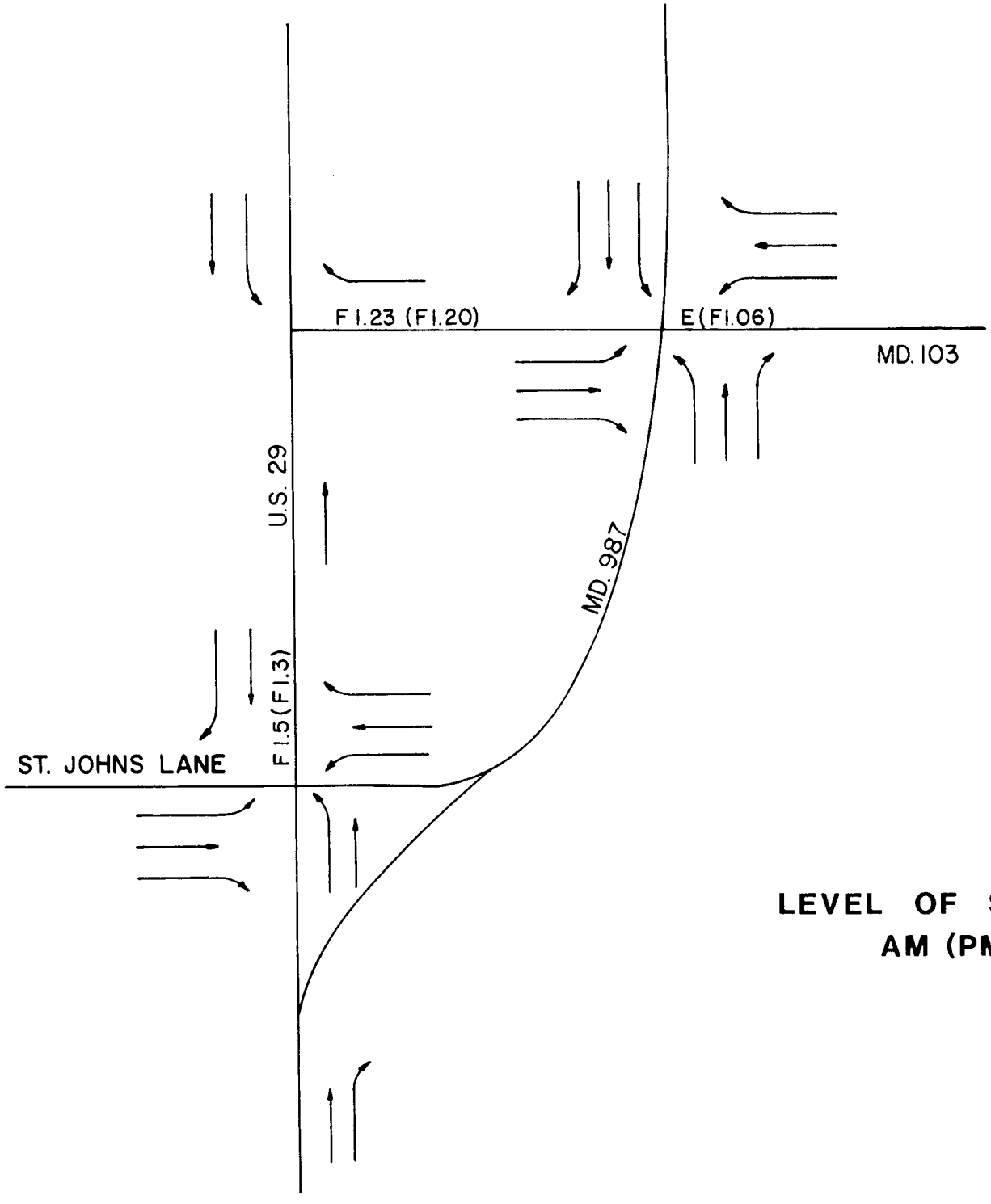
Intersection	*Accidents - Year
U.S. Route 29 at Maryland 987 and St. John's Lane	12 ACC - 1980; 12 ACC - 1981
Maryland 103 at Maryland 987	11 ACC - 1979

Nearly 60% of the total accidents in the study area were intersection - related. Rear-end and left-turn collisions in particular, are occurring at higher frequencies than expected based on the statewide averages for these type highways.

Under the No-Build Alternate, the projected increase in average daily traffic in the project area would result in these conditions remaining the same. The existing roadway system would be forced to accommodate this increased traffic, and would continue to experience higher than normal accident rates.

With the Build Alternates, there would be no at-grade intersections on U.S. Route 29 in the area which would appear to

U.S.29 / MD.103 INTERCHANGE
Levels Of Service (2010)
Alt. 1 (No Build)



LEVEL OF SERVICE
AM (PM)

Aug. 1984 Data

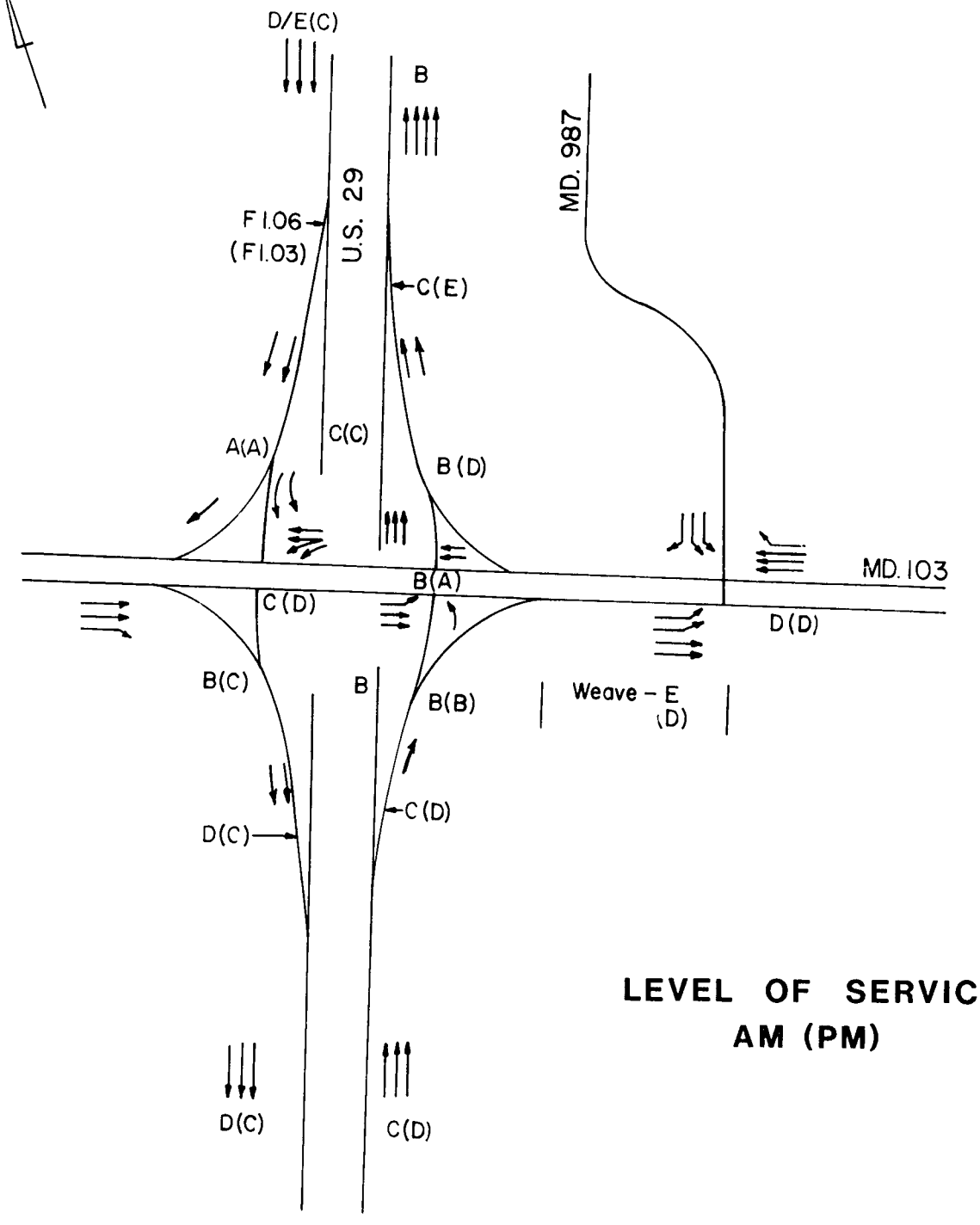
FIGURE 13

U.S.29 / MD. 103 INTERCHANGE

Levels Of Service (2010)

Alt. 2

58



LEVEL OF SERVICE
AM (PM)

Aug. 1984 Data

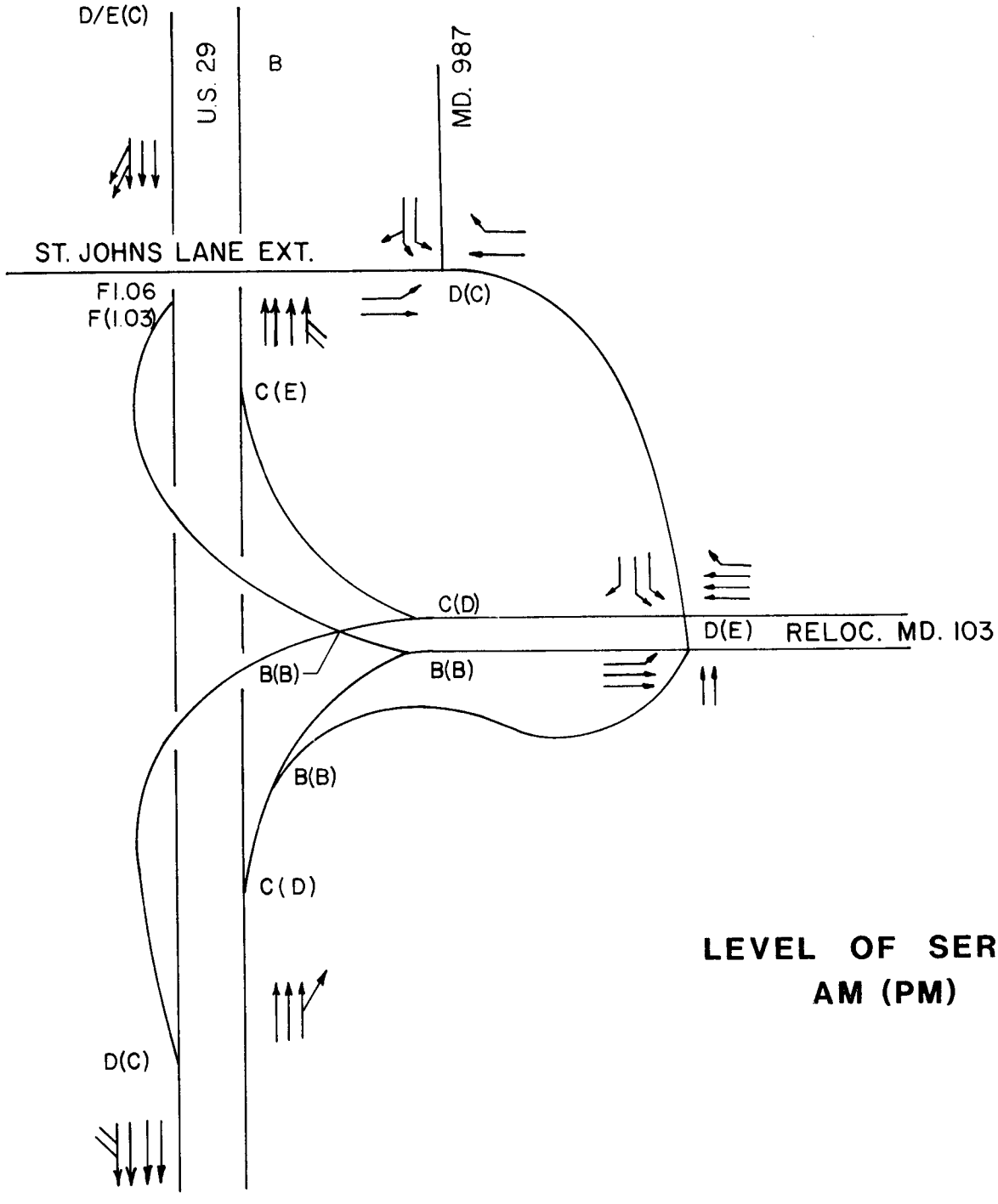
FIGURE 14

U.S.29 / MD.103 INTERCHANGE

Levels Of Service (2010)

