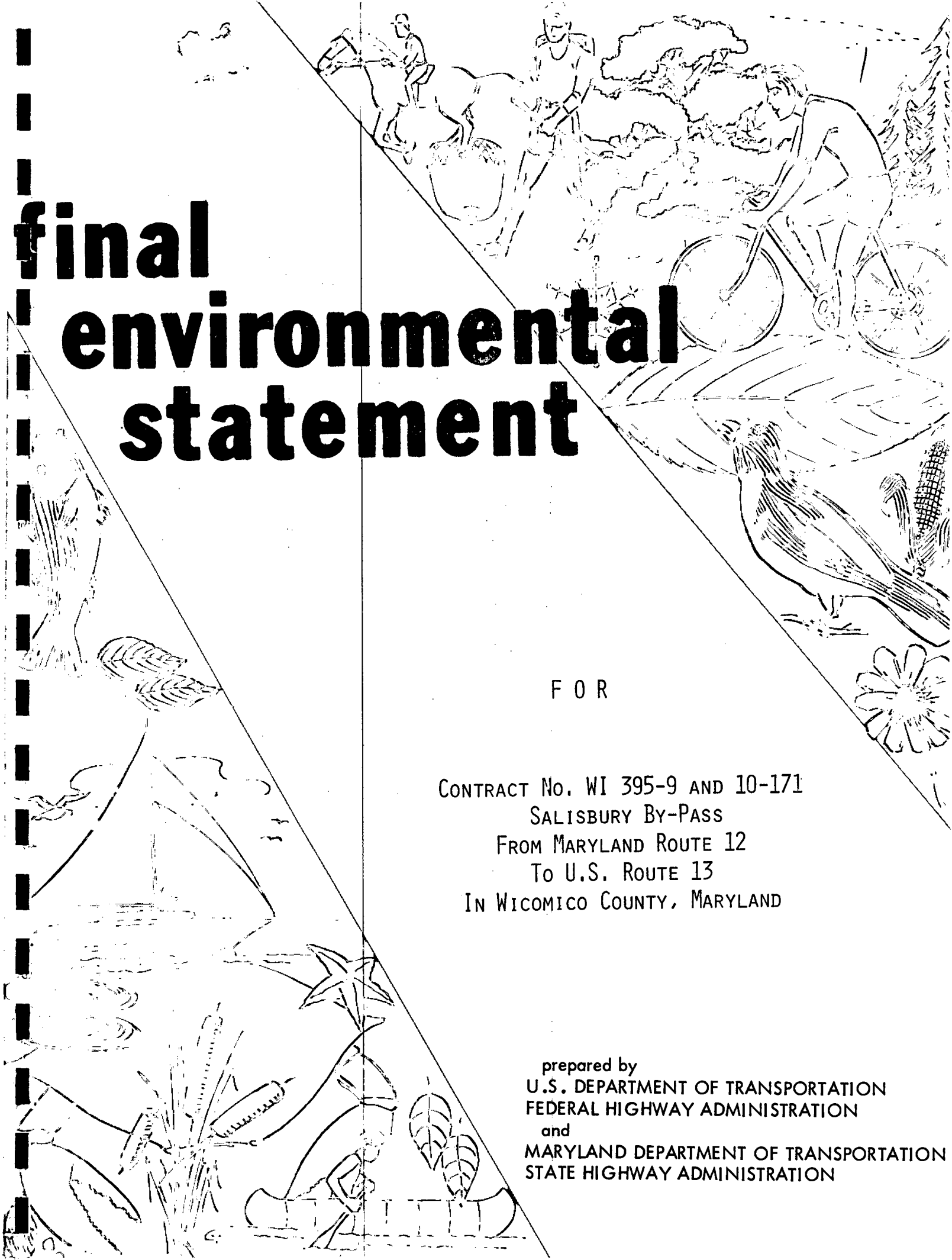

final environmental statement

FOR

CONTRACT NO. WI 395-9 AND 10-171
SALISBURY BY-PASS
FROM MARYLAND ROUTE 12
TO U.S. ROUTE 13
IN WICOMICO COUNTY, MARYLAND

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

REPORT NUMBER: FHWA-MD-EIS-74-08-(F)

Federal Highway Administration
Region III

Salisbury By-Pass
Maryland Route 12 to
U.S. Route 13
Wicomico County

ADMINISTRATIVE ACTION

FINAL ENVIRONMENTAL IMPACT STATEMENT

and

State of Maryland
Department of Transportation
State Highway Administration

Submitted pursuant to 42 U.S.C. 4332(2) (C), 23 U.S.C. 128(a)

Bernard M. Evans
State Highway Administrator

2/20/76
Date

by: Robert J. Hajzyk

Robert J. Hajzyk, Director
Office of Planning and
Preliminary Engineering

5/20/76
Date

by: W R White

Federal Highway Administration
Regional Federal Highway
Administrator

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List of Exhibits

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SUMMARY OF ENVIRONMENTAL IMPACT STATEMENT
FOR
SALISBURY BY-PASS

1. ADMINISTRATIVE ACTION

( ) Draft (x) Final
(x) Environmental Statement
( ) Combination Environmental/Section 4(f) Statement

2. FOR FURTHER INFORMATION CONCERNING THIS STATEMENT, CONTACT:

Mr. Roy D. Gingrich
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Chief, Bureau of Project Planning
Maryland State Highway
Administration
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Baltimore, Maryland 21201
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Office Hours: 8:30 a.m.-4:30 p.m.
Monday through Friday

3. BRIEF DESCRIPTION OF ACTION

The proposed action is construction of the final segment of the Salisbury By-Pass project to relocate U. S. 13 east of the City limits. The alignment under consideration is a four-lane roadway between Maryland Route 12 and U. S. 13 south of Fruitland in Wicomico County, Maryland. Facility design includes several bridges providing grade separated structures to eliminate dangerous crossings at major intersections and three interchanges with principal arteries. The project also includes the construction of approximately 3,450 feet of two-lane secondary roadway from the intersection of Cedar Lane and Division Street to the connection with existing St. Lukes Road west of the interchange with the by-pass. This will be known as the Cedar Lane Extension.

Due to the present stage of project development, this report focuses on the selected Alternate E.

4. SUMMARY OF ENVIRONMENTAL IMPACT AND ADVERSE ENVIRONMENTAL EFFECTS

Completion of Alternate E will remove 83 acres of biotic communities. However, 83 percent of tree and ground cover within the project right-of-way limits would be restored. Most important, plans call for the return of 152 acres to natural conditions within the project right-of-way This will represent a net gain of 69 acres of biotic communities within the project corridor.

With proper erosion control procedures, no long-term adverse effect is expected on water quality and only minimal transient increases in stream turbidity are anticipated during the construction period.

Traffic moving on the by-pass and Cedar Lane Extension will increase ambient noise levels. A migrant worker's quarters, approximately 38 mobile homes and five residential areas on St. Lukes Road will experience noise exceeding Federal design criteria.

Corridor air quality will improve as a result of project construction because corridor pollutional loads will be reduced and no significant concentration of pollutants will result from by-pass traffic emissions as indicated by the dispersion analysis made for the air quality section of this report.

Alternative E, including Cedar Lane Extension, will require the taking of 13 dwellings, housing 11 families, four individuals and two businesses.

5. ALTERNATIVES CONSIDERED

Five alternative alignments as well as the No Project Alternative were considered. Several interchange configurations at the project's northern and southern termini were evaluated.

6. AGENCIES REVIEWING THE STATEMENT INCLUDE THE FOLLOWING:

Federal:

Department of Interior
Department of Housing and Urban Development
Department of Agriculture
Department of Health, Education and Welfare
Environmental Protection Agency
Office of Economic Opportunity
Soil Conservation Service U.S.D.A.
Department of Commerce

State:

Department of Transportation of Maryland
Department of General Services
Department of Economic & Community Development
Maryland Historical Trust
State Department of Education
Department of Health and Mental Hygiene

Department of Natural Resources
Department of Public Safety and Correctional Services
Department of Transportation
State Aviation Commission
Office of State Legislative Delegation

County:

Board of Education
Fire Marshal
Sheriff
Roads Engineer
Planning and Zoning Commission
Recreation and Parks Commission

7. COMMENTS WERE RECEIVED FROM THE FOLLOWING AGENCIES AND INDIVIDUALS:

Federal:

Department of the Interior
Department of Agriculture-Soil Conservation Service
Environmental Protection Agency
Department of Commerce

State:

Department of Economic and Community Development
State Department of Education
Department of Health and Mental Hygiene
Department of Natural Resources
Department of Public Safety and Correctional Services
Department of State Planning
Department of Budget and Fiscal Planning
Executive Director Public School Construction Program

Community:

Elmer F. Ruark - Mayor of the City of Salisbury

The draft statement was made available to the Council on Environmental Quality and the public on February 26, 1975.

INTRODUCTION AND BRIEF HISTORICAL RESUME

Introduction

On June 18, 1973, the Federal Highway Administration extended its regulations, requiring that environmental impact statements be prepared for all projects for which Plans, Specifications and Estimates (P. S. and E.) were not submitted by January 1, 1974.

To date, the entire alignment (Alignment E) for the proposed relocation of U. S. 13 to by-pass the City of Salisbury, Maryland, has been authorized by the FHWA; it has passed through preliminary and final design hearings; the northern three-quarters of the project, from where it leaves existing U. S. 13 to its connection with Maryland Route 12, has been bid, is constructed or under construction and right-of-way acquisition complete.

Prior to extension of EIS requirements to the project, the State had initiated land appraisal and acquisition procedures along the final segment of the E alignment, from Maryland Route 12 to its connection with existing U. S. 13, south of Salisbury. See Exhibit 1 which shows the portion of the project under construction and the portion covered by this EIS. Although several parcels have already been acquired within this segment, further right-of-way acquisition has been suspended pending the results of the environmental impact statement. One contract, within this final segment - bid on June 19, 1973, was awarded at a low bid of $647,000. This contract, a bridge at Colbourne Mill Road and a 1,000-foot drainage ditch north of the by-pass, is presently under construction and is nearing completion.

The following environmental impact statement covers the final segment of the Salisbury By-Pass project--the only portion of the alignment which did not have all P. S. and E. submitted by January 1, 1974. This statement also includes the environmental evaluation of the extension of Cedar Lane.

Brief Historical Resume

Consideration of relocation of U. S. 13 began approximately a decade ago when completion of the Chesapeake Bay Bridge-Tunnel made U. S. 13 a major national north-south artery. Traffic problems were compounded by increasing tourist travel to Maryland's Eastern Shore via U. S. 50 and U. S. 13, both passing through downtown Salisbury; and also by the growth of the Salisbury metropolitan area itself.

The initial concept for relocation of U. S. 13 was one of modifying and enlarging the alignment through the City. Alternates A, B and C were interior routes providing four roadway lanes and two parking lanes.

Alternates A, B and C were the three original concepts considered. Alternate A would depart from existing U. S. 13 at Key Road north of Tonytank Creek, cross the Penn Central Railroad tracks, following the existing alignments of Cooper, Monroe and Oak Streets.

Alternate A would then require the continuation of the alignment through the Municipal Park, across Beaver Dam Creek and Main Street to an existing crossover at U. S. 50 and Ward Street, in order to complete a usable facility.

This alternate was originally discarded because it required: (1) a costly structure to eliminate the at-grade crossing with the railroad; (2) it required removal of approximately 174 dwellings and six commercial-industrial establishments; (3) it passed through the Municipal Park; and (4) it would continue to direct rather than divert through traffic into the downtown area.

Alternate B generally follows the same line as A except that it is slightly to the east. Alternate B has the same origin as A, requiring a costly structure to eliminate the at-grade railroad crossing. The B alignment then crosses Division Street east of Alternate A and continues east of John Street, west of Vincent Street, between Madison and Jackson Streets before entering Municipal Park and crossing Beaver Dam Creek. The A and B alignments converge at Snow Hill Road (Maryland Route 12) in the heart of downtown Salisbury, 1.5 miles west of the proposed project. In total, Alternate B would displace 200 dwellings and buildings as well as requiring land from the Municipal Park. And, like Alternate A, B would continue to direct rather than divert the through traffic.

The last of the interior alternates, the C alignment, shares the same point of origin with Alternates A and B but is oriented considerably to the east. Alternate C passes through a subdivision west of Margaret Street; then travels east of Roger Street and west of the Prince Street Elementary School playground; through the Elks Club Golf Course, east of Sheffield Street and through the Municipal Park crossing Beaver Dam Creek before converging with U. S. 13, approximately one-tenth of a mile north of Zion Road.

Alternate C requires the removal of approximately 133 dwellings, including six commercial-industrial establishments. As in the case of Alternates A and B, it involves a costly structure at the railroad crossing and impacts the downtown area and Municipal Park.

The decision to abandon the interior alignments as feasible alternatives resulted from the considerations noted above. In addition, it was also pointed out that construction of any of the interior alignments

would still continue to bring the facility's 60 percent through traffic into downtown Salisbury and thereby increase traffic and safety hazards along neighborhood streets.

Subsequently, the by-pass concept was introduced with two exterior alignments, Alternates D and E, designed to carry through traffic via a rural route considerably east of the downtown area. Choice of an easterly by-pass was made on the basis of a shorter route, better traffic service and more direct service to the industrial development along U. S. Route 13.

On February 18, 1966, the first public hearing on the Salisbury By-Pass project was held in Salisbury, Maryland. At that time, five alternate routes were presented for consideration. Representatives of all official agencies as well as local residents were given the opportunity to express their views. As a result of this hearing, a proposed route was selected and preliminary design authorized.

At this hearing, held at Wicomico Junior High School, the present by-pass alignment, Alternate E, was endorsed by the Superintendent of Schools for Wicomico County; the Salisbury Area Chamber of Commerce; and numerous citizens and property owners who would be affected by interior alternates. The Mayor of Salisbury and other spokesmen urged a "speed-up" of the by-pass project. A request was made by a group of citizens living north of Zion Road to extend the alignment further north to serve them. One State Delegate urged further study, proposing that the alignment be moved even further to the east and residents of Meadow Bridge Road sent a telegram requesting a grade separation. Movement of the alignment to the east was not regarded as feasible due to, among other factors, the impaction of wetlands. A grade separation was provided at Meadow Bridge Road.

On October 21, 1969, a public hearing was held in Salisbury, Maryland, on the proposed design of the by-pass east of Salisbury. Details of the design and the project's potential environmental impact were discussed. As a result of this hearing, final design was authorized.

At this hearing, the Salisbury Area Chamber of Commerce urged immediate construction. The Mayor requested that the by-pass receive high priority among State highway projects. Several questions were answered concerning local road severances. Only one person urged that existing U. S. 13 be improved before the by-pass was attempted.

Between January 1970 and June 1973, contracts were advertised, awarded and started for grade separation structures. Roadway construction was divided into four separate contracts. The segment from U. S. 13 to Zion Road was constructed at a cost of $1,418,000. Construction on the second segment from Zion Road to U. S. 50 began in June 1972, at a cost of $2,609,000. Construction of the third segment extending between U. S. 50

and Maryland Route 12 began in June 1973, at a cost of $3,832,000. Finally, on June 19, 1973, a contract to construct a bridge and drainage ditch at Colbourne Mill Road crossing of the E alignment was awarded at a low bid of $647,000.

As noted earlier, on June 18, 1973, the FHWA extended its decision on EIS requirements to all Federally assisted highways for which Plans, Specifications and Estimates were not submitted by January 1, 1974. All work on the final segment of the Salisbury By-Pass, from Maryland Route 12 south to U. S. 13, was suspended pending the filing of an environmental impact statement. See Exhibit 1.

The problem areas, defined above, associated with the various alternatives were not defined through an environmental analysis per se, mainly because this was not the "state of the art" at the time of these decisions. At the same time, this is not to say that the final decisions which were reached are wrong from an environmental standpoint. On the contrary, many of the factors which were considered during the decision process enter into today's environmental analyses.

The format of this report has been arranged so that, although Alternative E and a No Project are the only two feasible alternatives at this point in time, the environmental impact of each alternative is shown in relation to Alternate E, a portion of which is already constructed or under construction. By taking this approach, it is felt that all alignments will have been analyzed equally and that, in the final analysis, the proper decision from the environmental and community impact standpoint was made relative to choice of alignment.

After circulation of the draft statement, officials of the City of Fruitland requested that the design in the vicinity of the St. Lukes Road interchange be restudied to provide improved traffic service and safety. As a result of this request, the State Highway Administration has modified the design to provide for an extension of the improvements at the interchange to connect with existing Cedar Lane. Environmental considerations involved with this design modification are included in this document.

PROJECT DESCRIPTION

Type of Facility and Location

The project involves relocation of U. S. 13 in Wicomico County, Maryland to by-pass downtown traffic in the City of Salisbury. Three-quarters of the Salisbury By-Pass--from U. S. 13 just north of Zion Road to the Salisbury Snow Hill Road--is completed or under construction. See Exhibit 1.

The planned facility analyzed in this report is an approximately 4.6 mile alignment extending southwest from the Salisbury Snow Hill Road (Maryland Route 12) to connect with existing U. S. 13 about 0.6 mile north of the Somerset County Line. This alignment is shown on Exhibit 1.

The proposed project is planned as a four-lane, divided, limited access highway. Major design features include two 24-foot roadways divided by a 74-foot median. Exterior shoulders are 10 feet wide and median shoulders are four feet wide. See Exhibit 2 for cross section of rural routes. Approximately 300 feet of right-of-way are provided.

Directional connections with existing U. S. 13 are planned to and from the south. A diamond-type interchange is planned at St. Lukes Road and a partial cloverleaf type interchange is planned at Maryland Route 12. Additional grade separation structures will be provided at the project's intersection with the Penn Central Railroad tracks, Meadow Bridge Road and Colbourne Mill Road. See Exhibit 3. Design speed for the project is 60 miles per hour.

Alignments A, B and C shown on Exhibits 3 and 4 represent the earliest alternatives considered for the by-pass project. These interior routes were developed as part of a concept to bring an improved U. S. 13 directly through in-town Salisbury.

Alternates D and E, E being the presently planned alignment, represent extension of existing U. S. 13 south of Fruitland. Both routes traverse generally rural areas, thereby eliminating traffic and property loss problems associated with the interior alternates.

Alternate E, which was referred to as Alternate E-1 at the time of the relocation public hearings, would extend northeastward from U. S. 13 south of Fruitland via a directional interchange with a grade separation at the Penn Central Railroad, and sever Eden Road, which would be terminated by a cul-de-sac on each side of the by-pass; then cross over Meadow Bridge Road on twin structures. Continuing north, the by-pass would cross under

St. Lukes Road, where a diamond interchange will be constructed. Slab Bridge Road will be terminated by cul-de-sacs at the through highway right-of-way line.

After crossing Slab Bridge Creek and Morris Prong, the highway will pass under the structure being constructed on Colbourne Mill Road before passing over Tonytank Creek. Dykes Road is being terminated in cul-de-sacs on either side of the by-pass. The highway segment will terminate at Maryland Route 12 where a partial cloverleaf will be constructed about 0.4 mile southeast of Toadvine Road. Here, the alignment would connect with that segment of the Salisbury By-Pass already under construction. Design features of Alternate D are identical to those planned for Alternate E. See Exhibit 3.

As previously noted, the design modification indicating that the extension of Cedar Lane was necessary to improve traffic service was developed since circulation of the draft statement. The modification will require construction of approximately 3,450 feet of secondary roadway from Division Street, at existing Cedar Lane, to the proposed interchange of St. Lukes Road with the By-Pass.

Major design features include two twelve-foot roadways. There will be no median divider for this secondary roadway. Exterior shoulders are eight feet wide stabilized earth shoulders. Eighty (80) feet of right-of-way are provided. See Exhibit 2 for the typical section of Cedar Lane Extension.

Construction Schedule

As noted earlier, three-quarters of the Salisbury By-Pass project is underway. Relocation of U. S. 13 from 0.3 mile north of Zion Road to U. S. 50 is under construction and bids have been received on the alignment between U. S. 50 and Maryland Route 12. In addition, the appraisal of right-of-way along the previously approved E alignment has been completed. Further, a contract has been awarded for the Colbourne Mill Road Bridge and a 1,000-foot drainage ditch along the E alignment.

Upon approval of the EIS, the balance of the project will be advertised for bid. The by-pass between U. S. 13 north of town and U. S. 50 is scheduled to open in 1975. The segment between U. S. 50 and Maryland Route 12 is anticipated to be completed by mid-1976. If this EIS is approved and construction operations proceed at a reasonable rate, the alignment between Maryland Route 12 and U. S. 13, in the vicinity of Fruitland, to include the Cedar Lane Extension should be open in 1978.

All environmental disciplines contained in this document have been evaluated assuming an opening date of 1977. However, due to the addition of Cedar Lane to the project, it has been determined that a more

realistic estimate will be 1978. With the exception of insignificant increases in projected noise levels, all other environmental impacts noted in this document will either be reduced (air quality) or remain the same.

Traffic

Salisbury By-Pass

Projected traffic volumes for the facility were obtained from the Maryland State Highway Administration, Bureau of Urban and Regional Liason, Traffic Planning Section. Average daily traffic (ADT) on component sections of the route are given below for 1977 and for a design year of 1997.

Table 1

Salisbury By-Pass
Average Daily Traffic

	1977	1997
Maryland Route 12 to St. Lukes Road	12,300	19,500
St. Lukes Road to U. S. Route 13	11,200	17,750

Additional data from the State Highway Administration indicates that the design hour volume will be 11.5 percent of the ADT with a projected peak directional distribution of 59 percent of the design hour volume.

The facility will have an average daily traffic mix of ten percent trucks. The percent truck mix will decrease slightly to nine percent for the design hour volume.

The Salisbury By-Pass will serve both through and local traffic. Existing U. S. 13 is a major north-south artery extending from Delaware to Virginia through the Eastern Shore of Maryland. Interstate or regional traffic on U. S. 13 now must pass through the City of Salisbury. The by-pass will divert and more efficiently serve through traffic, as well as eliminate congestion in downtown Salisbury.

In addition, the by-pass will serve local traffic which is anticipated to increase as planned residential, commercial and industrial development occurs in the project corridor.

Cedar Lane Extension

Projected traffic volumes for Cedar Lane Extension were also obtained from the above noted source. Average daily traffic (ADT) on the component parts of the extension are given in Table 1a below.

Table 1a

Cedar Lane Extension and
Existing St. Lukes Road
Average Daily Traffic

	1977	1997
Cedar Lane Extension (Division Street to St. Lukes Road)	750	1,825
St. Lukes Road (Division Street to the Extension)	1,650	2,625
St. Lukes Road (Intersection of St. Lukes and Extension to the Interchange)	2,400	4,450

The design hour volume will be 13 percent of the average daily traffic with a projected peak directional distribution of 57 percent of the design hour volume.

The extension will have an average daily traffic mix of seven (7) percent trucks and will increase to eleven (11) percent for the design hour volume.

The Cedar Lane Extension was requested by the City of Fruitland because it will provide better direct access to the City's industrial areas and at the same time divert non-local traffic around the residential district of Fruitland instead of through it. In addition, the proposed route will reduce the amount of traffic along Division Street adjacent to the Primary School.

By diverting approximately 41 percent of the traffic that would have used St. Lukes Road to enter Fruitland, the extension of Cedar Lane will help create a safer condition in the Little League play area between St. Lukes Road and Main Street.

Right-of-Way

Salisbury By-Pass

An average right-of-way width of 300 feet is planned for the alignment. Total right-of-way acquisition will thus involve a total of approximately 261 acres for the 4.6 miles project length. A study performed by the Bureau of Relocation Assistance, Maryland State Highway Administration, for the proposed alignment, Alternate E, is included below and also in the Appendix. As stated in the study, it will be necessary to utilize "Housing of Last Resort", as per PPM 81-1.5, in order to relocate the tenant-occupants to adequate housing within a reasonable time frame. This will result in a definite upgrading of the standard of living for those non-property owners involved.

Prior to extension of EIS requirements to the project, the State had initiated land appraisal and acquisition procedures along the E alignment. Although several parcels have already been acquired, right-of-way acquisition has been suspended pending the results of the environmental impact statement.

The project will displace ten (10) families, four (4) individuals, and one (1) business in twelve (12) dwellings. No farms or non-profit organizations will be displaced. Of these families, four (4) are owner occupants, six (6) are tenant occupants and four (4) are individual tenant occupants. Of the forty-three (43) people that will be required to relocate, eleven (11) are white owner occupants and thirty-two (32) are black tenants. The six (6) tenant occupant families and four (4) individual tenants are members of the minority group.

No farms will be displaced by this project, however, some agricultural land will be acquired. One business, a driving school, will be partially affected. It will be necessary to relocate the driver education training course.

Cedar Lane Extension

Eighty (80) feet of right-of-way is planned for the Cedar Lane alignment. Total right-of-way acquisition will involve approximately 6 acres for the 3,450 foot project length. A study performed by the Bureau of Relocation Assistance, Maryland State Highway Administration, for the proposed extension of Cedar Lane is included below and in the Appendix. No right-of-way has been acquired for this portion of the project.

The Cedar Lane Extension portion of the project will displace one (1) dwelling housing four (4) persons situated at the intersection of Cedar Lane and South Division Street. No minority groups in this instance are affected and the family is presumed to be owner-occupant of the dwelling and of the low income level. It is also presumed that this family is operating a small business in raising rabbits. Other than this, there are no other businesses or industries affected, though there will be some farm land in the taking. However, this will not be of sufficient amount to cause a farming operation to go out of business. There will not be any non-profit organizations affected, nor will any functional replacement be necessary.

It is felt that there will be adequate replacement housing in the general area and that this housing will be within the financial needs of the relocatees. The family type business involved will present no problem in locating available replacement sites.

Those persons who will be displaced by both the Salisbury By-Pass and Cedar Lane Extension will be provided all of the benefits and payments required by the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970." The Act stipulates that if a Federal or Federal-aid project cannot proceed to actual construction because comparable replacement sale or rental housing is not available, and the head of the Federal agency determines that such housing cannot otherwise be made available, he may take such action as is necessary to provide housing by use of funds authorized for the projects.

In other words, if the local agency determines it is in the public interest to proceed with the construction of the project and it cannot do so because of an inadequate supply of comparable replacement housing, then it may, as a last resort, provide the necessary housing.

It is estimated that one year to two years may be required to complete the rehousing of those to be displaced considering "Housing of Last Resort" will be utilized. The Relocation Assistance Program will be administered by the Office of Real Estate, District #1, in Salisbury, Maryland.

Corridor Description

General Setting

The project corridor is characterized by relatively sparse population, a mild climate (resulting from the close proximity of the Chesapeake Bay and the Atlantic Ocean), and an economy largely based on truck crop agriculture and light industry. The juxtaposition of an agriculturally rich land and a commercially important north-south trade route--U. S. 13--has stimulated growth and development within the region. More importantly, urban and industrial expansion has been concentrated near Salisbury so that most of the County retains an agricultural or forest aspect.

Topography

The topography of the study corridor is generally level with elevations ranging only from 20 to 45 feet above mean sea level.

The project is located in the southern central portion of Wicomico County which is part of a low, eroded plain. To the untrained eye, the area looks monotonously level, but it actually includes terraces, stream channels, drowned valleys, basin-like depressions, remnant dunes, swamps and marshes.

The surface deposits of Wicomico County are of Pleistocene Age, consisting primarily of sand and sandy loam soils. Three soil associations predominate the project corridor. The Matawan-Norfolk soils occur on the eastern side of the study area; the Evesboro-Klej soils occupy a broad band on the northwest side of the area, and the Pocomoke-Fallsington soils cover a triangular zone on the southwest side of the area. In general, the soils are well-drained except those portions adjacent to creeks and ponds.

Two major rivers influence County hydrology. The western half of the County is included in the watershed of the Nanticoke River; the eastern half drains into the Pocomoke River with an average elevation of 40 feet at Salisbury, which is located on the interstream divide.

The project crosses three watercourses: Slab Bridge Creek, Morris Prong and Tonytank Creek. Water quality in all three streams is relatively good and is designated Class I by criteria established by the Water Resources Administration of the Department of Natural Resources for the State of Maryland.

Climate

The climate of the area is modified by the nearness of major bodies of water (Chesapeake Bay and Atlantic Ocean). The average annual temperature is 57° F. The growing season averages 191 days for Salisbury. The average annual precipitation is 46 inches; snowfall of about 12 inches can be expected annually. It is estimated that 51 percent of the precipitation enters the soil, and 61 percent is lost through evapotranspiration.

Existing and Proposed Land Use

Existing land use is shown in Exhibit 5, taken from the Wicomico County, Maryland 1970 General Land Use Map. The alignment of the Salisbury By-Pass, including the proposed project and the Cedar Lane Extension, has been added to this map.

It can be seen that the highway corridor passes through diversified land uses. Industrial concentrations are located adjacent to the Penn Central and Baltimore and Eastern Railroad tracks. Commercial and industrial park concentrations occur adjacent to U. S. 13 north of the City of Salisbury. Land use to the north and west of the project is agricultural-rural residential with clusters of higher density residential development. In fact, the project corridor is still largely unoccupied, characterized primarily by cultivated fields, individual homes and small residential developments.

Future land use plans are included and shown in Exhibit 6, the Wicomico County Zoning Map. The major influence in the southeast project corridor is airport zoning, which involves only height restrictions. Land use around the airport is agricultural-rural residential. Residential, commercial and industrial development is concentrated within the City of Salisbury. Commercial and industrial development in particular abut existing and relocated U. S. 13 north of Snow Hill Road (Maryland Route 12), with the Salisbury Mall--an enclosed shopping center south of U. S. 50--the only significant exception.

The Salisbury By-Pass alignment E and the extension of Cedar Lane is included in future land use plans and therefore their potential is understood. In fact, the bypass is used as a commercial-industrial park development in the Fruitland area and a barrier to delineate commercial-industrial from residential land use. The extension of Cedar Lane will provide a safe and efficient access from Fruitland to the By-Pass.

Economic Factors

The project's economic impact will be positive. Construction will create diversified employment opportunities and the completed project provides heightened access to potential commercial and industrial sites.

Salisbury is the largest and fastest growing metropolitan area on Maryland's Eastern Shore. The metropolitan population is projected to increase 44.6 percent between 1970 and 1980, and another 32.7 percent between 1980 and 1990.

Construction of the By-Pass facility will divert traffic from the downtown area, thus providing greater freedom of movement within the central business area and greater access to the development areas to the east. Due to its largely rural alignment, the project will not require the removal of many residences or businesses. Therefore, few families will be dislocated and few, if any, jobs will be lost.

The project is regarded as integral to preserving the viability of the downtown economy while heightening economic development potential of outlying areas. At present, 60 percent of U. S. 13 traffic in downtown Salisbury is through traffic. Diversion of this traffic will eliminate congestion, thus enhancing the downtown shopping area for local consumers.

At the same time access afforded by the by-pass will open new areas for local development as well as through traffic. Property tax revenue loss resulting from right-of-way acquisition will be offset by the increasing value of land abutting the by-pass. In addition, due to Maryland's total tax structure providing for local income as well as property taxes, development promotes diversified revenue growth.

In other words, the project opens the Salisbury area to more residential, commercial and industrial development. The private sector will benefit from heightened access in this growth area. The public sector will benefit from increased property and income tax resources.

Statement of Need

Existing Highway Facilities

The Salisbury area is presently served by two major highways: U. S. Route 50, which extends west from the Atlantic coast across the State of Maryland into Virginia; and U. S. Route 13, a north-south route which traverses the lower section of Maryland's Eastern Shore and is an important highway link between New York and Florida. State Route 12 connects Salisbury to Snow Hill, County Seat of neighboring Worcester County, and carries predominantly local traffic.

U. S. Route 13, as the major north-south route in the region, carries an estimated 60 percent of through traffic. This includes some tourist and seasonal recreational vehicles. In addition, the route serves

local business and commercial vehicles associated with intracity activity. Within the City of Salisbury, speed limits are reduced and traffic is controlled by a series of traffic signals. Continuous flow is further impeded by the lack of left-turn storage lanes.

As in the City of Salisbury, the portion of U. S. 13 through the City of Fruitland is controlled by traffic signals. In order to avoid these, truck traffic uses Division Street to by-pass the area and therefore passes through much of Fruitland's residential district.

Need for the Facility

Need for the Salisbury By-Pass has been recognized for nearly a decade. With the opening of the Chesapeake Bay Bridge-Tunnel, U. S. 13 became a major north-south artery for the eastern coast of the United States. Commercial traffic was supplemented by tourist traffic. The Chesapeake Bay Bridge-Tunnel caused increased north-south tourist traffic to Virginia beach areas. Attraction to and availability of Maryland and Virginia beach resorts has been increased by the opening of the Asseateague Island State and National Parks. Intensive new development has occurred along the entire Atlantic coastline from Delaware to Virginia. Service to east-west tourist traffic has been improved with the opening of the parallel Chesapeake Bay Bridge. In other words, increased access and incentive have compounded through tourist traffic in the project area.

Again, it is emphasized that 60 percent of all traffic on U. S. 13 is estimated to be through commercial and tourist traffic.

In addition, Salisbury has been the fastest growing metropolitan area on the Eastern Shore. This trend is expected to continue. County planners estimate a 44.6 percent increase in the metropolitan population between 1970 and 1980 and anticipate a further 32.7 percent increase in the following 1980-1990 decade. This growth will introduce significant new local traffic into the downtown area.

The Salisbury By-Pass is needed to reduce unwanted and unwarranted traffic in the downtown area of Salisbury and the residential area of Fruitland. Further, the authorized alignment has been incorporated in County land use plans to serve as a boundary between planning areas and a focus for rational land use development.

The Cedar Lane Extension will also provide a more direct, safe and efficient access to and from the by-pass and the industrial and commercial areas of Fruitland.

Improved Traffic Service

The proposed Salisbury By-Pass will improve transportation service to the entire area by:

- Providing a high speed, limited access expressway for through traffic utilizing U. S. Routes 13 and 50;
- Diverting through traffic around the developed business district of Salisbury, thereby improving operating conditions for local traffic on U. S. Route 13; and
- Accommodating future local traffic increases resulting from anticipated population growth and subsequent housing and commercial-industrial development.

The proposed Cedar Lane Extension will improve transportation service and safety to the Fruitland area by:

- Providing a more direct access from the by-pass to Fruitland's industrial and commercial district;
- Reducing the amount of traffic which would use the existing St. Lukes Road and thereby reduce the amount of traffic in the residential district of Fruitland; and
- Diverting traffic away from play areas in Fruitland such as the Little League play area between Main Street and St. Lukes Road.

PROBABLE IMPACT ON THE ENVIRONMENT

This section assesses the environmental impact resulting from construction of the final segment of the Salisbury By-Pass and the Cedar Lane Extension. Primary focus is given the proposed E alignment due to the advanced stage of the total project's development. Adoption of interior Alternates A, B or C would destroy the purpose of the by-pass project. Adoption of exterior Alternate D would require substantial design modification and waste.