Alt. 3

56



LEVEL OF SERVICE
AM (PM)

Aug. 1984 Data

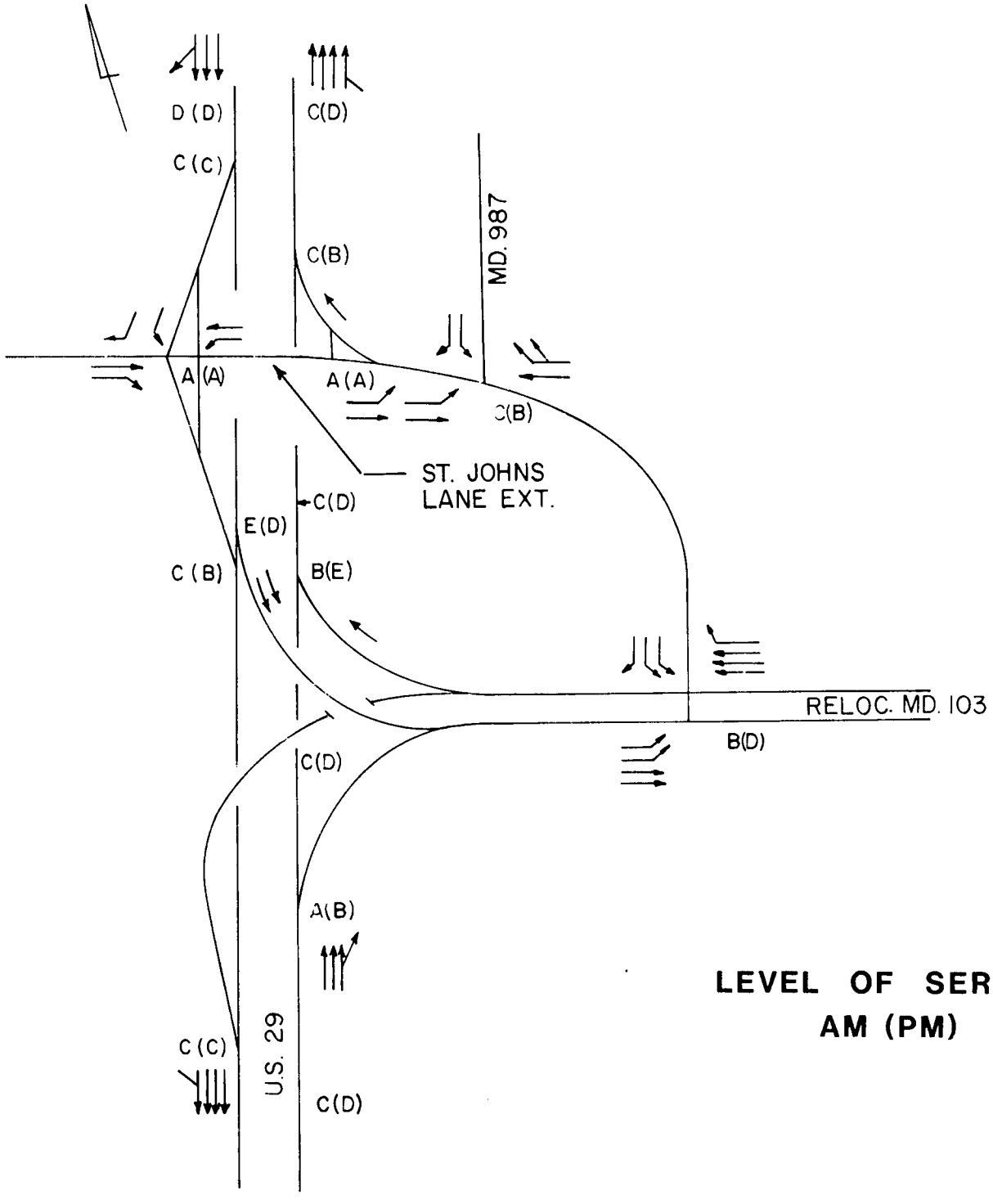
FIGURE 15

U.S.29 / MD. 103 INTERCHANGE

Levels Of Service (2010)

Alt. 7

57



LEVEL OF SERVICE
AM (PM)

Aug. 1984 Data

FIGURE 16

reduce approximately 40% of the rear-end type collisions, and all of the left-turn and angle collisions. Relocating the intersections, should also greatly reduce the congestion and delays found in the mainline traffic flow on U.S. Route 29 in the study area.

With the Build Alternates, we would expect the study area to experience an accident rate of approximately 130 ACC/100 MVM with a corresponding accident cost of $730,000/100 MVM. This would result in an accident cost savings of approximately $200,000/100 MVM when compared to the existing facilities. Greater benefits would probably result in terms of reduced travel time, delays and fuel costs related to the improved traffic flow on the mainline of U.S. Route 29.

The accident costs as indicated, include present worth of future earnings of those persons killed and permanently disabled, as well as monetary losses resulting from injury and property damage accidents. The unit costs utilized in the above computations were based upon actual cost values obtained from independent cost studies conducted in Washington, D.C., Illinois, and the California Division of Highways, and have been updated to 1982 prices.

III. ALTERNATES CONSIDERED

III. ALTERNATES CONSIDERED

Prior to the Alternates Public Meeting preliminary studies were undertaken for several interchange configurations. The preliminary alternates 4, 4A, 5, 6 and 8 were dropped from further study due to environmental impacts and engineering problems. Alternates 2, 3 and 7 incorporating the most feasible environmental and engineering features of the preliminary alignments, were recommended for further study at the Alternates Public Meeting held June 12, 1984 at the Ellicott City National Guard Armory. These alternates were also recommended as a result of public comments and coordination with community associations and elected officials. Alternate 7 has been selected as the preferred alternate.

A. Following is a brief discussion of alternates presented at the Alternates Public Meeting.

Alternate 4, 4A (Dropped from further study)

This alternate began at St. John's Lane and extended in an easterly direction crossing over U.S. Route 29 approximately 400 feet south of the intersection of U.S. Route 29/Maryland Route 103. Alternate 4 continued easterly, parallel to Maryland Route 103 and tied into existing Maryland 103 in the vicinity of the YMCA Facility. This Alternate proposed a diamond interchange which provided all movements to and from U.S. Route 29.

Alternate 4A was situated in the same location as Alternate 4. It differed from Alternate 4 in that the interchange ramps providing access to and from southbound U.S. Route 29 were combined in the northwest quadrant.

Alternates 4 and 4A were dropped from further consideration because of impacts to the Church of the Latter Day Saints property,

high right-of-way costs, insufficient storage for left turning vehicles from relocated Maryland Route 103 to north and southbound ramps. Additionally, Alternate 4 displaces two (2) residences and two (2) businesses while Alternate 4A would displace four (4) residences and two (2) businesses including the National Guard Armory.

Alternate 5 (Dropped from further study)

Alternate 5 began at St. John's Lane with proposed Maryland Route 103 extending in an easterly direction, passed over U.S. Route 29 and Maryland Route 987 and tied into existing Maryland Route 103 east of the YMCA Facility. All movements to and from U.S. Route 29 and Maryland Route 103 were provided by proposed diamond interchange ramps. The ramp carrying westbound Maryland Route 103 traffic to northbound U.S. 29 included a structure over Maryland Route 987 which allowed northbound U.S. Route 29 traffic direct access to Maryland Route 987 and Ellicott City.

Alternate 5 was dropped from further consideration because of total cost (second most expensive), insufficient storage for left turning vehicles from relocated Maryland Route 103 to north and southbound ramps, and seven (7) displacements (five (5) residences, two (2) businesses), including the National Guard Armory.

Alternate 6 (Dropped from further study)

Alternate 6 relocated Maryland Route 103 starting just east of the existing intersection of St. John's Lane and High Point Road. At this point, proposed Maryland Route 103 proceeded through the Temora Historic Site, crossed over Maryland Route 982 and U.S. Route 29. This Alternate then continued in an easterly direction until tying into existing Maryland Route 103 east of the YMCA

Facility. On the east side of U.S. Route 29, this interchange would operate as a standard diamond and on the west side of U.S. Route 29, proposed Maryland Route 103 would function as a local urban roadway with connecting ramps providing access to and from U.S. Route 29.

Alternate 6 was dropped from further consideration because it impacted a historical site (Temora structure), required three (3) at-grade intersections on Relocated Maryland Route 103 in close proximity, west of U.S. Route 29 and required the displacements of six (6) residences and one (1) business.

Alternate 8 (Dropped from further study)

Alternate 8 began at the intersection of St. John's Lane and Maryland Route 982 and extended in an easterly direction crossing over U.S. Route 29 approximately 400 feet south of the existing intersection of U.S. Route 29 and Maryland Route 103. The alignment proceeded parallel to existing Maryland Route 103 and tied into the present roadway just east of the Waterloo Middle School Facility. All movements between U.S. Route 29 and Maryland Route 103 would be provided by an urban diamond interchange. A connection was proposed which tied relocated Maryland Route 103 into existing Maryland Route 103 in the vicinity of the YMCA Facility.

Alternate 8 was dropped from further consideration because of the high cost (most expensive alternate) and five (5) displacements (four (4) residences, one (1) business), including National Guard Armory.

B. Alternate 1 - No-Build

The No-Build Alternate, would not offer any improvement in traffic operation or capacity. No long range improvements would be

realized and the mix of through and local traffic would continue. This Administration does not consider the existing roadway network a realistic Alternate to accommodate the projected traffic increase.

Under the No-Build Alternate, there would be no expenditure of funds other than for routine maintenance and safety improvements. Some improvements associated with the upgrading of U.S. Route 29, a study being conducted independent of this project, could be implemented at a later date.

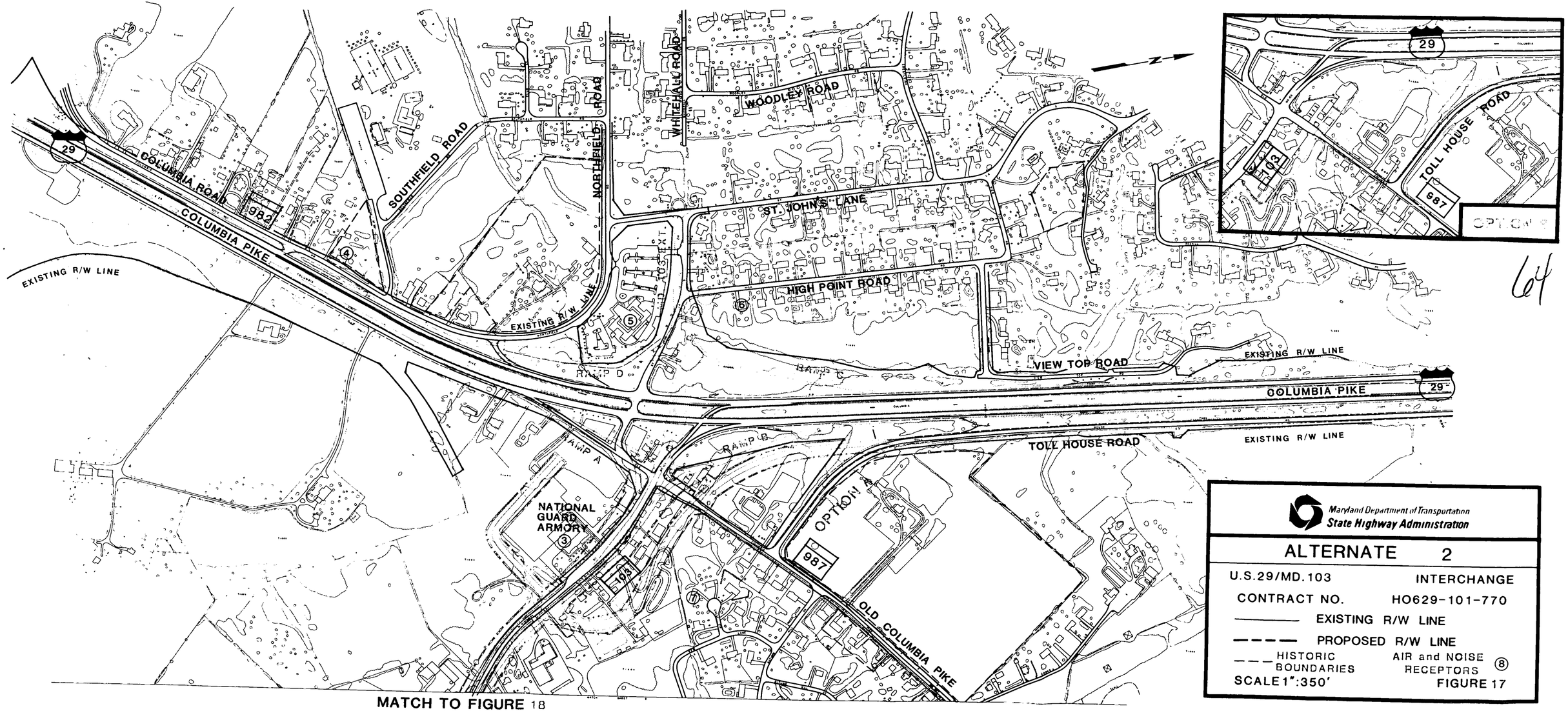
C. Alternates for Detailed Studies

The three (3) Build Alternates being investigated in the final project planning phase would provide full control of access throughout the interchange area. (Structures are proposed and the use of retaining walls would be required in certain areas with each alternate). The proposed roadway typical sections for these alternates are displayed on Figures 23-25 and the proposed bridge typicals are shown on Figures 26-27.