However, all Alternates were evaluated and the following section summarizes comparative impacts among alternative alignments determined by the environmental study. These are detailed by discipline in subsequent sections. The terms "project", "project corridor", or references to the affect should be taken to imply the inclusion of the Cedar Lane Extension.

Ecology

Methodology

Biotic communities in the project corridor were surveyed in the field and supplemented by aerial photographs (scale of 1" = 2000') and a photo mosaic of the corridor. A brief literature survey of pertinent biological and geological data was employed. Findings were verified through conversations and correspondence with ecologists and soil scientists.[1]

Biotic Communities

Field inspection indicated that ten principal vegetational associations are located within the project corridor. These are shown in Exhibit 7.

The following paragraphs provide a brief description of the ten major biotic communities in the project area and an assessment of land capability for wildlife habitat.

1. *Open Water*

   Open water biotic communities are located on either side of U. S. 13 between Fruitland and Salisbury at Tonytank Creek. The open water

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[1] See Appendix "B" and "C".

inventory includes Tonytank Creek, Tonytank Pond; Fooks Pond; an unnamed pond on Slab Bridge Creek; and a series of small ponds on Morris Prong in the vicinity of Union Church. Except for the latter site which has been constructed, all of the ponds contain several species of freshwater aquatic plants, including spatterdock (Nuphar luteum), scented water lily (Nymphaea odorata), pondweed (Potamogeton diversifolius), and water nymph (Naias gracillima). The ponds contain various species of fish and aquatic animals. Not only are the ponds valuable as a source of food and water for animals, but also as an area of water-related recreational opportunities for local residents.

2. *Freshwater Marsh*

Located on the edges of freshwater ponds, particularly near the shallow backwaters, the freshwater marsh community in this area is limited in areal extent. Each marsh observed contained a high diversity of plant species, and thus is a good habitat for animals, particularly songbirds and blackbirds. Chief plant species are cattail (Typha latifolia), bulrush (Scirpus cyperinus), pickerelweed (Pontedaria cordata), sedge (Carex prasina), duck potato (Sagittaria latifolia), water hemlock (Cicuta maculata), rush (Juncus effusus), false loosestrifes (Ludwigia palustris, L. alternifolia), panic grass (Panicum spp.), and other grasses, sedges and rushes.

3. *Swamp Forest*

The swamp forest community is restricted to a narrow area of muck soils and fine sediments along slow flowing creeks and the marshlands of local impoundments. Around the margin of Tonytank Pond, bald cypress (Taxodium distichum) is locally abundant. Other species characteristic of the swamp forest canopy are red maple (Acer rubrum), sweet gum (Liquidambar styraciflua),

sycamore (Platanus occidentalis), green ash Fraxinus pennsylvanica var. subintegerrima), while winterberry (Ilex verticillata), alder (Alnus serrulata), swamp dogwood (Cornus (amomum), buttonbush (Cephalanthus occidentalis), southern arrow-wood (Viburnum dentatum), and Virginia willow (Itea virginica) are the principal shrubs. Herbaceous ground cover is sparse, but the following species may be found sporadically: lizard's tail (Saururus cernuus), jewel weed (Impatiens capensis), cinnamon fern (Osmunda cinnamomea), and royal fern (Osmunda regalis var. spectabilis).

The high diversity of plant species in the marshes and swamp forests provides a variety of food and excellent cover for wetland wildlife. However, because of the limited extent of these community types, estimated to be less than five percent of the land area of the county, populations of wetland wildlife such as racoon, woodcock, muskrat, and waterfowl are probably small.

4. *Hardwood Forest*

The hardwood forest community is found along streams with good drainage and on moist hillsides adjacent to the swamp forest communities. It is most often encountered along the southern boundary of the project area. Often the community is located in the center of large tracts of pine-hardwood forest, or is situated on lowland terrain, presenting access obstacles to timber cutting. The community contains merchantable trees, many are high value species such as black cherry (Prunus serotina) and a black walnut (Juglans nigra). Other major canopy species include red maple, sweet gum, green ash, yellow poplar (Liriodendron tulipifera), mockernut hickory (Carya tomentosa), bitternut hickory (C. cordiformis), white oak (Querus alba), willow oak (Q. phellos), black oak (Q. velutina), southern red oak (Q. falcata), scarlet oak (Q. coccinea), and black

gum (Nyssa sylvatica). Understory species are sweet bay (Magnolia virginiana), American holly (Ilex opaca), persimmon (Diospyros virginiana), dogwood (Cornus florida), and sassafras (Sassafras albidum). Common shrubs and herbs include hazelnut (Corylus americana), gooseberry (Vaccinium stamineum), highbush blueberry (V. corymbosum), strawberry-bush (Euonymus americanus), ebony spleenwort (Asplenium platyneuron), aster (Aster puniceus, A. cordifolius), partridge berry (Mitchella repens), and numerous other ferns and herbs.

The hardwood community provides habitats for game animals including deer, squirrel, and turkey. It is probably the single community with largest mass production, and its frequent isolation makes it a desirable habitat for the more secretive wild animals.

5. *Mixed Pine-Hardwoods*

The mixed pine-hardwood community is the most abundant of the woodland community types. It is located throughout the eastern and southern half of the project area. It is commercially valuable, containing not only several of the hardwood species such as black cherry, oaks, and sweet gum, but also abundant pines, predominately loblolly pine (Pinus taeda), and occasionally Virginia pine (Pinus virginiana). Spot checks of several stands showed loblolly pine and sweet gum as the dominant canopy species. Frequently along the margins of such stands there are various species of deciduous trees, notably white oak, southern red oak, persimmon, sassafras, and hickory. The understory and shrubs of these stands consist mainly of seedlings and saplings of deciduous canopy species, especially sweet gum. Other shrubs include wax myrtle (Myrica cerifera), winged sumac (Rhus copallina), dogwood, gooseberry, and blueberry. The herbaceous layer does not form a complete ground cover, but does contain annual and perennial species which produce a

prolific crop of small seeds available as food for small animals. Nevertheless, the variety of fruits and seeds from trees of the hardwood and pine-hardwood communities, in large measure, determines the variety and population density of wildlife in the woodland areas.

6. *Pine Forest*

The sand and sandy loam soils appear to be excellent for the growth of commercially valuable loblolly pines. Although the majority of timber tracts consist of a pine-hardwood association, there were areas in which pine formed 100 percent of the canopy. The dominant trees of the canopy were loblolly and Virginia pine with no evidence that the hardwoods had been selectively harvested in these stands. The understory contained deciduous species such as sweet gum and black cherry. Herbaceous and shrub layers were incompletely developed. The pine forest is relatively depauperate floristically and does not provide the diversity of wildlife habitats seen in other communities.

7. *Old Fields*

Surprisingly little of the old field community type was observed in the Salisbury area. One of the best examples was located between Morris Prong and Tonytank Creek near the proposed Alternate D route. Young pines are the most conspicuous woody plants of this community; small populations of persimmon or sassafras may be locally abundant. The community is ecologically intermediate between agricultural cropland and a forest community and, as such, contains species found in both of these communities. In addition, a characteristic group of herbaceous plants such as broomsedge (Andropogon virginicus), horseweed (Erigeron canadensis), rabbit tobacco (Gnaphalium obtusifolium), and others may be present and dominant, depending upon the number of years since the last cultivation.

8. *Disturbed Areas*

Woodlands which have been recently lumbered and rural borrow pits are included in the classification of disturbed areas. Borrow pits account for no more than 20 acres of this biotic community type and probably have an insignificant impact on the overall biology of the area. Lumbered areas are frequently encountered in the rural section of the project area. No recently cut stands that had been cleared for agriculture, or cut-over stands that had been replanted with trees were seen. The vegetation remaining in the disturbed areas was characteristic of the community which preceded it. Trees of little commercial value, or valuable species showing poor growth form, were usually left standing. Although a cover of slash, shrubbery, and thickets were left in the lumbered areas, many of the major food producing trees were removed. The chief use of such areas by wildlife is for cover.

9. *Agriculture*

Cultivated fields, pastures, and orchards comprise this biotic community. Vegetable crops are extremely valuable to the agricultural economy of this region. It was not unusual to find fields within the corporate boundaries of Salisbury and Fruitland.

Chief crops include corn (Zea mays), soybeans (Clycine max), sweet potatoes (Ipomoea batatas), Irish potatoes (Solanum tuberosum), asparagus (Asparagus officinal), oats (Avena sativa), barley (Hordeum vulgare), rye (Avena cereale), cowpeas (Vigna unguiculata), pumpkins (Cucurbita pepo), cucumbers (C. sativus), and apples (Malus pumila). The biotic community maintained in agriculture provides abundant forage food to many wild animals. In addition to reported game such as rabbits, quail, and doves, the cereal crops also provide food of songbirds, rodents, and other small mammals.

10. *Urban*

Approximately 30 percent of the project area is composed of urban and industrial areas, principally the southern half of the City of Salisbury and all of Fruitland. The landscape, except for a few native shade trees, is essentially devoid of the natural vegetation. The potential wildlife habitat is limited. Small mammals and birds depend upon food sources and cover found in vacant lots, weedy places along railroads, etc.

Project Impact

Construction of the project along the proposed E alignment and Cedar Lane Extension involves clearing a total 267 acres within the project's right-of-way. Table 2 indicates total acreage of the different biotic communities within the study area, both inside and outside the project right-of-way. For this study, a corridor extending for one mile east of Alternate E to one mile west of U. S. 13 was considered.

The majority of the E alignment and Cedar Lane traverses designated occupied land. This includes disturbed areas, agricultural fields and urban land types. In fact, the project principally crosses cultivated fields which are already stripped of tree cover.

Of the total 12,525 acres in the study area, 9,415 acres are designated occupied and only 3,110 acres are in biotic communities. Of the total 267 acres in the project right-of-way, 184 acres are in occupied land and 83 acres in biotic communities.

The project's total impact on valuable corridor biota will be to remove 15 acres of pine and 68 acres of mixed pine-hardwood forest. This represents only 3.7 percent of the total pine and 2.9 percent of the total mixed pine-hardwood forest in the study area.

Finally, after construction, 152 acres within the project's right-of-way will be permitted to revert to their natural state. An additional 71 acres will be planted in grass. Only 44 acres will be paved. Thus, of the 267 acres within the right-of-way, a total of 223 acres will be restored or grass areas. This represents 83.5 percent of the total right-of-way.

Table 2

Biotic Communities
Alternate E

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,231	184
Unoccupied			
Pine Forest	410	395	15
Mixed Pine-Hardwood	2,325	2,257	68
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,258	267

The construction of the By-Pass and Cedar Lane represents an initial loss of 16 percent of tree and ground cover within the right-of-way. This is only 2.6 percent of all valuable cover in the study area. Most important, while construction will only remove 83 acres of biotic communities, plans call for the reversion of 152 acres of right-of-way to natural conditions by natural succession. This represents an ultimate net gain of 69 acres of biotic communities within the project corridor.

The swamp forest and fresh water marsh areas are dependent on the natural hydrology of the area. As pointed out later in the text, due to the largely level and undeveloped nature of the project corridor, there will be no significant changes in the stream flow characteristics in the area as a result of the project's construction. Sedimentation and erosion controls to be incorporated in the project should minimize all hazards during construction, and virtually no erosion problems are anticipated to occur after the project is completed. Therefore, there are no significant adverse impacts anticipated on the swamp forest and fresh water marsh areas.

Wildlife

Over 70 percent of all land in Wicomico County affords good to excellent habitat for open land and woodland wildlife.[2] The many miles of shoreline along county rivers and tributaries serve as nesting, feeding and resting areas for waterfowl, mammals and aquatic organisms.

Of the county's 243,000 acres, approximately 113,000 acres are in forest. The extensive acreage of oak-hickory forest--with both its hardwood and coniferous constituents--along with the wetland food and cover plants, support well-balanced populations of many species. An inventory of county species indigenous to the project corridor is summarized below and is included in the appendix.

Waterfowl, which has been identified in the corridor, include mallard ducks, black ducks and geese. Other migratory avian species using the area include dove and woodcocks. Mammals which have been identified include otter, muskrat, deer, fox, raccoon, squirrel, opossum, rabbit and skunk, with otter and muskrat being the most important mammals using the area. Shorebirds include the little green heron and the more predominant great blue heron. Finfish within the area include largemouth bass,

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2 Soil Survey, Wicomico County, Maryland, January 1970.

bluegill, pickerel, yellow perch and white crappies. Other finfish identified during a sampling of the project area include pirate perch, eels, bullheads, shiners, blackbanded sunfish, bluespotted sunfish, pumpkinseeds, darters, mosquitofish, and shrimp. Amphibians include green frogs, eastern painted turtles, and stinkpot turtles. Miller (1972) lists the blackbanded sunfish as rare and endangered (actively threatened with extinction) in Maryland.

Project Impact

Project construction will remove 83 acres of habitat and force resident species to relocate. Some transient mortality will inevitably occur.

The impact of dislocated wildlife on adjacent habitat depends on the type and number of species it presently supports. Theoretically, wildlife dislocation may result in the following impacts on adjacent habitat:

- The invading species may completely displace the original species.
- The invading species may occupy an unfilled niche.
- The invading species may partition a niche with a pre-existing species.

However, it is most likely that the neighboring habitat is already supporting a near maximal population. Limiting factors such as sufficient food and physical space are of a finite nature, so that the invading species encounter severe barriers in re-establishing themselves.

Wetland areas afford particularly valuable habitat. Various waterfowl, mammals, shorebirds and finfish depend on these areas for their existence. Wetlands within the project corridor include seven acres surrounding Fooks Pond, 218 acres surrounding Tonytank-White Marsh Creek and 17 acres surround Slab Bridge Creek-Upper Handy Pond. All of these areas are non-tidal wetlands, and are classified as wetland units on the Maryland Wetlands Survey (1967-68) prepared by the Maryland Department of Natural Resources (DNR) Wildlife Administration. These areas have been defined as fresh water marshes and swamp forest areas in the biotics section of the report and on the biotic communities exhibit.

The proposed alignment crosses slightly above the northwestern perimeter of the Tonytank Creek wetland area. In addition to all erosion and sedimentation controls planned for the project, special attention will be required for these sensitive wetlands. In particular, effort should be made to prevent siltation during the March through July nesting season.

The Maryland Department of Transportation and the Federal Highway Administration will work closely with the Department of Natural Resources to preserve and protect the wetlands.

Traffic on the completed project is not anticipated to adversely affect wildlife supported by the adjacent habitat.

The Draft Environmental Impact Statement for construction of the Salisbury By-Pass was circulated for comments on February 26, 1975. On May 1, 1975, comments were received from the State of Maryland Fish and Wildlife Administration. These comments inferred that a species of fish known commonly as the blackbanded sunfish (Enneacanthus c. chaetodon), which is considered rare and possibly endangered in Maryland, had been reported in areas of the Tonytank Lake adjacent to the proposed alignment of the Salisbury By-Pass. However, these reports had not been documented prior to this time.

The concern over the possible existence of the species near a construction area resulted from a food habits study of the blackbanded sunfish conducted by Schwartz (1961). The study indicated that E. chaetodon is a bottom feeder, and that aquatic weed beds are a preferred microhabitat type. Mr. W. R. Carter III, representative of the Fish and Wildlife Administration, pointed out that bottom organisms could be susceptible to sedimentation damage and thereby raise the possibility of interrupting the food chain which supports the species. He continued to point out that increased turbidities tend to reduce aquatic plant growth and thereby possibly reduce areas of preferred habitation.

As a result of these comments, and consideration of the alternative actions available, it was decided that a two day sampling effort, in areas to be designated by the Fisheries Administration, would be undertaken to determine if the blackbanded sunfish was indeed present in these waters. A copy of the report which was prepared as a result of this survey is included in Appendix IV.

The blackbanded sunfish was found during the survey but only in one location, Tonytank Lake. Due to the distance from the project site, the flat topography of the area, control structures on upstream lakes, the size of the receiving lakes and the recent impacts of downstream construction, it was concluded that the construction of the Salisbury By-Pass, as planned, would not affect either the food source or the aquatic plant growth in the four pond areas, to a degree which could be considered as being deterimental to the continued existence of the blackbanded sunfish in these waters.

Water Quality

Surface Water

The project crosses three watercourses: Slab Bridge Creek, Morris Prong Creek and Tonytank Creek. Tonytank Creek is a major tributary flowing into the Wicomico River. Both Morris Prong and Slab Bridge Creeks drain into Tonytank Creek. Drainage in the vicinity of the northern terminus of the project alignment will flow into Schumaker Pond and thence to Beaver Dam Creek.

Data is available from water sampling stations located within the study corridor. Table 3 details water quality data for the Wicomico River and its tributaries. Analyses prepared by the State of Maryland, Department of Water Resources, shows that Tonytank Creek is in relatively good condition and the water quality of Beaver Dam Creek is acceptable. It is emphasized that all water sampling stations are downstream of the proposed alignment. Therefore, it can be assumed that both the biological and physio-chemical parameters of watercourses crossed by the project are in good condition and within State standards.

Project Impact

The major impacts resulting from project construction will be:

- A transient increase in stream turbidity resulting from siltation and sedimentation caused by excavation.
- Increased runoff from the paved surfaces of the highway.

Both impacts are conducive to amelioration. The former by implementation of stringent erosion controls, and the latter by sound drainage design.

The sediment transport hazard is greatest during the construction period, while earth-moving processes are underway and soils exposed prior to paving or the planting of cover. Under these conditions, runoff from a normal rainfall may contain quantities of particulate material. This problem, however, is transient and limited by erosion control measures taken prior to and during the construction period. In particular, the provision of sediment retention ponds, staging of soil excavation and rapid planting of cover will prevent serious sediment transport.

Increased runoff from the paved completed project will be controlled by natural and design features. Low elevations and the permeable nature of area soils will retard the transport of runoff into watercourses. The velocity of flow will be further limited by the highway's design slopes.

Table 3

Water Quality Analysis For Years 1967-1971

	Station 1		Station 2		Station 3		Station 4		Station 5		Station 6	
	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range	Average	Range
Colif. mpn/100 ml	2,350	2,400 2,300	13,800	23,000 4,600	20,182	43,000 930	1,855	4,600 150	1,784	9,300 43	13,162	24,000 1,500
E. Colif. mpn/100 ml	1,210	2,300 120	511	930 93	3,406	11,000 93	336	930 9.1	54	230 9.1	4,603	23,000 75
D. O. ppm	8.5	9.9 7.0	7.9	9.6 6.7	5.5	7.9 3.0	11.2	14.0 9.3	9.1	10.9 6.9	9.48	12.6 7.1
Turbidity	--		--		21	23.0 18.0	7.7	15.0 2.5	6.0	10 1.5	6.2	10 2.5
pH	--		--		6.9	8.0 6.1	7.5	8.7 7.0	6.6	7.1 6.2	7.18	8.7 6.5
BOD ppm	6.6	7.3 5.8	7.9	6.9 5.3	6.9	21.0 1.4	3.5	5.9 1.8	2.2	3.2 1.0	4.4	7.2 1.6
Total PO_4^{-3} mg/l	1.28	1.55 1.00	1.04	1.17 .91	1.01	2.83 .05	.38	1.03 .03	.25	.75 .03	.43	1.21 .05
Nitrate mg/l	2.10	2.20 2.00	2.15	2.20 2.10	1.70	2.10 .99	1.31	1.91 1.05	1.22	3.0 .70	2.10	3.50 1.0

Station Locations

Station 1 Nancy Point
Station 2 Harbor Point, Buoy FL-57
Station 3 Sharps Creek Bridge on River Road
Station 4 Tonytank Creek, Bridge on River Road
Station 5 Beaver Dam Creek at confluence with Leonard Pond Run
Station 6 Beaver Dam Creek Bridge on Shumaker Road below Shumaker Road

Samples collected and analyses prepared by State of Maryland Department of Water Resources.

In concert, these measures will prevent rapid or massive intrusions of roadway runoff from entering adjacent watercourses. Further, these measures will slightly reduce the quantity of nutrients and roadway pollutants ultimately entering the streams.

Bridge and culvert construction will temporarily cause the resuspension of existing stream sediments resulting in potential higher water turbidities and oxygen deficiency problems in the area. Suspended silt that settles tends to cover and smother bottom organisms. The biological reaction, similar to that of toxic materials, is a reduction in both kinds and numbers of organisms without corresponding increase in numbers of less sensitive types.

However, the quality of area streams is relatively high and should not be significantly altered by the transient impact of the construction period. Turbidities should diminish with the paving of the roadway and the planting of cover.

Shortly after project completion, turbidities should return to pre-construction levels. The overall water quality and viability of corridor streams should not be significantly altered by the completed facility.

Subsurface Aquifers

Below the Salisbury area, two principal non-artesian aquifers are recognized.[3] The upper Manoking subcrop of the Yorktown formation extends from about 150 to 250 feet below the ground surface. The lower Choptank aquifer extends from about 400 to 490 feet below ground level.

Wells in the Manokin aquifer at Salisbury and Fruitland indicate pH ranging from 5.3 to 7.2, iron 2.6 to 8.3 parts per million (ppm), chlorides 3.0 to 9.5 ppm, hardness as $CaCO_3$ 1 to 77 ppm and dissolved solids 52 to 186 ppm.

The Manokin aquifer contains fresh water as far east as Fenwick Island and Assateague Island. Municipal use of this aquifer is confined to Princess Anne (250,000 gpd), Ocean City (1,100,000 gpd) and Snow Hill

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[3] Department of Natural Resources Maryland Geological Survey, "A Users Guide for the Artesian Aquifer of the Maryland Coastal Plain" Parts One and Two, 1972.

(250,000 gpd). Seasonal pumpage at Assateague Island State Park (15,000 gpd) and Shad Landing State Park (25,000 gpd) is also taken from the Manokin subcrop. The lower aquifer of the Choptank formation at Fruitland has a high chloride content of 572 ppm.

Project Impact

The construction of the Salisbury By-Pass should have no impact on these two aquifers.

Hydrology

The hydrology of the project corridor was fully investigated and major drainage areas identified. Exterior Alternates D and E traverse nine major drainage areas ranging in size from 14 to 2,460 acres. Interior Alternates A, B and C cross between four and six major drainage areas ranging from 12 to 241 acres in size. Exhibit 8 indicates all major drainage areas in the study corridor.

Methodology and Data Sources

The interrelation of rainfall and runoff on specific drainage areas was analyzed to quantify the project's impact on corridor hydrology. This analysis provided the basis to determine the adequacy of drainage facilities and erosion controls proposed for the highway.

Sources of information for the hydrologic study included climatological records of the U. S. Weather Bureau and complete reports of the U. S. Geological Survey.

Rairfall statistics for the area show that annual rainfall is 41.5 inches. However, annual rainfall has varied from 21.7 inches to 72.6 inches over the past 40 years. The maximum 24 hour rainfall recorded in the past 40 years is 8.90 inches.

Studies of the individual drainage basins, including field surveys of existing facilities, studies of topographic maps, aerial photography and analyses of soil survey information were made in order to ascertain the general characteristics of each watercourse.

Flow from drainage areas less than 1,000 acres in size was calculated by the BPR (Bureau of Public Roads--now Federal Highway Administration) method. Using this method, the expected flow (Q) is obtained

by multiplying selected Rainfall Factor, Land Factor and Frequency Factor by the runoff indicated in BPR Chart 1021.10 for the size of each drainage area.

Flow from areas over 1,000 acres was estimated from experience records of streams on the Eastern Shore as contained in U. S. Geological Survey Water Supply papers. These gauging station experience records translated into flood flow frequency plots for various size drainage areas were used as a foundation for establishing an enveloping curve in accordance with standard practice.

Urban areas were investigated on the basis of development and existing sewer systems and patterns. Areas were defined and estimated storm sewer sizes were approximated based upon typical times of concentration and pipe slopes using the Rational Method of estimating storm flow.

Project Impact

Due to the largely level and undeveloped nature of the project corridor, no significant changes in stream flow characteristics are anticipated. The proposed alignment traverses numerous cultivated fields where existing runoff is unchecked and steady, although slow. As this area becomes more developed with residential subdivisions and commercial-industrial parks occupying formerly cultivated fields, higher peak and lower base flows will occur.

However, at this time, project construction will not produce a significant increase in runoff or peak flows. The facility will not alter the existing times of concentration. The small volume of runoff from the completed facility with pavement and grassed slopes within the right-of-way will not alter the peak flows from the existing contributing areas which are predominantly cultivated fields and forests. The existing 25-year peak runoff for a 984 acre drainage area is 191 cubic feet per second (cfs). The estimated concentration time for the completed project will not change from the existing two hours.

This indicates that the facility will not alter runoff or stream flow characteristics. The primary impact of the project on corridor hydrology, therefore, is negligible. The secondary impact of the project as a catalyst for future development may result in higher peak and lower base flows.

Major diversion of flow from one drainage basin into another is not planned. Minor diversions may occur, however, where roadway cuts extend on grade into adjacent drainage areas or where existing areas are too low to be drained without major ditching outside the right-of-way.

Generally speaking, the topography is flat and stream profiles are gentle with low velocities of flow. Water does not tend to run off of the areas and, when culverts are inadequate, flooding results.

Maryland State Highway Department Standards require cross culverts to be designed to pass a 25-year storm. Roadway storm drains are normally required to be designed to carry a 10-year frequency storm. Project culverts, as designed, are adequate to pass the 25-year design flood. Tables 17 and 18 found in the Alternatives section of this report provide a tabulation of drainage requirements for all alternates.

Side ditches eliminate the dumping of runoff into adjacent property at other than existing drainage courses.

Groundwater occurs at 1.5 to 13.0 feet below the surface throughout the area. There are no known tile drain or irrigation projects near the proposed highway. There is, however, a pond at Slab Bridge Creek which supplies water for surface irrigation to an adjacent farm.

The impact of the proposed Salisbury By-Pass on groundwater will be minimal. Ditches and subdrain systems, where required, will result in some lowering of water levels immediately adjacent to the highway. The project will have no impact upon the subsurface aquifers.

In summary, the following impacts on corridor hydrology are noted.

- The project will not increase existing runoff or peak flows.
- The project will not alter times of concentration.
- The project will not affect stream flow characteristics.
- The project will not result in major diversion of flow between drainage basins.
- The project culvert and storm drain design conforms to State standards and is adequate.
- The project will have no impact upon subsurface aquifers.

- The project's secondary impact will be to promote development. Where residential and/or commercial-industrial development occurs on formerly cultivated fields, higher peak and lower base flows are anticipated.

Erosion and Sedimentation Control

Geology of Corridor

A study of soil and geologic conditions was made for the alignment corridor. The project area lies in the physiographic province called the Atlantic Coastal Plain and is about 80 miles east of the fall line that separates the plain from the Piedmont Plateau. The Atlantic Coastal Plain is underlain by a volume of sediments which is approximately one mile thick in the study area. The sediments, which were primarily carried by streams from the Appalachian Mountains and the Piedmont Plateau, were deposited mostly in a marine or shallow water environment. They consist mainly of sands, greensands, gravels, silts, clays, shales and shell beds. Beneath the sediments is hard crystalline rock of Pre-Cambrian and Paleozoic age whose surface falls toward the southeast at approximately a 1.7 percent slope.

Terraces, barely perceptible due to the area's level terrain, are believed to have been laid down by melt water from the continental ice mass, thus indicating that the level of the sea was higher in recent geologic time than it is today.

Soils of Corridor

Soil data pertinent to this study were obtained from the Soil Survey of Wicomico County, Maryland, published by the U. S. Department of Agriculture Soil Conservation Service in cooperation with Maryland Agricultural Experiment Station, and from literature of the State Geological Survey. Subsurface information was obtained from 125 roadway borings, 20 muck probings and 38 structure borings taken by the State Highway Department in conjunction with preparation of design plans.

The roadway borings, which ranged from 3 to 13 feet in depth, and the structure borings, which ranged from 30 to 65 feet in depth, substantiated information contained in the county soils report. Generally, the surface soils are sands, either with or without fines, and silty sands at times overlain with as much as a foot of topsoil. Subsoils are sands interspersed in places with silts, clays and gravel.

Of the nine general soil associations identified in Wicomico County, three were found to be dominant in the study area. These are:

- Evesboro-Klej - characterized by nearly level to steep, excessively drained to somewhat poorly drained sands and loamy sands.
- Pocomoke-Fallsington - characterized by level and nearly level, very poorly drained and poorly drained soils that have a subsoil of friable sandy clay loam.
- Matawan-Norfolk - characterized by level to gently sloping, moderately well-drained and well-drained soils that have a subsoil of friable or firm sandy clay loam.

In order to evaluate specific soil types, alignments for all five alternates were drawn on the appropriate soil survey maps. A constant width of right-of-way was assumed, but additional land involved in interchange construction was not considered. The various soil types traversed by alternates were identified and their respective areas measured. The number of different soil series encountered for each route varied from only two in Alternate A to nine found in Alternates D and E.

Table 4 indicates the acreage and percentage of total acreage that each soil type occupies along each alternate. In addition, stability, slope, drainage, shrink and swell and erodibility characteristics are listed.

It can be seen that approximately 75 percent of all soils encountered along interior Alternates A, B and C were Norfolk, loamy sand of varying slopes. This soil is deep, somewhat excessively drained and subject to little or no erosion. It has a thick, sandy surface layer that has to be protected from blowing during dry, windy periods and a somewhat finer textured, moderately permeable subsoil. From an engineering standpoint, the soil is fair to good as a potential source of roadway fill. Its slight to moderate frost action and fair stability generally indicate an adequate soil for construction of a highway.

Matawan soils dominate the exterior alignments, covering approximately 50 percent of Alternate D and 38 percent of Alternate E, the proposed alignment. About two-thirds of these Matawan soils have been

Table 4

Soil Characteristics

Soil Type	Land Slope	Alternate A Area (Ac.)	Alternate A % Total Area	Alternate B Area (Ac.)	Alternate B % Total Area	Alternate C Area (Ac.)	Alternate C % Total Area	Alternate D Area (Ac.)	Alternate D % Total Area	Alternate E Area (Ac.)	Alternate E % Total Area	Soil Features That Affect Road and Highway Location	Suitability as Source of Road Fill	Drainage	Shrink-Swell Potential	Erodibility
Elkton Sandy Loam	--	--	--	--	--	--	--	1.6	1.0	1.5	1.0	Poor stability, severe frost action & high water table	Poor	Poorly drained	Moderate to Low	High
Evesboro Loamy Sand	5-15%	1.9	2.3	1.9	2.3	1.9	2.6	6.4	3.9	11.4	7.3	Fair stability, droughty,	Poor	Excessively drained	Low	Moderate
Clayey sub-stratum	0-5%	11.6	14.0	11.6	14.0	5.7	8.0	23.8	14.5	37.2	23.8	seasonal seepage	Poor to Good	"	"	"
Evesboro Sand	5-15%	3.8	4.7	3.8	4.7	1.9	2.6	--	--	--	--	Fair stability,	Poor	"	"	"
Evesboro Soils	15-40%	--	--	--	--	--	--	1.6	1.0	--	--	droughty, loose	"	"	"	"
Evesboro Galestown-Downer Loamy Sands	0-10%	--	--	--	--	--	--	4.8	2.9	4.3	2.7	"	"	"	"	"
Fallsington Sandy Loam	--	--	--	--	--	--	--	25.5	15.5	22.9	14.6	Fair to good stability, severe frost action & high water table	Poor to Good	Poorly drained	Low	Moderate
Matawan Loamy Sand	0-2%	--	--	5.7	6.7	9.4	13.1	49.3	30.0	27.2	17.4	Fair stability,		Moderately well drained	Low	Slight
	2-5%	--	--	--	--	--	--	12.7	7.8	14.3	9.1	moderate to severe	Poor		"	Moderate
	5-10%	--	--	--	--	--	--	--	--	1.5	1.0	frost action, seasonal high water table	to Good			"
Matawan Fine Sandy Loam	--	--	--	--	--	--	--	6.4	3.9	4.3	2.7	"	Fair to	"	"	"
Matawan Sandy Loam	0-2%	--	--	--	--	--	--	14.3	8.7	12.9	8.2	"	Good	"	"	"
Mixed Alluvial Land	--	--	--	--	--	--	--	1.6	1.0	1.5	1.0	"	Variable	Poorly drained	"	"
Muck	--	--	--	--	--	--	--	1.6	1.0	1.5	1.0	Little or no stability, severe frost action, high water table, ponding or flooding	Unsuitable	Very Poorly drained	High	High
Norfolk Loamy Sand	0-2%	53.6	65.0	47.9	58.1	41.4	57.8	9.5	5.8	11.4	7.3	Fair stability,	Fair to Good	Well drained	Low	Slight
	2-5%	7.7	9.3	7.7	9.3	7.5	10.5	--	--	--	--	slight to moderate			"	"
	5-10%	3.8	4.7	3.8	4.7	3.8	5.4	--	--	--	--	frost action			"	"
Pocomoke Sandy Loam	--	--	--	--	--	--	--	1.6	1.0	1.5	1.0	Fair stability, severe frost action, high water table, ponding	Fair to Good	Very Poorly drained	Low	Moderate
Rutledge Loamy Sand	--	--	--	--	--	--	--	3.2	2.0	2.9	1.9	Very poor stability, severe frost action, high water table, ponding	Very Poor	Very Poorly drained	Low	Moderate
		82.4	100.0	82.4	100.0	71.6	100.0	163.9	100.0	156.3	100.0					

identified as varying slopes of Matawan loamy sand. This soil is moderately well-drained with a thick, sandy surface layer and a somewhat finer textured, moderately permeable subsoil. Matawan loamy sand sloping from 2 to 10 percent could represent a moderate to severe erosion hazard if left unprotected. As expected from most loamy sands, soil blowing is a severe problem in dry, windy periods. Due to a moderate to severe frost action and a seasonally high water table, this soil is considered undesirable for construction of a highway in its natural position.

Soils of the Evesboro series are the second most abundant along all alternates and represent 33.8 percent of Alternate E soils. Evesboro loamy sand, characterized by a clayey substratum and 0 to 5 percent slopes, is the major soil found in this series. This soil is deep, coarse textured, level to strongly sloping, somewhat excessively drained or excessively drained, with a moisture retaining clayey substratum occurring at a depth of 4 to 6 feet. Generally, it is subject to little or no erosion by water. However, where the surface is dry and unprotected, soil blowing is a severe hazard. An evaluation of its engineering characteristics generally indicates that it is a fair soil for highway construction.

Fallsington sandy loam comprises approximately 15 percent of the soils found in both Alternates D and E. This soil is level to gently sloping, poorly drained, gray, medium textured with a subsoil whose permeability is moderate or moderately slow. Erosion is a moderate hazard in sloping areas. The soil has fair to good stability, a moderate to severe frost action, and generally high water table.

Elkton sandy loam, mixed alluvial sand, muck, Pocomoke sandy loam, and Rutledge sandy loam are the minor soils traversed by both Alternates D and E. The combined total acreage of these five soils represents only six percent of the total soils and could be considered insignificant.