1. Alternate 2 (See Figures 17-18)

Alternate 2 would begin approximately 50 feet north of the existing intersection of St. John's Lane and Northfield Road. From this point, the improvement would extend eastward passing over U.S. Route 29 and continue along existing Maryland Route 103 to the vicinity of the YMCA.

A diamond interchange is proposed, which will provide all movements to and from U.S. Route 29 and Maryland Route 103. This will necessitate the relocation of Maryland Route 987 (Old Columbia Pike) to the east so its intersection with Maryland Route 103 can



Maryland Department of Transportation
State Highway Administration

ALTERNATE 2

U.S.29/MD.103 INTERCHANGE

CONTRACT NO. HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

– – – HISTORIC BOUNDARIES

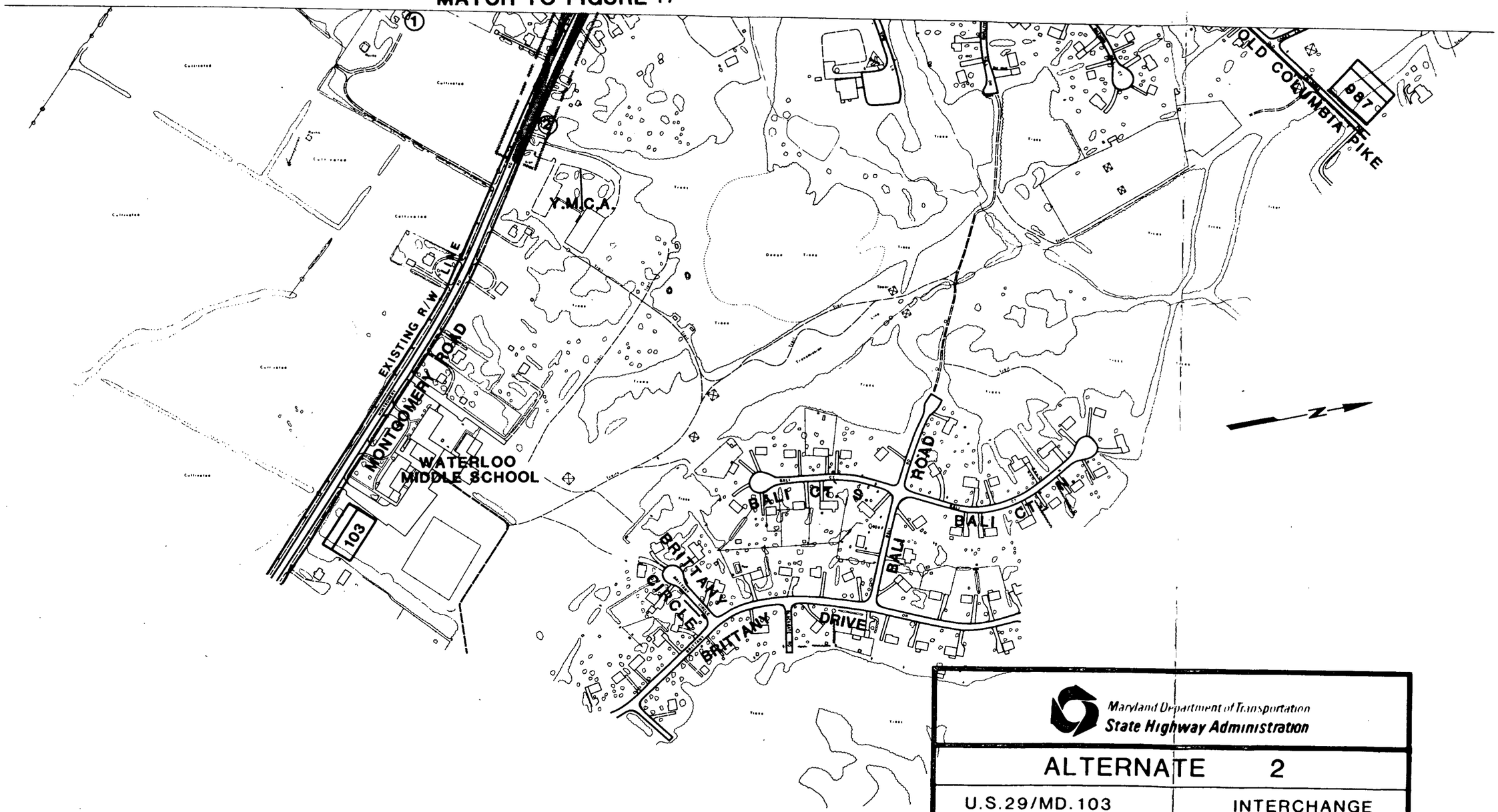
AIR and NOISE RECEPTORS ⑧

SCALE 1":350'

FIGURE 17

64

MATCH TO FIGURE 17



Maryland Department of Transportation
State Highway Administration

ALTERNATE 2

U.S.29/MD.103	INTERCHANGE
CONTRACT NO.	HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

⑧ AIR and NOISE SENSITIVE RECEPTORS

SCALE 1":350' FIGURE 18

provide adequate separation for weaving traffic from the proposed interchange ramps. Relocated Maryland Route 987 would begin near Bethel Baptist Church and extend in a westerly direction parallel to Maryland Route 103, intersecting existing Maryland Route 987 approximately 250 feet north of Maryland Route 103. From this intersection, the relocated roadway would continue westerly tying into Toll House Road.

Access to Main Street and Ellicott City could be provided by one of two options. Option A would provide access to Maryland Route 987 via. a "T" intersection of relocated and existing Maryland Route 987. A cul-de-sac on the Toll House Road is proposed approximately 700 feet west of existing Maryland Route 987. Option B would provide access to existing Maryland Route 987 by way of Toll House Road. This option would cul-de-sac existing Maryland Route 987 approximately 125 feet north of relocated Maryland Route 987.

Alternate 2 would require that access from Maryland Route 103 in front of the National Guard Armory be denied. Access to the Armory would be provided by a service road which would tie into proposed Maryland Route 103 opposite relocated Maryland Route 987 and run along the east and south sides of the Armory property. This alternate would require a cul-de-sac on High Point Road approximately 125 feet north of proposed Maryland Route 103.

Along proposed Maryland Route 103 crossovers and signal controls would be required at the intersections created by ramps C/D, ramps A/B and relocated Maryland Route 987. From eastbound proposed Maryland Route 103, a single left turn lane to Ramp B and a double left turn lane to relocated Maryland Route 103 is

proposed. From proposed westbound Maryland Route 103, a single left turn lane to the proposed Armory access road and a double left turn lane to Ramp D is proposed.

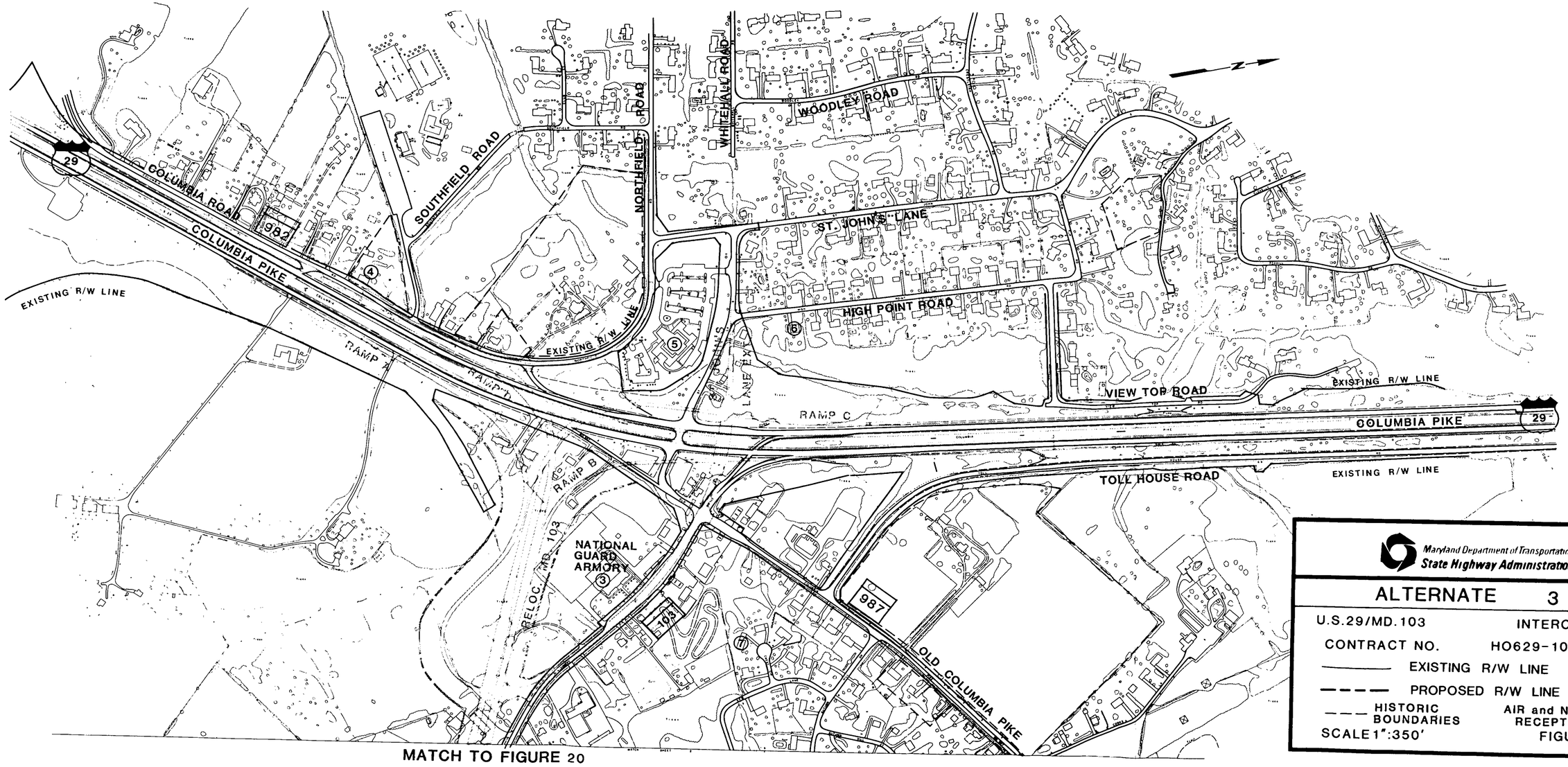
The construction of one structure along proposed Maryland Route 103 crossing over U.S. Route 29 would be required with Alternate 2. A retaining wall would be required between Ramp D and Maryland Route 982 (Columbia Road).

2. Alternate 3 (See Figures 19-20)

Alternate 3 proposes an interchange to be situated approximately 850 feet south of existing Maryland Route 103 along U.S. Route 29. The mainline improvement of Maryland Route 103 would extend in an easterly direction passing south of the National Guard Armory and tie into existing Maryland Route 103 approximately 250 feet east of the YMCA facility.