Project Impact

Although the degree of erodibility is affected by numerous conditions, e.g., climate, existing ground cover, etc., two principal factors override other considerations. These are:

- Erodibility varies inversely with the size of the soil particles where grains are not cemented or held by a cohesive bond; and

- Erodibility varies directly with the ground slope up to approximately 20 degrees, reaches a maximum at approximately 40 degrees, and then decreases.

Exhibit 9 shows the soils along Alternates A through E. Matawan soils present only a slight to moderate erosion hazard with severity increasing with degree of slope. Evesboro soils present a moderate hazard with slope again the determining factor. This also applies to Fallsington sandy loam. Among minor soils, only Elkton sandy loam and muck present significant erosion hazards.

Generally, soil blowing or wind erosion represents a more serious problem than water erosion. Both occur intermittently and are subject to control. The greatest hazard will occur during construction where excavation and slope construction are required. Extensive temporary and permanent erosion controls are planned. The following list provides examples of measures programmed to minimize impact:

- Diversion dikes are incorporated into the project design.
- Level spreaders will be utilized.
- Temporary and permanent slope drains and sediment traps will be installed.
- Seeding and mulching of sloped areas will be accomplished as rapidly as possible after sections are paved.

The proposed project will require approximately 134,000 cubic yards of excavation and 1,611,000 cubic yards of embankment. The requirement of excess embankment of 1,477,000 cubic yards will necessitate the implementation of borrow pits for the project. All borrow pits utilized for the project must be approved by the Wicomico County Zoning Commission. Restoration of borrow pits will be accomplished in accordance with State Highway Administration specifications. This assures the following measures to minimize impact:

- The contractor will be required to trim and shape the borrow pit

- The borrow pit will be restored to present a neat appearance and conform with the esthetics of the area
- The borrow pit will be restored to conform with the topography of the area so that all parts are effectively drained
- Steep slopes and sheer faces shall be avoided
- All disturbed areas shall be seeded and mulched

Due to the level topography of the area and the reasonably stable qualities of corridor soils, erosion and sedimentation hazards should be limited to the construction period. In fact, soil blowing represents the most serious problem associated with excavation. However, erosion and sedimentation controls incorporated into the project design should minimize all hazards and virtually no erosion problems are anticipated to occur after the roadway is paved and slopes are planted with cover.

Noise

Methodology

Noise predictions were calculated in accordance with the procedures described in Federal Highway Administration FHPM-7,7,3. The methodology is as follows:

- Identification of existing noise sensitive areas.
- Prediction of highway-generated noise levels
- Measurement of ambient conditions
- Comparison of predicted noise levels with Federal standards (FHPM-7,7,3) and with measured ambient conditions.
- Development of measures to mitigate or eliminate highway-generated noise impact where required.

In evaluating acoustic impact, it is necessary to consider the ambient or background noise levels for purposes of comparison. Traffic noise only becomes an environmental problem when it becomes new noise or measurably increases ambient levels.

Field monitoring in the U. S. 13 By-Pass corridor and Cedar Lane area established existing background noise conditions. Particular emphasis was given to designated sensitive noise areas within the corridor. These are facilities especially affected by traffic noise. Although there were no schools, churches, parks, or hospitals located in close proximity to the proposed E alignment, there were a number of residential areas which were considered. The corridor investigated for the Cedar Lane Extension included one school (Fruitland Primary School) and additional residential areas along St. Lukes Road.

Noise was measured in decibels (dB) on an A-weighted scale. The A-scale is a frequency weighted network which produces a composite value that closely approximates the response of the human ear. The A-weighted sound level is accepted as an accurate and practical measure of the noise from today's highway vehicles and can be easily determined using any standard sound level meter.

Ambient and predicted noise levels given in this statement are L_{10} levels. This designates a noise level exceeded 10 percent of a given time period.

Field measurement indicated ambient conditions in the corridor to range from 48 dBA to 56 dBA. This is a low noise level which reflects the corridor's undeveloped nature.

Predictions for noise generated by traffic on the proposed Salisbury By-Pass were developed by use of a computer program prepared by the Department of Transportation Systems Center in Cambridge, Massachusetts. The program evaluates the full spectrum of acoustic related parameters, combines their effect and provides traffic related noise level predictions. Noise level projections for the areas relating to the Cedar Lane Extension were developed using the National Cooperative Highway Research Program Manual 117. Noise level contours were developed and are presented in Exhibits 10 through 15. Noise level contours for Cedar Lane are shown on Exhibit 15 only.

These predicted noise levels were compared with both the existing ambient level as well as the established Federal criteria. Table 5 indicates the recommended design criteria established in FHPM 7,7,3 identifying acceptable noise levels for various land use categories.

Table 5

Design Noise Level/Land Use Relationships

Land Use Category	Design Noise Level - L_{10}	Description of Land Use Category
A	60 dBA (Exterior)	Tracts of lands in which serenity and quiet are of extraordinary significance and serve an important public need, and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose. For example, such areas could include amphitheaters, particular parks or portions of parks, or open spaces which are dedicated or recognized by appropriate local officials for activities requiring special qualities of serenity and quiet.
B	70 dBA (Exterior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, picnic areas, recreation areas, playgrounds, active sports areas, and parks.
C	75 dBA (Exterior)	Developed lands, properties or activities not included in categories A and B above.
D	Unlimited	Undeveloped lands.
E	55 dBA (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.

(Table is taken from the Federal Highway Administration's Program Manual 7,7,3)

The projected 1977 average daily traffic on the proposed by-pass is estimated to be 12,300 vehicles per day (vpd). The peak hour volume of 1,415 vph, with nine percent trucks, was used for noise calculations. The projected 1977 ADT for Cedar Lane is estimated to be 750 vpd and 2,400 vpd for the existing St. Lukes Road, from the interchange to the new Cedar Lane Extension. The peak hour volumes of 98 vph and 312 vph respectively, with 11 percent trucks was used for noise calculations in this area depending on the segment being considered.

Project Impact

Salisbury By-Pass

Projected average daily traffic for the alignment's design year--1997--is estimated to be 19,500 vpd with a peak hour volume of 2,243 vph.

Based upon the above mentioned computer noise prediction program, a noise level of 72 dBA will be experienced in 1977 at a distance of 400 feet from the proposed project. This is 2 dBA above the maximum noise level (L_{10}) permitted for residential areas by FHPM 7,7,3.

The computer program for the design year 1997 indicated increased traffic will generate noise levels of 73 dBA at a distance of 400 feet from the roadway. This exceeds Federal residential standards by 3 dBA. However, a national trend toward pollution abatement legislation is anticipated to result in the manufacture of trucks and possibly automobiles with noise emission controls. This, if effective, would reduce the highway's projected design year impact. Further, the majority of land use along the alignment falls into the 75 dBA or unlimited criteria classifications.

Nonetheless, in 1977--the project's opening year--noise levels within 400 feet of the alignment will exceed Federal criteria. The following areas represents those residences experiencing acoustic impact above Federal design standards:

- A migrant workers' quarters south of Dykes Road, approximately 300 feet from the project, will experience a noise level of 72 dBA in 1977. Noise level will reach 75 dBA using 1997 traffic. Ambient noise level is 48 dBA. The migrant workers' quarters are comprised of four buildings. Three are dwelling types and one is a storage shed or summer kitchen. The quarters have not been utilized specifically to house migrant workers for the past three years. At present

there are two couples and a single man housed in these dwellings. The occupants are year round or permanent dwellers who work, on occassion, for the land owner. These occupants are of a minority group.

- A trailer park located off Old Eden Road includes mobile homes as close as 180 feet to the proposed alignment. Acoustic levels at this distance could reach 74 dBA in 1977. Noise level will reach 77 dBA using 1997 traffic. Ambient noise level is 56 dBA. Approximately 38 mobile homes housing approximately 130 persons fall within the 70 dBA coutour. These trailers occupy this area on a year round basis. It is possible that some minorities are affected.

Cedar Lane Extension

Projected average daily traffic for the alignment's design year --1997--is estimated to be 4,450 vpd on existing St. Lukes Road between the interchange and the connection with Cedar Lane and 1,825 vpd on the extension of Cedar Lane itself. Corresponding peak hour volumes are 579 and 238 vph respectively. A factor of 11 percent was used to compute the volume of trucks during the design hour.

Based upon the NCHRP Manual 117, traffic for the year 1977 will generate noise levels exceeding Federal criteria at one residence along St. Lukes Road. The remainder will be below Federal criteria. The 1977 projected L_{10} value will be 71 dBA at the closest residence to the road (32' from C/L) and below 70 dBA for all other areas. The 1997 projected L_{10} values will be 73 dBA at the same above referenced residence. This exceeds Federal criteria by 3 dBA. In addition, 4 other dwellings (located 35' from the C/L) will exceed the criteria by approximately the same amount.

Fruitland Primary School will remain well within Federal criteria with traffic along the proposed Cedar Lane producing L_{10} levels during peak hour of only 56 dBA in 1977 and 57 dBA in 1997.

As noted previously, future pollution abatement legislation should result in the manufacture of both quieter trucks and automobiles. This could reduce the extension of Cedar Lanes' impact for the design year. Also, as in the case of the By-Pass, the majority of land along the extension falls into the 75 dBA or unlimited criteria classifications.

Although the noise levels for the opening year of 1977 will be within criteria except in one instance, in 1997, four additional residences on the south side of St. Lukes Road will experience acoustic impact exceeding Federal criteria. The five residences house approximately 20 persons of a minority group.

In addition to those areas mentioned above, construction of the by-pass may temporarily increase acoustic levels in a larger area. Construction vehicles emit higher noise levels than automobiles. However, the corridor is largely undeveloped and few additional homes should be affected. Also, construction noise is transient in nature and limited in duration, diminishing as work proceeds along the alignment and disappearing as the project is completed. Finally, it should be noted that the impacts of construction noise can and is frequently mitigated by the contractor's use of construction equipment with "state of the art" noise suppression devices. The contractor will also be required to adhere to all local, state and Federal noise regulations.

In summary, construction and operation of the Salisbury By-Pass will increase ambient noise levels within its corridor. However, no sensitive areas such as schools, parks, churches, or hospitals will be affected by the proposed project. Construction of the project, approximately two years in duration, represents a short-term impact largely limited to residences in close proximity to heavy equipment. Traffic moving along the completed facility will raise acoustic levels in this generally rural area. However, along the 4.6 mile alignment and the Cedar Lane Extension, a migrant workers' quarters, approximately 38 mobile homes and five residences along St. Lukes Road will experience noise levels exceeding Federal design criteria. Status of evaluations for the affected areas is included on page 92.

Air Quality

Summary of Coordination

Prior to the beginning of air quality evaluations for this project, the State of Maryland Bureau of Air Quality Control, the Environmental Protection Agency Region III, and the Baltimore office of the Federal Highway Administration were contacted to establish the guidelines and appropriate factors to be used for the study. The following individuals were consulted: Mr. John Collins - EPA Region III; Mr. Alvin Bowles - State of Maryland Bureau of Air Quality Control; and Mr. J. R. Chaves - FHWA in Baltimore. During these consultations in early 1973, it was determined that the State of Maryland BAQC had not yet finalized the methodology to compute emission factors in the State. Consequently, the officials of both the EPA and FHWA, mentioned above, were contacted for guidance in computing the necessary emission factors and criteria to be used in preparing this statement.

Both the EPA and FHWA representatives recommended the use of Stability Class 'D' with a 1 m/sec wind speed as the worst dispersion condition. This was consistent with the Indirect Source Review Guidelines which were in use at that time. As a result of these contacts, the above recommended procedures were followed in developing the air quality evaluation for this project.

There have been no comments resulting from any previous reviews of this document from either the Environmental Protection Agency or the Bureau of Air Quality Control regarding the following air quality section.

Introduction

Motor vehicles are a major source of air pollutants in Wicomico County, Maryland. There is no air pollution inventory report available for Wicomico County. However, State of Maryland officials estimate that in 1972 over 70 percent (by weight) of all major pollutants in the county were contributed by transportation sources--about 92 percent of these resulted from road vehicles.

The air pollution problem associated with vehicular traffic is mainly due to carbon monoxide (CO), unburned hydrocarbons (HC), oxides of nitrogen (NO_x) and particulate exhaust products. Althcugh sulfur oxide (SO_x) and particulate pollutant emissions from internal combustion engines are not considered significant, sulfur oxide and particulate pollutant levels have been included in this study because of the relative concentrations present in the Salisbury area from stationary sources.

The locations of major stationary sources of air pollution in Salisbury are shown in Exhibit 16 and pollutional loads of major pollutants from these sources are given in Table 6.

The State of Maryland Air Implementation plan, published in October, 1971 and revised in May, 1972, indicated that in 1970 approximately 84 percent of total air pollution in the Salisbury area was generated by transportation sources. In the same plan, it was predicted that in 1977, 85 percent of the total air pollution in the Salisbury area would be generated by transportation sources. In 1970, mobile sources (primarily motor vehicles), accounted for 93 percent of carbon monoxide (CO) pollution, 83.3 percent of hydrocarbon (HC) pollutants, and 75 percent of oxides of nitrogen (NO_x) pollutants, 7.4 percent of sulfur dioxide (SO_2) pollutants, and 12.7 percent of suspended particulate pollutants. In the State of Maryland Air Implementation Plan, it is predicted that in 1977 in the Salisbury area 95.8 percent of CO pollutants, 82.5 percent of HC pollutants, 75.3 percent of NO_x pollutants, 11 percent of SO_2 pollutants, and 17.9 percent of suspended particulate pollutants will be generated by mobile sources.

Table 6

Large Stationary Sources of Air Pollution in Salisbury Area
(Pollutional Load lbs/day)

Stationary Source	Location	Pollutional Loads for Major Pollutants 1973 CO	HC	NOx	SO2	Particulates
Armour and Company	Johnson & Wango Roads	--	1	50	83	16
Campbell Soup Company	606 West Road	--	11	348	450	80
Dresser Industries Petroleum Equipment Division	124 W. College Avenue	--	810	43	63	19
Gulf Oil Company	Marine Road	--	958	--	--	--
H. D. Metal Company, Inc.	Boundary Street	--	--	--	--	14
Kopper Company	Quantico Road	--	3	79	160	25
By-Products	Quantico Road	--	13	451	600	120
A. W. Perdue & Son, Inc.	Zion Church Road	--	9	206	170	75
W. M. B. Tilgman Co., Inc.	650 Fitzwater Street	--	--	8	6	105
Texaco, Inc.	Marine Road	--	403	--	--	--
	Totals	--	2,208	1,185	1,532	454

Source: State of Maryland Department of Health and Mental Hygiene, Bureau of Air Quality Control.

The Salisbury area is located in Wicomico County and is within the Eastern Shore Intrastate Air Quality Control Region (AQCR) in the State of Maryland Plan for Implementing National Air Quality Standards. The Eastern Shore Intrastate Region (AQCR), based on the Federal Regional Classification System, is classified as priority III for all pollutants (CO, HC, NO_x, SO_2, and photochemical oxidants) except suspended particulates which are classified as priority II. The priority III classification indicates pollutant levels well within State and national standards. The priority II classification indicates pollutant levels which are at or slightly above the State and national standards.

In the case of particulate pollutants, the annual geometric mean is between 60-95 $\mu g/m^3$, and the region is classified as priority II.

The photochemical oxidants are formed by photochemical reaction of the oxides of nitrogen reacting with certain free radicals coming from the unburned hydrocarbons in the presence of sunlight.

The 1970 Federal Air Quality Control Act has established a series of standards to reduce total automotive-originated pollutants. The standards at that time called for the installation of emission controls on 1975 model cars. These controls called for a 90 percent reduction in 1970 levels of carbon monoxide and hydrocarbon emissions.

On July 2, 1971, the Environmental Protection Agency (EPA) initially announced controls on light duty vehicle NO_x emissions. This control, requiring a 90 percent reduction in NO_x emissions, was to apply to 1976 model cars. On April 10, 1973, the EPA granted the automotive industry an extension of one year to meet 1975 and 1976 anti-pollution standards, but imposed strict nationwide interim standards. However, since then, these standards have again been postponed due to the economic conditions and the inability of industry to meet the standards. On March 5, 1975, the EPA Administrator proposed to the Senate that carbon monoxide and hydrocarbon standards established for 1976 and NO_x standards established for 1977 be postponed to 1979. However, by 1995, it is still estimated that there will be approximately a 90 percent reduction in carbon monoxide, unburned hydrocarbons and NO_x emissions from motor vehicles.

Focus, Parameters and Methodology of Air Impact Study

Investigation of the project's impact on corridor air quality focused on the following points.

- The total daily pollutional loads produced by traffic on Salisbury By-Pass and Cedar Lane Extension with alternate routes and with No Project Alternate in relation to the pollutional loadings from traffic on existing major corridor arterials.

- Investigation of the existing stationary sources in the area as they may affect the ambient levels of pollutants in the air.

- Investigation of ambient levels of major pollutants (CO, HC, NO_x, SO_2 and particulates) in the air.

- Climatology of the Salisbury region.

- The horizontal dispersion of traffic emissions from alternate routes of the Salisbury By-Pass as they may affect the adjacent local environment and nearby sensitive areas.

- Comparison of pollutant concentrations for the build and no build alternatives with State of Maryland and Federal primary and secondary air quality standards. Primary standards are those needed to maintain the level of public health and secondary standards are those needed to maintain the level of public welfare.

- Investigation of open burning for clearing purposes and investigation of precautions to minimize particulates in the form of fugitive dust.

The determination of the daily pollution load from vehicles on the by-pass and arterials was based on several parameters: average daily traffic (ADT), roadway length, average vehicle speed, and motor vehicle emission rates.

Projected expressway and arterial average daily traffic volumes were used as the basis for the air quality impact analysis. The projected volumes for the Salisbury By-Pass and major arterials were provided by the State of Maryland Highway Administration Bureau of Planning.

Lengths of corridor roads over which the varying traffic volumes are carried were scaled from existing highway maps.

Average vehicle speed (mph) over the roadway sections under study was determined from route reconnaissance surveys conducted during peak and off-peak travel times in August 1973. The average speed through a roadway section was based on total travel time that included periods of idling, acceleration and deceleration.

Motor vehicle emission factors, pounds of pollutant per vehicle mile (lbs/veh.-mi), were computed by using the data and methodology contained in EPA Publication No. AP-42, "Compilation of Air Pollutant Emission Factors, Second Edition," April 1973, and supplement No. 2 to the same report dated September, 1973. The computed and used motor vehicle emission factors included evaporative and crank case emissions for HC, in addition to exhaust emissions.

Data concerning vehicle age distribution and the mileage driven by each age group were taken from a report prepared by R. L. Polk and Company for the State of Maryland Department of Transportation. Polk figures were used for both 1977 and 1997 exhaust emission estimates. The data from these sources provide information of the age distribution of light duty and heavy duty vehicles and the differences in the mileage driven by vehicles of various ages.

Using the traffic and emission parameters, the total daily pollutional loads from 1977 and 1997 by-pass and Cedar Lane traffic were determined. In addition, the daily emission loadings were determined for each arterial street serving the area with and without the Salisbury By-Pass in the corridor for 1977 and 1997. Pollution loadings were also determined for 1973 on the major arterials to give an estimate of the present magnitude of pollution levels from existing traffic.

A summary of the various loading conditions is given in Table 7. Detailed data on emission on particular highway sections in the corridor for all study conditions are shown in Appendix Table 1.

Table 8 gives climatological data, collected at the Salisbury Weather Station and obtained from the National Oceanic and Atmospheric Administration Environmental Data Service. This table indicates average velocity and predominant wind direction by month; average and highest monthly precipitation in inches; normal monthly average, highest and lowest recorded temperatures. The location of the Salisbury Weather Station is shown on Exhibit 16. Exhibit 18 shows the wind rose for Salisbury Airport.

Data shown in Table 8 indicates that prevailing winds in the Salisbury area are from the west to northwest except during summer months when they become more southerly. Average annual wind speed is nine miles

Table 7

Salisbury By-Pass
Total Daily Expressway Corridor Pollutional Loads
(Lbs/Day)

Pollutants	No-Build Alternative Principal Arterial Streets			With Construction of Alternates A, B or C						With Construction of Alternates D or E					
				Principal Arterial Streets		Salisbury By-Pass		Total By-Pass Plus Principal Arterial Streets		Principal Arterial Streets		Salisbury By-Pass		Total By-Pass Plus Principal Arterial Streets	
	1973	1977	1997	1977	1997	1977	1997	1977	1997	1977	1997	1977	1997	1977	1997
CO	9,131	9,581	3,762	4,171	1,643	1,007	265	5,178	1,908	2,284	929	1,613	425	3,897	1,354
HC	1,340	1,157	684	585	317	146	55	731	372	332	175	231	85	563	260
NO_x	660	584	329	800	451	219	116	1,019	567	496	267	512	271	1,008	538
SO_2	49	61	16	31	9	8	1	39	10	17	5	15	3	32	8
Particulates	59	74	89	39	48	10	8	49	56	21	27	18	14	39	41
Total	11,239	11,457	4,880	5,626	2,468	1,390	445	7,026	2,913	3,150	1,403	2,389	798	5,539	2,201

Table 7a

Cedar Lane Extension
Total Daily Corridor Pollution Loads
(Lbs/Day)

Pollutants	*1977*	*1997*
CO	15	6
HC	2	1
NO_x	4	3
SO_2	-	-
Particulates	-	-
Total	21	10

Table 8

Meteorological Data for the Current Year
Normals, Means and Extremes

	Temperature							Rainfall Totals (in.)			Wind[&]					
	Means			Extremes							Resultant			Fastest Mile		
Month	Daily Maximum	Daily Minimum	Monthly	Record Highest	Year	Record Lowest	Year	Mean	Greatest Daily	Year	Direction	Speed	Average Speed	Speed	Direction	Date
(a)	29	29	29	58		58		29	58							2
J	48.0	29.3	38.7	75	1967	-9	1918	3.66	2.80	1948	24	1.7	7.5	33	30	25
F	49.6	29.1	39.4	80	1930	-6	1934	3.21	2.55	1920	29	3.7	8.8	36	28	4
M	56.3	34.8	45.6	93	1907	1	1911	4.13	2.80	1939	28	2.8	9.3	32	19	3
A	67.2	44.0	55.6	96	1915	15	1923	3.34	3.65	1954	28	1.0	7.9	35	30	4
M	76.9	53.4	65.2	98	1911	28	1913	3.62	3.40	1948	07	0.4	8.0	31	20	15
J	84.4	62.4	73.4	102	1925	38	1938	3.49	2.51	1948	23	1.9	7.9	26	35	4
J	87.6	67.0	77.3	106	1930	48	1952	4.39	4.00	1938	24	1.3	6.2	17	20	15
A	86.4	65.8	76.1	106	1918	45	1949	6.01	8.90	1936	21	1.4	6.2	20	36	26
S	80.7	58.9	69.8	100	1932	35	1956	4.44	7.50	1935	32	0.9	6.7	25	30	30
O	[illegible]	[illegible]	59.3	92	1939	25	1940	3.50	3.90	1910	35	1.7	7.4	23	19	16
N	60.2	38.4	49.3	86	1950	10	1930	3.21	2.42	1937	31	2.7	8.4	31	30	8
D	49.3	29.9	39.6	75	1929	-4	1958	3.13	2.15	1922	30	2.6	8.8	32	28	16
Year	68.1	46.8	57.5	106	1930	-9	1918	46.13	8.90	1936	28	1.4	7.8	36	28	Feb 4

Extremes (April 1906 - December 1970): Highest Temperature 106° in August 1918 and July 1930; Lowest Temperature -9° in January 1967; Maximum precipitation in 24 hours 7.50 inches, September 1935; Fastest wind 46 mph, April 1963.

(a) Average Length of Record Years

(&) Figures instead of letters in a direction column indicate direction in tens of degrees from true north; i.e., 09-East; 18-South; 27-West; 36-North; and 00-Calm. Resultant wind is the vector sum of wind directions and speeds divided by the number of observations. If figures appear in the direction column under "Fastest Mile" the corresponding speeds are fastest observed one minute values.

Source: U. S. Department of Commerce, National Oceanic and Atmospheric Administration Environmental Data Service. Data collected between 1931 and 1960 at Salisbury, Maryland.

per hour (mph) but may reach 46 mph or higher during severe summer thunderstorms. Climate and prevailing wind is a prime influence on pollutant dispersion.

Atmospheric horizontal dispersion of pollutants from the proposed development and from major roads in the influence area was determined by utilizing the California line source model[4] for the worst dispersion conditions of 1 m/sec wind speed with 45 degrees intersection between wind direction and roadway alignment under a stability Class D. The results of dispersion analysis are given in Table 9.

In order to properly evaluate the project's affect on air quality, it was necessary to consider the State of Maryland and Federal Air Quality Standards as well as the ambient air pollution levels in the area. State and Federal standards are given in Table 9.

The ambient conditions shown for SO_2, nitrogen oxides (NO_x) and particulate pollutants were derived from sampling data provided by the State of Maryland Department of Health and Mental Hygiene Bureau of Air Quality Control. The concentrations shown represent average values of readings taken at the nearest sampling stations measuring the particular pollutants. The locations of air monitoring stations are shown in Exhibit 16. The ambient conditions shown for carbon monoxide (CO) were derived from computation of the maximum hourly concentrations in the area by applying a dispersion model for multiple point and area sources.

This method was devised by the Model Application Section Source Receptor Analysis Branch of the Environmental Protection Agency. In essence, this technique is a composite based on models developed by the

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4 "Mathematical Approach to Estimate Highway Impact on Air Quality," California Department of Public Works, Division of Highways. Report No. FHWA, RD 72-36, Air Quality Manual, Vol. IV, 1972.

Table 9

Salisbury By-Pass Ambient Pollution Levels
and Dispersion of Highway-Generated Pollutants

Pollutants	State of Maryland Standards	Federal Standards	Ambient Conditions[1] 1973	Distance from Road (meters)	*Highway Dispersion On A Typical Ground Level Section* Alternate A, B or C: 1,415 Peak Hr. Volume[2] 1977	7,384 Peak 8 Hr. Volume[3] 1977	2,243 Peak Hr. Volume[2] 1997	11,704 Peak 8 Hr. Volume[3] 1997
CO (ppm)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	4.36 ppm (1 Hour Period) 2.62 ppm (8 Hour Period)	50	0.51 ppm	0.28 ppm	0.13 ppm	0.071 ppm
				100	0.41	0.22	0.11	0.060
				300	0.32	0.18	0.079	0.043
				500	0.23	0.13	0.060	0.033
SO_2 (ppm)	0.03 ppm (Ann.Arith.Mean)	0.02 ppm (Ann.Arith.Mean) Secondary Standard	0.0031 ppm (Ann.Arith.Mean)	50	0.0017 ppm	0.00093 ppm	0.00030 ppm	0.00016 ppm
				100	0.0015	0.00082	0.00026	0.00014
				300	0.0011	0.00060	0.00019	0.00010
				500	0.00082	0.00045	0.00015	0.000082
Particulates ($\mu g/m^3$)	160 $\mu g/m^3$ (24 Hour Period) 75 (Ann.Geom.Mean)	150 $\mu g/m^3$ (24 Hour Period) 60 (Ann.Geom.Mean) Secondary Standard	51 $\mu g/m^3$ (Ann.Geom.Mean)	50	6	3.0	5	2.7
				100	5	2.7	3	1.7
				300	3	1.7	2	1.1
				500	2	1.1	1	.5

Pollutants	State of Maryland Standards	Federal Standards	Ambient Conditions[1] 1973	Distance from Road (meters)	*Highway Dispersion On A Typical Ground Level Section* Alternate D or E: 1,415 Peak Hr. Volume[2] 1977	7,384 Peak 8 Hr. Volume[3] 1977	2,243 Peak Hr. Volume[2] 1997	11,704 Peak 8 Hr. Volume[3] 1997
CO (ppm)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	4.36 ppm (1 Hour Period) 2.62 ppm (8 Hour Period)	50	0.40 ppm	0.22 ppm	0.10 ppm	0.055 ppm
				100	0.32	0.18	0.085	0.047
				300	0.25	0.14	0.062	0.034
				500	0.16	0.099	0.047	0.026
SO_2 (ppm)	0.03 ppm (Ann.Arith.Mean)	0.02 ppm (Ann.Arith.Mean) Secondary Standard	0.0031 ppm (Ann.Arith.Mean)	50	0.0015 ppm	0.00082 ppm	0.00027 ppm	0.00015 ppm
				100	0.0013	0.00071	0.00023	0.00013
				300	0.00095	0.00052	0.00017	0.000093
				500	0.00073	0.00040	0.00013	0.000071
Particulates ($\mu g/m^3$)	160 $\mu g/m^3$ (24 Hour Period) 75 (Ann.Geom.Mean)	150 $\mu g/m^3$ (24 Hour Period) 60 (Ann.Geom.Mean) Secondary Standard	51 $\mu g/m^3$ (Ann.Geom.Mean)	50	5	2.7	4	2.2
				100	4	2.2	3	1.7
				300	3	1.7	2	1.1
				500	2	1.1	1	.5

Table 9--Cont'd.

Pollutants	State of Maryland Standards	Federal Standards	Ambient Conditions[1] 1973	Distance from Road (meters)	*Highway Dispersion On A Typical Ground Level Section* — No Project Alternate: 2,570 Peak Hr. Volume[2] 1977	13,408 Peak 8 Hr. Volume[3] 1977	4,941 Peak Hr. Volume[2] 1997	25,780 Peak 8 Hr. Volume[3] 1997
CO (ppm)	35.0 ppm (1 Hour Period)	35.0 ppm (1 Hour Period)	4.36 ppm (1 Hour Period)	50	1.03 ppm	0.57 ppm	0.38 ppm	0.21 ppm
				100	0.87	0.48	0.32	0.18
	9.0 ppm (8 Hour Period)	9.0 ppm (8 Hour Period)	2.62 ppm (8 Hour Period)	300	0.64	0.35	0.24	0.13
				500	0.48	0.26	0.18	0.099
SO_2 (ppm)	0.03 ppm (Ann.Arith.Mean)	0.02 ppm (Ann.Arith.Mean) Secondary Standard	0.0031 ppm (Ann.Arith.Mean)	50	0.0035 ppm	0.0019 ppm	0.00089 ppm	0.00049 ppm
				100	0.0029	0.0016	0.00075	0.00041
				300	0.0021	0.0011	0.00055	0.00030
				500	0.0016	0.00088	0.00041	0.00022
Particulates ($\mu g/m^3$)	160 $\mu g/m^3$ (24 Hour Period)	150 $\mu g/m^3$ (24 Hour Period)	51 $\mu g/m^3$ (Ann.Geom.Mean)	50	11	6	10	5
	75	60		100	9	5	8	4
				300	7	4	6	3
	(Ann.Geom.Mean)	(Ann.Geom.Mean) Secondary Standard		500	5	3	4	2

NOTE: Diffusion model analysis was not performed for HC and NO_x pollutants, because a method has not been approved by EPA for reactive pollutants. In dispersion analysis, Peak Hour and Eight Hour Peak traffic speeds were used.

Secondary standard for CO is same as primary standard.

1 SO_2 and particulate ambient levels reported in Maryland State Yearly Air Quality Report, 1972. CO ambient levels are results of Model Study and represents the existing Peak One Hour and Eight Hour concentrations in the Project Area.

2 Peak Hour Traffic Volume taken as 11.5% of the average daily traffic.

3 Peak Eight Hour Traffic Volume taken at 60% of the average daily traffic.

Table 9--Cont'd.

Pollutants	State of Maryland Standards	Federal Standards	Ambient Conditions[1] 1973	Distance from Road (meters)	*Highway Dispersion On A Typical Ground Level Section* Cedar Lane Extension 97 Peak Hr. Volume[2] 1977	450 Peak 8 Hr. Volume[3] 1977	237 Peak Hr. Volume[2] 1997	1,095 Peak 8 Hr. Volume[3] 1997
CO (ppm)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	35.0 ppm (1 Hour Period) 9.0 ppm (8 Hour Period)	4.36 ppm (1 Hour Period) 2.62 ppm (8 Hour Period)	50	0.027	0.013	0.012	0.0059
				100	0.023	0.011	0.010	0.0049
				300	0.017	0.0083	0.0074	0.0036
				500	0.013	0.0063	0.0056	0.0027
SO_2 (ppm)	0.03 ppm (Ann.Arith.Mean)	0.02 ppm (Ann.Arith.Mean) Secondary Standard	0.0031 ppm (Ann.Arith.Mean)	50	0.00010	0.000049	0.000030	0.000015
				100	0.000088	0.000043	0.000025	0.000012
				300	0.000065	0.000032	0.000018	0.0000088
				500	0.000049	0.000024	0.000014	0.0000069
Particulates ($\mu g/m^3$)	160 $\mu g/m^3$ (24 Hour Period) 75 (Ann.Geom.Mean)	150 $\mu g/m^3$ (24 Hour Period) 60 (Ann.Geom.Mean) Secondary Standard	51 $\mu g/m^3$ (Ann.Geom.Mean)	50	0.34	0.17	0.37	0.18
				100	0.29	0.14	0.31	0.15
				300	0.21	0.10	0.23	0.11
				500	0.16	0.078	0.17	0.083

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NOTE: Diffusion model analysis was not performed for HC and NO_x pollutants, because a method has not been approved by EPA for reactive pollutants. In dispersion analysis, Peak Hour and Eight Hour Peak traffic speeds were used.

Secondary standard for CO is same as primary standard.

1 SO_2 and particulate ambient levels reported in Maryland State Yearly Air Quality Report, 1972. CO ambient levels are results of Model Study and represents the existing Peak One Hour and Eight Hour concentrations in the Project Area.

2 Peak Hour Traffic Volume taken as 13% of the average daily traffic.

3 Peak Eight Hour Traffic Volume taken at 60% of the average daily traffic.

California Department of Public Works, Division of Highways[5], R. I. Larsen[6], S. R. Hanna[7], D. B. Turner[8], J. R. Zimmerman and S. R. Thompson[9].

Finally, in reviewing pollutional loading, Table 7, and dispersion, Table 9, it should be noted that recognition has been given to the variation in lengths, speeds and traffic diversion characteristics among interior and exterior alternates. Interior Alternates A, B and C are approximately 2.5 miles shorter than exterior Alternates D and E. Traffic will move slower on the in-town alignments. The alignment of existing U. S. 13 is considered a principal artery.

Open burning will be required to dispose of solid material cleared within the right-of-way. This will result in a transient degradation of ambient conditions.

In order to minimize this temporary impact on corridor air quality, operations will be subject to the controls established by State, regional, and county laws. Among other points, these regulations forbids burning near residential areas and limits open burning to those days when meteorological conditions are conducive to optimum dispersion.

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5 California Line Source Model prepared for the Federal Highway Administration, Office of Research.