This interchange will consist of directional ramps to provide all movements to and from U.S. Route 29. The two directional ramp movements from the west side of U.S. Route 29 would each cross over U.S. Route 29 on a separate structure. These ramps will intersect at-grade requiring the use of a signal control.

Slightly east of Bethel Baptist Church, a short connection would tie relocated Maryland Route 103 into the existing roadway and at this connection with relocated Maryland Route 103, a second traffic signal is proposed. A median crossover would be constructed at the juncture of relocated Route 103 and this connecting roadway. This area would provide the only crossover along relocated Maryland Route 103. A cul-de-sac is proposed on existing Maryland Route 103 just east of the connection. St. John's



Maryland Department of Transportation
State Highway Administration

ALTERNATE 3

U.S.29/MD.103 INTERCHANGE

CONTRACT NO. HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

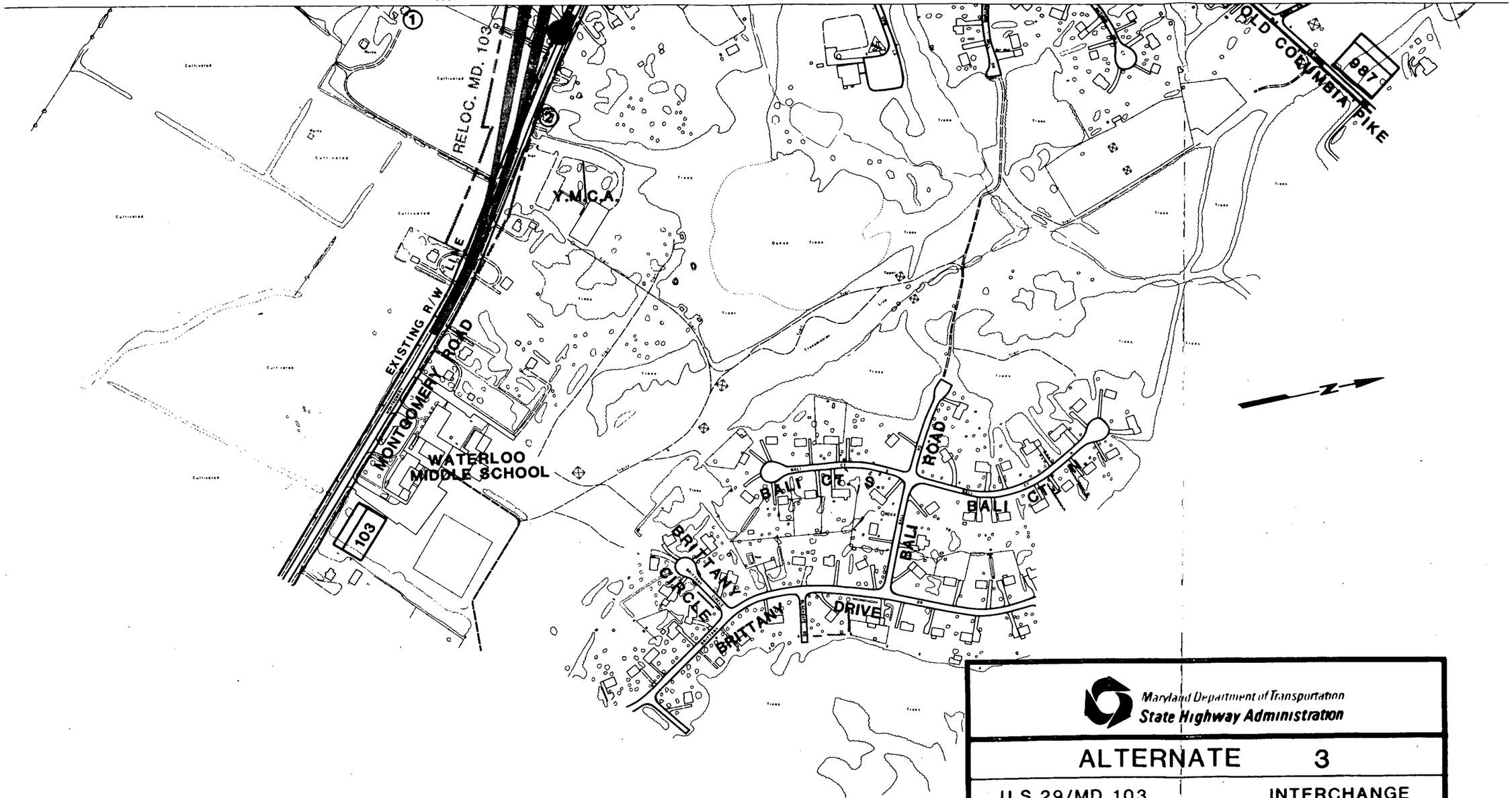
– – – HISTORIC BOUNDARIES

AIR and NOISE RECEPTORS ⑧

SCALE 1":350'

FIGURE 19

MATCH TO FIGURE 19



Maryland Department of Transportation
State Highway Administration

ALTERNATE 3

U.S.29/MD.103 INTERCHANGE

CONTRACT NO. HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

⑧ AIR and NOISE SENSITIVE AREAS

SCALE 1":350'

FIGURE 20

Lane would be extended from High Point Road easterly, crossing over U.S. Route 29, to tie into existing Maryland Route 103 at its intersection with Maryland Route 987 (Old Columbia Pike). This extension will provide access from the community of St. John's and areas west of U.S. Route 29 to the interchange ramps. A jug handle is proposed to provide access from northbound U.S. Route 29 to existing Maryland Route 103 and Maryland Route 987.

Alternate 3 would require the minor relocation of Maryland Route 982 (Columbia Road) to allow westbound relocated Maryland Route 103 traffic to merge into southbound U.S. Route 29.

A double left turn lane is proposed on relocated eastbound Maryland Route 103 for access to the connection to existing Maryland Route 103. A single left turn lane on St. John's Lane extended provides access to Maryland Route 987.

Three (3) structures, all crossing over U.S. Route 29, would be constructed with Alternate 3. They are proposed on Ramp C, Ramp D, and St. John's Lane extended.

Retaining walls would be required between Ramp D and Columbia Road and between Ramp D and the southbound lane of U.S. Route 29.

3. Alternate 7 (Preferred) (See Figures 21-22)

Alternate 7 proposes to relocate Maryland Route 103 farther south than either Alternate 2 or 3. Relocated Maryland Route 103 would be situated approximately 1,700 feet south of the existing intersection of U.S. Route 29 and Maryland Route 103. From this point, the improvement would extend in an easterly direction tying into existing Maryland Route 103 east of the Waterloo Middle School. A cul-de-sac is proposed on existing Maryland Route 103 immediately east of the school's entrance.

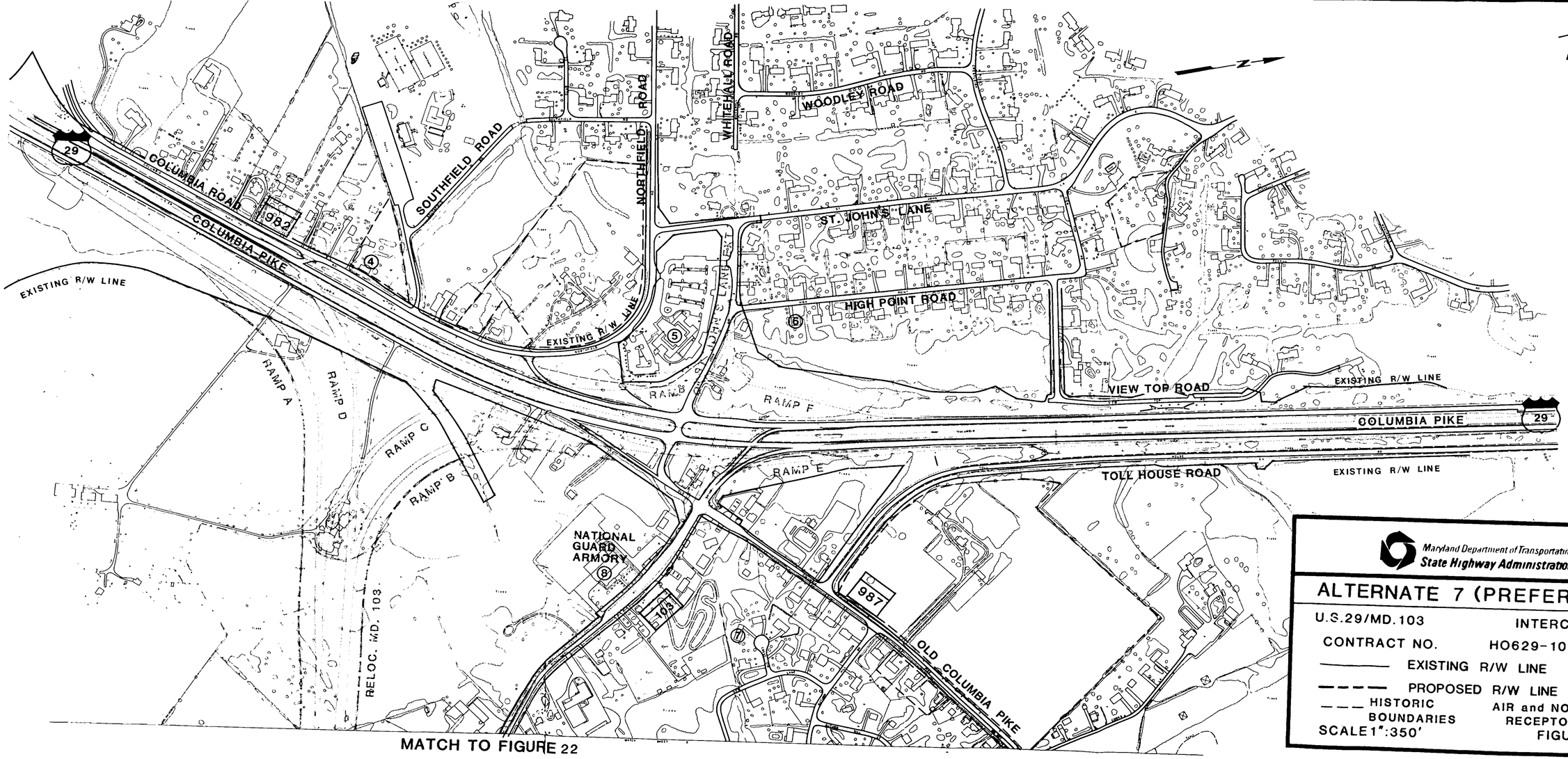
Both mainline roadways of U.S. Route 29 would be relocated in an easterly direction with this alternate for a distance of approximately one (1) mile. The median width of relocated U.S. Route 29 would be approximately 180 feet at its widest point. The operation of Maryland 982 (Columbia Road) would not be affected by the alignment.

Ramp C would be bridged over Ramp D eliminating the necessity for signal controls within the interchange. A connector road is proposed in the vicinity of the YMCA facility between relocated Maryland Route 103 and existing Maryland Route 103. The intersection created by this connector would be signal controlled. Existing St. John's Lane would be extended from High Point Road over U.S. Route 29 to the existing intersection of Maryland Route 987 (Old Columbia Pike) and Maryland Route 103. This extension will provide access to U.S. Route 29 for the communities on the west side of U.S. Route 29.

Three (3) additional local access points (Ramps E, F and G) are proposed in the vicinity of St. John's Lane extended for the express purpose of providing easy access to the community of St. John's and businesses located on existing Maryland Route 103, in lieu of the circuitous route associated with Ramps B, C and D.

A double left turn lane would be provided along eastbound relocated Route 103 at the connection to existing Maryland Route 103. A single left turn lane is proposed along eastbound St. John's Lane extended to Old Columbia Pike.

Alternate 7 would require the construction of four (4) structures in the interchange area. These structures would be located on St. John's Lane over U.S. Route 29; Ramp C over the



Maryland Department of Transportation
State Highway Administration

ALTERNATE 7 (PREFERRED)

U.S.29/MD.103 INTERCHANGE

CONTRACT NO. HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

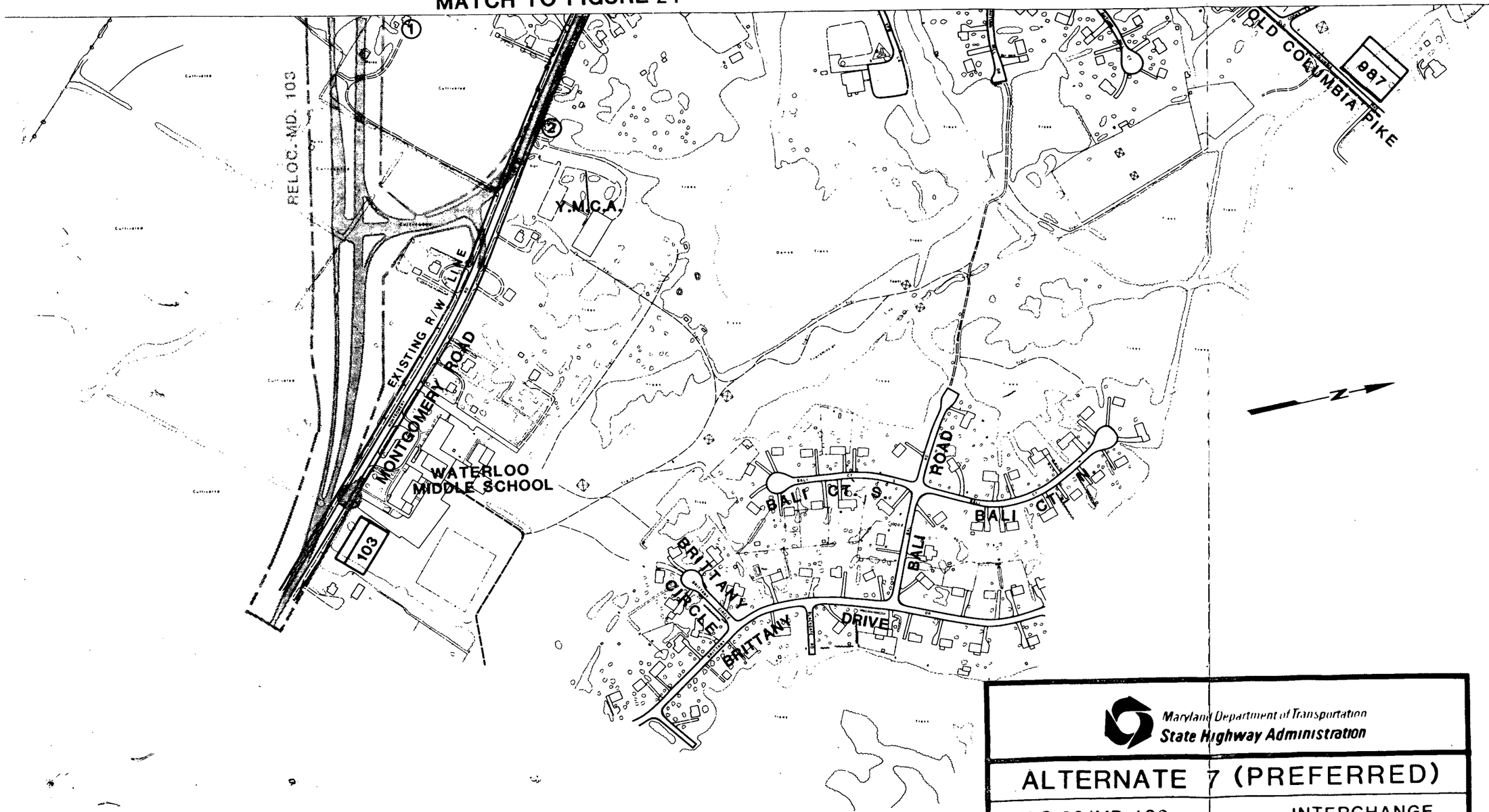
– – – HISTORIC BOUNDARIES

AIR and NOISE RECEPTORS ⑧

SCALE 1":350'

FIGURE 21

MATCH TO FIGURE 21



Maryland Department of Transportation
State Highway Administration

ALTERNATE 7 (PREFERRED)

U.S.29/MD.103 INTERCHANGE

CONTRACT NO. HO629-101-770

——— EXISTING R/W LINE

– – – – PROPOSED R/W LINE

⑧ AIR and NOISE SENSITIVE RECEPTORS

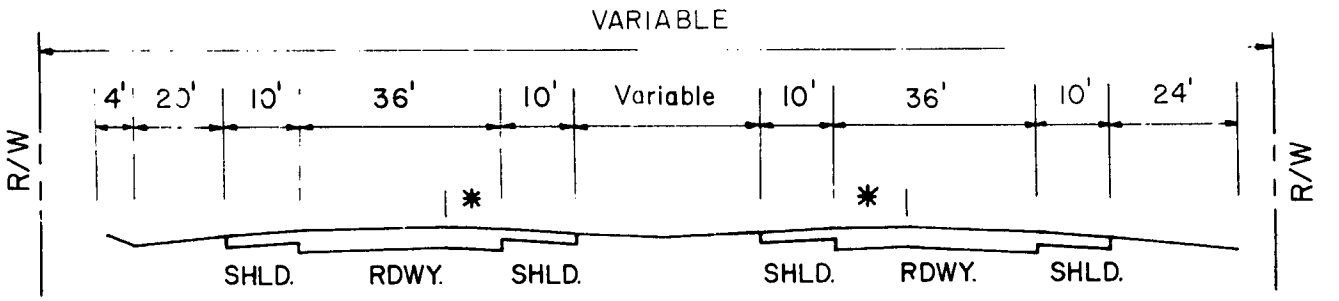
SCALE 1":350' FIGURE 22

northbound lanes of U.S. Route 29; Ramp C over Ramp D and Ramp D over U.S. Route 29.

Retaining walls would be required in three (3) locations, between Ramp D and Columbia Road; between Ramp D and the relocated southbound lanes of U.S. Route 29 and between Ramp E and the relocated northbound lanes of U.S. Route 29.

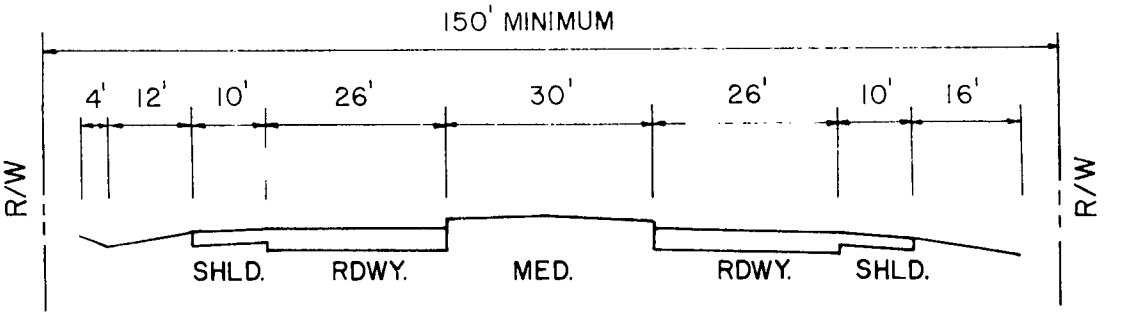
PROPOSED ROADWAY TYPICAL SECTIONS
U.S.29/MD.103 INTERCHANGE

NOT TO SCALE



EXISTING OR RELOCATED U.S.29
ALTERNATES 2,3&7

* Alternates 2&3 will include an additional 12' lane in each direction to the existing roadway.



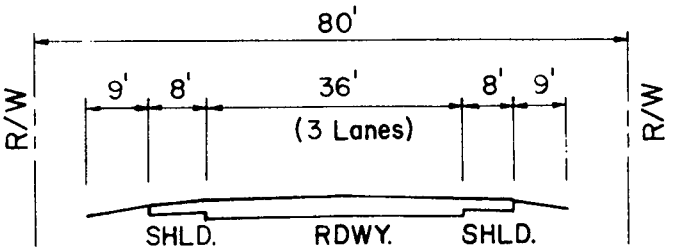
RELOCATED MD. 103
ALTERNATES 2&3
ALTERNATE 7 (Variable Median)

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

FIGURE 23

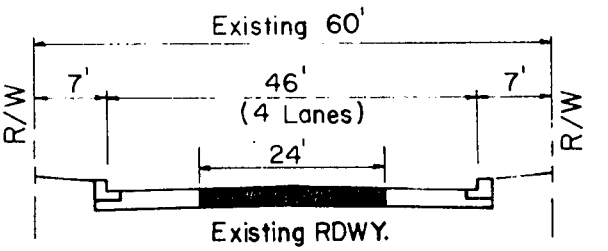
PROPOSED ROADWAY TYPICAL SECTIONS
U.S. 29/MARYLAND 103 INTERCHANGE

NOT TO SCALE



MARYLAND 987 EXTENDED (OLD COLUMBIA PIKE)
ALTERNATE 2

ST. JOHNS LANE EXTENDED
ALTERNATES 3&7



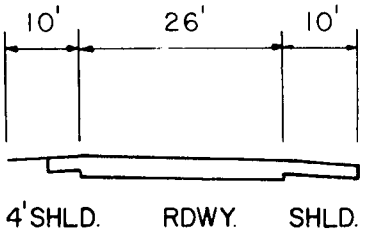
EXISTING MARYLAND 103
ALTERNATES 3&7

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

FIGURE 24

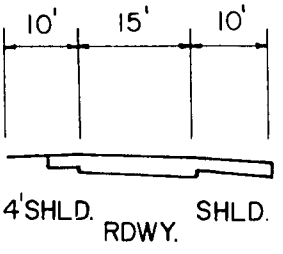
PROPOSED ROADWAY TYPICAL SECTIONS
U.S.29/MD.103 INTERCHANGE

NOT TO SCALE



2 LANE RAMP

ALTERNATE 2 RAMPS B,C&D
ALTERNATE 3 RAMPS B,C&D
ALTERNATE 7 RAMPS B&C



SINGLE LANE RAMP

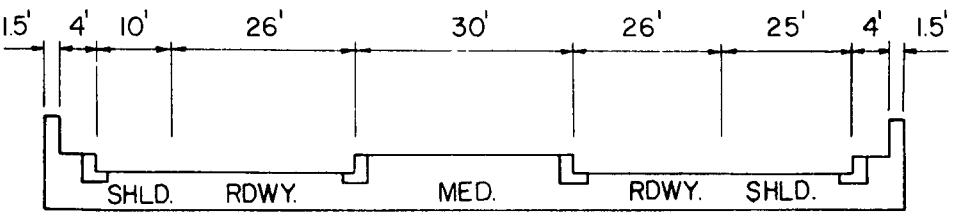
ALTERNATE 2 RAMP A
ALTERNATE 3 RAMP A
ALTERNATE 7 RAMPS A,D,E,F&G

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

FIGURE 25

PROPOSED BRIDGE TYPICAL SECTIONS
U.S. 29/MARYLAND 103 INTERCHANGE 78

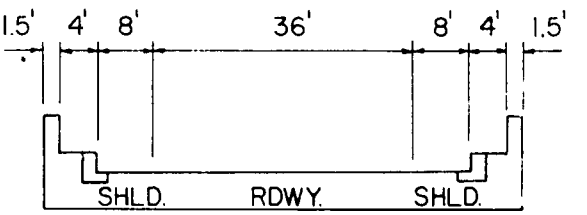
NOT TO SCALE



MARYLAND 103 EXTENDED

ALTERNATE 2

NOTE: Additionol 15' included for improved sight distance for Ramp A (50 MPH)



ST. JOHNS LANE EXTENDED

ALTERNATES 3&7

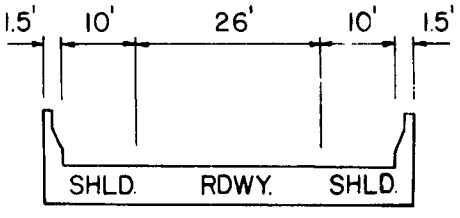
NOTE:
The dimensions shown ore for the purpose of determining cost estimotes ond environmental impacts, ond ore subject to chonge during the finol design phose.