6 Larsen, R. I., *A Mathematical Model for Relating Air Quality Measurements to Air Quality Standards*, OAP Publication No. AP-89, (November 1971).

7 Hanna, S. R., *A Simple Method of Calculating Dispersion from Urban Area Sources*, JAPCA 21, pp. T14-777, (1971).

8 Turner, D. B., *Workbook of Atmospheric Dispersion Estimates*, USPHS Publication No. AP-26, (1971).

9 Zimmerman, J. R. and Thompson, R. S., *Users Guide for HIWAY*, paper under preparation, Met. Lab., EPA, RTP, N. C.

The principal particulate hazard will occur during the construction, when excavated soils are exposed. However, chances of significant particulate pollution are minimal, due to moisture retention properties of site soils. If dryness should occur, exposed soils will be treated with water and stabilized.

Project Impact

Using the data and techniques discussed above, the following impacts on air quality were found:

- Effective Federal emissions standards will reduce total traffic pollutional loads by 1997. As indicated in Table 7, the 1973 total corridor pollutional load is 11,239 pounds per day (lbs/day). Without by-pass construction, this figure will reach 11,457 lbs/day by 1977, but drop to 4,880 lbs/day by 1997 due to improved emission controls.

- By-pass construction will improve ambient corridor air quality. Without the by-pass, 1977 pollutional loadings in the interior corridor would be 11,457 lbs/day. With by-pass construction, along the proposed E Alignment, 1977 corridor pollutional loadings will drop to 5,539 lbs/day. For 1997, without the by-pass, corridor pollutional loadings are projected to be 4,880 lbs/day.

- By-pass construction will improve ambient conditions in excess of improvements achieved by effective Federal emission standards. In 1997, without the by-pass, corridor pollutional loadings would drop to 4,880 lbs/day due to effective emission controls. Provision of the by-pass--Alternate E--would further reduce 1997 corridor pollutional loadings to 2,201 lbs/day. An additional 10 lbs/day of pollutional loadings will be added as a result of the Cedar Lane Extension.

- In percentage terms, project construction along exterior alignments represents a 60 percent reduction in 1977 corridor pollutional loadings. Construction along interior alignments represents a 49 percent reduction of 1977 levels.

  For the project's design year, 1997 construction along exterior alternates represents a 55 percent reduction of projected 1997 corridor loadings. A 40 percent reduction would result from construction of any interior alternate.

- No significant concentration of pollutants will result from by-pass traffic emissions. Dispersion results shown in Table 9 indicate that for 1977 at 50 meters from the by-pass, under Alternate Route A, B, or C, the highest concentration of carbon monoxide (CO), contributed by peak hour traffic (not including background concentrations) and the major vehicular pollutant, would be 0.51 ppm, or 1.5 percent of State and Federal standards for a one hour period. In 1997, this concentration would decrease to 0.13 ppm or 0.4 percent of the State and Federal standards for a one hour period. Along exterior alternates, maximum 1977 CO concentrations at 50 meters would be 0.40 ppm, or 1.1 percent of State and Federal standards. By 1997 this CO concentration would decrease to 0.10 ppm--0.3 percent of State and Federal standards.

- The sensitive areas in the project area are residential developments on Dykes Road, Meadow Bridge Road, a trailer park located off of Old Eden Road, Union Church, and Fruitland Primary School. Analysis of emission dispersion showed that as a result of by-pass traffic, the maximum concentration of CO in 1977 found to occur at the closest sensitive area is 0.40 ppm which is less than 2 percent of the State of Maryland and Federal standards allowed for a one hour period. This concentration in 1997 would decrease to 0.21 ppm which is 0.6 percent of the State and Federal standards. See Table 10. Exhibit 17 shows the location of the sensitive areas.

Table 10

Effect of Salisbury By-Pass Automotive Pollutants
on Air Environment in Sensitive Areas

Sensitive Areas	Distance From By-Pass (meters)	1977 Peak Hour Volumes CO (ppm)	1977 Peak Hour Volumes SO_2 (ppm)	1977 Peak Hour Volumes Particulates $\mu g/m^3$	1997 Peak Hour Volumes CO (ppm)	1997 Peak Hour Volumes SO_2 (ppm)	1997 Peak Hour Volumes Particulates $\mu g/m^3$
Union Church	1,524 Lt.	0.079	0.00014	0.45	0.040	0.000024	0.345
Fruitland Primary School	1,524 Rt.	0.079	0.00014	0.45	0.040	0.000024	0.345
Trailer Park @ Eden Road	55 Rt.	0.40	0.000699	2.26	0.20	0.00012	1.75
Migrant Workers Quarters	91.5 Rt.	0.40	0.00071	2.29	0.21	0.00012	1.77
Residences on Meadow Bridge Road	64 Rt.	0.39	0.00068	2.20	0.20	0.00012	1.70
	56 Rt.	0.40	0.000699	2.26	0.20	0.00012	1.75
	81 Lt.	0.38	0.00066	2.15	0.19	0.000117	1.66
	67 Lt.	0.39	0.00068	2.20	0.20	0.00012	1.70

- Available historical weather data analyses for weather stations in Maryland, obtained from the National Climatic Center, placed the occurrence of the unfavorable conditions (Stability Class D, windspeed 1 m/sec. and angle of intersection 45°) on-site at about 1 percent annually--or less than four days a year. The average wind speed based on direction and stability class used in dispersion analysis was 4 m/sec. This is significantly higher than the 1 m/sec. used in pollutant dispersion calculations for this report. If the actual projected 4 m/sec. velocity had been used, results ot the dispersion analysis shown in Table 9 would be reduced by 75 percent.

Thus, in fact, the theoretical dispersion impacts provided in this report represent absolute maximums. Concentrations of project emission pollutants should be lower--as much as 75 percent lower--than those shown in the report.

Community Impact

The proposed project is included in County Future Land Use Plans and is anticipated to have a positive primary and secondary impact on its corridor.

The county future plans use the Salisbury By-Pass to delineate the outer boundary of the Salisbury Metropolitan Core.[10] The proposed project directly effects Planning Areas II and IX as indicated in the Neighborhood Analysis, prepared by the Salisbury-Wicomico County Planning and Zoning Commission, December, 1970.

Planning Area II is bounded by the Penn Central Railroad on the east, Beaver Dam Creek on the north, Tonytank Creek on the south and the proposed project on the west. Commercial uses in this area are distributed along South Division Street and Snow Hill Road (Maryland Route 12).

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10 Neighborhood Analysis Metropolitan Core, Salisbury Wicomico County Planning and Zoning Commission, December, 1970.

These serve as the major collector roads in the area. Industrial areas, concentrated along the Penn Central Railroad tracks and Snow Hill Road, have contributed to a rise in traffic volumes along this corridor.

Conflict of residential versus commercial/industrial expansion has occurred. Much residential growth in Planning Area II has occurred over the past decade. This trend is expected to continue. Most residential development is located in the vicinity of Colbourne Mill Road, along Tonytank Creek, and off South Division Street in the Suburban Aires Subdivision. With the extensive vacant land available, the growth potential for this area is great.

Future development in Planning Area II focuses around construction of the $5 million Eastern Shore Mental Retardation Center to be located along the proposed College Avenue inner loop. This facility will create new jobs and generate residential development. It is anticipated that 200 new dwelling units will be constructed in Planning Area II; the majority being single family residences.

Planning Area IX is bounded on the west by the Penn Central Railroad, Tonytank Creek on the north, and on the east and south by the proposed U. S. Route 13 By-Pass.

Industry is primarily located adjacent to U. S. Route 13 and the Penn Central Railroad tracks in and around the town of Fruitland. Commercial establishments are concentrated along Main Street in Fruitland with others scattered throughout the area.

Major residential development, including both multi- and single family units, occurs in and around Fruitland. Additional residential housing is limited to small scattered roadside cluster developments. Agriculture is the primary land use in this area. Future land use plans for Area IX include residential subdivisions in the vicinity of Eden and Meadow Bridge Roads, with additional random development throughout the area. Both single family houses and apartment dwellings are planned. Industrial expansion is expected to continue adjacent to U. S. Route 13 and the Penn Central Railroad, and on 130 acres outside of Fruitland zoned for an industrial park. The extension of Cedar Lane has been included as a necessary facility in the Comprehensive Master Plan for Fruitland to provide both safe and efficient access between the By-Pass and Fruitland.

Project Impact

The by-pass and extension of Cedar Lane will benefit downtown Salisbury, Fruitland, and the developing metropolitan area. The proposed project only displaces 13 residences; has virtually no effect on established neighborhoods; and does not cross any existing or planned park or recreation facilities.

The facility will relieve traffic congestion in the downtown area and is designated as a boundary between planning areas.

At present the project crosses a predominantly agricultural area. Access to major arteries is provided via interchanges at Snow Hill Road (Maryland Route 12) and St. Luke's Road. Meadow Bridge and Colbourne Mill Roads will remain open. Eden, Slab Bridge, and Dykes Roads will be closed. However, roads will be constructed to provide access to the by-pass and Salisbury to the west. The extension of Cedar Lane will provide additional access between Fruitland and the By-Pass.

The project does not divide any existing neighborhoods and provides a positive catalyst for rational metropolitan growth east of Salisbury. The by-pass will serve as a buffer between industrial and residential land uses and will remove commercial traffic from neighborhood collector streets.

The total projects' sole negative impact is the removal of the 13 residences. This is far outweighed by its positive primary contribution to relieve congestion in downtown Salisbury and secondary impact to provide access essential to future metropolitan development.

Prior to extension of EIS requirements to the project, the State had initiated land appraisal and acquisition procedures along the E alignment. Although several parcels have already been acquired, right-of-way acquisition has been suspended pending the results of the environmental impact statement. No right-of-way has been purchased along the Cedar Lane corridor.

The project will displace eleven (11) families, four (4) individuals, and two (2) businesses in thirteen (13) dwellings. No farms or non-profit organizations will be displaced. Of these families, five (5) are owner occupants, six (6) are tenant occupants and four (4) are individual tenant occupants. Of the forty-seven (47) people that will be required to relocate, fifteen (15) are white owner occupants and thirty-two (32) are black tenants. The six (6) tenant occupant families and four (4) individual tenants are members of the minority group.

The owner-occupants are in the low to middle income bracket, and most are elderly and depend on fixed incomes. However, some work full or part-time and the majority own their homes in fee. No unusual problems are foreseen with these families. One (1) family is presently building a replacement dwelling, and housing will be available for the other three (3) families at the time displacement occurs. At the time of the study, thirty-six (36) homes were available in the Salisbury area, south of U. S. Route 50.[11]

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11 See Appendix F, pp. F-10 and F-11, Questions 12, 13 and 21.

The tenant-occupants, who are all black people, are in the lowest possible income group. Nearly all the properties they occupy are sub-standard, and some are without electricity, plumbing, and adequate heating facilities. The rental range is between $6 per week and $70 per month. The average rent is $42 per month and most pay on a weekly basis. The family income of the majority of these tenants is unstable. Their income is derived from unsteady daily or hourly wages and some social security. There are two (2) elderly families and five (5) families with a large number of children which have the lowest incomes of the group. The existence of these families may depend upon public assistance in the future in the form of aid from the County Department of Social Services.

Most decent, safe, and sanitary housing in the area begins in the fifteen thousand dollar range and goes higher. We do not feel that the relocation of the owner-occupants will present any unusual problems; but we expect the two (2) elderly owner-occupant families may find relocation very painful and expensive. The financial resources of the tenants makes it evident that none of them will be able to purchase a home despite the fact that they are probably eligible for a two thousand dollar down payment and more, up to $4,000, if they had matching funds. A study of rentals in the area revealed no rentals in the price range which these tenants are able to pay. All of the acceptable rentals which are advertised are above $100 per month, which is beyond the income of the individuals and families to be displaced.[12] Public housing in Salisbury is scarce and there is a waiting list. A public housing project is planned for Fruitland, but will not be available to those displaced by this project. For these tenants, it will be necessary for "Housing of Last Resort," as per PPM 81-1.5, to be utilized, if these six (6) tenant families and four (4) individual tenants are to be relocated. On June 25, 1974, the State Highway Administration received approval from the Federal Highway Administration to incur costs for detailed studies of "Housing of Last Resort" for these tenant families.

In view of these facts, we feel that at present, there is no neighborhood in the vicinity into which these tenants could move, and most certainly not the large families. The main problem is that if decent, safe, and sanitary housing were found, these tenants could not afford it after they were moved into the neighborhood.

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12 Ibid.

No farms will be displaced by this project, however, some agricultural land will be acquired. One business, a driving school, will be partially affected. Another small business of raising rabbits will also be displaced. It will be necessary to relocate the driver education training course. As far as can be ascertained, the driver education school should not experience any difficulty in relocating to an area where a driver training course may be conducted. The family type business of raising rabbits should not have any problems in locating an available site.

There will be no known effect on employment by the project. Adjacent property values are expected to remain stable and increase in the interchange areas. The estimated total annual tax dollar loss will be $7,828. The tax loss for improved property will be $2,863, and the tax loss for the unimproved property will be $4,965. The tax rate for Wicomico County is $2.39 per $100 of assessed value.

At present, we do not foresee any rehousing problems arising from any Federal or State and community programs. The public housing project for Fruitland will not cause any displacements of families nor will it increase the supply of housing for the area. We cannot foresee any available housing from this public housing project for the relocation of families of the project.

Those persons who will be displaced by the project will be provided all of the benefits and payments required by the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970." See page 87 of this text for an explanation of this Act. It is estimated that one year to two years may be required to complete the rehousing of those to be displaced considering "Housing of Last Resort" will be utilized. The Relocation Assistance Program will be administered by the Office of Real Estate, District #1, in Salisbury, Maryland.

Schools, Parks, and Recreational Opportunities

The area through which the U. S. Route 13 By-Pass travels is primarily agricultural land with a scattering of residential dwellings. No schools, parks, religious institutions or recreational areas will be taken by the proposed facility, and none should be adversely affected.

Schools in the study corridor include Prince Street Elementary within the Salisbury city limits, and the James M. Bennett Junior and Senior High Schools, located on College Avenue. The latter, a 60 acre educational complex, is expected to expand by an additional 20 acres. The Bennett facility serves both neighborhood and community students. Fruitland Primary School, housing grades 1 through 3, is located on South Division Street near Cedar Lane. Fruitland Intermediate School serves the remaining elementary grades and is located in the town of Fruitland.

Numerous recreational facilities serving Metropolitan Salisbury exist in the project corridor. These include the following:

- Red Shield Boys Club, located on Oak Street approximately 1.8 miles west of the proposed alignment, provides a field house and lighted athletic field.
- Prince Street Elementary School, approximately 1.7 miles west of the proposed alignment, has a playground.
- James M. Bennett Complex, approximately 0.7 miles west of the proposed alignment, has several athletic fields and related developed recreational facilities.
- Elks Club Golf Course, approximately 1.3 miles west of the proposed alignment, although a private facility, also serves as an open space area.
- City Municipal Park, located along Beaver Dam Creek, approximately 1.6 miles west of the proposed alignment, serves neighborhood residents and the greater Salisbury community.
- A Y.M.C.A. complex is being developed along Schumaker Road, approximately 1.0 mile west of the proposed alignment, with Harman Field located nearby at the intersection of Schumaker Road and Regency Drive.

Recreational facilities located in or adjacent to the town of Fruitland include the following:

- Canal Park Swim Club, a private club, situated between two fingers on Tonytank Pond 2.5 miles west of the project.

- Fruitland Primary School Playground on South Division Street near Cedar Lane 0.8 of a mile west of the project.
- Fruitland Ballfield, also 0.8 of a mile west of the facility.
- Fruitland Park, located 1.2 miles to the west of the facility.

Since the Salisbury By-Pass and Cedar Lane Extension has been integrated into future land use plans, the project does not conflict with any State, regional, county or local future park acquisition or recreation facility development plans.

Construction of the project along the E alignment will not require the taking of any schools, parks, religious institutions or recreational areas. Further, the project will not restrict vehicular or pedestrian access to any existing recreational, educational, or religious facility. Finally, the proposed alignment is too distant from existing sensitive areas to cause any adverse environmental impact.

Historical and Archaeological

There are no known historical structures or sites in the immediate area of the project. Correspondence with the Maryland Historical Trust, confirming this point, is included in the Appendix.

ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

The construction of the project along the previously approved E alignment and Cedar Lane Extension will result in the following unavoidable adverse effects on the environment of the corridor:

- A total of 13 homes will be removed.
- A total of 83 acres of biotic communities will be removed including 15 acres of pine forest and 68 acres of mixed pine-hardwood. This represents only 2.6 percent of valuable biotic communities in the study corridor. Further, project design calls for the reversion of 152 acres within the right-of-way to its natural condition. This will ultimately produce a net increase of 69 acres in the corridor's biotic community inventory, providing additional wildlife habitats and food supplies.
- A temporary increase in stream turbidity may be experienced in watercourses crossed by the project as a result of construction operations.
- Silt deposition after bridge and culvert construction may reduce both kinds and numbers of organisms in stream bottoms.
- A transient soil blowing hazard will occur where soils are excavated prior to paving or the planting of cover.
- There will be an increase in ambient noise levels throughout the alignment. A migrant worker's quarters near Dykes Road, 38 mobile homes and five residences on St. Lukes Road will experience noise levels exceeding Federal criteria for residential areas.
- Open burning will result in a transient degradation of air quality. However, these operations will be subject to applicable State, regional and county laws which limit open burning to days when meteorological conditions indicate maximum dispersion. This will significantly reduce these impacts.

ALTERNATIVES

Description

The following provides a brief description of the alignments that were considered for the Salisbury By-Pass and the No Build Alternate. Locations of Alternates A, B, C, D and E are shown on Exhibit 4. Due to the construction of Alternate E to Maryland Route 12, the extension of Alignment E to Route 13 and the No Build are being considered at this time. Although there were no alternatives specifically studied for the extension of Cedar Lane, the alignment was coordinated with the City of Fruitland, the State District Engineer and Mr. C. Francis Fleming, Jr. Mr. Fleming, who is a property owner along the Cedar Lane alignment, requested that the original line be modified slightly to avoid dividing his farming area in half. In order to accomplish this, the original alignment was modified slightly to more closely follow the property lines in the area and thereby reduce the impact of dividing both Mr. Fleming's and other area properties.

Alternates A, B and C

Alternates A, B and C originate at the same point on existing U. S. 13, about 0.3 mile north of Cedar Drive, just north of the crossing of Tony Tank Creek, and cross the Penn Central Railroad tracks at-grade. An at-grade intersection at this location is not considered desirable. A structure to eliminate this at-grade crossing would be costly and would result in substantial property loss. Alternate A, if constructed, would require the continuation of the highway east of the railroad through the municipal park to constitute a usable facility. Alternates B and C follow the same general alignment except that they are located more to the east respectively. All three interior alternates involve excessive property removal and family dislocation. Design consists of two 24-foot roadways with ten foot parking lanes separated by a 30-foot median with a variable right-of-way width from 100 to 150 feet. See Exhibit 2 for cross section of urban routes.

Alternate D

The D alignment originates 1.9 miles south of Fruitland, separating from U. S. 13 via a directional interchange with a grade separation proposed at its crossing of Penn Central Railroad tracks. Alternate D shares the same alignment as E, the proposed project, until Slab Bridge Road, then moves to the east of Alternate E intersecting with Snow Hill Road, Maryland Route 12, approximately 0.3 mile south of Johnson Road. This is 0.6 mile north of the by-pass alignment intersection with Maryland Route 12 which is presently under construction.

Alternate D would require the relocation of Johnson and Schumaker Roads. Further, the intersection of Alternate D with U. S. 50 would have been complicated by the proximity of Maryland Route 350.

Alternate E

This alignment, originating 1.9 miles south of Fruitland and terminating at Snow Hill Road, Maryland Route 12, where it connects to the by-pass alignment under construction, is described, in detail, in this statement under "Project Description".

No Project Alternate

The No Project Alternative would result in termination of the Salisbury By-Pass at Snow Hill Road (Maryland Route 12). It would almost completely negate the purpose of the by-pass, which was to eliminate the 60 percent of through traffic on U. S. 13 from entering downtown Salisbury. It would represent a total waste of all monies expended on Alternate E design, land acquisition and construction to date. The No Project Alternative would also negate the construction of Cedar Lane Extension since its purpose was to provide safe and efficient access to the proposed By-Pass.

Under the No Project Alternative, the by-pass would be effective in removing only that portion of U. S. 13 traffic moving to and from Maryland Atlantic Coast resorts. These vehicles could use the by-pass and exit at U. S. 50 considerably east of downtown Salisbury. However, through north-south traffic for all other points would continue to congest the downtown area. No advantage would be gained by using the three-quarters of the by-pass under construction since U. S. 13 would have to be entered in any event within Salisbury after considerable backtracking on U. S. 50 or Snow Hill Road.

The No Project Alternative would save the 13 homes and 83 acres of tree and ground cover to be removed along the proposed E alignment. Wildlife habitat and ambient acoustic conditions would be preserved. Corridor air pollution, however, would be greater.

The most profound and adverse impact of the No Project Alternative would be its effect on socio-economic stability in downtown Salisbury. Without the by-pass, increased traffic and congestion will occur both in the business district and stable in-town neighborhoods. Consequently, commercial investment would flow to development sites outside the City limits which afford access without congestion. Residents would move to suburban subdivisions which have quiet, uncongested streets. The net result will be nothing less than corrosion of a presently viable core city community. Salisbury has not to date experienced the massive exodus of investment and residents suffered by many American cities. But its record of stability and rational metropolitan development will not survive unless action is taken to remove through traffic from the downtown community. The No Project Alternate will not simply sustain existing traffic volumes; it will compound congestion to untenable proportions.

A further adverse impact would result from the abandonment of the project as a boundary between County planning areas and a focus for orderly development. Failure to provide access between Maryland Route 12 and U. S. 13 in the vicinity of Fruitland will curtail growth in this area. The consequence may be either to retard overall growth in the Salisbury area or to limit the focus of growth to the already heavily trafficked U. S. 13 and U. S. 50 corridors. The net effect of the former would be a failure for the county to keep pace with its economic development potential. This would result in revenues falling below projected levels, which, in turn, would limit the quantity and quality of public services and amenities. The effect is cyclical, since lower public service levels will reduce the County's competitive stature as an area with strong investment potential for new and expanded industry. Thus, growth would be further curtailed.

The result of focusing all growth along U. S. 13 and U. S. 50 would be to intensively develop heavily trafficked corridors. This does not provide the balance critical to environmental protection or rational community development.

Comparative Environmental and Community Impacts of Alternatives

Ecology

Interior Alternates A, B and C traverse an urban area and would have minimal impact on biotic communities or habitat. Exterior Alternates D and E are approximately three miles longer, traverse rural areas, and encounter extensive and diversified biotic communities. Exhibit 7 shows Alternate alignments crossing the biotic association.

Tables 11 through 15 indicate each Alternate's effect on biotic communities in the study area. The total acreage of biotic communities in the study area is given and the acreage of biotic communities outside and inside each Alternate's right-of-way is tabulated. Biotic communities are limited to unoccupied land types. Occupied land types are disturbed, urban and agricultural areas presumed cleared of valuable biota concentrations.

As indicated in Table 11, the right-of-way requirement for Alternate A is 44 acres. Of this total, 43 acres are developed and the line's only impact is to remove one acre of mixed pine-hardwood.

Alternate B's impact is shown in Table 12. The B line requires 45 acres for right-of-way but as in the case of Alternate A, only one acre of biotic communities--mixed pine-hardwood--would be removed.

The C alignment requires the least right-of-way acreage--41 acres--among interior Alternates, but affects more biotic communities. As indicated in Table 13, Alternate C would take one acre of pine forest and one acre of mixed pine-hardwood.

Exterior alignment D requires the greatest total right-of-way--265 acres. As shown in Table 14, Alternate D would remove two acres of pine and 47 acres of mixed pine-hardwood. In addition, the D alignment crosses Slab Bridge, Morris Prong and Tonytank Creeks further downstream than Alternate E and in closer proximity to designated wetland areas.

Table 11

Biotic Communities
Alternate A

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,372	43
Unoccupied			
Pine Forest	410	410	--
Mixed Pine-Hardwood	2,325	2,325	1
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,481	44

Table 12

Biotic Communities
Alternate B

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,371	44
Unoccupied			
Pine Forest	410	410	--
Mixed Pine-Hardwood	2,325	2,324	1
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,480	45

Table 13

Biotic Communities
Alternate C

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,376	39
Unoccupied			
Pine Forest	410	409	1
Mixed Pine-Hardwood	2,325	2,324	1
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,484	41

Table 14

Biotic Communities
Alternate D

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,199	216
Unoccupied			
Pine Forest	410	408	2
Mixed Pine-Hardwood	2,325	2,278	47
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,260	265

Table 15

Biotic Communities
Alternate E
(Including Cedar Lane Extension)

Land Types	Acres		
	In Study Area	Outside ROW	In ROW
Occupied	9,415	9,231	184
Unoccupied			
Pine Forest	410	395	15
Mixed Pine-Hardwood	2,325	2,257	68
Hardwood Forest	190	190	--
Swamp Forest	25	25	--
Freshwater Marsh	10	10	--
Open Water	100	100	--
Old Fields	50	50	--
Totals	12,525	12,258	267

Table 15 tabulates the impact of Alternate E. This is the previously approved alignment. Alternate E requires 267 acres of right-of-way and would remove 15 acres of pine and 68 acres of mixed pine-hardwood forest. While Alternate E removes 34 more acres of biotic communities than Alternate D, it affects less wetlands and crop lands. Further, the loss represents only 3.7 percent of the study corridor's total pine forest and 2.9 percent of mixed pine-hardwood inventory.

Table 16 summarizes the impact of completed project Alternates on corridor ecology. It indicates the acreage and percentage of right-of-way area which will be paved and which will be provided with ground cover or allowed to return to a natural state. Interior Alternates A, B and C do not have the restoration potential of exterior Alternates D and E.

The restoration to a natural state of any portion of Alternates A, B or C is not feasible as their location precludes such action. Fifty-seven (57) percent of the Alternate D and E right-of-way will be permitted to revert to natural conditions.

Thus, although the exterior alignments require more paving due to their length, they are more conducive to amelioration.

Wildlife

Interior Alternates A, B, and C would have little effect on indigenous wildlife due to their urban alignments.

Among the exterior routes, Alternate D would cross or come in close proximity to more designated wetland areas. These are highly valued as habitat for waterfowl, mammals, shorebirds and finfish.

Water Quality

Regardless of Alternate alignment, the greatest hazard to water quality will occur during the construction period where excavated soils are exposed prior to paving or the planting of cover. Temporary and permanent erosion controls incorporated into project design will minimize sediment transport.

Interior Alternates A, B and C cross Beaver Dam Creek which flows into the Wicomico River. Water Quality Data provided earlier in this report are from downstream sampling stations in closer proximity to the interior Alternates. Therefore, these data indicating relatively good conditions are applicable to all five Alternates.

Table 16

Biotic Recovery Areas Within Right-Of-Way

Alternate	Pavement Amount (Acres)	Pavement Percent	Grass (Mowed Area) Amount (Acres)	Grass (Mowed Area) Percent	Return to Natural State Amount (Acres)	Return to Natural State Percent	Total Right-Of-Way (Acres)
A	22	50	22	50	--	--	44
B	23	51	22	49	--	--	45
C	21	51	20	49	--	--	41
D	41	16	69	26	155	58	265
E	44	16	71	27	152	57	267

Note: Alternative E includes Cedar Lane Extension.

The impact on corridor water quality is applicable to all alternates. Construction will generate a transient increase in watercourse turbidities. This will diminish as the project is paved and cover planted. Shortly after project completion, turbidities should return to preconstruction levels. A small amount of resettlement of suspended silt will tend to cover and smother some bottom organisms, resulting in a reduction in both kinds and numbers of individuals without a corresponding increase in numbers of less sensitive types. However, the overall water quality and viability of corridor streams should not be significantly altered by the construction or operation of the facility.

Hydrology

The five alternative alignments traverse two completely different types of drainage areas with differing requirements.

Alternates A, B, and C are urban highways requiring a curbed roadway section with gutter inlets and extensive storm sewer systems. In many cases, existing storm drain and sewer sizes will be inadequate to handle the requirements of the new highway. A tabulation of existing storm drain sizes and estimated requirements for 10-year flooding protection for the new facility are contained in Table 17.

Alternates D and E are rural highways traversing undeveloped areas requiring much less sophisticated drainage appurtenances. The range of protection against flooding, however, is for a 25-year recurrence. Hydrologic data for Alternates D and E is provided in Table 18.

While Alternates D and E cross more major drainage areas than the interior alignments, they will not increase existing peak flows.

Erosion and Sedimentation

Norfolk Loamy Sand is the dominant soil type encountered on interior Alternates A, B and C. This soil type has fair stability, slight to moderate frost action and a slight erosion potential.

Matawan soils dominate the exterior alignments. These have fair stability, moderate to severe frost action and slight to moderate erosion potential. Due to the level topography of the area, and the reasonably stable characteristics of corridor soils, erosion and sedimentation hazards would be minimal along all alignments. In fact, soil blowing represents the most serious problem associated with excavation.

Table 17

Salisbury By-Pass - Hydrology
Urban Alternates

Station	Existing Sewer Size	Drainage Area (Acres)	Q_{10} (cfs)	Sewer Required
ALTERNATE A				
115	--	28	110	54"
140	48"	12	60	48"
168	21" and 36"	140	255	72"
196	24"	75	210	72"
205	60"	241	500	96"
ALTERNATE B				
115	--	28	110	54"
138	48"	21	90	54"
168	18" and 36"	94	200	72"
178	15"	24	100	54"
185	18"	16	70	48"
197	54"	222	470	96"
ALTERNATE C				
115	--	23	90	54"
130	54"	51	150	60"
170	9" x 14"	32	120	60"
190	2-12" and 36"	141	360	84"

Table 18

Salisbury By-Pass - Hydrology
Rural Alternates

Station	Structure	Drainage Area (Acres)	Q_{25} (cfs)	Headwater Depth (feet)
ALTERNATE D				
458+	54" RCCP	460	114	5.2
476+	10'11" x 7'1" Struct. Pl. Arch	2,460	369	7.9
509+	10'11" x 7'1" Struct. Pl. Arch	1,993	320	6.8
529+	66" RCCP	994	194	6.3
563+	42" RCCP	157	55	3.7
601+	30" RCCP	40	28	3.6
619+	36" RCCP	81	36	3.5
636+	30" RCCP	24	16	2.1
660+	36" RCCP	14	22	2.5
ALTERNATE E				
458+	48" RCCP	207	67	4.1
476+	10'11' x 7'1" Struct. Pl. Arch	2,350	360	7.8
509+	10'11" x 7'1" Struct. Pl. Arch	1,970	317	6.8
529+	66" RCCP	984	191	6.3
563+	42" RCCP	157	55	3.7
601+	30" RCCP	40	28	3.6
619+	36" RCCP	81	36	3.5
636+	30" RCCP	24	16	2.1
660+	36" RCCP	14	22	2.5

Temporary and permanent erosion and sedimentation controls incorporated into project design should minimize hazards during the construction period and virtually no erosion problems are anticipated after the roadway is paved and slopes are planted with cover. This applies for all Alternates and the Cedar Lane Extension.

Noise

The acoustic impact of interior Alternates A, B and C would be significant both in terms of generating increased noise levels and adversely affecting sensitive areas.

These alternates traverse a fully developed and densely populated area where background noise is already higher than that measured for exterior Alternates D and E. Ambient L_{10} levels adjacent to the A, B, and C alignments range from 56 dBA to 66 dBA, reflecting urban activity.

Traffic on the By-Pass--400 feet from the roadway--will result in an L_{10} acoustic noise level of 72 dBA in 1977 and 74 dBA in 1997. Within 400 feet of the alignment noise levels will exceed 70 dBA, the Federal noise criteria for residential areas. See Table 5.

The alignments of Alternates A, B, and C pass within 400 feet of numerous residences in downtown Salisbury. All of these homes would experience increased noise levels, considerably above design criteria.

The interior alternates also cross or pass in close proximity to key sensitive areas. All alternatives pass through Municipal Park and Alternate C crosses the Elks Club Golf Course. Federal design criteria for parks or open space area used for passive recreation, as specified in FHPM-7,7,3, is 60 dBA. Traffic on Alternates A, B, and C would generate minimum noise levels of 70 dBA--at least 10 dBA higher than design criteria. The net effect would be to severely affect, if not destroy altogether, those facilities' potential for passive recreation. The 1973 ambient and 1997 predicted acoustic levels for all alternatives and Cedar Lane are shown in Table 19.

In addition, the alignments of Alternates A and C are in close proximity to education facilities. Alternate A passes within approximately 1,000 feet of the Salisbury State College campus. Alternate C is within 750 feet of the James M. Bennett High School complex and lies only 500 feet west of the Prince Street Elementary School. Predicted 1977 exterior noise levels are 65 dBA for the Salisbury State College campus; 68 dBA for the Bennett Complex; and 73 dBA for the Prince Street Elementary School. The Federal noise criteria for schools and libraries is 70 dBA. Thus, despite proximity, only the Prince Street Elementary School will experience noise levels exceeding design criteria.

Table 19

1973 Ambient and 1997 Predicted Acoustic Levels
Alternates A, B, C and No Project

Sensitive Area	Ambient Level (L_{10})	*Alternate A* Distance from Highway (ft.)	*Alternate A* Predicted Level (L_{10})	*Alternate B* Distance from Highway (ft.)	*Alternate B* Predicted Level (L_{10})	*Alternate C* Distance from Highway (ft.)	*Alternate C* Predicted Level (L_{10})	*No Project* Distance from Highway (ft.)	*No Project* Predicted Level (L_{10})	Recommended Criteria (L_{10})
Salisbury St. College	64	1,400	60	1,500	61	2,250	58	0	75	70
Bennett Jr. and Sr. High School Complex	56	2,250	58	1,600	61	750	71	3,000	53	70
Prince Street Elementary School	55	2,150	58	1,500	61	500	72	3,000	53	70
Harmon Field	57	4,500	53	3,100	56	2,900	55	5,250	51	70
Elks Club Golf Course	56	1,600	61	1,500	61	0	75	2,500	59	70
Red Shields Boys' Club	65	200	78	500	74	1,700	62	450	72	70
Municipal Park	56	0	78	0	78	0	78	600	71	70
East Salisbury Elementary School	53	3,500	59	3,200	57	1,800	62	4,000	54	70
Doverdale Playground	63	800	71	100	76	1,300	62	1,000	65	70

Table 19--Cont'd

1973 Ambient and 1997 Predicted Acoustic Levels
Alternates D and E

Sensitive Area	Ambient Level (L_{10})	*Alternate D* Distance from Highway (ft.)	*Alternate D* Predicted Level (L_{10})	*Alternate E* Distance from Highway (ft.)	*Alternate E* Predicted Level (L_{10})	Recommended Criteria (L_{10})
Dykes Road - Migrant Worker's Quarters	48	250	76	300	75	70
Trailer Park Off Old Eden Road	56	200	77	180	77	70

Cedar Lane Extension

Sensitive Areas Along St. Lukes Road	Ambient Level (L_{10})	Distance from Highway (ft.)	Predicted Level (L_{10})	Recommended Criteria (L_{10})
4 - 1 Story Frame Dwellings	56	35	73	70
1 Story Frame Dwelling	56	32	73	70
1 Story Asb. Shingle Dwelling	56	58	68	70
1 Story Asb. Shingle Dwelling	56	60	68	70
Mobile Home	56	50' (C/L St. Lukes) 130' (C/L Cedar Lane)	69	70
Fruitland Primary School	56	250' (C/L Division St.)	57	70

Traffic on exterior Alternates D and E will have less impact due to the largely undeveloped nature of land abutting these alignments. Noise levels will increase over ambient but will not exceed Federal design criteria for undeveloped land which is unlimited and rarely exceed Federal standards for other land use categories.