FIGURE 26

PROPOSED BRIDGE TYPICAL SECTIONS
U.S. 29 / MARYLAND 103 INTERCHANGE

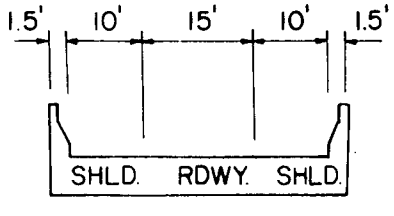
79

NOT TO SCALE



2 LANE BRIDGE

ALTERNATE 3 RAMP C&D
ALTERNATE 7 RAMP C



SINGLE LANE BRIDGE

ALTERNATE 7 RAMP D

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

FIGURE 27

IV. ENVIRONMENTAL IMPACTS

IV. ENVIRONMENTAL IMPACTS

A. Social Impacts

1. Relocations

The No-Build Alternate would require no relocations, Alternate 2 would require the relocation of six (6) residences and five (5) businesses, including three (3) gasoline stations, a convenience store and a delicatessen (employing a total of 30 people). Alternate 3 would relocate five (5) residences (three (3) of these are tenant-occupied) and one business (a real estate office). Alternate 7 would relocate four (4) tenant-occupied residences.

In addition, all three (3) build alternates would displace tenants from four (4) houses and one business property (a seafood house) which are owned by the State Highway Administration.

A survey of the local real estate market revealed that comparable, affordable replacement housing is available for those displaced by the chosen alignment. All families will be relocated into decent, safe, and sanitary housing within their financial means. Last Resort Housing will be used if necessary. Lead time for relocation will be 12 months for Alternates 3 and 7, and 24 months for Alternate 2. Replacement sites are available for some of the businesses, although the three (3) service stations affected by Alternate 2 would have difficulty relocating in the area due to zoning restrictions. This accounts for the longer lead time for Alternate 2.

No minorities, handicapped, or elderly persons are expected to be displaced under either of the build alternates.

Summary of Equal Opportunity Program of Maryland State Highway Administration

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.

Access to Community Facilities and Services

With the No-Build Alternate, already poor access to facilities and services would worsen especially for those crossing U.S. Route 29. The congested and unsafe intersection with Maryland Route 103 will become more congested and dangerous as traffic volumes increase. Pedestrian traffic would be particularly impacted.

All three (3) build alternates would improve access and road capacity, thus allowing better traffic movement through the area. Congestion and accident rates would decrease providing safer and quicker travel for those using the U.S. Route 29/Maryland Route 103 interchange.

Because Alternate 2 allows through traffic to stay on Maryland Route 103, and because traffic volumes are projected to increase substantially, this is the least desirable of the build alternates. Heavy traffic volumes would make turning into and out of such facilities as the YMCA, the Bethel Baptist Church and the Waterloo Middle School unsafe. Both Alternate 3 and Alternate 7 would remove through traffic from part of Maryland Route 103, making access to some facilities safer and less congested although

somewhat less direct. The YMCA and the Middle School, however, would still contend with through traffic with Alternate 3.

Alternate 7 provides a cul-de-sac in front of the Middle School, thus allowing the least amount of through traffic and the safest access to facilities west of and including the school.

Community Impacts

The No-Build Alternate would have the most severe community impacts of all the alternates. The increased traffic volumes which have been projected for this area would cause changes in local traffic patterns. Some drivers would seek other travel routes to avoid the increasing congestion in the study area. This could result in through traffic using local streets in residential neighborhoods. This would disrupt the integrity and cohesion of these neighborhoods.

Existing communities along Maryland Route 103 would be negatively impacted with Alternate 2 due to the close proximity of the proposed alignment to these homes. Especially impacted would be the community located in the northeast quadrant of the U.S. Route 29/Maryland 103 interchange, which would be much closer to through traffic traveling on relocated Maryland Route 987 than it is now.

Alternates 3 and 7 would more positively impact the community by moving through traffic further away from it. On the west side of U.S. Route 29, however, Alternate 3 would shift the alignment closer to the homes along Northfield and Columbia Roads.

Alternate 7 would have the most positive community impacts of all the alignments, because through traffic would be shifted away

from all residential areas within the study limits.

2. Economic and Land Use Impacts

Because the No-Build Alternate would not solve traffic congestion problems associated with projected high volumes of traffic, local businesses may be negatively impacted. Customers may be discouraged from frequenting these businesses if they must contend with congestion and unsafe conditions.

Furthermore, new economic or industrial growth may be discouraged from locating in the area because of the lack of adequate access. Since the county has designated the study area, as well as much of the eastern portion of the county, for rather intensive commercial and residential development, the lack of adequate road improvements in the study area could result in development pressures to the western portion of the county which is designated for rural conservation.

Alternate 2 has the most severe direct economic impacts of any of the build alternates since it displaces five (5) businesses, three (3) of which (the service stations) would be difficult to relocate. It would, however, improve access to the other businesses in the area.

In addition, Aternate 2 would have a negative impact on future commercial development. The new alignment would pass through much of the local land now zoned for commercial use. The area does not have a surplus of either potential or existing commercial sites, and Alternate 2 would further reduce potential tax revenue and and business services available to the community.

Both Alternate 3 and Alternate 7 would have generally positive

economic and land use impacts. They would provide necessary access and road capacity to support planned residential and commercial development in the area. This development is consistent with the General Land Use Plan, and would help channel development to the appropriate areas in the county.

Alternate 3 and 7 would also provide less congested access to the businesses at the U.S. Route 29/Maryland Route 103 interchange. In addition, access to these businesses for those residents living west of U.S. Route 29 would improve and the businesses on the east side, would be more attractive to them. These two factors would help offset the loss of through traffic passing directly in front of the businesses.

Furthermore, planned development in the immediate area would eventually provide a substantial pool of potential customers.

B. Historic/Cultural Impacts

The historic sites described in Section II are shown on Figure 4 and 17-22. The Temora and Wayside Inn Historic Sites would only be affected by proposed Build Alternate 3. The letter from the Maryland Historical Trust dated October 9, 1984, indicates that proposed Alternates 2 and 7 would have no effect on any of the historic sites. The Maryland Historical Trust also indicated that Build Alternate 3 would have no adverse effect on the Temora and Wayside Inn Historic Sites.

According to the State Archeologist, one (1) archeological site (designated 18 HO 117), a 19 th/20 th century site, would be affected by Alternate 3. However, this site has suffered previous adverse impact and is not considered significant. (See Section

VII).

C. Natural Environmental Impacts

a. Prime Farmland Soils - The project would affect Prime Farmland Soils under all build alternates proposed. Approximate amounts of Prime Farmland Soils required for right-of-way purposes are shown below:

Alternate 2 - 9.6 acres
Alternate 3 - 21.3 acres
Alternate 7 - 23.1 acres

One active farm, located in the southeastern portion of the study area along Maryland Route 103 would be affected. Approximate acreage under cultivation required from the farm for the proposed build alternates is shown below:

Alternate 2 - .5 acres
Alternate 3 - 2.0 acres
Alternate 7 - 13.5 acres

The acreage required under Alternates 2 and 3 is comprised of almost 100% prime farmland soils, while acreage required for Alternate 7 represents approximately 50% prime farmland soils.

Within the study area zoning is predominantly commercial and residential, consistent with planning goals for eastern Howard County. The farmland which would be impacted by this project is currently zoned residential.

There is no indication that any unique farmland soils are present within the study area.

This project is being coordinated with the Soil Conservation Service in accordance with the National Farmland Protection Policy Act.

b. Habitat - The U.S. Route 29/Maryland Route 103 study area supports a relatively small wildlife community. Due to the developing residential and commercial nature of the study area, as

well as its limited size, no significant impacts are expected. Species such as deer, rabbit, squirrel, racoon, dove, waterfowl, reptiles, amphibians, and fish are representative of the wildlife population in the study area. Coordination with DNR, Wildlife Administration, and U.S. Fish and Wildlife Service indicates that there are no known populations of threatened or endangered plant or animal species in the study area. (See correspondence from these agencies in Section VII).

The alternates under consideration would require the following amounts of woodland habitat for highway right-of-way:

Alternate 2 - 2.6 acres
Alternate 3 - 11.4 acres
Alternate 7 - 5.5 acres

The loss of habitat would be accompanied by a proportional loss in animal population inhabiting these areas. According to the Howard County Master Plan, this area is zoned for residential and commercial development.

Pursuant to Executive Order 11990, Protection of Wetlands, wetland areas potentially affected were identified. No tidal wetlands are located within the study area.

Non-tidal wetlands are identified within the study area based on the U.S. Fish and Wildlife Service National Wetlands Inventory. (See Figure 8) Less than one half acre of non-tidal wetland would be affected under Alternate 3. It does not lie within the designated 100 year floodplain of any waterway. Mitigation of impacts to this wetlands will be coordinated with the Department of Natural Resources during final design phase.

c. Surface Water - Improvements to existing roadways will require some reconstruction over existing stream crossings at Red Hill Branch, Cat Tail Creek and Plumtree Branch. Culvert and pipe

extensions will be provided where necessary. The improvements on U.S. Route 29 extend south to include the crossing of Red Hill Branch. All construction in this section would occur within existing State Highway Administrations right-of-way and is not expected to impact the 100 year floodplain.

The project action will not result in risks or impacts to beneficial floodplain values or provide direct or indirect support to further development within a floodplain. In accordance with FHPM 6-7-3-2 a floodplain finding is not required.

Additional stream crossings of the waters previously discussed will be required for new alignments under all build alternates considered. No stream relocation will be required. A comparison of the number of stream crossings for each alternate can be found in Table 1.

The increase of impervious surfaces resulting from the proposed improvements would produce a proportionate increase in the amount of roadway runoff carrying vehicle generated pollutants (i.e., oil, coolants, brake linings, rubber, etc.). Stormwater runoff would be managed under the Department of Natural Resources' Stormwater Management Regulations. These regulations will require stormwater management practices in the following order of preference:

- on site infiltration
- flow attenuation by open vegetated swales and natural depressions
- stormwater retention structures
- stormwater detention structures

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

This project was reviewed at the Quarterly Inter-Agency Review meeting on October 18, 1984. Representatives from the Maryland Department of Natural Resources-Water Resources Administration and the U.S. Fish and Wildlife Service were in attendance.

Final design for the proposed improvements will include plans for grading, erosion and sediment control, and stormwater management, in accordance with State and Federal laws and regulations. They will require review and approval by the Maryland Department of Natural Resources-Water Resources Administration (WRA) and the Department of Health and Mental Hygiene-Office of Environmental Programs (OEP). A waterway construction permit will also be required from the Department of Natural Resources.

D. Noise Levels and Noise Impacts

The method used to predict the future noise levels from the proposed U.S. Route 29/Maryland Route 103 interchange was developed by the Federal Highway Administration 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 (3) 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 vehicles speed, and specifies a time period of consideration; 2) distance adjustment comparing a reference distance and actual distance between receiver and roadway, including roadway width and number of traffic lanes; and 3) adjustment for various types of physical barriers that would reduce noise transmission from source (roadway) to receiver.

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

The determination of environmental noise impacts is based on the relationship between the predicted noise levels, the established noise abatement criteria, and the ambient noise levels in the project area. The applicable standard is the Federal Highway Administration's noise abatement criteria/activity relationship (See Table 5) published in FHPM 7.7.3.

When design year L_{10} noise levels are projected to exceed the abatement criteria (Table 7) or increases ambient conditions by

TABLE 7

PROJECT NOISE LEVELS

U.S. Route 29/Maryland Route 103

B/NB

NSA	DESCRIPTION	AMBIENT L_{10}	DESIGN YEAR (2010) L_{10}				
			No Build	Alt. 2	Alt. 3	Alt. 7	
1	Residential	55 53	55 52	58 55	61	68 65	+ 13
2	Residential	67 64	72 69	73 70	73	72 69	0
3	Armory	71 68	69 66	71 68	70	70 67	+ 1
4	Historic	67 64	73 70	74 71	76	71 68	− 2
5	Church	62 59	69 66	73 70	71	70 67	+ 1
6	Residential	52 49	65 62	67	67	66 63	+ 1
7	Residential	57 53	62 59	66	63	63 60	+ 1

more than 10 dBA, 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, spacial distribution of structures, etc.), the predominant activities carried on within the area, the visual impact of the control measure, practicality of construction, and economic feasibility.

Economic assessment is based on the following assumptions. An effective barrier should, in general, extend in both directions to four (4) times the distance between receiver and roadway (source). In addition, an effective barrier should provide a 10 dBA reduction in the noise level, as a preliminary design goal. For the purpose of comparison, a total cost of $25 per square foot is assumed to estimate total barrier cost.