Air Quality

All alternative routes proposed for the Salisbury By-Pass project would improve existing corridor air quality. Tables 7, 7a and 9 found earlier in the report indicate pollutional loadings and pollutant dispersion resulting from the various alternates and Cedar Lane.

Interior Alternates A, B, and C, because they are approximately 2.5 miles shorter than exterior Alternates D and E, would generate less pollution. However, interior alternates would continue to bring through traffic into downtown Salisbury and, therefore, result in significantly higher pollutional loadings on principal arterial streets.

In 1977 Alternates A, B, and C, in conjunction with principal streets, would generate 7,026 pounds of pollution per day (lbs/day) within the project corridor. Alternates D and E, plus principal streets, would generate only 5,539 lbs/day.

In 1997, effective Federal emission standards will have significantly lowered overall pollution. Alternates A, B, and C, plus principal streets, would generate 2,913 lbs/day as contrasted with 2,201 lbs/day resulting from by-pass construction along exterior Alternates D and E.

Therefore, in terms of pollutional loadings, the exterior alternates are superior, reducing 1977 total corridor pollution by 60 percent versus a decrease of 49 percent achieved by interior alternates.

In terms of pollutant dispersion at a distance of 50 meters from the roadway, exterior alternates show less concentrations than interior alternates for all pollutants. In all cases, however, pollutant concentrations from all alternates are within Federal and State Air Quality Standards.

Among all alternates, Alternates D and E (including Cedar Lane Extension) would have the most positive impact on ambient air. Exterior alignments will reduce overall pollutional loadings while permitting traffic to move at an optimum speed to reduce emission pollutants. Alternates A, B, and C are shorter than Alternate D or E, but due to their in-town alignment will increase traffic on principal arterials and not permit the free flow of traffic at an optimum speed.

Community Impact

Alternates A, B, and C traverse densely developed areas--namely the center of Salisbury. Construction of an interior alignment would result in extensive displacement of residences and commercial-industrial establishments. Specifically, Alternate A would require the removal of 77 dwellings and six commercial-industrial firms; Alternate B would require approximately 96 dwellings, including a church; and Alternate C would displace approximately 46 residences and six commercial-industrial establishments. The full construction of the relocated route through town along Alternates A, B, or C would require the taking of 87 to 104 additional homes.[1]

In addition, all interior alignments would divide and disrupt existing neighborhoods; increase traffic, noise and safety hazards along neighborhood streets. Further, while improving service on U. S. 13, the interior alignments would continue to bring the facility's 60 percent through traffic into downtown Salisbury. This would compound congestion and adversely affect socio-economic stability of the urban Salisbury community.

All interior Alternates cross Municipal Park. This linear park, located directly southeast of the downtown area, occupies the north and south banks of the South Prong of the Wicomico River. Municipal Park is well developed for active and passive recreation. Facilities include: six all-weather tennis courts, 18 horseshoe or quoit pits; picnic areas; bar-b-que pits; children's playgrounds; lighted ball fields; a covered bandstand, and numerous brick maintenance and equipment sheds. The main attraction of the park is the City Zoo. Alternates A and B cross the western portion of the park. Alternate C crosses further to the east and would directly affect the zoo. All interior alternatives would do irreparable damage to the park.

In addition, Alternate A would adversely impact the Red Shield Boy's Club; Alternate B would adversely affect the Doverdale Playground; and Alternate C would cross the Elks Club Golf Course.

Under 4(f) provisions of the 1968 DOT Act, parkland should not be taken if feasible and prudent alternatives exist. Alternates D and E represent such feasible and prudent alternatives.

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[1] Engineering Report - Relocated U. S. Route 13 at Salisbury, Wicomico County, Bureau of Relocation and Surveys, State Roads Commission of Maryland.

Neither exterior alignment, including Cedar Lane, would divide or disrupt an established community. Modifications have been made in the common D-E alignment to bring the project over Meadow Bridge Road to minimize impact on residences along Meadow Bridge Road.

However, in terms of residential displacement, Alternate D would take a total of 29 homes. Alternate E, the proposed alignment, (including Cedar Lane Extension), requires 13 homes. Thus, among all alternates, the proposed alignment requires the least displacement.

Utilities

Alternates A, B, and C would have the greatest impact on existing utilities in the study area. Their urban location places the alignments adjacent to or in proximity to water mains, sanitary sewers, gas mains, electrical power lines (both underground and overhead) and telephone communications lines. Where construction would conflict with utility operations, expensive relocation of lines would be required. There is also the possibility of conflict with other smaller utilities, e.g., police and fire communication lines, traffic signalization, etc.

Alternates D and E do not affect water mains, sanitary sewers or gas mains. These alignments will only require utility relocations at interchanges and the intersections of major crossroads.

Estimated Project Costs

The estimated construction and right-of-way costs for all of the alternates for the Salisbury By-Pass are given in Table 20. The estimated cost for Cedar Lane Extension (not included in Table 20) is $161,000.

The estimated construction costs for Alternates A, B, C and D were derived by updating the cost estimates given in the Maryland State Highway Administration's Bureau of Location and Surveys' Engineering Report originally submitted on November 20, 1964. The estimated construction cost for Alternate E, given in the aforementioned report, was compared with the low bids received for the portions of the alignment now under construction, plus the latest design engineer's estimates for the segments of the E alignment under consideration. This factor was applied to the Engineering Report cost estimates for Alternates A, B, C and D, taking into consideration the length of segments of these alternates being considered in this environmental impact statement.

The estimated construction cost for Alternate E was taken from the latest design engineer's cost estimate.

Table 20

Estimated Construction and Right-of-Way Costs

Item	Alternates Line A	Line B	Line C	Line D	Line E
Grading and Paving	$ 9,285,000	$ 9,935,000	$ 8,640,000	$ 8,359,000	$ 6,882,000
Drainage	625,000	625,000	625,000	325,000	300,000
Structures	535,000	535,000	----	2,131,000	2,131,000
Right-of-Way	3,350,000	3,465,000	2,895,000	1,450,000	1,440,000
Totals	$13,795,000	$14,560,000	$12,160,000	$12,265,000	$10,753,000
Spent to Date (Construction)	----	----	----	----	$12,054,000
Construction Cost for Entire Route	$19,595,000	$20,545,000	$18,445,000	$20,365,000	$21,367,000
Right-of-Way Cost for Entire Route	6,727,000	6,930,000	5,784,000	2,685,000	3,093,000
Total Cost for Entire Route	$26,322,000	$27,475,000	$24,229,000	$23,050,000	$24,460,000

Right-of-way costs for Alternate E were estimated by the Maryland State Highway Administration's Bureau of Land Acquisition, based on recent values established for land and improvements in the project area. The right-of-way costs for Alternates A, B, C and D were updated from the November 20, 1964, Engineering Report to reflect these recent values.

SHORT-TERM USE OF MAN'S ENVIRONMENT VS. LONG-TERM PRODUCTIVITY

The objective of the Salisbury By-Pass is to reduce unwanted and unwarranted traffic in downtown Salisbury. This will permit the city to maintain its stability and viability on a long-term basis. The alignment further serves as a planning boundary. The highway will provide a catalyst and focus for planned future residential, commercial and industrial development. Further, with the completion of the By-Pass, the extension of Cedar Lane will provide safe and efficient access between the new facility and Fruitland and at the same time reduce projected traffic along existing St. Lukes Road. The total project (including Cedar Lane Extension) provides access to presently unoccupied lands, thus opening whole new areas for economic development which will contribute to regional long-term productivity.

These long-term benefits must be balanced against short-term disruption associated with project construction. This includes loss of taxable land; the inconvenience of possible road detours; increased noise from construction equipment; increased stream turbidities; increased dust and erosion potentital caused by excavated soils.

Each of these adverse impacts is transient and will disappear upon completion of the project. In some cases, amelioration is possible. Construction noise will be limited to the time of actual construction and diminish as work proceeds along the alignment. Heavy equipment operations will be restricted to weekday, daylight hours to minimize disruption of sleep and leisure time. In addition to the use of "state of the art" noise suppression devices on construction equipment, the contractor will also be required to adhere to all local, state and Federal noise regulations. Erosion controls will reduce sedimentation and silt blowing hazards.

The short-term loss of taxable land will be compensated by the increased area opened for development by the project. Access afforded by the by-pass will heighten the value of formerly cultivated or open fields. In addition to opening new development areas, the project should stabilize property values in downtown Salisbury. Thus, the by-pass and extension of Cedar Lane will maintain and increase long-term revenue productivity.

Finally, the project will heighten interstate productivity by expediting commercial vehicle trips through Maryland to destinations north and south of the State. It will heighten intrastate productivity by expediting commercial vehicle trips along Maryland's Eastern Shore. It will improve access for tourists to the region. It will enhance the city's economy by improving traffic and parking conditions for local consumers. It will advance metropolitan development by providing access to available sites.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Construction of three-quarters of the Salisbury By-Pass, land acquisition and contracts on the proposed alignment to date represent a significant irreversible and irretrievable commitment of economic and natural resources. n monetary terms, the project to date represents an investment of $12,054,100 in public funds. In environmental terms, construction underway represents the loss of structures, tree and ground cover, within a 300 foot right-of-way along the 4.6 mile alignment between existing U. S. 13 and Maryland Route 12.

Completion of the project will result in the removal of an additional 83 acres of biotic communities and 13 homes. While these residences are irretrievable, families being relocated will be assured full market value for their homes and assistance in finding comparable housing.

Although the project will irreversibly increase ambient acoustic noise levels, it will also significantly reduce corridor air pollution.

The by-pass will not affect any schools, churches, parks or comparable sensitive areas. It will not directly alter the hydrology of the area. Although development resulting from the project's improved access may alter corridor hydrology, this may be anticipated as a secondary impact of the project. However, the induced development generated by the project must comply with local land use and zoning ordinances. In addition, the establishment of sound engineering review procedures by responsible county agencies can mitigate the secondary hydrology impacts associated with

Finally, the by-pass and extension of Cedar Lane conforms to land use commitments of the community as expressed in county future land use plans. The project represents the county's commitment to preserving viability of the downtown Salisbury and Fruitland areas while providing access to open undeveloped areas for rational metropolitan growth.

MEASURES TO MINIMIZE HARM

This section describes proposals which, in part or whole, should ameliorate, if not eliminate, adverse impacts caused by project construction or operation.

Measures to Insure Adequate Compensation and Proper Re-Housing

The "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" was made Public Law 91-646, January 2, 1971. The Act provides uniform and equitable treatment of persons displaced from their homes, businesses or farms by Federal and Federally assisted programs and establishes a uniform and equitable land acquisition policy for Federal and Federally assisted programs. The Federal Highway Administration's Policy and Procedure Memorandum 81-1 described the operating procedures for implementing the relocation provisions of the 1970 Act.

The State Highway Administration has prepared the following summary of the Relocation Assistance Program to be included in all environmental impact statements.

All State Highway Administration projects must comply with the provisions of the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970" (P.L. 91-646) and/or the Annotated Code of Maryland, Article 21, Section 12-201 through 12-206. The State Highway Administration's 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 for 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.

The moving cost payments are broken down into several categories which include actual moving costs and "in lieu of" actual moving costs. Actual moving costs for displaced residences could include actual moving

costs up to 50 miles or a schedule moving cost payment up to $500. For displaced businesses, farms and non-profit organizations, actual moving costs will be paid up to 50 miles. Payments for searching costs for a replacement site are also included. The "in lieu of" actual moving cost payments provide that a displaced business or farm may be paid a minimum of $2,500 to a maximum of $10,000, based upon the net income of the business or farm, provided that the business or farm cannot be established in the area or cannot be reestablished without a substantial loss of existing patronage. A non-profit organization is eligible to receive "in lieu of" actual moving cost payments, but the maximum payment is $2,500. In all cases where "in lieu of" payments are made, the State must determine that the displaced business, farm, or non-profit organization is entitled to this payment.

A more detailed explanation of the benefits and payments available to displaced persons, businesses, farms and non-profit organizations will be given to displaced persons individually in the future.

In the event adequate replacement housing is not available to rehouse the persons displaced by public projects or the 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 replacement "housing as a last resort" could be utilized. "Housing as a last resort" could be provided to the displaced persons in several different ways not limited to the following:

- An improved property can be purchased or leased.
- Dwelling units can be rehabilitated and purchased or leased.
- New dwelling units can be constructed.
- 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 the 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 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.

A study performed by the Bureau of Relocation Assistance, Maryland State Highway Administration, for the proposed alignment, Alternate E, and the extension of Cedar Lane is included in the Right-of-Way section of this report and in the Appendix. As stated in the study, it will be necessary to utilize "Housing of Last Resort," as per PPM 81-1.5, in order to relocate the tenant-occupants to adequate housing within a reasonable time frame. This will result in a definite upgrading of the standard of living for those non-property owners involved. On June 25, 1974, the State Highway Administration received approval from the Federal Highway Administration to incur costs for detailed studies of "Housing of Last Resort" for these tenant families.

Ecology and Wildlife

Wherever possible, biotic communities will be retained or permitted to revert to their natural state within the project right-of-way. Of the 267 acres within the alignment right-of-way, 152 acres, or 57 percent of the total right-of-way will be returned to natural state; 71 acres, or 27 percent, will be planted in grass. Only 44 acres, or 16 percent, will be paved. Since only 83 acres of biotic communities will be removed, restoration of 152 acres to natural state represents a net gain of 69 acres in the corridor's biotic community inventory.

Effort will be made to limit construction activities adjacent to the wetland areas during the months from March to July, the breeding period. Close coordination with the Department of Natural Resources' Wildlife and Fisheries Administrations will be maintained during construction to provide maximum protection to fish and wildlife resources in the project area.

Hydrology

The construction of culverts will allow passage of 25-year storms without undue backup of water within existing drainage courses or onto adjacent property.

Protection of downstream facilities will be provided where construction either increases flow directly, or causes diversion which increases flow. Adequate erosion protection is planned for ditches, culvert

outlets, and all major structures. Proper controls will reduce erosion-causing velocities downstream of the project.

Erosion and Sedimentation

Methods of temporary and permanent erosion control are listed below. These are identical to procedures used and recommended by Federal agencies.

- Erosion check dams will be constructed prior to clearing and earthwork operations and maintained after every rain which deposits silt against them. Brush and straw filter material and silt will be removed and replaced as necessary.
- Temporary shoulder berms and drains will be constructed to collect water to be removed from the top of roadway fills without eroding the fill slopes.
- The outfall of median drains and side ditches prior to grassing will be protected by check dams or median sediment traps to prevent siltation of drainage channels or sewers.
- Temporary grassing and mulching will be applied to all slopes when work in the area has been completed.
- Where sheet type erosion would occur, hay or brush type barriers parallel to the toe of the slope will keep silt from washing into drainage ways.
- Where a fill section intersects a transverse slope, erosion check dams or ditches will be constructed perpendicular to the toe of the slope.
- Permanent grassing and sodding will be applied at the earliest possible date to cut down on the time the earth slopes are left exposed.

- Barrier type temporary dams across the downstream side of culverts under the roadway will reduce siltation and slow runoff by acting as a holding pond. These dams will be cleaned of silt periodically to assure continued proper operation.

- Settling or holding ponds will be constructed near the roadway to trap transported suspended material. These ponds, when used with other erosion and siltation devices, will be the most positive method of preventing downstream siltation.

- Borrow pits will be trimmed and shaped to conform with the esthetics of the area and to assure effective drainage of the pits. All disturbed areas shall be seeded and mulched.

Community Impact

The project will cross over Meadow Bridge Road on an elevated structure, thus minimizing impact on residences abutting the street. This action was taken in response to a request by area residents made at a public hearing on February 8, 1966.

The original alignment proposed for the extension of Cedar Lane was slightly modified at the request of Mr. Fleming, an affected property owner along the alignment, to avoid dividing his farming area in half.

Air Quality

The transient impact from open burning operations will be ameliorated by controls established by State, regional and county laws. These laws provide for the following controls.

- Meteorological conditions must be conducive to optimum dispersion. Open burning shall be limited to such times.

- Open burning near residential areas is forbidden.

Noise

As discussed earlier, a migrant workers' quarters off Dykes Road, approximately 38 mobile homes off Old Eden Road and five residences on St. Lukes Road will experience noise levels above Federal Design Criteria.

Ameliorative measures which were investigated included realignment of the project, construction of acoustic barriers, and relocation of the areas affected.

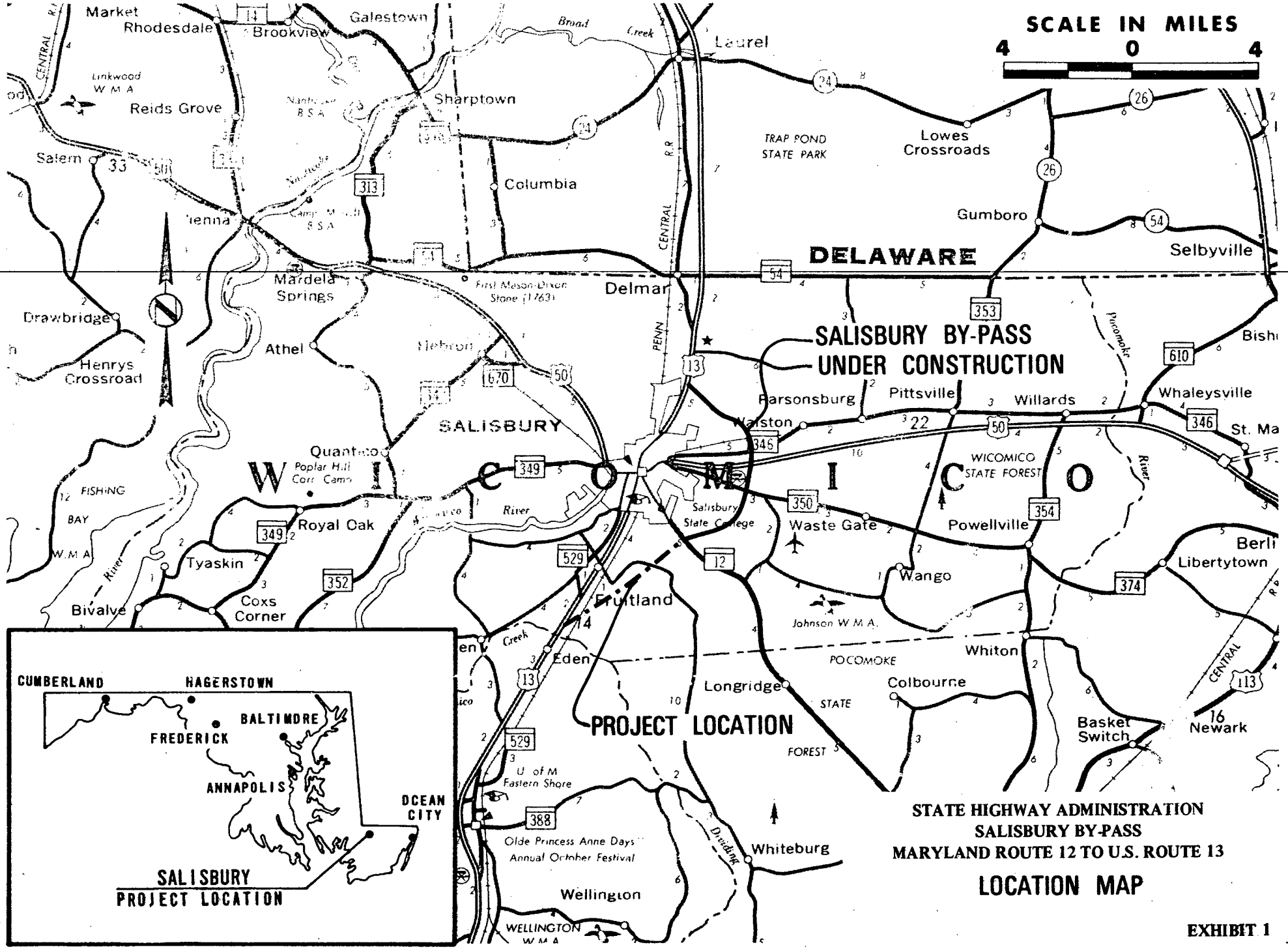
Status of Evaluations

- Migrant Workers' Quarters - The FHWA has granted an exception to the Design Noise Level Standards for this area.
- Trailer Park off Old Eden Road - An evaluation is presently being conducted to study the alternatives of relocation of the mobile homes affected and the possible construction of an acoustic berm for this area.
- Five Residences on St. Lukes Road - An exception to the Design Noise Level Standards has been requested for this area.

Conclusion

It is emphasized that the proposed E alignment was selected because of its minimal impact on the community and environment. Traversing largely open fields, this alignment requires only those ameliorative measures listed above.

EXHIBITS

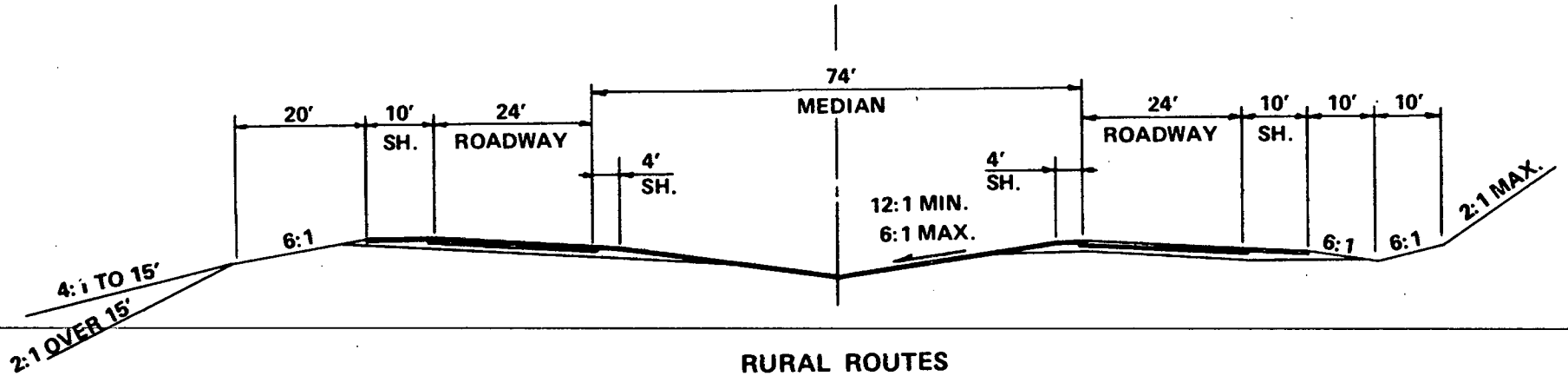


STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

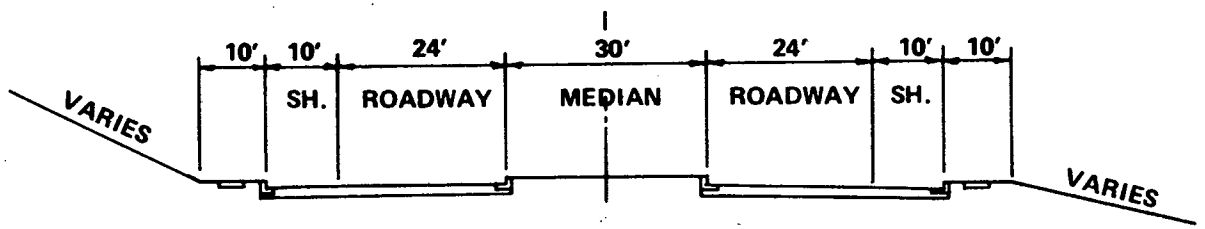
LOCATION MAP

EXHIBIT 1

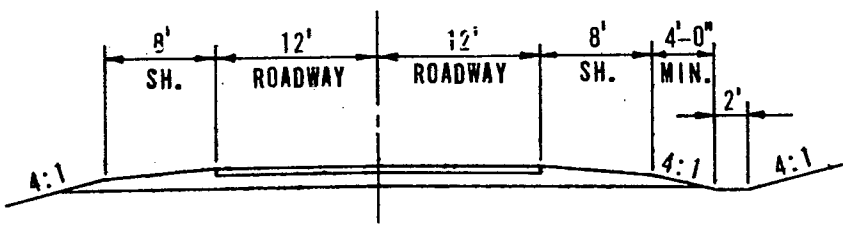
101



RURAL ROUTES



URBAN ROUTES



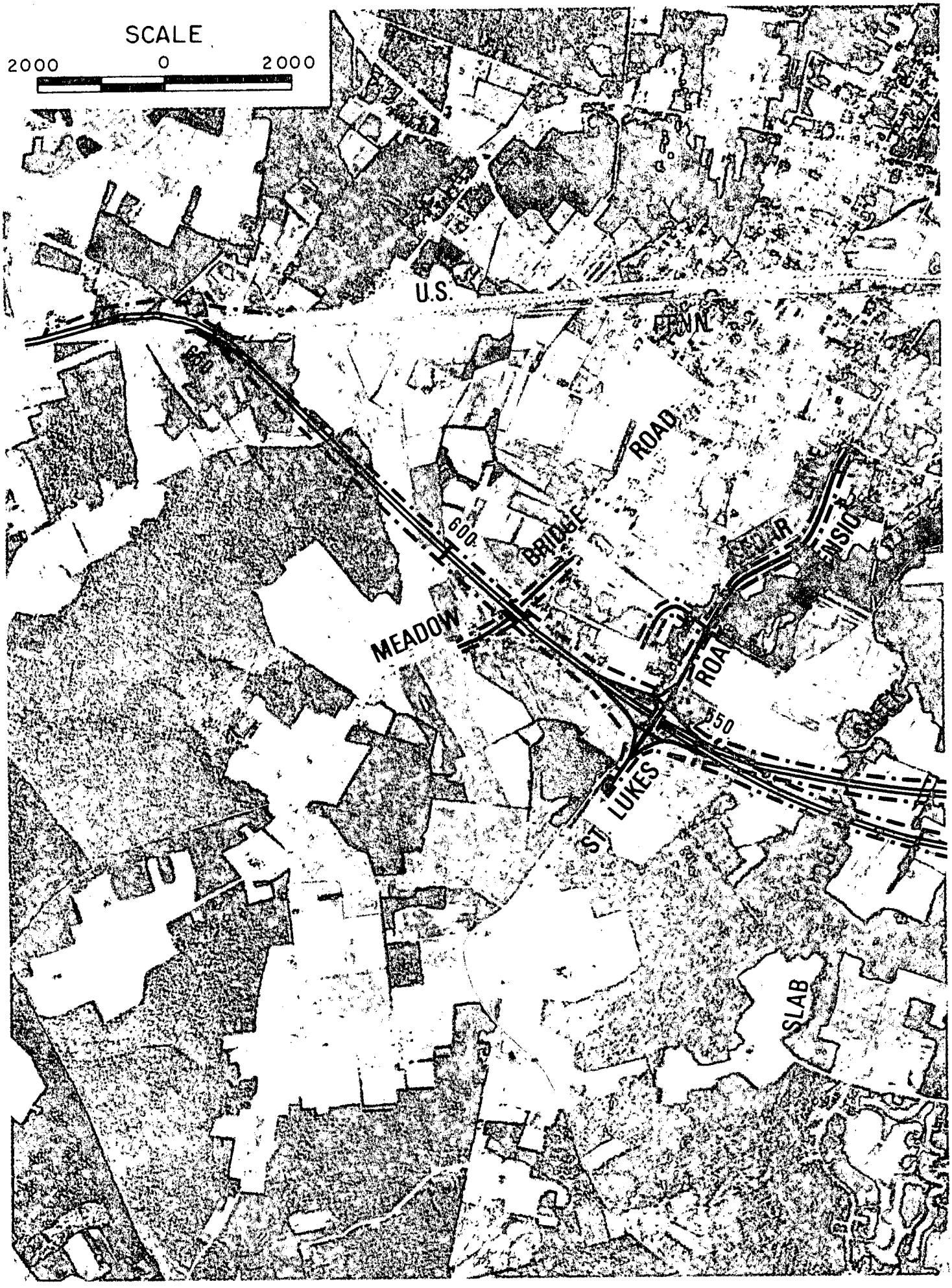
CEDAR LANE EXTENSION

(Wicomico County Standard for Collector Rural Streets)