1. No-Build Alternate

A total of seven (7) noise sensitive areas are associated with this alternate. The L_{10} noise levels would increase 1-13 dBA over present levels with noise sensitive area 6 experiencing the highest increase over ambient levels (13 dBA). None of these noise sensitive areas will exceed the noise abatement criteria of 70 dBA, however, NSA 6 will have a projected increase over ambient levels by 10 dBA or more. NSA 3 will have a projected 2010 noise level lower than the existing ambient level. The difference is due to lower speeds that will occur as traffic increases by the design year (2010). Noise mitigation measures are not recommended for this alternate.

2. Build Alternate 2

A total of seven (7) noise sensitive areas are associated with

this alternate. The L10 noise levels would increase 1-15 dBA over present levels. The noise abatement criteria would be exceeded at noise sensitive areas 2, 3, 4 and 5. NSA 6 has a projected 2010 noise level that will increase 10 dBA or more over ambient levels. The following is a discussion regarding the feasibility of noise abatement for these five (5) sites:

NSA 2

This noise sensitive area will have a projected 2010 noise level 3 dBA over the noise abatement criteria. A barrier at this location would have to be segmented for driveway access from Maryland Route 103 to the YMCA and residences. A barrier length of 240' at a height of 12' would only reduce projected noise levels by 1-2 dBA. With a cost of $72,000 ($72,000/residence), this barrier would not be cost-effective or physically effective.

NSA 3

This noise sensitive area will have a projected 2010 noise level 1 dBA above the noise abatement criteria. A barrier at this site would have to be segmented for residential driveway access which would not provide sufficient attenuation to be physically effective. A barrier 560' in length by 12' in height at a cost of $168,000 would only reduce the projected noise levels 1-2 dBA. A barrier is not recommended.

NSA 4

NSA 4 will exceed the noise abatement criteria by 4 dBA in the design year 2010. A barrier at this site would have to be segmented for driveway access which would not provide sufficient attenuation to be physically effective. A barrier 880' in length by 12' in height at a cost of $264,000 ($264,000/residence) would only reduce levels 1-2 dBA.

NSA 5

Noise sensitive area 5 will have a projected 2010 noise level 11 dBA over the ambient level and will exceed the noise abatement criteria by 3 dBA. A barrier would not be physically effective at this location because it could not be extended the minimum distance required in each direction due to parking lot access. A barrier 2240' in length by 14' in height at a cost of $784,000 would only reduce levels 2-3 dBA.

NSA 6

NSA 6 will have a projected 2010 increase of 15 dBA over the ambient level for this alternate. A barrier at this location could not be extended the minimum distance required in each direction due to High Point Road access and relocated Maryland Route 103, which would not be physically effective. In addition, this NSA is located too far (± 250) for a barrier to provide adequate attenuation. A barrier 4000' in length by 14' in height at a cost of $1,400,000 would only reduce the projected noise level 1-2 dBA for this one (1) residence.

3. Build Alternate 3

A total of seven (7) noise sensitive areas are associated with this alternate. The L_{10} noise levels would increase 1-15 dBA over present levels. The noise abatement criteria would be exceeded at noise sensitive areas 2, 4 and 5. NSA 6 has a project 2010 noise levels that will increase 10 dBA or more over the ambient level. The following is a discussion regarding the feasibility of noise abatement for these four (4) sites:

NSA 2

Noise sensitive area 6 will have a projected 2010 increase of

6 dBA over the ambient level and will exceed the noise abatement criteria by 3 dBA. The feasibility of abatement discussion for alternate 2 can be applied here.

NSA 4

NSA 4 will have a projected 2010 increase of 9 dBA over the ambient level and will exceed the noise abatement criteria by 6 dBA. The feasibility of abatement discussion for Alternate 2 can be applied here.

NSA 5

Noise sensitive area 5 will have a projected 2010 increase of 9 dBA over the ambient level and will exceed the noise abatement criteria by 1 dBA. The feasibility of abatement discussion for Alternate 2 can be applied here.

NSA 6

Same as feasibility of abatement discussion for Alternate 2.

4. Build Alternate 7

A total of seven (7) noise sensitive areas are associated with this alternate. The L_{10} noise levels would increase 1-14 dBA over present levels. The noise abatement criteria would be exceeded at noise sensitive areas 2 and 4. NSA's 1 and 6 have projected 2010 noise levels that will increase 10 dBA or more over the ambient levels. The following is a discussion regarding the feasibility of noise abatement for these four (4) sites:

NSA 1

NSA 1 will have a projected 2010 increase of 13 dBA over the ambient level for this alternate. A barrier 1120' in length by 12' in height at a cost of $336,000 would reduce the projected noise level 6-7 dBA. This would not be a cost effective mitigation

measure at a cost of $336,000/residence.

NSA 2

Noise sensitive area 2 will have a projected 2010 increase of 5 dBA over the ambient level and will exceed the noise abatement criteria by 2 dBA. The feasibility of abatement discussion for Alternate 2 can be applied here.

NSA 4

NSA 4 will have a projected 2010 increase of 4 dBA over the ambient level and will exceed the noise abatement criteria by 1 dBA. The feasibility of abatement discussion for Alternate 2 can be applied here.

NSA 6

NSA 6 will have a project 2010 increase of 14 dBA over the ambient level for this alternate. The feasibility of abatement discussion for Alternate 2 can be applied here.

Some partial mitigation through the use of landscaping and plantings may be feasible for these sites and will be studied in future detail during the design phase of the project.

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 which would likely be sources of construction noise:

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

Generally, construction activity would occur during normal working hours on weekdays. Therefore, noise intrusion from

construction activities probably would not occur during critical sleep or outdoor recreation periods.

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

E. 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 one-hour period and 9 PPM for the maximum consecutive eight-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 one hour and eight hour CO concentrations at sensitive receptor sites under worst case meteorological conditions for the No-Build and the Build Alternates 2, 3, and 7 for the design year (2010) and the estimated year of completion (1990).

a. Analysis Inputs

A summary of analysis inputs is given below. More detailed information concerning these inputs is contained in the U.S. Route 29/Maryland Route 103 Air Quality Analysis which is available for review at the Maryland State Highway Administration, 707 North Calvert Street, Baltimore, Maryland 21202.

Background CO Concentrations

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

resulting from area-wide emissions from both mobile and stationary sources was assumed to be the following:

	CO, PPM	
	1 hour	8 hour
1990	3.9	2.2
2010	3.1	1.7

Traffic Data, Emission Factors, and Speeds

The appropriate traffic data was utilized as supplied by the Bureau of Highway Statistics (September, 1984) of the Maryland State Highway Administration.

The composite emission factors used in the analysis were derived from the Environmental Protection Agency (EPA) Compilation of Air Pollutant Emission Factors: Highway Mobile Sources, and the Modification to MOBILE 2 Which were used by EPA to Respond to Congressional Inquires on the Clean Air Act, and were calculated using the EPA MOBILE 2.5 computer program. An ambient air temperature of 20° F was assumed in calculating the emission factors for both the 1 hour and 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 30 mph to 55 mph depending upon the roadways and alternate under consideration.

Meteorological Data

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

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

b. Sensitive Receptors

Site selection of sensitive receptors were made on the basis of proximity to the roadway, type of adjacent land use, and changes in traffic patterns on the roadway network. Seven (7) receptor sites were chosen for this analysis consisting of five (5) residences, a church, and a military installation. The receptor site locations were verified during study area visits by the analysis team. The receptor sites are shown on Figures 17-22.

Site No.	Description/Location
1	Residence, 2 story frame Montgomery Road (MD. 103)
2	Residence, 2 story frame Montgomery Road (MD. 103)
3	National Guard Armory 121st Engineer Battalion Montgomery Road
4	Residence, 2 story stone Wayside Inn-Historic Site Columbia Road
5	Church of Jesus Christ of Latter Day Saints U.S. Route 29/St. John's Lane Southwest Quadrant
6	Residence, 1 story brick High Point Road
7	Residence, 1 story brick Crest Circle

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 8-9. The values shown consist of predicted CO concentration attributable to traffic on various roadway links plus projected background levels. A comparison of the values in Tables 8-9 with the S/NAAQS shows that no violations will occur for the No-Build or Build Alternates in 1990 or 2010 for the one-hour or eight-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.

Alternate 2 results in the highest CO concentrations in 1990 and 2010 for most receptors while Alternate 7 tends to result in the lowest CO 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 one-hour or eight-hour S/NAAQS in 1990 or 2010.

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 Specifications for Materials, Highways, Bridges and Incidental Structures which specifies

TABLE 8

CO CONCENTRATIONS* AT EACH RECEPTOR SITE, PPM

1990

RECEPTORS	NO-BUILD ALTERNATE		ALTERNATE 2		ALTERNATE 3		ALTERNATE 7	
	1 HR	8 HR	1 HR	8 HR	1 HR	8 HR	1 HR	8 HR
1	5.0	3.0	5.4	3.4	5.1	3.1	4.6	2.6
2	6.3	4.0	6.6	4.6	6.2	4.1	4.9	2.6
3	6.0	3.8	5.9	3.9	5.4	3.4	5.2	3.1
4	6.3	3.9	6.1	4.0	6.8	4.3	5.5	3.4
5	5.5	3.3	6.1	4.0	5.5	3.5	5.3	3.1
6	5.6	3.4	6.1	4.1	5.5	3.4	5.5	3.1
7	5.3	3.1	5.6	3.5	5.6	3.6	5.3	3.1

*Including Background Concentrations

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

TABLE 9

CO CONCENTRATIONS* AT EACH RECEPTOR SITE, PPM

2010

RECEPTORS	NO-BUILD ALTERNATE		ALTERNATE 2		ALTERNATE 3		ALTERNATE 7	
	1 HR	8 HR	1 HR	8 HR	1 HR	8 HR	1 HR	8 HR
1	4.5	2.8	5.6	3.6	5.1	3.4	5.1	2.7
2	5.8	3.7	8.4	6.6	7.0	4.8	4.3	2.8
3	5.5	3.6	6.6	4.7	5.8	3.7	5.2	3.4
4	6.2	4.0	6.5	4.4	7.7	5.3	5.7	3.8
5	5.2	3.2	6.2	4.6	6.0	4.0	5.4	3.4
6	5.0	3.3	6.7	5.0	5.8	4.1	5.1	3.3
7	4.9	3.1	5.5	3.5	5.7	3.8	5.0	3.3

*Including Background Concentrations

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

procedures to be followed by contractors involved in state work.

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

3. Conformity with Regional Air Quality Planning

The project is in an air quality nonattainment area which has transportation control measures in the State Implementation Plan (SIP). This project conforms with the SIP 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.

V. COMMENTS AND COORDINATION

V. COMMENTS AND COORDINATION

Coordination of this project with representatives of the various community/civic organizations in the study area, has been documented throughout the planning phases. These organizations include the St. John's Community Association, Old Columbia Pike Preservation Association, Ellicott City Democrat Club and representatives of the service stations.

Eight (8) alternates were developed for the June 12, 1984 Public Meeting. Approximately 250 people attended this meeting. The majority of the comments from this meeting supported the need for an interchange and indicated preferences for Alternate 3 or 7.

Coordination has been undertaken with appropriate resource agencies. Letters indicating coordination have been received from the Maryland Geological Survey, Maryland Forest, Park and Wildlife Administration, The Maryland National Heritage Program and the U.S. Fish and Wildlife Service. A request for the Maryland Historical Trust's determination of effect has been made. Their response indicated a no effect for Alternates 2 and 7, and no adverse effect for Alternate 3. Section 106 coordination is being pursued with the Historical Trust.

Continuing efforts will be made to coordinate the proposed project with the appropriate review agencies. A combined Location/Design Hearing is anticipated in December, 1984.

BIBLIOGRAPHY

Broome, C. R. et al., 1979. Rare and Endangered vascular Plant Species in Maryland. U.S. Fish and Wildlife Service.

Brush, G. S. et al., 1977. Vegetation Map of Maryland: The Existing Natural Forests. The Johns Hopkins University.

Brush, G. S. et al., 1977. The Natural Forests of Maryland, An Explanation of the Vegetation Map of Maryland.

Census of Population and Housing, 1980. U.S. Census Bureau, 1981.

Cleaves, E. T., Edwards, and Glaser, 1968. Geologic Map of Maryland, Maryland Geological Survey.