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

TYPICAL SECTIONS

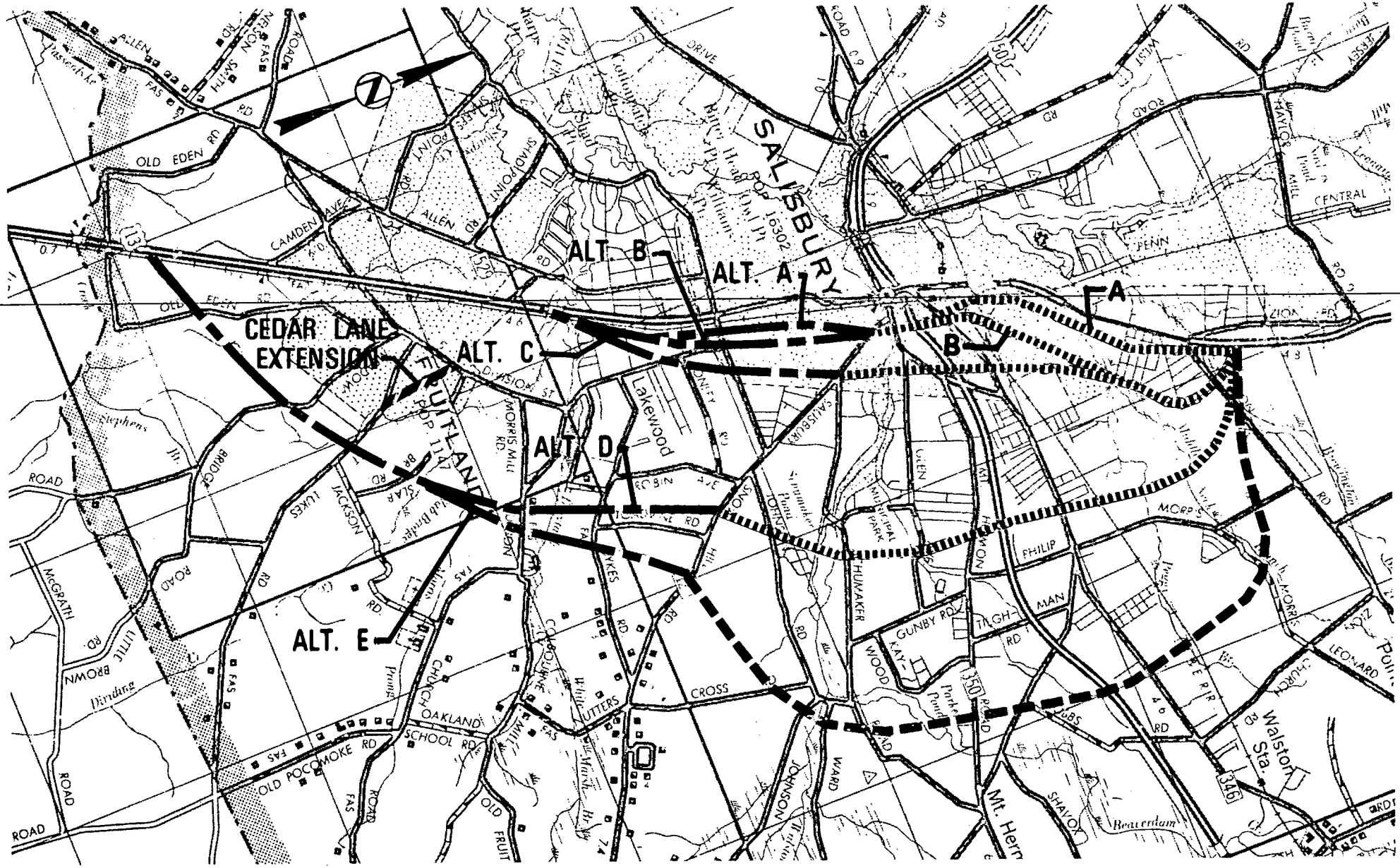
EXHIBIT 2


SCALE
2000 0 2000
U.S.
600
MEADOW
BRIDGE
ROAD
250
ST LUKES
SLAB

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

PROJECT PLANS

EXHIBIT 3



ALTERNATE ALIGNMENTS

PRESENTLY UNDER CONSTRUCTION

EXTENSIONS OF ALTERNATE ALIGNMENTS

CEDAR LANE EXTENSION

SCALE IN MILES

1 0 1

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

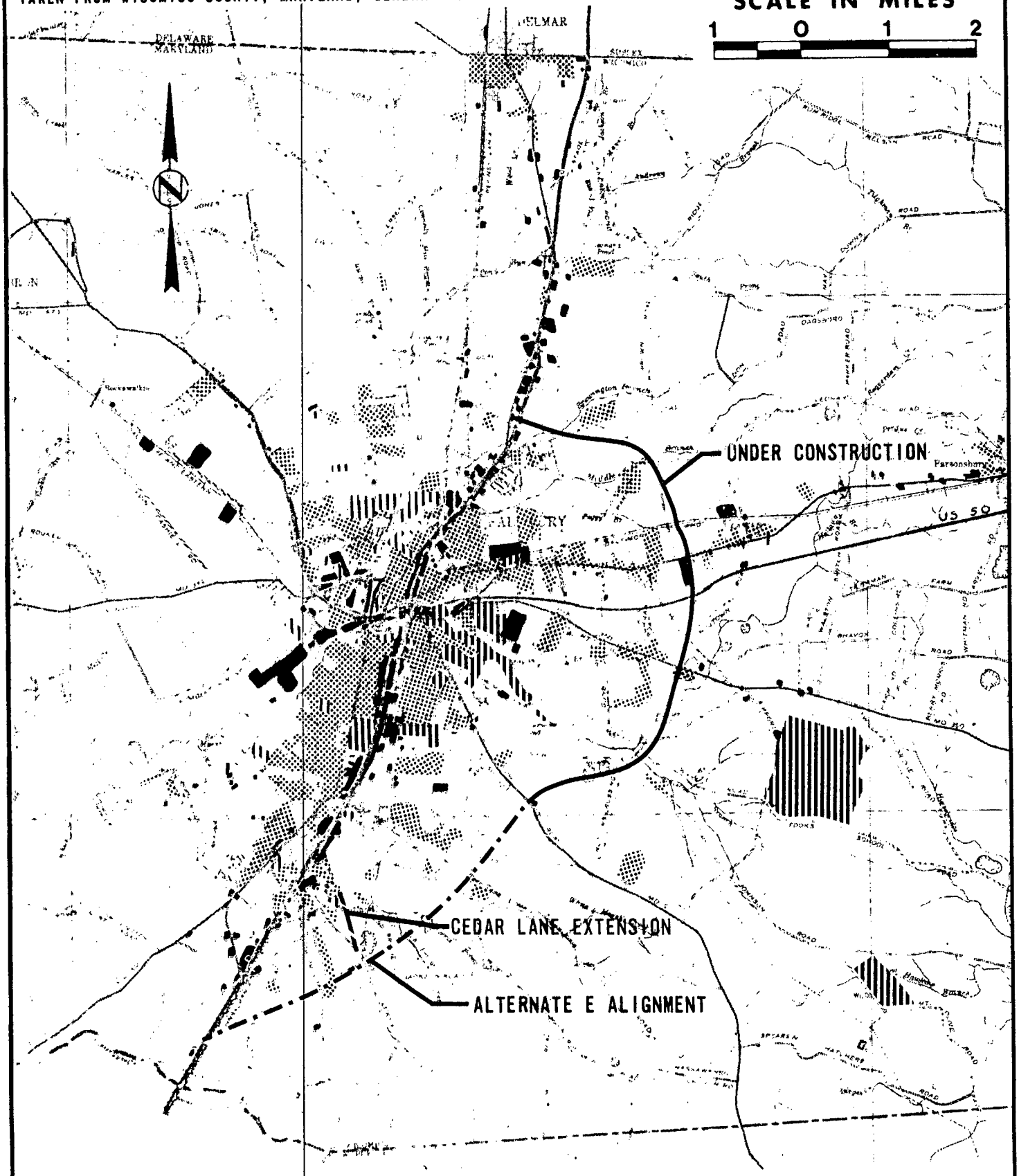
ALTERNATE LOCATION MAP

EXHIBIT 4

13

TAKEN FROM WICOMICO COUNTY, MARYLAND, GENERAL LAND USE MAP 1970

SCALE IN MILES
1 0 1 2

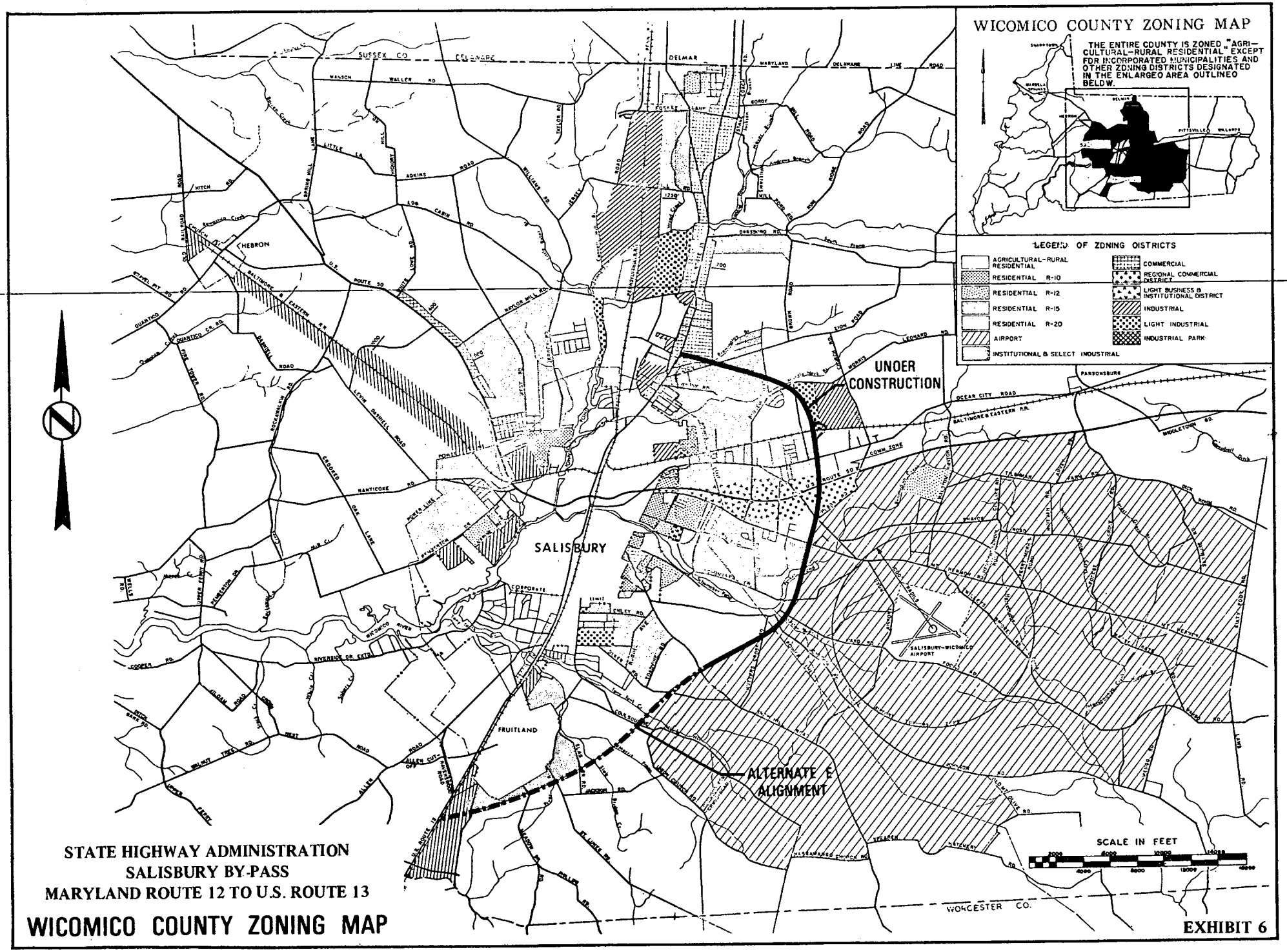


RESIDENTIAL
COMMERCIAL & INDUSTRIAL
PUBLIC, SEMI-PUBLIC & RECREATION

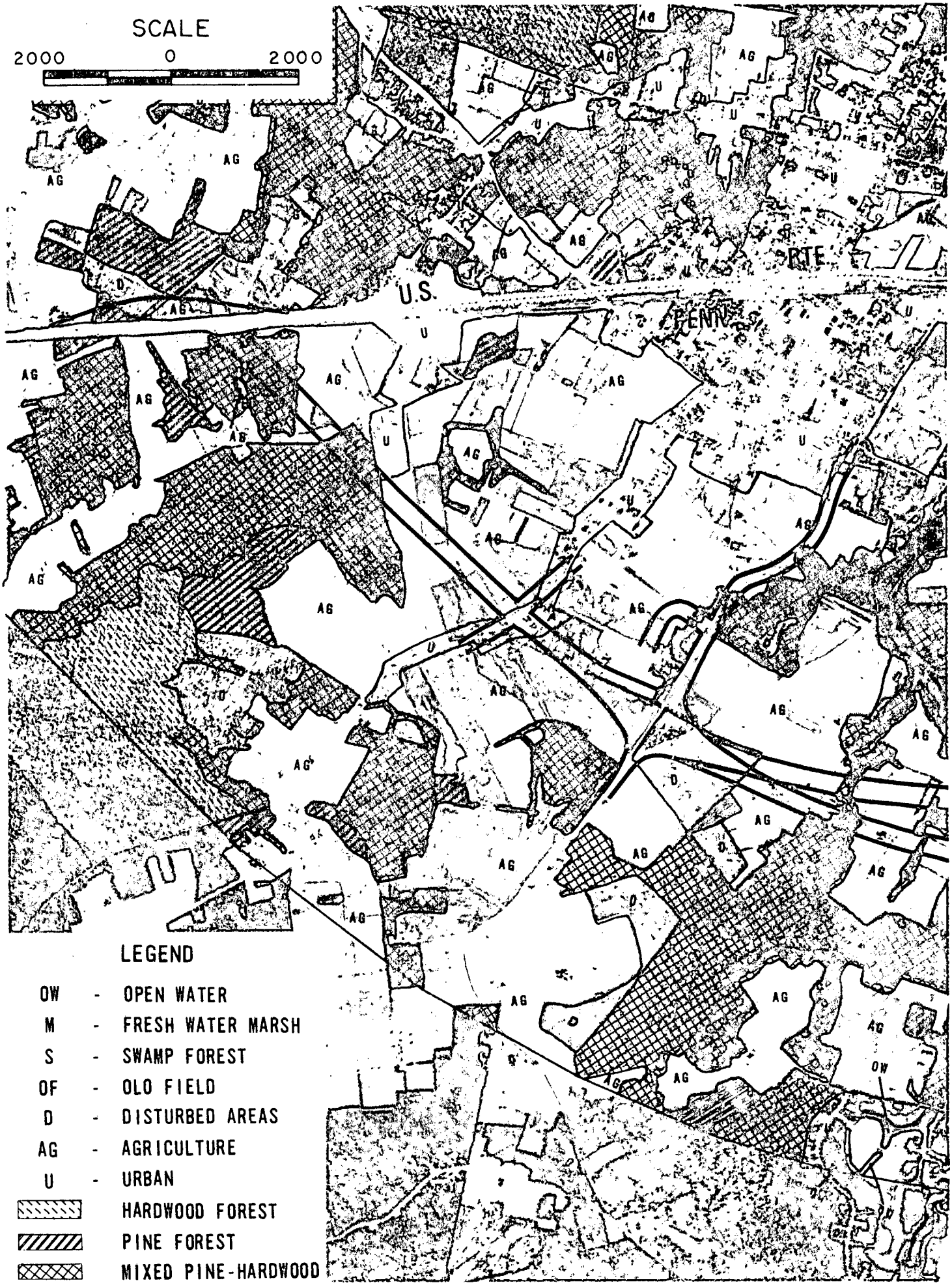
STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

GENERAL LAND USE 1970

EXHIBIT 5


WICOMICO COUNTY ZONING MAP
THE ENTIRE COUNTY IS ZONED "AGRICULTURAL-RURAL RESIDENTIAL" EXCEPT FOR INCORPORATED MUNICIPALITIES AND OTHER ZONING DISTRICTS DESIGNATED IN THE ENLARGED AREA OUTLINED BELOW.
LEGEND OF ZONING DISTRICTS
AGRICULTURAL-RURAL RESIDENTIAL
RESIDENTIAL R-10
RESIDENTIAL R-12
RESIDENTIAL R-15
RESIDENTIAL R-20
AIRPORT
INSTITUTIONAL & SELECT INDUSTRIAL
COMMERCIAL
REGIONAL COMMERCIAL DISTRICT
LIGHT BUSINESS & INSTITUTIONAL DISTRICT
INDUSTRIAL
LIGHT INDUSTRIAL
INDUSTRIAL PARK
UNDER CONSTRUCTION
SALISBURY
FRUITLAND
HEBRON
DELMAR
SUSSEX CO.
DELAWARE
MARYLAND
WORCESTER CO.
ALTERNATE E ALIGNMENT
SALISBURY-WICOMICO AIRPORT
SCALE IN FEET
STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13
WICOMICO COUNTY ZONING MAP
EXHIBIT 6

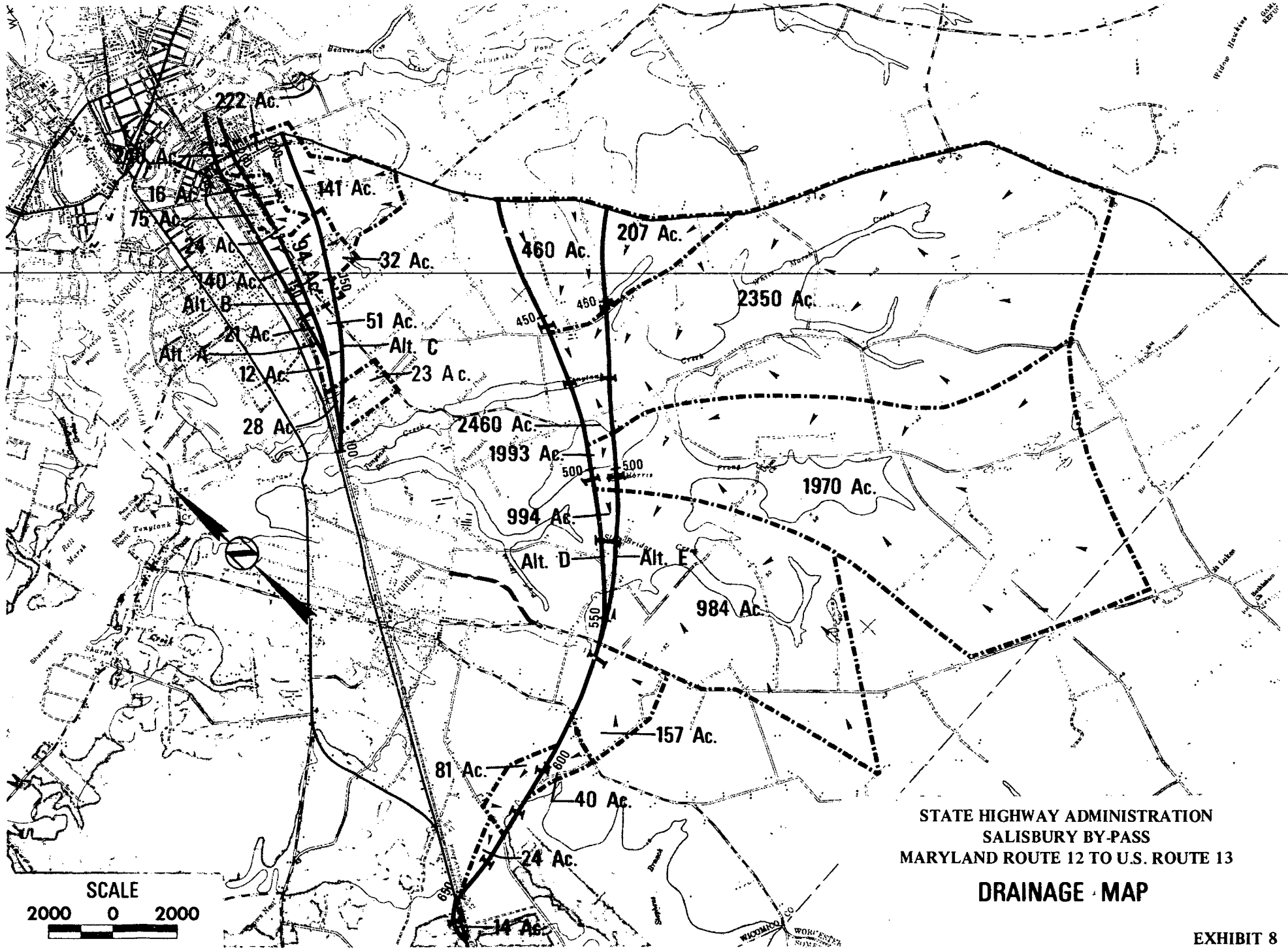
1/5


SCALE
2000 0 2000
U.S.
RTE
PENN
AG
U
D
LEGEND
OW - OPEN WATER
M - FRESH WATER MARSH
S - SWAMP FOREST
OF - OLD FIELD
D - DISTURBED AREAS
AG - AGRICULTURE
U - URBAN
HARDWOOD FOREST
PINE FOREST
MIXED PINE-HARDWOOD

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

BIOTIC COMMUNITIES

EXHIBIT 7



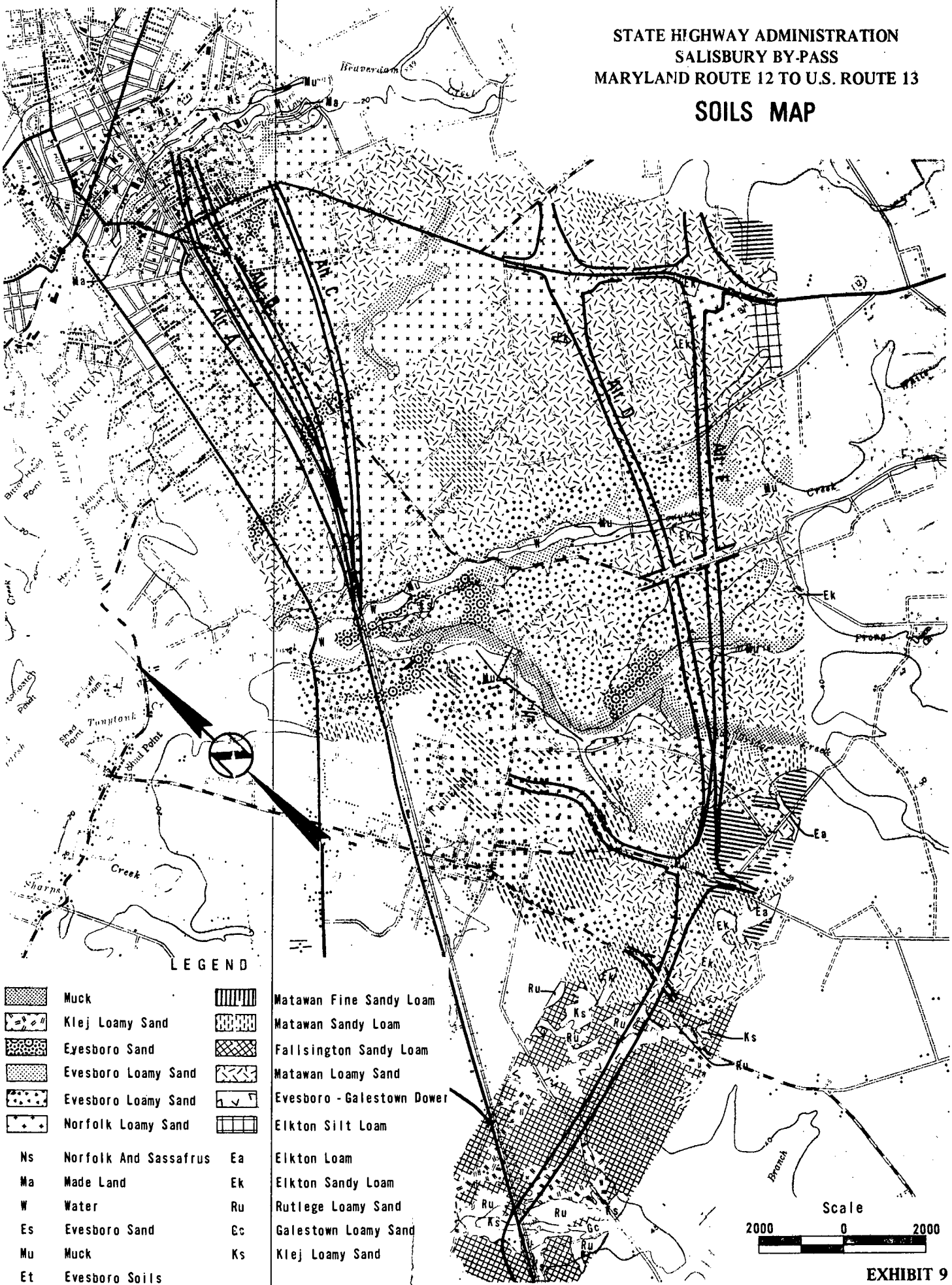
STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

DRAINAGE MAP

EXHIBIT 8

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

SOILS MAP



LEGEND

	Muck		Matawan Fine Sandy Loam
	Klej Loamy Sand		Matawan Sandy Loam
	Eyesboro Sand		Fallsington Sandy Loam
	Evesboro Loamy Sand		Matawan Loamy Sand
	Evesboro Loamy Sand		Evesboro - Galestown Dower
	Norfolk Loamy Sand		Elkton Silt Loam

Ns	Norfolk And Sassafrus	Ea	Elkton Loam
Ma	Made Land	Ek	Elkton Sandy Loam
W	Water	Ru	Rutlege Loamy Sand
Es	Evesboro Sand	Gc	Galestown Loamy Sand
Mu	Muck	Ks	Klej Loamy Sand
Et	Evesboro Soils		

EXHIBIT 9


SCALE
2000 0 2000
U.S.
75
85
ROAD
ROAD
BRIDGE
MEADOW
ST. LUKES
SLAB

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

EXISTING U.S. ROUTE 13 NOISE CONTOURS

EXHIBIT 10

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

PROJECTED 1997 NOISE CONTOURS
ALTERNATE A

EXHIBIT 11

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

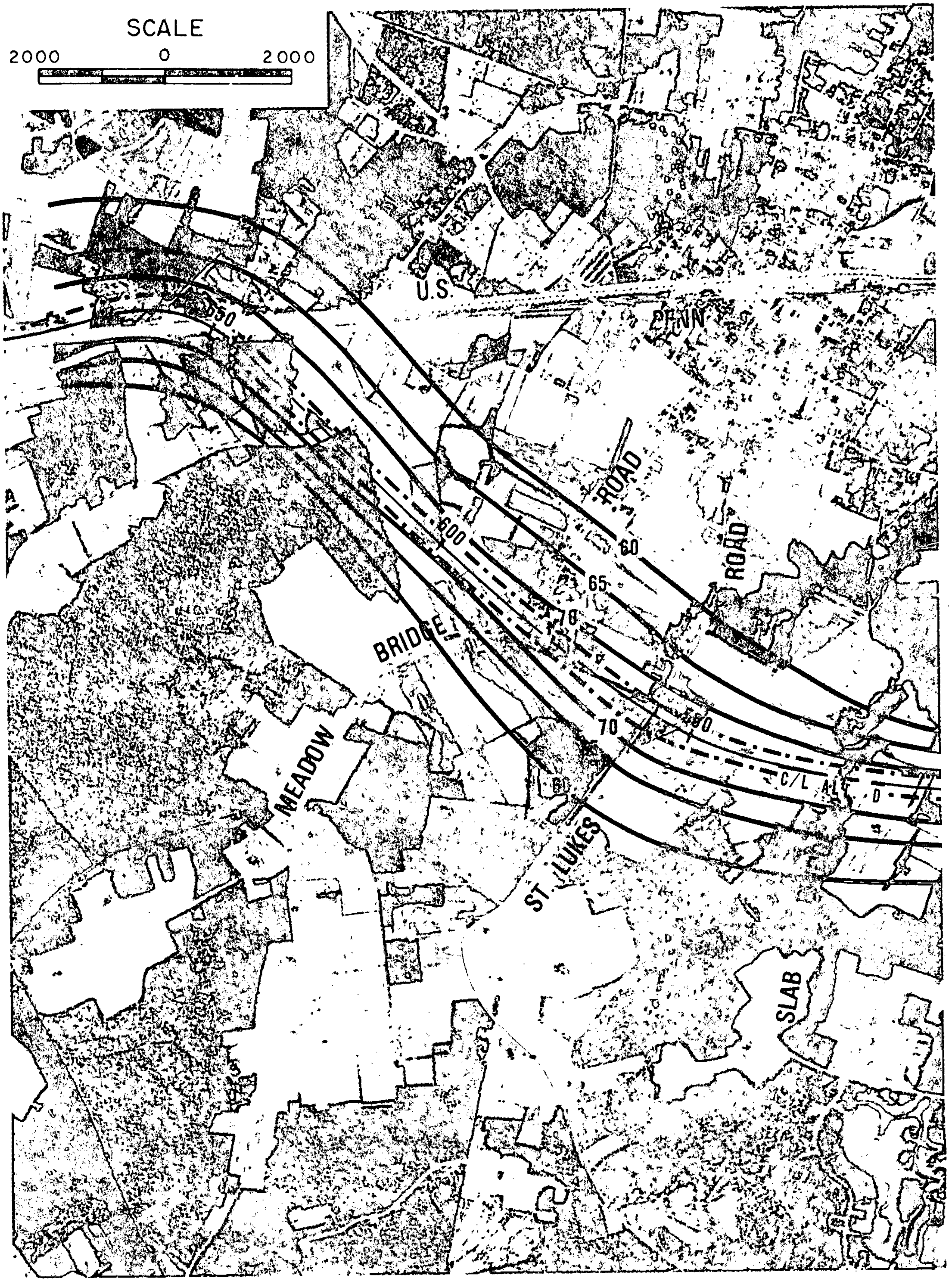
PROJECTED 1997 NOISE CONTOURS
ALTERNATE B

EXHIBIT 12

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

PROJECTED 1997 NOISE CONTOURS
ALTERNATE C

EXHIBIT 13


SCALE
2000
0
2000
U.S.
PENN
ROAD
ROAD
650
600
60
65
70
70
600
C/L ALT. D
60
BRIDGE
MEADOW
ST. LUKES
SLAB

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

PROJECTED 1997 NOISE CONTOURS
ALTERNATE D

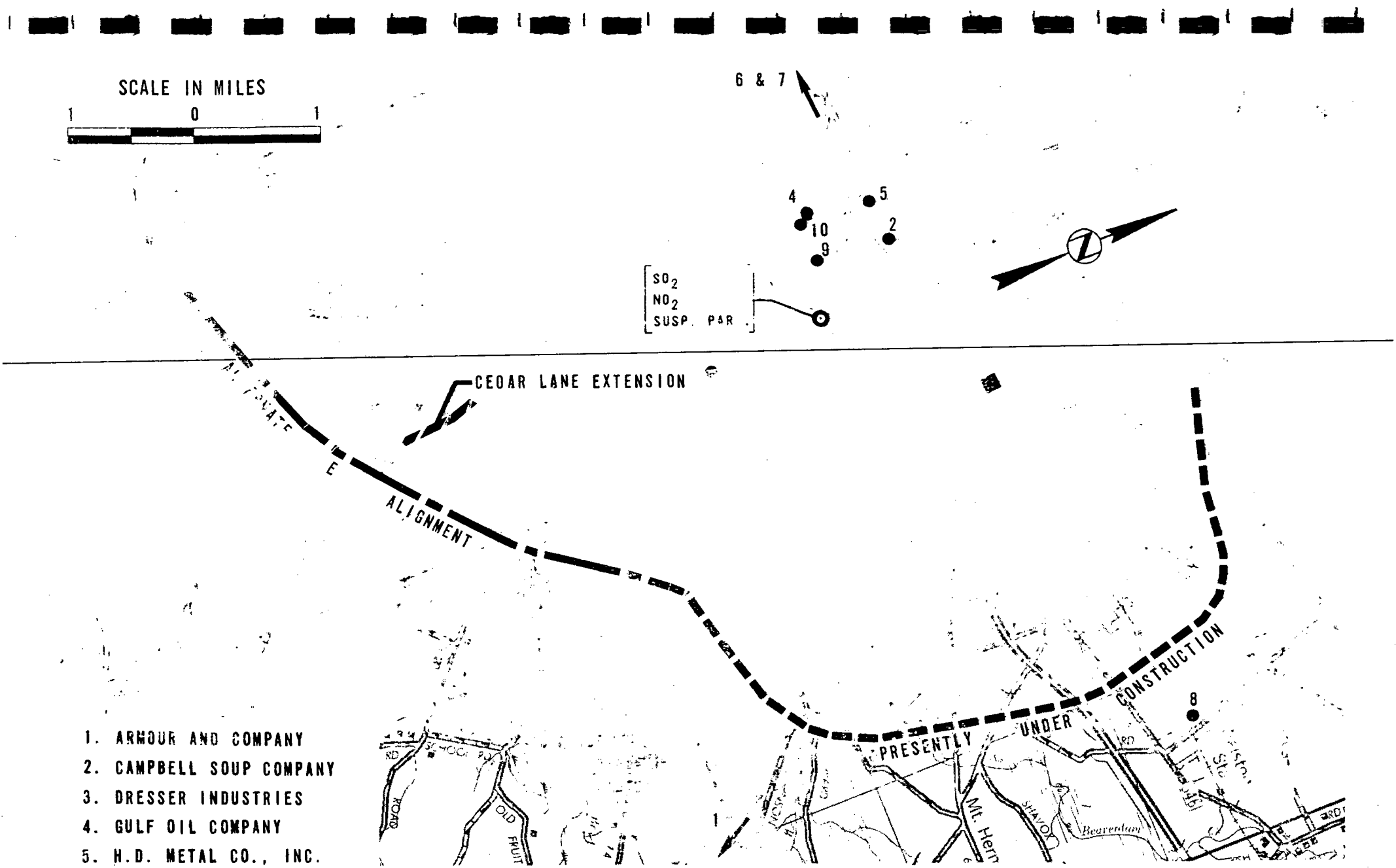
EXHIBIT 14


SCALE
2000 0 2000
650
70
65
60
CEDAR LANE
EXTENSION
ROAD
ROAD
MEADOW
BRIDGE
ST.
ALT.
SLAB

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

PROJECTED 1997 NOISE CONTOURS
ALTERNATE E

EXHIBIT 15



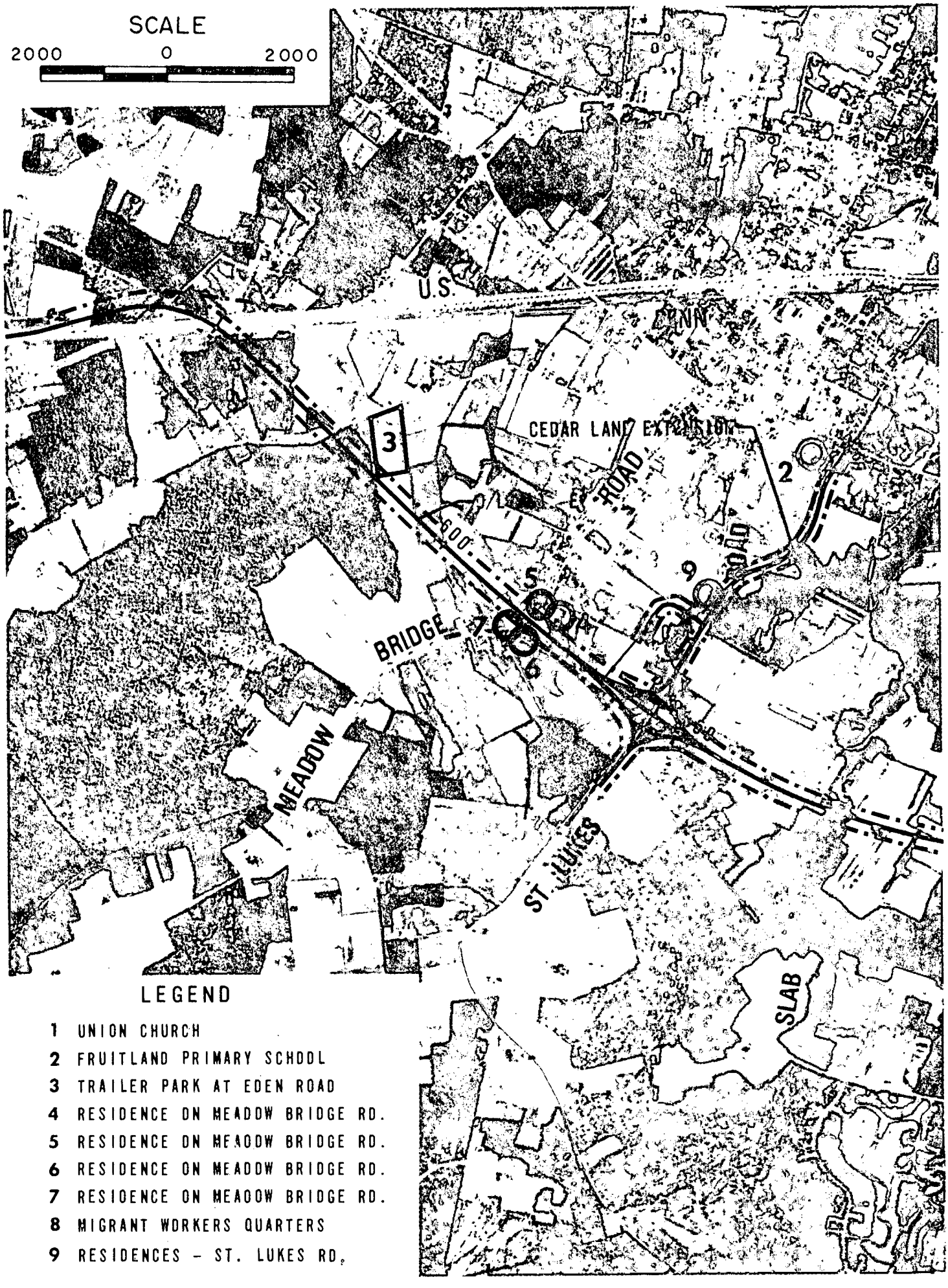
1. ARMOUR AND COMPANY
2. CAMPBELL SOUP COMPANY
3. DRESSER INDUSTRIES
4. GULF OIL COMPANY
5. H.D. METAL CO., INC.
6. KOPPER COMPANY
7. MARDEL BY-PRODUCTS
8. A.W. PERDUE & SON, INC.
9. WM. B. TILGMAN CO., INC.
10. TEXACO, INC.