Federal Emergency Management Agency, March 1981. "Flood Insurance Study, Howard County.

General Plan for Howard County, 1982. Howard County Office of Planning and Zoning.

Maryland Department of Natural Resources, 1982. The Quantity and Natural Quality of Groundwater in Maryland.

Maryland Department of Natural Resources. "Standards and Specifications for Soil Erosion and Sediment Control". Code of Maryland 08.-05.01.

Maryland State Highway Administration, 1980. General Highway Map, Howard County.

U.S. Department of Agriculture, Soil Conservation Service, 1970. Important Farmlands, Howard County, Maryland.

Vokes, H. E. and J. Edwards, Jr., 1957. Geography and Geology of Maryland. Maryland Geological Survey, Baltimore, Maryland.

VI. APPENDICES

Attachment for Environmental
Impact Documents
Revised February 18, 1981
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/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. In addition, but within the above limits, certain payments may be made for increased mortgage interest costs and/or incidental expenses. 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 moving expenses are limited

to a 50 mile radius. In both cases, the expenses must be supported by receipted bills. An inventory of the items to be moved must be prepared, and estimates of the cost may be obtained. The owner may be paid an amount equal to the low bid or estimate. In some circumstances, the State may negotiate an amount not to exceed the lower of the two bids. The allowable expenses of a self-move may include amounts paid for equipment hired, the cost of using the business's vehicles or equipment, wages paid to persons who physically participate in the move, and the cost of the actual supervision of the move.

When personal property of a displaced business is of low value and high bulk, and the estimated cost of moving would be disproportionate in relation to the value, the State may negotiate for an amount not to exceed the difference between the cost of replacement and the amount that could be realized from the sale of the personal property.

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 personal property is not moved but is replaced at the new location, the payment would be the lesser of the replacement costs minus the net proceeds of the sale 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.

If no offer is received for the personal property and the property is abandoned, the owner is entitled to receive the lesser of the value for continued use of the item in place or the estimated cost of moving the item and the reasonable expenses of the sale. When personal property is abandoned without an effort by the owner to dispose of the property by sale, 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 $500. All expenses must be supported by receipted bills. Time spent in the actual search may be reimbursed on an hourly basis, but such rate may not exceed $10 per hour.

In lieu of the payments described above, the State may determine that the owner of a displaced business is eligible 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.

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, with approval of the Federal Highway Administration, 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, but for twelve consecutive months during the two taxable years prior to the taxable year in which it is required to relocate, the owner of the business is 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, 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 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.

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 will be completed by the State Highway Administration and approved by the Federal Highway Administration before "housing as a last resort" could be utilized. "Housing as a last resort" could be provided to displaced persons in several different ways although not limited to the following:

1. An improved property can be purchased or leased.

2. Dwelling units can be rehabilitated and purchased or leased.

3. New dwelling units can be constructed.

4. State acquired dwellings can be relocated, rehabilitated, and purchased or leased.

Any of these methods could be utilized by the State Highway Administration and such housing would be made available to displaced persons. In addition to the above procedure, individual replacement housing payments can be increased beyond the statutory limits in order to allow a displaced person to purchase or rent a dwelling unit that is within his financial means.

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 person, 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.

VII. LETTERS

115

TORREY C. BROWN, M.D.
SECRETARY

JOHN R. GRIFFIN
DEPUTY SECRETARY

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

KENNETH N. WEAVER
DIRECTOR
MARYLAND GEOLOGICAL SURVEY

EMERY T. CLEAVES
DEPUTY DIRECTOR

Division of Archeology
338-7236

25 October 1984

Mr. Louis H. Ege
Bureau of Project Planning
State Highway Administration
707 North Calvert Street, 3rd Floor
Baltimore, Maryland 21203

RE: US 29/MD 103 Interchange
Howard County

Dear Mr. Ege:

On 11 October 1984, I field checked the subject project relative to archeological resources. Almost all of the project area is encompassed by previous archeological surveys that failed to locate any sites near the proposed interchange alignments (see attached map). Nonetheless, my brief field examination was undertaken to spot check unsurveyed portions of the project area, clarify the location of an aboriginal site reported by Thomas (1983), and examine the "ruins" marked on the project maps west of U.S. Route 29. Results of my field inspection are detailed below.

Reported Ruins: West of U.S. Route 29 and north of St. John Lane, the project maps note "ruins". No ruins were observed at this location, although it is possible that a series of animal houses/cages laid out in a broken, roughly rectangular pattern may have been misinterpreted from aerial photography as a structure ruin. Furthermore, map research indicates no structures in this quadrant of the intersection until well into the 20th century.

Aboriginal Site: During his survey of the proposed Stonecrest sewer project, Thomas (1983) reported a prehistoric archeological site (18HO115) just east of Ellicott City Middle School and approximately 140 feet southwest of Maryland Route 103. Since this location appeared to be near the proposed ramp tie-in with Maryland Route 103, I re-examined the

TELEPHONE 301-338-7066

cornfield at this location. Despite 70-80% surface visibility, no aboriginal material was observed within the U.S. 29/MD 103 project limits. Subsequent to my field check, Lois Brown of the Division of Archeology informed me that Mid-Atlantic Archaeological Research had provided mapping that located 18HO115 some 2000 feet southwest of Maryland Route 103 -- well outside the interchange area. In any event, Thomas (1983) judged the site insignificant.

Spot checks: Another cornfield, located immediately west of the one noted above, was examined. Again, despite excellent surface visibility, nothing but modern refuse was noted.

East of the National Guard Armory and southwest of (across MD 103 from) the Bethel Baptist Church, stone foundations and debris were noted on a wooded and overgrown knoll. Based on the size of trees growing in an abandoned driveway loop, it was estimated that the site (designated 18HO117) had been deserted some 20 years previous. Historic map research indicates a structure in this location on the 1860 Martenet map of Howard County ("W. Hughes" residence) and on the 1878 Hopkins atlas of Howard County ("Mrs. Hughes" residence). (Note: Basalik (1983:8) suggests that the "Hughes" property is now the site of the National Guard Armory; quite clearly, this is not the case (see maps).) Subsequent information (Lamere Hennessee, personal communication) indicates that in the 20th century this site served as the Schaeffer Convalescent Home and burned in the 1960s. Bulldozing evident on the surface and apparently associated with the fire, and other post-19th century impact, has adversely affected the integrity of the site; furthermore, the abundance of 19th century sites as indicated on the Martenet and Hopkins maps illustrates that the site is not likely to be unique. As a result, although the site would be destroyed by Alternate 3 (see map), no additional archeological study is recommended.

Southwest of the Armory is a stone- and brick-lined cellar hole (ca. 25 x 30') of a recently burned 20th century house. The site is not significant.

A fourth area spot checked is located east of U.S. 29, between U.S. 29 and the western edge of Basalik's (1983a) study area. Several shovel test pits were excavated but no artifacts were observed. The area is removed from water and has little archeological potential.

In sum, the only archeological site endangered by the U.S. 29/MD 103 project is a 19th/20th century site in the path of Alternate 3. This site has suffered previous adverse impact and is not considered significant. No archeological sites are indicated or anticipated in the remainder of the study area. Hence, no further archeological involvement on this project is warranted.

If I may be of further assistance on this matter, please do not hesitate to call me.

Sincerely,

Dennis C. Curry

Dennis C. Curry
Archeologist

DCC:lw

cc: Cynthia Simpson
Rita Suffness

Enclosure

Maryland Historical Trust

October 9, 1984

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

Re: U.S. 29/Maryland 103 Interchange
Contract No. HO 629-101-770
P.D.M.S. No. 132052

Dear Ms. Simpson:

Thank you for your letter of August 24, 1984 regarding the above-referenced project.

We concur with your opinion that Alternates 2 and 7 will have no effect on historic properties. We also concur that Alternate 3 will have no adverse effect on historic properties (Temora and the Wayside Inn). If Alternate 3 is selected, you must request the comments of the Advisory Council in this determination of no adverse effect. Please send your request to Mr. Ron Anzalone at the Council.

Sincerely,

George J. Andreve

George J. Andreve
Environmental Review
Administrator

GJA/KEK/bjs

cc: Mrs. Mary Louise Gramkow
Mr. Ed Shull
Mr. Ron Anzalone
Ms. Rita Suffness
Mark Duvall
Mel Stickles

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

Maryland Historical Trust

January 11, 1984

Mr. Louis H. Ege, Jr., Chief
Environmental Management
State Highway Administration
P.O. Box 717
707 North Calvert Street
Baltimore, Maryland 21203-0717

RE: U.S. Rt. 29/ Maryland Rt. 103 Interchange
Howard County
Contract No. HO-629-101-770

Dear Mr. Ege:

Thank you for your letter of November 9, 1983 regarding the reconstruction of the above-referenced interchange. Six historic properties in the project's vicinity were identified by your office. We believe that three of these sites lie outside of the impact area for the project. These include Woodley (HO-396), Keewaydin Farm (HO-556) and the Omar Jones House (HO-404). Furthermore, we believe Search Enclosed (HO-316), which is located within the impact area, to be an inventory-level site and not eligible for the National Register.

The two remaining sites, Temora (HO-47) and the Wayside Inn (HO-144), lie within the impact area. We agree with your opinion that the north and east National Register boundaries of Temora are no longer appropriate. More appropriate boundaries would follow the inside (south and west sides) of Route 982. This would exclude from the historic site boundary the intrusive buildings that you mentioned. Even if this change is formally made, however, we believe Temora will still lie within the project's impact area. Although the property's surrounding environment will be slightly altered by the interchange project, we believe the project will have no adverse effect on Temora.

We believe the Wayside Inn (HO-144) to be eligible for the National Register. As you know, we will need to know SHA's opinion as to the eligibility of this site. If you agree with our opinion, we may proceed with a determination of effect even before the required determination of eligibility is requested. If there is disagreement, a determination of eligibility must be requested prior to proceeding. Please notify us regarding your opinion as to the eligibility of this property.

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

We look forward to hearing from you soon. If you have any questions, please call Kim Kimlin at 269-2438.

Sincerely,

J. Rodney Little
Director
State Historic Preservation Officer

JRL/GJA/KEK/mbh
cc: Mr. Ron Anzalone
Ms. Rita Suffness
Mrs. Mary Louise Gramkow
Mr. Ed Shull
Mr. Mel Stickles

121

DEPARTMENT OF NATURAL RESOURCES
Maryland Forest, Park & Wildlife Service
TAWES OFFICE BUILDING
ANNAPOLIS, MARYLAND 21401

TORREY C. BROWN, M.D.
SECRETARY

DONALD E. MacLAUCHLAN
DIRECTOR

April 24, 1984

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

Dear Mr. Edge:

There are no known populations of listed threatened or endangered species within the area of immediate project influence as described to me in your letter of April 12, 1984.

Sincerely,

Gary J. Taylor
Nongame & Endangered
Species Program Manager

GJT:ba
cc: Carlo Brunori

Telephone (301) 827-8612
TTY FOR DEAF: STATEWIDE 1-800-492-5062; BALTIMORE 269-2609

122

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

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

FRED L. ESKEW
ASSISTANT SECRETARY
FOR CAPITAL PROGRAMS

April 17, 1984

Mr. William F. Schneider, Jr.
Bureau of Project Planning
State Highway Administration
707 North Calvert Street
Baltimore, Maryland 21203

Subject: Contact No. HO 629-101-770
U.S. Route 29/MD Route 103 Interchange

Dear Mr. Schneider:

Review of information contained in the Heritage Program data base indicates that no rare species, unusual community, or other significant natural feature has been reported from the project area for the improvement identified above, as delineated in your letter of April 12, 1984. If I can be of additional assistance, please do not hesitate to contact me.

Sincerely,

Arnold Norden

Arnold W. Norden
Md. Natural Heritage Program

AWN:mcs
cc: Louis H. Ege, Jr.

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

United States Department of the Interior

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

April 18, 1984

Mr. Louis H. Ege, Jr.
Chief, Environmental Management
State Highway Administration
P.O. Box 717
Baltimore, MD 21203

Dear Mr. Ege:

This responds to your April 12, 1984, request for information on the presence of Federally listed endangered or threatened species within the area of the U.S. Route 29/Maryland Route 103 interchange.

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

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

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

Sincerely yours,

Glenn Kinser
Supervisor
Annapolis Field Office