● STATIONARY SOURCE
■ WEATHER STATION
○ MONITORING STATION

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

STATIONARY AIR POLLUTION SOURCES
WEATHER & AIR MONITORING STATION LOCATIONS

EXHIBIT 16



LEGEND

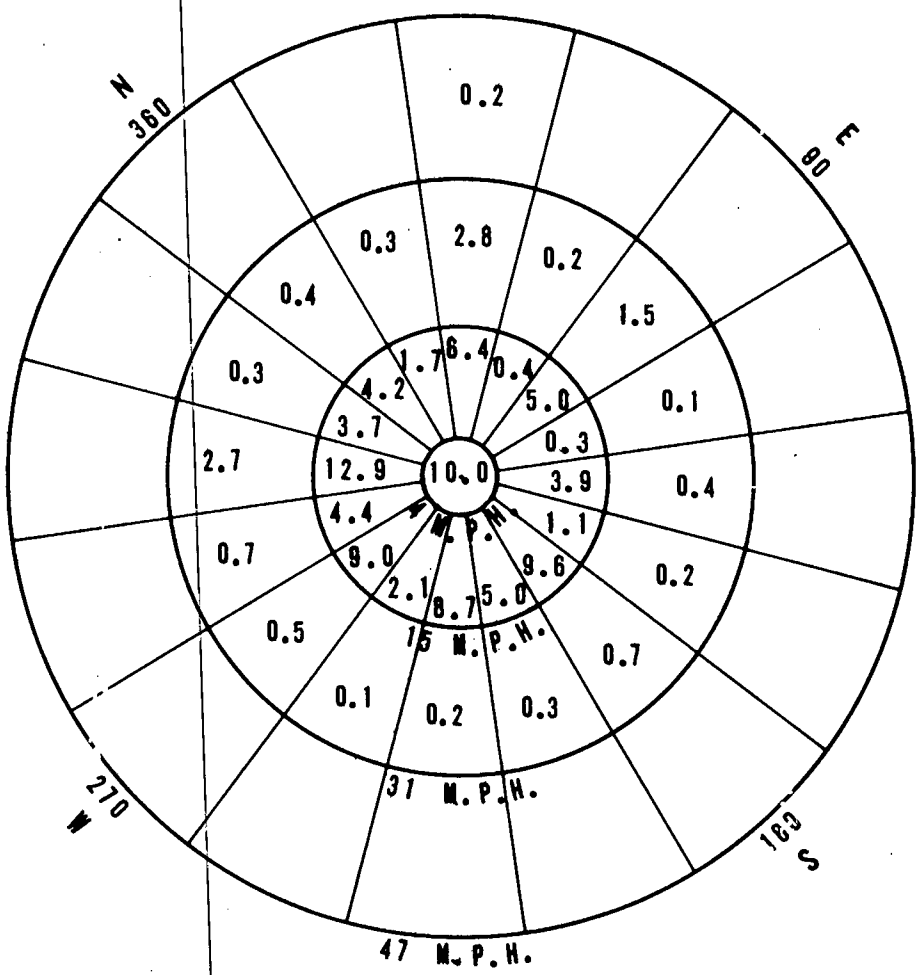
1 UNION CHURCH
2 FRUITLAND PRIMARY SCHOOL
3 TRAILER PARK AT EDEN ROAD
4 RESIDENCE ON MEADOW BRIDGE RD.
5 RESIDENCE ON MEADOW BRIDGE RD.
6 RESIDENCE ON MEADOW BRIDGE RD.
7 RESIDENCE ON MEADOW BRIDGE RD.
8 MIGRANT WORKERS QUARTERS
9 RESIDENCES - ST. LUKES RD.

STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

SENSITIVE AREAS

EXHIBIT 17

PERIOD OF OBSERVATION - JULY 1939 - MARCH 1942
TAKEN AT SALISBURY AIRPORT



STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 TO U.S. ROUTE 13

WIND ROSE

EXHIBIT 18

APPENDIX I

Appendix Table 1

Salisbury By-Pass Corridor Emissions
(Lbs./Day)

Highway	Section	Length (mi.)	Average Daily Traffic	Average Speed (mph)	CO	HC	NO_x	SO_2	Particulates	Total
				1973 Arterial Streets						
U. S. 13	Md. 12 (Main St.) to Division St.	3.8	17,913	20	6,912	1,014	500	37	45	8,508
	Division St. to Salisbury By-Pass	1.33	16,429	20	2,219	326	160	12	14	2,731
				1977 Arterial Streets with By-Pass Alternate D or E						
U. S. 13	Md. 12 (Main St.) to Division St.	3.8	12,475	35	1,726	251	375	13	16	2,381
	Division St. to Salisbury By-Pass	1.33	11,525	35	558	81	121	4	5	769
				1977 Arterial Streets with By-Pass Alternate A, B or C						
U. S. 13	Md. 12 to By-Pass	2.33	12,475	25	1,439	188	206	11	14	1,858
U. S. 13	From By-Pass to limit of study	3.15	23,825	35	2,732	397	594	20	25	3,768
				1997 Arterial Streets with By-Pass Alternate D or E						
U. S. 13	Md. 12 (Main St.) to Division St.	3.8	22,478	25	702	132	202	4	20	1,060
	Division St. to Salisbury By-Pass	1.33	20,774	25	227	43	65	1	7	343

Appendix Table 1 (Cont'd.)

Salisbury By-Pass Corridor Emissions
(Lbs./Day)

Highway	Section	Length (mi.)	Average Daily Traffic	Average Speed (mph)	CO	HC	NO_x	SO_2	Particulates	Total
			1997 Arterial Streets with By-Pass Alternate A, B or C							
U. S. 13	Md. 12 to By-Pass	2.33	22,478	20	484	100	117	3	14	718
	From By-Pass to limit of study	3.15	40,276	25	1,159	217	334	6	34	1,750
			1977 Arterial Streets without By-Pass							
U. S. 13	Md. 12 (Main St.) to Division Street	3.8	21,963	15	7,253	876	442	46	56	8,673
	Division St. to Salisbury By-Pass	1.33	20,146	15	2,328	281	142	15	18	2,784
			1997 Arterial Streets without By-Pass							
U. S. 13	Md. 12 (Main St.) to Division St.	3.8	42,225	10	2,850	518	249	12	67	3,696
	Division St. to Salisbury By-Pass	1.33	38,600	10	912	166	80	4	22	1,184
			1977 By-Pass							
By-Pass Alt. D or E	Md. 12 (Main St.) to St. Lukes Rd.	2.84	12,300	50	1,002	144	318	9	11	1,484
	St. Lukes Rd. to U. S. 13	1.9	11,200	50	611	87	194	6	7	1,810
By-Pass Alt. A, B or C	Md. 12 to U. S. 13	2.25	12,300	35	1,007	146	219	8	10	1,390

Appendix Table 1 (Cont'd.)

Salisbury By-Pass Corridor Emissions
(Lbs./Day)

Highway	Section	Length	Average Daily Traffic	Average Speed (mph)	CO	HC	NO_x	SO_2	Particulates	Total
				1997 By-Pass						
By-Pass Alt. D or E	Md. 12 (Main St.) to St. Lukes Rd.	2.84	19,500	50	264	53	168	2	9	496
	St. Lukes Rd. to U. S. 13	1.9	17,750	50	161	32	103	1	5	302
By-Pass Alt. A, B or C	Md. 12 to U. S. 13	2.25	19,500	35	265	55	116	1	8	445

Table 2

Salisbury By-Pass

1973 Exhaust Emission Factors (Lbs/Mile)

M.P.H.	*CO*	*HC*	*NO_x*	*SO_2*	*Part.*
10	0.19518	0.02568	0.006450	0.000774	0.001108
15	0.14215	0.01866	0.007371	0.000606	0.008679
18	0.12128	0.01661	0.008459	0.000541	0.007739
20	0.10154	0.01490	0.009325	0.000499	0.007137
25	0.09026	0.01211	0.009859	0.000440	0.006295
30	0.07785	0.01126	0.010366	0.000371	0.005310
35	0.06634	0.00977	0.011011	0.000331	0.004790
40	0.05979	0.00882	0.011471	0.000308	0.004432
45	0.05641	0.00828	0.012126	0.000299	0.004282
50	0.05224	0.00751	0.012669	0.000294	0.004211
55	0.04817	0.00706	0.013250	0.000290	0.004147
60	0.04400	0.00671	0.013913	0.000280	0.004118

Table 3

Salisbury By-Pass

1977 Exhaust Emission Factors (Lbs/Mile)

M.P.H.	CO	HC	NO_X	SO_2	Part.
10	0.1071	0.01340	0.00463	0.000697	0.000860
15	0.0869	0.00986	0.00530	0.000546	0.000673
18	0.0665	0.00886	0.00609	0.000487	0.000601
20	0.0557	0.00794	0.00671	0.000447	0.000554
25	0.0495	0.00647	0.00709	0.000396	0.000489
30	0.0427	0.00609	0.00746	0.000334	0.000412
35	0.0364	0.00529	0.00792	0.000298	0.000368
40	0.0328	0.00479	0.00825	0.000278	0.000344
45	0.0310	0.00447	0.00872	0.000269	0.000332
50	0.0287	0.00411	0.00911	0.000265	0.000327
55	0.0264	0.00386	0.00953	0.000261	0.000322
60	0.0241	0.00369	0.01000	0.000260	0.000320

Table 4

Salisbury By-Pass

1997 Exhaust Emission Factor (Lbs/Mile)

M.P.H.	CO	HC	NO_x	SO_2	Part.
10	0.01776	0.00323	0.00155	0.0000774	0.000419
15	0.01294	0.00236	0.00177	0.00006C6	0.000328
18	0.01104	0.00211	0.00203	0.0000541	0.000293
20	0.00924	0.00190	0.00224	0.0000498	0.000270
25	0.00822	0.00154	0.00237	0.0000440	0.000238
30	0.00709	0.00144	0.00249	0.0000371	0.000201
35	0.00604	0.00125	0.00265	0.0000331	0.000179
40	0.00544	0.00113	0.00276	0.0000308	0.000168
45	0.00514	0.00106	0.00291	0.0000299	0.000162
50	0.00476	0.00096	0.00304	0.0000294	0.000159
55	0.00439	0.00091	0.00318	0.0000290	0.000157
60	0.00401	0.00086	0.00334	0.0000288	0.000156

Station Numbers for Water Quality Investigation and Analysis

Report Number	Location	State of Maryland Numbers
1	Nancy Point	1
2	Harbor Point, Buoy FL-S7	2
3	Sharps Creek, Bridge on River Road	11
4	Tonytank Creek, Bridge on River Road	12
5	Beaverdam Creek, Bridge on Schumaker Road below Schumaker Pond	13
6	Beaverdam Creek, Bridge on Riverside Drive just above confluence with Leonard Pond Run	13A

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION & ANALYSIS DIVISION

FIELD DATA SHEET — PAGE 1 OF 2

DATE COLLECTED: November 27, 1962 BY: CD, CB, HM

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS: Low ebb tide

STA NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	Air Temp. °C	Water Temp. °C	Solids Sus.	Solids Dis.	Solids Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. °/₀₀	Cond. µmhos	Cl^- ppm	Total PO_4^{-3} mg/l	Nitrate mg/l		
38	1430	1	16'	7.0	12.0	8.2	42	132	174	6.0	9.8	1.7	55			0.1	108	11.0	0.30	0.65		
37	1435	1	S	7.3	12.0	8.2	66	100	166	8.5	10.2	3.1	30	2,300	930	0.1	100	9.2	0.50	0.70		
36	1450	1	S	7.2	12.0	8.7	18	140	158	19.0	11.0	3.1	55	43,000	3.6	0.2	135	15.0	1.22	1.25		
35	1445	1	12'	7.0	12.0	8.3	38	148	186	14.0	8.1	5.4	35			0.2	155	18.0	1.55	1.60		
34	1510	1	S	7.2	12.0	8.2	38	156	194	19.0	8.7	4.2	35	75,000	43	0.2	160	23.0	1.25	1.12		
33	[illegible]	1	13'	7.1	12.0	7.9	24	136	160	13.0	8.2	3.0	25			0.2	431	21.0	1.12	1.25		
32	1525	1	S	7.4	12.0	7.8	46	196	242	13.0	9.8	3.9	35	9,300	93	0.2	265	47.0	0.80	1.00		
31	1515	1	18'	7.3	12.0	7.8	50	204	254	19.0	9.6	5.1	30			0.2	270	50.2	0.85	1.00		
30	1535	1	S	7.4	12.0	7.6	48	228	276	14.0	10.4	4.8	30	2,300	43	0.3	330	65.0	0.60	1.00		
29	1525	1	19'	7.4	12.0	7.6	112	224	336	22.0	10.3	5.3	35			0.3	340	66.0	0.95	1.50		
28	1550	1	S	7.4	12.0	7.3	52	342	394	16.0	10.1	5.9	25	43,000	15	0.4	570	130.0	0.65	1.05		
27	1540	1	15'	7.3	12.0	7.4	130	362	492	23.0	10.0	6.0	40			0.4	620	140.0	0.85	1.05		
26	1620	1	S	7.1	12.0	7.4	38	1,598	1,636	9.5	9.7	2.6	30	2,300	23	1.5	2,650	600.0	0.30			
[illegible]	1615	1	28'	7.0	12.0	7.[illegible]	[illegible]	2,206	2,258	14.0	9.4	3.2	25			2.1	3,500	1000.0	0.22			

* DENOTES ANALYSIS MADE IN SITU

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION & ANALYSIS DIVISION

FIELD DATA SHEET

DATE COLLECTED: November [illegible] BY: [illegible]

WATER BODY: Wicomico River

[illegible] CODE NO:

LABORATORY ANALYSIS NO:

REMARKS: First of flood tide

STA. NO.	TIME	WX	DEPTH OF SAMPLE	pH	AIR TEMP °C	WATER TEMP °C	SOLIDS Sus.	SOLIDS Dis.	SOLIDS Total	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. °/..	Cond. umhos	Cl⁻ ppm	Total PO_4^{-3} ppm	Nitrate ppm	[illegible]	[illegible]
[illegible]	[illegible] for [illegible]																					
[illegible]	[illegible]	1	S	7.4	8.0	5.8	52	9,846	9,898	3.5	9.4	0.9	25	93	3.6			4500.0				
[illegible]	[illegible] for [illegible]																					
[illegible]	[illegible] for [illegible]																					
[illegible]	[illegible]	1	S	7.4			[illegible]	[illegible]	5,668	1.5	9.6	1.1	30	230	3.6			2900.0				
[illegible]	[illegible]	[illegible]	S	[illegible]	6.0	4.0	54	206	[illegible]	23.0	7.9	> 7.9	25	21,000	93		280	125.0				
[illegible]	[illegible]	1	S	7.2	5.0	5.5	4	100	104	2.5	10.4	1.8	20	430	43		120	55.0				
[illegible]	[illegible]	1	S	6.8	6.5	6.0	4	96	100	1.5	10.6	1.2	20	210	9.1		75	6.0	0.10	0.30		2.0
[illegible]	[illegible]	1	S	6.4	6.0	7.0	4	110	114	2.5	9.2	1.6	15	23,000	93		94	13.0				
[illegible]	[illegible]	1	S	6.6	9.0	7.4	6	96	102	1.5	10.1	1.7	15	4,3[illegible]	43		[illegible]	[illegible]	[illegible]	[illegible]		
[illegible]	[illegible]	1	S	6.7	6.0	7.0	[illegible]							950	93		93					
[illegible]	[illegible]	-	S	7.1	8.0	6.5	4	96	100	1.5	11.4	2.9	20	230	< 3		83	9.2				
[illegible]	[illegible]	1	S	6.5	6.0	6.[illegible]	4	110	114	1.5	7.4	0.3	10	4,300	2,300		85	9.2	0.30	0.60		
[illegible]	[illegible]	1	S	6.7	7.0	5.2	4	132	136	3.5	6.1	2.4	130	9,300	750		[illegible]	9.0	0.25	1.52		
[illegible]	1335	1	S	6.2	9.5	8.0	2	90	92	1.5	7.4	0.5	25	2,900	20		60	6.5	0.15	1.08		
[illegible]	[illegible]	1	S	6.9	9.5	5.5	2	90	92	1.5	10.5	2.7	55	930	3.6		67	7.5	0.05	0.10		[illegible]
[illegible]	[illegible]	1	S	6.9	8.0	5.5	4	114	118	2.5	8.2	4.0	10	2,300	15		200	29.0				

* DENOTES ANALYSIS MADE IN [illegible]

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 4, 1970 BY: RVC, CRD

WATER BODY: Wicomico River - Flood Tide

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																	
				pH	Air Temp °C	Water Temp °C	Solids Sus.	Solids Dis.	Solids Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. o/oo	Cl- mg/l	Total PO_4 mg/l	NH_3 mg/l	Organic N_2 mg/l	NO_2 mg/l	NO_3 mg/l	TKN ppm
1S	1715		S	6.9		17.5	4	118	122	10.5	6.1	2.4	40	11,000	430	1.18	12.4	0.08	0.34	1.44	0.010	1.12	-
1B	1705		17	6.6		17.5	12	128	140	12.5	6.1	2.4	35	-	-	1.28	16.0	0.08	0.35	1.70	0.010	1.16	-
2S	1650		S	7.8		17.5	10	130	140	8.5	4.7	3.4	40	230	23	1.30	10.8	0.18	0.99	1.80	0.010	1.07	-
2B	1645		30	6.1		17.5	1424	152	1,576	800.0	6.2	10.1	50	-	-	1.52	16.8	1.05	1.24	8.23	0.010	0.97	-
3S	1635		S	6.7		17.0	10	134	144	21.0	5.1	3.4	50	93	93	1.34	14.0	0.17	0.69	2.20	0.010	1.16	-
3B	1630		35	6.5		18.0	298	148	446	45.0	5.3	5.2	30	-	-	1.48	16.0	0.32	0.72	2.17	0.010	1.02	-
4S	1615		S	6.7		17.5	30	132	162	12.5	6.6	3.1	55	230	3.6	1.32	24.1	0.15	0.61	1.91	0.010	1.00	-
4B	1610		18	6.9		18.0	36	152	188	13.5	6.2	3.3	50	-	-	1.52	14.4	0.12	0.37	1.46	0.010	1.00	-
4AB	1450		20	6.7		17.5	30	152	182	21.0	5.9	4.2	50	-	-	1.52	24.0	0.15	0.41	2.11	0.010	1.00	-
4AS	1450		S	6.7		17.5	20	146	166	16.5	5.3	4.0	40	930	15	1.46	25.0	0.10	0.34	2.18	0.010	1.46	-
5B	1530		25	6.1		18.0	674	178	852	395.0	4.6	6.3	65	-	-	1.78	50.0	0.25	0.21	4.54	0.010	1.00	-
5S	1530		S	-		17.5	NO	SAMPLE	-	-	5.8	-	-	230	23	-	-	-	1.07	0.98	-	-	-
5AB	1503		30	6.5		17.5	68	392	460	28.0	4.8	1.7	65	-	-	3.92	350.0	0.15	0.34	1.62	0.010	0.907	-
5AS	1505		S	6.8		18.0	60	342	402	25.0	5.3	2.1	50	930	43	3.42	310.0	0.10	0.28	1.40	0.010	0.907	-
6B	1445		35	7.0		16.5	46	2054	2,100	18.5	5.7	0.7	40	-	-	2.054	1050.0	0.13	0.11	1.95	0.015	0.702	-
6S	1415		S	6.9		17.0	30	240	270	24.0	5.8	2.7	70	230	23	2.40	110.0	0.10	0.12	1.18	0.015	0.668	-
7B	1400		28	7.4		17.0	152	6822	6,974	50.0	-	1.6	35	-	-	6.822	2610.0	0.25	0.12	3.33	0.020	0.430	-
7S	1400		S	7.2		16.5	40	5596	5,636	22.0	6.9	5.0	45	43	9.1	5.596	2750.0	0.08	0.11	1.67	0.010	0.490	-
10	1425		S	7.2		17.5	52	1906	1,958	18.0	5.6	2.5	60	210	23	1.906	900.0	0.05	0.07	1.87	0.010	0.740	-
11	1000		S	6.1	20.0	15.0	22	160	182	22.0	-	-	120	4,600	1,500	1.60	25.0	0.05	0.12	1.65	0.010	1.01	1.77
12	1525		S	7.0		17.0	14	78	92	5.0	-	-	60	430	93	0.78	10.0	0.10	0.02	1.01	0.010	0.91	1.05
13	1800		S	7.1		16.0	6	82	88	4.0	9.2	2.6	55	930	23	0.82	15.0	0.03	0.06	1.25	0.010	0.97	1.31

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 4, 1970 BY: RVC, CRD

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	pH *	AIR TEMP. °C *	WATER TEMP. °C *	SOLIDS SUS.	SOLIDS DIS.	SOLIDS TOTAL	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. 0/00	Cl- mg/1	Total PO_4 mg/1	NH_3 mg/1	Organ. N_2 mg/1	NO_2 mg/1	NO_3 mg/1	TKN ppm
13A	1545		S	7.0		18.0	18	70	88	6.0	-	-	55	24,000+	930	0.70	10.0	0.05	0.09	1.59	0.010	1.01	1.68
14	1700		S	6.5		14.6	18	92	110	3.5	-	-	40	2,400	430	0.92	14.0	0.05	0.03	5.48	0.010	1.22	5.51
14A	1555		S	7.0		17.0	18	96	114	9.5	-	-	60	2,400	930	0.96	13.0	0.10	0.05	1.15	0.015	0.79	1.20
14B	1615		S	6.9		17.5	18	112	130	5.0	-	-	40	4,600	930	1.12	18.0	0.05	0.03	1.65	0.010	0.91	1.68
14C	1735		S	6.7		13.0	16	68	84	4.0	7.1	5.2	40	11,000	2,400	0.68	14.8	0.03	0.84	0.37	0.010	1.36	1.21
14D	1725		S	6.7		13.0	12	84	96	6.0	7.6	3.6	35	11,000	930	0.84	15.8	0.05	0.02	2.50	0.015	0.27	2.52
14E	1655		S	6.6		12.5	16	98	114	3.5	-	-	140	4,600	750	0.98	18.0	0.03	0.02	1.38	0.015	0.82	1.40
14E1	1645		S	-		16.0	12	76	88	8.0	-	-	102	11,000	150	0.76	16.0	0.05	0.05	8.63	0.015	0.82	8.68
14F	1715		S	6.5		17.5	NO	SAMPLE		-	-	-	-	-	-	-	-	-	0.25	0.46	-	-	1.21
14G	1816		S	6.8		13.5	52	342	394	23.0	5.7	9.1	110	11,000	1,500	3.42	29.0	0.05	0.03	1.84	0.01	1.00	-
15	1745		S	7.0		15.0	28	108	136	25.0	5.5	15.3	40	24,000	4,600	1.08	79.0	0.20	-	14.01	0.02	0.40	-
Salisbury STP	18 hour Composite		S	6.9		-	37	300	337	43.0	0.0	12.5	80	-	-	-	-	9.5	9.2	27.2	0.02	0.03	-

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 5, 1970 BY: RVC, CRD

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WK	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	Air Temp. °C	Water Temp. °C	Solids Sus.	Solids Dis.	Solids Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. o/oo	Cl⁻ mg/l	Total PO_4 mg/l	NH_3 mg/l	Organic N_2 mg/l	NO_2 mg/l	NO_3 mg/l	
1B	1335		30	6.3		18.2	75	153	228	21.0	7.5	3.9	35	-	-	1.53	16.7	0.14	0.20	1.48	0.020	1.16	
1S	1335		S	6.1		19.0	21	114	135	12.0	6.5	5.2	20	93,000	4,300	1.14	13.7	0.09	0.20	2.13	0.043	1.12	
2B	1350		26	6.0		18.0	239	101	340	40.0	4.6	14.0	25	-	-	1.01	14.6	0.35	0.69	2.20	0.020	1.03	
2S	1350		S	6.4		19.0	31	111	142	14.0	5.1	7.3	25	15,000	230	1.11	15.4	0.19	1.37	1.89	0.027	0.94	
3B	1405		14	6.4		17.2	41	112	153	22.0	5.1	5.7	35	-	-	1.12	16.7	0.15	1.48	1.41	0.027	1.04	
3S	1405		S	6.3		18.1	24	107	131	14.0	5.0	5.3	25	2,300	232	1.07	16.2	0.28	1.02	1.41	0.033	0.96	
4B	1415		25	6.3		18.5	36	110	146	23.0	5.6	6.1	30	-	-	1.10	18.3	0.11	1.05	1.38	0.033	1.04	
4S	1415		S	6.4		18.6	63	84	147	18.0	5.3	5.6	30	2,300	230	0.84	20.0	0.09	0.85	2.19	0.053	1.19	
4AB	1435		24	6.5		18.5	79	100	179	27.0	5.3	6.1	40	-	-	1.00	29.0	0.18	0.86	1.66	0.013	1.07	
4AS	1435		S	6.3		18.6	44	95	139	20.0	5.3	6.7	35	9,300	430	0.95	27.0	0.10	0.34	1.71	0.021	0.98	
5B	1445		-	6.1		18.6	48	164	212	17.0	5.1	4.8	40	-	-	1.64	50.0	0.12	0.31	1.74	0.024	0.91	
5S	1445		S	6.4		18.8	38	153	191	24.0	5.1	3.8	40	4,300	230	1.53	48.0	0.64	0.85	-	0.020	1.05	
5AB	1500		32	6.8		18.2	50	515	565	6.5	4.5	3.7	50	-	-	5.15	500.0	0.10	0.35	1.23	0.053	0.86	
5AS	1500		S	6.6		18.3	48	598	646	22.0	4.9	10.8	50	2,300	75	5.98	540.0	0.15	0.35	1.42	0.047	0.73	
6B	1515		40	6.7		17.8	126	3,122	3,248	44.0	5.1	0.8	40	-	-	3.13	2100.0	0.17	0.15	1.72	0.040	0.70	
6S	1515		S	6.6		18.4	34	2,591	2,625	6.5	5.4	5.8	40	-	-	2.60	1850.0	0.13	0.17	1.51	0.033	0.71	
7B	1550		35	6.8		17.4	33	7,703	7,736	5.5	6.5	9.9	30	-	-	7.70	2900.0	0.14	0.45	0.58	0.053	0.30	
7S	1550		S	7.2		18.0	70	7,348	7,418	4.5	6.7	3.8	30	230	93	7.35	2900.0	0.09	0.29	0.83	0.033	0.32	
10S	1530		S	6.8		18.6	41	3,035	3,076	16.0	5.5	5.9	40	230	93	3.04	910.0	0.13	0.22	1.18	0.013	0.59	
11	1515		S	6.6		13.0	19	115	134	18.0	7.6	1.8	60	43,000	2,300	1.15	38.0	2.83	0.46	1.13	0.013	0.99	
12	1015		S	7.0		17.5	9	68	77	8.5	10.6	3.5	45	4,300 ✓	930	0.68	12.5	0.04	0.42	1.26	0.040	0.79	
13	1255		S	6.4		15.5	6	66	72	9.0	6.9	2.5	40	9,300 ✓	230	0.66	12.5	0.15	0.09	1.03	0.020	0.76	

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 5, 1970 BY: RVC, CRD

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																	
				pH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS Sus.	SOLIDS Dis.	SOLIDS Total	TURBIDITY	D.O ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Sal. o/oo	Cl- mg/l	Total PO_4 mg/l	NH_3 mg/l	Organ. N mg/l	NO_2 mg/l	NO_3 mg/l	
13A	1030		S	7.2		17.5	18	63	81	16.5	7.1	2.2	40	23,000	23,000	0.63	12.5	0.10	0.14	0.98	0.013	1.11	
14	1215		S	6.5		16.0	13	59	72	9.5	8.0	0.8	40	2,300	230	0.59	11.7	0.07	0.07	0.96	0.040	1.32	
14A	1035		S	6.9		18.0	13	110	123	3.5	7.3	4.8	40	2,300	23,000	1.10	12.1	0.06	0.11	1.10	0.033	0.98	
14B	1100		S	6.7		17.5	9	111	120	9.5	8.0	0.9	40	23,000	23,000	1.11	12.1	0.06	0.06	1.06	0.073	0.96	
14C	1110		S	6.7		13.5	6	122	128	6.5	5.8	4.2	60	9,300	4,300	1.22	12.1	0.11	sample missing	sample missing	0.040	0.99	
14D	1120		S	6.6	21.0	-	3	120	123	3.0	8.5	1.5	120	7,500	2,300	1.20	10.4	0.05	0.92	0.20	0.013	1.35	
14E	1200		S	6.6		13.5	3	102	105	11.5	7.1	2.3	55	2,300	150	1.02	10.4	0.12	0.12	0.81	0.020	0.14	
14F	1130		S	6.5		17.5	3	93	96	4.5	5.9	3.1	45	4,300	43	0.93	10.4	0.03	0.06	13.38	0.013	0.18	
14G	1245		S	6.5		14.0	21	119	140	17.0	7.1	3.6	110	23,000	23,000	1.19	12.5	0.12	0.25	0.96	0.020	0.95	
15	1050		S	6.7		14.5	12	126	138	12.5	5.5	13.5	30	43,000	23,000	1.26	20.8	0.22	1.00	14.49	0.033	0.42	
14E1	1645		S	7.0		16.0	4	136	140	7.5	6.4	3.4	10	15,000	43	1.36	14.6	-	-	-	-	-	

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
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Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: August 4, 1970 BY: RVC

WATER BODY: Wicomico River - Flood Tide

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	pH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS SUS.	SOLIDS DIS.	SOLIDS TOTAL	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond. µmhos @ 25°C	TKN µg/l N	Cl⁻ µg/l	NO_2 µg/l N	NO_3 µg/l N	T. Phos. PO_4^{-3} µg/l N	Phenol µg/l	NH_3 µg/l N
11	1315	-	S	6.5	30.0	23.0	33	271	304	-	3.0	5.2	200	24,000	11,000	400	1.77	100.0	0.085	1.14	2.35	-	0.75
12	1300	-	S	7.7	29.5	28.5	16	83	99	-	12.6	5.9	15	4,600	930	110	1.12	10.0	0.053	0.15	1.03	-	0.04
15	1100	-	S	6.8	29.5	28.5	34	104	138	-	11.6	5.5	50	11,000	930	190	26.79	36.0	0.163	0.31	2.40	-	16.04
13A	1255	-	S	6.6	30.0	28.5	22	81	103	-	10.8	6.2	25	24,000	11,000	100	1.59	26.0	0.074	0.73	1.21	-	0.04
13	1405	-	S	6.8	30.0	28.0	17	54	71	-	9.3	3.2	40	430	43	80	0.75	8.0	0.013	0.36	0.75	-	0.03
14A	1245	-	S	6.7	30.0	27.5	32	73	105	-	9.0	6.7	30	24,000+	11,000	110	1.95	17.5	0.470	0.72	1.30	-	0.15
14B	1330	-	S	-	30.5	26.0	21	73	94	-	9.5	6.7	30	230	93	86	1.59	10.0	0.015	0.01	0.75	-	0.03
14C	1430	-	S	-	30.5	26.5	17	51	68	-	8.4	2.5	25	2,400	930	85	0.75	9.5	0.017	0.61	1.35	-	0.03
14D	1435	-	S	-	31.0	25.0	27	138	165	-	4.2	5.0	35	24,000+	4,600	110	1.40	10.0	0.054	0.15	1.20	-	0.11
14	1510	-	S	-	30.5	22.0	14	85	99	-	7.5	2.8	35	11,000	750	75	0.65	9.0	0.004	1.34	0.75	-	0.04
14E	1505	-	S	-	31.0	19.5	25	57	82	-	6.4	2.0	35	4,600	430	70	0.56	7.0	0.007	1.08	1.35	-	0.03
14F	1520	-	S	-	31.0	20.0	15	51	66	-	7.4	3.4	40	2,100	93	60	0.75	6.0	0.004	0.02	0.75	-	0.02
14G	1350	-	S	-	31.0	21.0	23	84	107	-	5.7	2.2	90	11,000	930	80	1.07	15.0	0.010	1.41	1.10	-	0.05
14E1	1450	-	S	-	31.0	30.5	43	67	110	-	7.4	5.8	30	2,400	93	75	2.15	5.0	0.003	0.03	2.45	-	0.79

* DENOTES ANALYSIS MADE IN SITU
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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET — PAGE 1 OF 2

DATE COLLECTED: August 4, 1970 BY: RLS, WDT

WATER BODY: Wicomico River - Flood Tide

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	pH *	AIR TEMP. °C *	WATER TEMP. °C *	SOLIDS SUS	SOLIDS DIS.	SOLIDS TOTAL	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond. µmhos @ 25°C	TKN mg/l N	Cl- mg/l	NO_2 mg/l N	NO_3 mg/l N	T. Phos. PO_4^{-3} mg/l N	Phenol mg/l	NH_3 mg/l N
1B	1315	-	12'	-	-	28.1	-	-	-	-	4.0	-	-	-	-	.14	-	-	-	-	-	-	-
1S	1320	-	S	8.4	-	29.3	29	69	98	-	7.7	8.2	35	11,000	4,000	.12	2.05	10.0	0.061	0.37	1.53	-	0.13
2B	1310	-	15'	-	-	28.7	-	-	-	-	4.9	-	-	-	-	.18	-	-	-	-	-	-	-
2S	1315	-	S	6.9	-	29.4	12	85	97	-	9.0	9.3	40	11,000	4,600	.10	2.89	15.0	0.183	1.05	2.15	-	0.25
~~3B~~	~~1255~~	-	10'	-	-	28.4	-	-	-	-	5.6	-	-	-	-	.18	-	-	-	-	-	-	-
3S	1300	-	S	6.8	-	28.9	51	118	169	-	8.0	9.7	40	11,000	230	.16	2.61	17.0	0.183	0.99	2.33	-	0.31
4B	1245	-	15'	-	-	28.0	-	-	-	-	4.9	-	-	-	-	.12	-	-	-	-	-	-	-
4S	1250	-	S	6.8	-	28.4	39	87	126	-	7.3	7.4	45	4,600	930	.16	2.35	26.0	0.217	0.65	2.20	-	0.08
4AB	1230	-	19'	-	-	28.8	-	-	-	-	5.2	-	-	-	-	.18	-	-	-	-	-	-	-
4AS	1235	-	S	6.7	-	28.6	45	116	161	-	7.2	7.6	45	930	43	.16	2.05	37.0	0.053	0.65	0.90	-	0.05
5B	1215	-	20'	-	-	29.9	-	-	-	-	5.1	-	-	-	-	.30	-	-	-	-	-	-	-
5S	1220	-	S	6.8	-	29.0	27	168	195	-	6.4	6.2	35	1,500	93	.20	1.59	51.0	0.054	0.46	0.80	-	0.02
5AB	1205	-	24'	-	-	29.1	-	-	-	-	4.1	-	-	-	-	0.53	-	-	-	-	-	-	-
5AS	1210	-	S	6.7	-	28.9	31	236	267	-	5.1	3.9	45	4,600	230	0.42	1.49	103.0	0.079	0.29	1.38	-	0.03
6B	1150	-	25'	-	-	29.9	-	-	-	-	3.7	-	-	-	-	3.60	-	-	-	-	-	-	-
6S	1155	-	S	6.8	-	29.9	25	1,415	1,440	-	4.4	4.3	40	11,000	430	2.84	1.49	650.0	0.005	0.02	1.35	-	0.01
7B	1100	-	26'	-	-	29.2	-	-	-	-	3.7	-	-	-	-	10.62	-	-	-	-	-	-	-
7S	1105	-	S	7.1	-	29.3	38	5,319	5,357	-	4.4	2.0	40	930	430	9.75	0.84	1500.0	0.010	0.03	1.00	-	0.02
10B	1125	-	16'	-	-	29.2	-	-	-	-	4.4	-	-	-	-	5.96	-	-	-	-	-	-	-
10S	1130	-	S	6.9	-	29.4	34	2,659	2,693	-	5.0	2.6	50	930	210	5.20	1.31	2300.0	0.003	0.03	1.21	-	0.02

* DENOTES ANALYSIS MADE IN SITU
** - LESS THAN
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Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET — PAGE 1 OF 2

DATE COLLECTED: August 5, 1970 BY: RVC, RLS

WATER BODY: Wicomico River - Ebb Tide

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA NO	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	Air Temp °C	Water Temp °C	Solids Sus.	Solids Dis.	Solids Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond. µmhos @ 25°C	TKN mg/l N	Cl- mg/l	NO_2 mg/l N	NO_3 mg/l N	T.Phos. PO_4-3 mg/l N	Phenol mg/l	NH_3 mg/l N
1B	1137	-	10'	-	-	27.5	-	-	-	4.5	-	-	-	-	-	.10	-	-	-	-	-	-	-
1S	1142	-	S	6.7	-	28.6	25	24	49	8.6	-	7.2	30	-	-	.15	1.96	12.0	0.50	0.78	0.75	<0.10	0.36
2B	1130	-	13'	-	-	27.6	-	-	-	2.8	-	-	-	-	-	.20	-	-	-	-	-	-	-
2S	1135	-	S	6.5	-	28.4	46	59	105	4.4	-	6.4	40	-	-	.20	2.94	19.0	0.080	0.47	1.70	-	0.40
3B	1120	-	10'	-	-	28.1	-	-	-	6.4	-	-	-	-	-	.20	-	-	-	-	-	-	-
3S	1125	-	S	6.6	-	28.2	39	79	118	7.7	-	6.0	45	-	-	.20	2.80	16.0	0.090	0.46	1.10	-	0.40
4B	1110	-	15'	-	-	28.1	-	-	-	5.8	-	-	-	-	-	.10	-	-	-	-	-	-	-
4S	1115	-	S	6.6	-	28.1	35	7	42	6.3	-	6.0	45	-	-	.15	2.78	26.0	0.110	0.41	0.55	-	0.40
4AB	1055	-	30'	-	-	28.4	-	-	-	4.6	-	-	-	-	-	4.6	-	-	-	-	-	-	-
4AS	1100	-	S	6.6	-	28.5	28	106	134	4.8	-	7.2	45	-	-	4.6	1.60	36.0	0.170	0.40	0.65	-	0.34
5B	1020	-	17'	-	-	28.7	-	-	-	3.5	-	-	-	-	-	4.6	-	-	-	-	-	-	-
5S	1025	-	S	6.3	-	28.7	22	155	177	4.0	-	1.2	50	-	-	4.6	2.38	46.0	0.050	0.12	0.45	-	0.15
5AB	1030	-	25'	-	-	28.8	-	-	-	3.4	-	-	-	-	-	4.6	-	-	-	-	-	-	-
5AS	1035	-	S	6.7	-	28.9	22	382	404	3.6	-	8.2	40	-	-	4.6	1.33	160.0	0.06	0.25	0.30	-	0.17
6B	1015	-	25'	-	-	28.3	-	-	-	4.7	-	-	-	-	-	4.9	-	-	-	-	-	-	-
6S	1020	-	S	6.6	-	28.8	50	2,437	2,487	4.8	-	6.4	-	-	-	4.6	1.13	1350.0	0.02	0.03	0.20	-	0.06
7B	0945	-	13'	-	-	29.1	-	-	-	5.1	-	-	-	-	-	11.4	-	-	-	-	-	-	-
7S	0950	-	S	6.9	-	29.1	25	5,219	5,244	4.9	-	4.6	35	-	-	11.2	0.77	5950.0	0.02	0.03	0.95	-	0.06
10B	1000	-	17'	-	-	28.3	-	-	-	5.0	-	-	-	-	-	11.1	-	-	-	-	-	-	-
10S	1005	-	S	6.5	-	28.4	32	2,380	2,412	5.1	-	6.6	45	-	-	5.2	1.05	1250.0	0.02	0.03	0.20	-	0.03

* DENOTES ANALYSIS MADE IN SITU
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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: August 5, 1970 BY: JLH, RVC
WATER BODY: Wicomico River - Ebb Tide
SURVEY CODE NO:
LABORATORY ANALYSIS NO:

REMARKS:

Sta. No.	Time	Wx	Depth of Sample	DETERMINATIONS: pH	Air Temp. °C	Water Temp. °C	Solids: Sus	Solids: Dis.	Solids: Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond. µmhos 25°C	TKN mg/l N	Cl⁻ mg/l	NO_2 mg/l N	NO_3 mg/l N	T.Phos. PO_4^{-3} mg/l N	Phenol mg/l	NH_3 mg/l N
~~11~~	~~0950~~	~~1~~	S	6.7	-	19.0	22	258	280	-	4.1	21.0	80	-	-	390	1.89	100.0	0.17	0.97	0.45	-	0.66
12	0955	1	S	7.0	-	22.5	18	50	68	-	10.8	4.6	30	-	-	125	1.05	10.8	0.04	0.20	0.60	-	0.32
15	1035	1	S	6.2	-	26.0	12	44	56	-	5.6	39.0	30	-	-	170	13.09	17.0	0.09	0.13	1.05	-	12.31
13A	1005	1	S	6.5	-	26.5	17	78	95	-	9.9	7.2	30	-	-	95	1.26	11.0	0.05	0.81	0.40	-	0.48
13	0930	1	S	6.7	-	25.5	8	25	33	-	10.9	2.8	50	-	-	77	1.05	10.0	0.03	0.38	0.10	-	0.44
14A	1015	1	S	7.0	-	26.0	40	116	156	-	9.4	9.2	35	-	-	92	1.75	7.5	0.03	0.28	0.55	-	0.54
14B	1025	1	S	7.4	-	25.0	12	74	86	-	9.4	6.1	10	-	-	75	1.05	10.5	0.020	0.08	0.35	-	0.11
14C	1145	1	S	6.7	-	25.0	13	59	72	-	8.5	5.6	15	-	-	85	0.70	8.5	0.040	0.58	0.29	-	0.11
14D	1155	1	S	6.9	-	23.5	7	63	70	-	5.9	8.4	80	-	-	125	1.05	6.5	0.030	0.07	0.35	-	0.20
14	1330	1	S	6.7	-	20.0	6	65	71	-	8.4	1.3	25	-	-	75	1.05	7.5	0.030	1.97	0.35	-	0.03
14E	1320	1	S	6.7	-	17.5	14	35	49	-	7.7	1.2	40	-	-	62	0.70	6.0	0.020	1.78	0.50	-	0.03
14F	1340	1	S	6.6	-	29.0	7	55	62	-	8.6	3.4	50	-	-	56	0.70	6.0	0.020	0.03	0.15	-	0.09
14G	0910	1	S	6.7	-	19.0	12	90	102	-	7.0	4.0	65	-	-	122	1.40	17.0	0.040	1.86	0.20	-	0.28
14E1	1315	1	S	6.7	-	29.0	98	29	127	-	5.6	3.4	20	-	-	75	1.05	3.0	0.020	0.03	0.30	-	0.18

* DENOTES ANALYSIS MADE IN SITU
** - LESS THAN
*** - MORE THAN

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WR-2-4
Rev. 1-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 4, 1971 BY: NBY, RJP

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS: Flood Tide

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																			
							SOLIDS			TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cl^- mg/l	NO_2 mg/l	NO_3 mg/l	Total PO_4^{-3} mg/l	NH_3 mg/l	TKN mg/l	Sal. °/oo	
				pH	AIR TEMP. °C	WATER TEMP. °C	SUS.	DIS.	TOTAL														
25	1125	0	S	6.7	17.0	15.0	12	77	89	5	10.8	4.7	-	4,600	430	8.8	.012	1.46	.63	.16	1.21	.03	
4	1125	0	15	-	17.0	15.0	-	-	-	-	8.6	-	-	-	-	-	-	-	-	-	-	-	
25	1135	0	S	6.5	17.0	15.0	15	83	98	15	8.5	5.1	-	93	< 3	11.2	.025	1.40	1.12	.95	1.96	.05	
2	1135	0	17	-	17.0	15.0	-	-	-	-	7.8	-	-	-	-	-	-	-	-	-	-	-	
1	1150	0	S	6.9	17.5	14.5	27	44	71	20	9.6	7.3	-	230	<3	15.0	.041	1.03	1.02	1.09	2.99	.06	
3	1150	0	16	-	17.5	14.5	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-	-	
12	1205	0	S	7.4	17.0	14.0	14	57	71	30	9.0	4.3	-	75	9.1	28.0	.041	1.33	.59	.45	1.33	.07	
	1205	0	17	-	17.0	14.0	-	-	-	-	8.0	-	-	-	-	-	-	-	-	-	-	-	
13	1210	0	S	7.1	17.5	14.0	13	89	102	40	9.5	3.3	-	930	7.2	68.0	.041	1.17	.48	.13	1.21	.14	
5	1210	0	20	-	17.5	14.0	-	-	-	-	8.9	-	-	-	-	-	-	-	-	-	-	-	
6	1230	0	S	6.9	17.5	14.5	16	177	193	50	10.4	2.2	-	930	23	158	.041	1.14	.55	.07	1.01	.30	
7	1230	0	22	-	17.5	14.5	-	-	-	-	8.2	-	-	-	-	-	-	-	-	-	-	-	
8 S	1240	0	S	6.6	18.0	14.5	24	1,131	1,155	55	10.2	1.8	-	1,500	9.1	530	.038	1.06	.25	.09	2.52	.99	
8	1240	0	17	-	18.0	14.5	-	-	-	-	8.0	-	-	-	-	-	-	-	-	-	-	-	
9 S	1300	0	S	6.9	18.0	14.0	23	3,881	3,904	20	9.7	1.3	-	39	23	1825	.016	.67	.26	.11	1.45	3.20	
9	1300	0	20	-	18.0	14.0	-	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	
10	1330	0	S	6.8	18.0	14.0	25	3,082	3,107	35	9.9	1.3	-	23	3.6	1425	.012	.77	.19	.06	1.68	2.6	
7	1330	0	15	-	18.0	14.0	-	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	
10S	1310	0	S	7.1	18.0	14.0	25	6,737	6,762	12	10.8	2.2	-	230	15	3000	.029	.49	.14	.07	.89	5.4	
10	1310	0	9	-	18.0	14.0	-	-	-	-	8.0	-	-	-	-	-	-	-	-	-	-	-	

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

151

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 4, 1971 BY: RVC, WLB
WATER BODY: Wicomico River
SURVEY CODE NO:
LABORATORY ANALYSIS NO:

REMARKS:

Station No.	Time	WX	Depth of Sample	DETERMINATIONS: pH	Air Temp. °C	Water Temp. °C	Solids: Sus.	Solids: Dis.	Solids: Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cl- mg/l	NO_2 mg/l	NO_3 mg/l	Total PO_4^{-3} mg/l	NH_3 mg/l	TKN mg/l	Cond. micromhos
1	1105	C	S	7.0	12.0	12.0	26	145	171	30	7.5	3.4	-	930	430	30	.020	1.13	.49	.07	1.91	138
12	1120	C	S	7.1	11.5	15.0	20	82	102	15	9.3	4.4	-	230	9.1	8.8	.009	.87	.23	.16	1.59	90
13	1105	C	S	6.7	12.0	15.0		80	99	15	9.3	10	-	930	230	10	.020	1.67	.33	.07	1.61	170
13A	1100	C	S	6.8	11.5	15.5	8	75	83	10	8.0	3.7	-	4,600	750	8.8	.012	1.44	.20	1.41	5.03	65
13	1310	C	S	-	12.0	15.0	6	80	86	10	8.2	1.6	-	43	9.1	7.5	.006	1.26	.07	.04	.35	80
14A	1050	C	S	6.9	11.5	15.0	9	62	71	10	8.6	4.0	-	1,500	93	7.5	.009	1.05	.17	.07	1.03	86
15	0955	C	S	6.7	11.[illegible]	15.0	11	72	83	10	8.7	3.2	-	2,400	150	8.0	.009	1.02	.17	.45	.03	80
2	0940	C	S	6.[illegible]	11.0	12.5	4	69	73	5	8.6	.5	-	930	430	8.2	.016	1.75	.25	.52	1.77	90
10	0830	C	S	6.2	10.0	13.0	4	60	64	5	6.9	1.7	-	430	430	7.5	.009	.21	.25	.04	.47	70
4	0905	C	S	6.0	10.0	13.0	9	65	74	5	8.2	5.2	-	230	230	7.0	.019	1.75	.10	.04	.73	75
14B	0850	C	S	6.6	10.0	12.5	5	61	66	5	8.2	1.6	-	430	23	6.0	.006	1.50	.38	.04	1.31	70
14F	0810	C	S	6.5	10.0	11.5	5	71	76	5	9.4	3.5	-	150	15	5.3	.006	.22	.45	.04	1.03	90
14G	1320	C	S	6.7	12.0	12.5	8	89	97	5	7.6	1.6	-	430	150	9.0	.005	2.46	.10	.04	.65	170
14E1	0945	C	S	6.4	10.0	13.0	40	166	206	15	9.0	3.7	-	9.1	<3	5.2	.032	2.22	9.28	.04	.93	140

* DENOTES ANALYSIS MADE IN SITU
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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 5, 1971 BY: WEY, RJP

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS: Ebb Tide

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS Sus.	SOLIDS Dis.	SOLIDS Total	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cl- mg/l	NO_2 mg/l	NO_3 mg/l	Total PO_4-3 mg/l	NH_3 mg/l	TKN mg/l	Sil. ppm	Phenol mg/l
1S	1210	1	S	6.5	20.0	14.5	-	-	-	-	10.2	7.1	-	930	230	11.5	.026	1.13	.91	.77	2.20	.05	-
1	1210	1	20	-	20.0	14.5	-	-	-	-	5.7	-	-	-	-	-	-	-	-	-	-	-	-
2S	1155	1	S	6.6	20.0	14.5	-	-	-	-	10.0	6.8	-	2,300	230	13.5	.040	.96	1.23	1.14	3.60	.05	-
2	1155	1	20	-	20.0	14.5	-	-	-	-	7.5	-	-	-	-	-	-	-	-	-	-	-	-
3S	1145	1	S	6.4	20.0	14.5	-	-	-	-	10.2	7.5	-	75	<3	17.8	.046	.90	1.05	.90	3.00	.05	-
3	1145	1	21	-	20.0	14.5	-	-	-	-	8.8	-	-	-	-	-	-	-	-	-	-	-	-
4S	1135	1	S	6.7	20.0	14.0	-	-	-	-	9.7	3.2	-	230	9.1	26.0	.046	.97	.55	.67	1.60	.03	-
4	1135	1	20	-	20.0	14.0	-	-	-	-	8.3	-	-	-	-	-	-	-	-	-	-	-	-
4AS	1125	1	S	6.9	20.0	15.0	-	-	-	-	9.3	2.4	-	210	23	50.0	.040	.99	.50	.40	1.40	.12	-
4A	1125	1	20	-	20.0	15.0	-	-	-	-	7.9	-	-	-	-	-	-	-	-	-	-	-	-
5S	1115	1	S	7.3	19.5	14.5	-	-	-	-	9.5	2.6	-	1,500	93	125	.043	1.01	.69	.35	2.00	.23	.03
5	1115	1	22	-	19.5	14.5	-	-	-	-	7.2	-	-	-	-	-	-	-	-	-	-	-	-
5AS	1105	1	S	7.2	19.5	15.5	-	-	-	-	9.8	1.6	-	930	23	370	.033	.94	.39	.35	1.50	.73	-
5A	1105	1	22	-	19.5	15.5	-	-	-	-	7.0	-	-	-	-	-	-	-	-	-	-	-	-
6S	1050	1	S	7.1	19.0	15.0	-	-	-	-	9.6	1.4	-	93	15	1700	.020	.73	.23	.24	1.50	3.2	-
6	1050	1	27	-	19.0	15.0	-	-	-	-	5.8	-	-	-	-	-	-	-	-	-	-	-	-
7S	1015	1	S	6.6	19.0	15.0	-	-	-	-	9.8	1.9	-	75	9.1	3300	.010	.50	.65	.65	1.90	1.5	-
7	1015	1	15	-	19.0	15.0	-	-	-	-	5.4	-	-	-	-	-	-	-	-	-	-	-	-
10S	1035	1	S	-	19.0	14.0	-	-	-	-	9.0	1.4	-	9.3	9.3	1350	.033	.76	.23	.17	1.00	3.47	-
10	1035	1	10	-	19.0	14.0	-	-	-	-	6.0	-	-	-	-	-	-	-	-	-	-	-	-

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET

DATE COLLECTED: May 5, 1971 BY: RVC, WLB

WATER BODY: Wicomico River

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	PH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS SUS.	SOLIDS DIS.	SOLIDS TOTAL	TURBIDITY	D.O. ppm	B O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cl- mg/l	NO_2 mg/l	NO_3 mg/l	Total PO_4-3 mg/l	NH_3 mg/l	TKN mg/l	Cond. micros
11	1050	0	S	6.9	14.0	14.0	-	-	-	-	7.2	1.4	-	930	230	49	.016	1.32	.30	.28	1.10	300
12	1040	0	S	7.4	13.5	16.0	-	-	-	-	10.2	5.1	-	150	23	11.3	.013	.70	.19	.17	1.20	80
15	1210	0	S	7.1	15.0	18.0	-	-	-	-	10.6	6.3	-	1,500	43	10.5	.066	1.34	.27	1.01	2.40	100
13A	1030	0	S	7.3	13.5	15.5	-	-	-	-	8.6	3.6	-	2,300	230	10.0	.013	1.35	.23	.21	1.00	85
13	1150	0	S	6.4	13.5	16.0	-	-	-	-	8.6	1.6	-	1,500	9.1	9.5	.010	1.07	.09	.10	.80	75
14A	1015	0	S	6.9	13.0	16.0	-	-	-	-	9.1	3.8	-	2,300	150	8.8	.013	1.12	.27	.19	1.60	90
14B	1010	0	S	6.8	13.0	16.0	-	-	-	-	9.3	4.0	-	4,300	23	8.6	.013	1.09	.25	.15	1.10	80
14C	1000	0	S	6.5	13.0	15.0	-	-	-	-	9.6	2.0	-	750	43	8.5	.010	1.58	.20	.12	.70	75
14D	0955	0	S	6.1	13.0	12.0	-	-	-	-	6.8	1.7	-	2,100	430	7.5	.006	.13	.11	.08	.70	65
14	0945	0	S	6.1	12.5	12.0	-	-	-	-	7.8	1.6	-	2,300	93	8.3	.013	1.70	.33	.02	.70	70
14E	0930	0	S	6.5	12.5	12.0	-	-	-	-	7.6	.9	-	300	43	6.3	.003	1.51	.14	.06	1.10	60
14F	0340	0	S	6.8	12.5	15.5	-	-	-	-	8.2	3.6	-	23	9.1	7.0	.006	.10	.09	.09	.80	50
14G	1110	0	S	6.4	13.5	12.5	-	-	-	-	7.7	1.0	-	4,300	4,300	10.5	.006	2.10	.09	.10	.80	90
14E1	0920	0	S	6.4	12.5	15.0	-	-	-	-	8.2	1.6	-	430	<3	24	.013	2.14	7.73	2.86	6.40	130

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET PAGE OF

DATE COLLECTED: August 10,1971 BY:
WATER BODY: Wicomico River
SURVEY CODE NO:
LABORATORY ANALYSIS NO:

REMARKS: Boat Stations
Tide: Flood

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	Air Temp °C	Water Temp °C	Solids Sus.	Solids Dis.	Solids Total	Turbidity	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml		Tot P mg/l	PO4 mg/l	NO2 mg/l	NO3 mg/l	NH3-N mg/l	TKN mg/l	Oil Grease mg/l
1	1140	1	s	-		29.1	32	104	136		9.9	7.3	50	2400	120		1.55	1.53	0.035	0.22	0.14	2.20	
2	1150	1	s	-		33.7	38	106	144		9.6	6.9	50	4600	93		0.91	0.47	0.043	0.23	0.14	2.10	
3	1155	1	s	-		27.7	44	112	156		9.0	6.8	50	4600	43		0.85	0.30	0.043	0.18	0.07	2.00	
4	1205	1	s	-		34.3	52	120	172		8.7	6.3	50	4600	93		0.53	0.30	0.014	0.18	0.07	2.00	
4A	1210	1	s	-		30.2	24	146	170		8.9	6.0	50	4600	43		0.53	0.26	0.014	0.06	0.07	1.80	
5	1225	1	s	-		27.0	64	166	230		7.1	5.1	50	4600	93		0.57	0.21	0.035	0.27	0.07	2.30	11
5A	1241	1	s	-		28.2	44	324	368		6.2		70	11000	430		0.47	0.43	0.014	0.06	0.07	1.60	
6	1300	1	s	-		25.0	34	2152	2186		5.9	3.8	50	930	43		0.32	0.22	0.014	0.06	0.07	1.30	
7	1315	1	s	-		29.7	36	5962	6000		6.8	2.5	50	230	230		0.30	0.15	0.014	0.06	0.07	0.80	
10	1320	1	s	-		29.0	36	2874	2910		6.7	2.4	60	430	230		0.30	0.11	0.014	0.05	0.07	1.10	

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
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WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET — PAGE OF

DATE COLLECTED: August 10, 1971 BY: RVC
WATER BODY: Wicomico River Tribs.
SURVEY CODE NO:
LABORATORY ANALYSIS NO:

REMARKS: Truck Stations

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS: pH	AIR TEMP. °C	WATER TEMP. °C	Solids: Sus.	Solids: Dis.	Solids: Total	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond.		Spring Tests: PO4 mg/l	Spring Tests: PO4 mg/l	Spring Tests: NO2 mg/l	Spring Tests: NO3 mg/l	Spring Tests: Nitrogen mg/l	Spring Tests: Cl mg/l
11	1140	O	s	7.4	-	23.5	20	278	298	-	3.7	8.4	160	24,000	2,400	130		0.19	0.47	0.014	1.24	0.60	[illegible]
12	1130	O	s	8.3	-	30.0	6	46	52	-	14.0	2.2	45	2,400	230	54		0.09	0.23	0.014	0.05	0.28	[illegible]
13	1155	O	s	6.9	-	31.0	6	60	66	-	8.8	5.0	50	1,150	75	47		0.28	0.49	0.264	0.24	4.57	[illegible]
13A	1015	O	s	8.7	-	29.0	16	42	58	-	12.6	5.8	65	2900	750	45		0.28	0.49	0.007	0.02	1.28	[illegible]
13	1315	O	s	6.2	-	30.0	2	32	34	-	9.8	1.0	70	930	15	34		0.02	0.69	0.014	0.58	[illegible]	[illegible]
14A	1010	O	s	7.9	-	29.5	18	36	54	-	12.5	4.4	80	11,000	930	44		0.30	0.60	0.014	0.12	0.57	[illegible]
14B	1000	O	s	6.7	-	24.0	12	36	48	-	7.8	3.5	65	930	23	38		0.19	0.40	0.021	0.11	0.07	[illegible]
14C	0950	O	s	6.6	-	23.5	1	42	43	-	4.7	5.9	45	4,600	230	42		0.11	0.30	0.014	0.07	0.07	[illegible]
14D	0940	O	s	6.6	-	22.5	4	88	92	-	2.7	6.6	150	2,100	640	60		0.19	0.25	0.014	0.26	[illegible]	[illegible]
14	0925	O	s	6.5	-	20.0	2	66	68	-	5.6	2.3	50	430	93	40		0.53	0.67	0.024	0.29	0.07	[illegible]
14E	0915	O	s	6.6	-	17.5	10	50	60	-	6.2	1.5	45	430	93	30		0.19	0.11	0.042	0.01	0.07	[illegible]
14F	0845	O	s	6.9	-	26.0	14	46	60	-	6.0	3.4	100	43	43	30		0.15	0.32	0.014	1.10	0.07	[illegible]
14G	1230	O	s	6.6	-	21.0	12	72	84	-	6.7	4.2	60	2,400	230	43		0.09	0.09	0.014	0.26	0.07	[illegible]
14B1	0910	O	s	6.7	-	21.0	22	82	104	-	1.8	8.4	100	430	93	85		0.09	0.26	0.014	0.05	0.28	[illegible]

* DENOTES ANALYSIS MADE IN SITU
** - LESS THAN
*** - MORE THAN

151

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET PAGE OF

DATE COLLECTED: August 11, 1971 BY:
WATER BODY: Wicomico River
SURVEY CODE NO:
LABORATORY ANALYSIS NO:

REMARKS: Boat Stations
Tide:

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																				
				pH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS SUS.	SOLIDS DIS.	SOLIDS TOTAL	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml		T.PO4 mg/l	O.PO4 mg/l	Nitrite mg/l N	Nitrate mg/l N	NH3-N mg/l N	TKN mg/l N	Grease & Oil mg/l (Rev. [illegible])
1	0954	1	s	-		26.7	42	114	156		7.0	5.8	50	2300	2300		1.00	0.47	0.035	0.19	0.14	2.00	
2	1005	1	s	-		26.9	42	116	158		6.7	5.3	60	23,000	930		1.17	0.60	0.035	0.19	0.28	2.20	
3	1011	1	s	-		27.0	46	116	162		7.1	4.8	60	9300	750		0.96	0.42	0.050	0.17	0.19	2.10	
4	1020	1	s	-		27.2	46	152	198		6.1	4.1	60	930	93		0.72	0.32	0.035	0.19	0.07	1.60	
4A	1035	1	s	-		27.2	54	220	274		5.5	4.9	60	2,300	150		0.57	0.26	0.035	0.19	0.07	1.10	
5	[illegible]	[illegible]	[illegible]	-		27.3	52	362	414		4.8	6.0	55	2,300	230		0.45	0.17	0.007	0.023	0.07	1.50	22
5A	1055	1	s	-		27.2	44	878	922		5.3	3.5	65	4,300	430		0.45	0.21	0.014	0.100	0.07	1.10	
6	1114	1	s	-		27.2	52	4172	4224		5.4	1.9	60	4,300	2,300		0.35	0.17	0.007	0.023	0.07	1.10	
10	1120	1	s	-		27.3	62	3532	3594		5.3	1.9	60	2,300	230		0.47	0.21	0.007	0.023	0.07	1.10	
7	1205	1	s	-		27.3	54	6722	6776		5.9	2.9	60	930	930		0.57	0.34	0.007	0.023	0.07	1.10	

A-21

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

157

WR-Q-4
Rev. 6-70

STATE OF MARYLAND
DEPARTMENT OF WATER RESOURCES
WATER QUALITY INVESTIGATION DIVISION

FIELD DATA SHEET PAGE OF

DATE COLLECTED: August 11, 1971 **BY:** RVC

WATER BODY: Wicomico River Tribs.

SURVEY CODE NO:

LABORATORY ANALYSIS NO:

REMARKS: Truck Stations

STA. NO.	TIME	WX	DEPTH OF SAMPLE	DETERMINATIONS																		
				pH	AIR TEMP. °C	WATER TEMP. °C	SOLIDS Sus.	SOLIDS Dis.	SOLIDS Total	TURBIDITY	D.O. ppm	B.O.D. ppm	Color ppm	Coliform mpn/100 ml	E. Coli mpn/100 ml	Cond.	Chlorides ppmCl		Ortho PO4 mg/l	Total PO4 mg/l	No2 mg/lN	NO3 mg/lN	NH3-N mg/lN
11	1030	O	s	8.0	-	24.5	64	242	306	-	3.2	6.0	140	43,000	9,300	85	74		0.60	1.19	0.080	0.22	0.12
12	1045	O	s	8.7	-	28.0	6	56	62	-	11.6	5.0	50	2,300	430	39	18.3		0.21	0.49	0.001	0.02	0.14
15	1130	O	s	6.9	-	29.0	8	46	54	-	8.3	5.2	60	1,500	230	45	18.0		0.21	0.49	0.100	0.51	3.60
13A	1035	O	s	7.6	-	28.5	14	40	54	-	9.6	5.2	80	1,500	75	39	13.8		0.29	0.64	0.461	0.14	1.30
13	115	O	s	6.7	-	27.5	1	18	19	-	8.4	2.9	75	930	93	30	10.0		0.13	0.16	0.014	0.10	0.31
14A	1025	O	s	7.0	-	27.5	14	40	54	-	9.4	5.2	60	2,300	930	41	14.5		0.30	0.64	0.014	0.10	0.14
14B	1020	O	s	6.6	-	23.5	2	42	44	-	6.6	2.6	60	1,500	750	38	10.3		0.51	0.61	0.021	0.11	0.77
14C	1005	O	s	6.5	-	23.0	1	44	45	-	4.7	1.8	45	2,300	230	40	8.3		0.43	0.60	0.014	0.11	0.34
14D	0955	O	s	6.4	-	22.5	74	76	150	-	2.1	5.8	120	43,000	4,300	54	7.3		0.21	1.60	0.014	0.15	0.07
14	0945	O	s	6.3	-	20.0	1	38	39	-	5.1	2.0	50	23,000	23,000	40	8.5		0.66	0.83	0.078	0.31	0.18
14E	0935	O	s	6.5	-	17.5	1	20	21	-	6.9	1.2	45	930	430	33	6.5		0.09	0.57	0.014	0.04	0.07
14F	0915	O	s	6.8	-	26.0	4	20	24	-	4.9	4.3	100	4,300	75	19	6.5		0.05	0.25	0.049	1.20	0.11
14G	1110	O	s	6.7	-	20.0	-	-	-	-	5.5	-	-	3,900	2,300	46	10.0		0.08	0.09	0.014	1.43	0.21
14E1	0930	O	s	6.6	-	21.0	-	-	-	-	1.9	-	-	93,000	4,300	58	8.3		0.09	0.34	0.021	0.04	0.11

* DENOTES ANALYSIS MADE IN SITU
** = LESS THAN
*** = MORE THAN

JAMES B. COULTER
SECRETARY

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
REGIONAL SERVICE CENTER
910 COOPER STREET
SALISBURY, MARYLAND 21801
TELEPHONE: (301)-749-2461

JOSEPH H. MANNING
DEPUTY SECRETARY

October 16, 1973

Mr. Michael S. Haire
Greiner Environmental Systems, Inc.
One Village Square
Baltimore, Maryland 21210

Dear Mr. Haire:

In reply to your letter of Sept. 27, 1973 I would like to offer the following:

1. The habitat in this particular area for wildlife consist of small farms interspersed with small wood-lots most of which are less than 100 acres. The farming is truck farming with some cash crops such as soybeans, corn and some grain. There are also a number of housing developments and the area is beirg developed at an increasing rate. The housing will continue as the soil is mostly light and well drained making it ideal for this purpose. The wooded areas are mostly second growth mixture of hard and soft woods so their greatest value to wildlife is for cover for small game and nesting sites for birds. There is very little mature timber so the forest game population is low. The small game population is fair to good.

2. Food for wildlife would be mostly from farming operations and the native weeds and legumes associated with it such as smartweed, foxtail, ragweed, crabgrass, clover and lespedezas. This source of food will be diminished in proportion to the number of acres taken out of production by the highway.

3. The adverse affects of the road will be primarily as mentioned above, the reduction of the number of acres available to wildlife. The road will not only take up habitat that was once available to wildlife but will also attract more human activity to the area.

4. The fact that this will be a limited access highway will prevent the establishment of a strip-town. This will at least reduce the human activity in the immediate vicinity of the highway.

Hoping the above is of some value to you.

I am
Sincerely yours,

John Warren
Regional Wildlife Manager

JW:eph

MARYLAND DEPARTMENT OF NATURAL RESOURCES
WILDLIFE ADMINISTRATION

RALPH A. BITELY
ADMINISTRATOR

EARL H. HOCIL
DEPUTY ADMINISTRATOR

TAWES STATE OFFICE BUILDING
ANNAPOLIS 21401
AREA 301-267-5195

October 16, 1973

Mr. Michael Haire
Greiner Environmental Systems, Inc.
One Village Square
Baltimore, Maryland 21210

Dear Mr. Haire:

In the area you have outlined, there are several wetland areas which you should be concerned with. These appear as wetland units 21, 22 & 23 on the Maryland Wetlands Survey.

Wetland Unit #21
Fooks Pond
Wetland Type 5 (Inland open waters) 7 acres

Waterfowl
This area has moderate populations of Puddle ducks. Mostly Mallards and black ducks with some nesting. Also Diving ducks and Geese use the pond at times for resting and feeding. Other migratory avian species using the area include Dove and Woodcocks.

Mammals
Otter and Muskrat are the most important mammals using the area. Other mammals include Deer, Fox, Raccoon, Squirrel, Opossum and rabbit.

Shorebirds
Principle shorebirds species are Great Blue Heron and Little Green heron.

Finfish
Finfish include Largemouth Bass, Bluegill, Pickerel, Yellow Perch and Black Crappie.
This pond is also noted for its excellent Bass fishing and is rated as well above average for the State as a whole.

Opinion: Extreme care should be taken in any construction to avoid siltation in the pond, particularly during the breeding period, March through July.
Heavy siltation could cause the loss of a years spawnning and result in a loss of and excellent sport fishery.

C-1

Wetland Unit #22
Tony Tank, White Marsh Creek
Wetland Type #6 (Shrub Swamp) 218 acres.

Waterfowl
Black ducks and Mallards use this area for resting, feeding and nesting.

Other Migratory Birds
Dove and Woodcock use this area for resting, nesting and feeding.

Mammals
Deer, Rabbit, Squirrel, Muskrat, Otter, Opossum, Skunk, Fox and Raccoon can be found in this area in moderate populations.

Shorebirds
The Great Blue Heron is the predominant species found in this area.

The prinicple use being made of this area at present is hunting, although primarily dove and upland, pending development and drainage is threatening the whole area.

Opinion: Care should be taken in this area so as to minimize drainage to this swamp and areas down stream.

Wetland Unit #23
Slabbridges Creek and Upper Handy Pond
Wetland Types 6 & 7 (Shrubs and Wooded Swamps) 17 acres.

Waterfowl
Some Blacks and Mallards use this area for resting and feeding.

Other Migratory Birds
Dove and Woodcock use the area for resting and feeding.

Mammals
Deer, Rabbit, Squirrel, Opossum, Raccoon, Fox, Otter and Muskrat utilize this area.

Finfish
Largemouth Bass, Bluegill, Pickerel, Black Crappie and Yellow Perch are found, but the area is not a major fishery.

Opinion: The area has already suffered a substantial loss from drainage. Care should be taken to insure that the remaining area is not harmed.

Sincerely,

James R. Goldsberry
Furbearer Section Leader

JRG:hw

cc: E. Hodil

March 4, 1966

Re: Proposed Relocation of U. S. Route 13 East of Salisbury - North of Zion Road to South of Fruitland

Mr. Richard Ackroyd
Division Engineer
Bureau of Public Roads

Dear Mr. Ackroyd:

In accordance with Policy & Procedure Memorandum No. 20-8, Public Hearings, Federal-aid Projects, dated August 10, 1956 and Policy & Procedure Memorandum No. 20-8(1), dated June 16, 1959, transmitted herewith are three transcripts of the public hearing held on the proposed relocation of U. S. Route 13 East of Salisbury, on Friday, February 18, 1966.

Also transmitted herewith are copies of the public notice placed in the local newspapers, and announced on TV and three radio stations.

We trust that these documents fulfill the requirements of PPM 20-8 and request that you inform us of your opinion. Full consideration will be given to the views of the public presented at this hearing in making a determination of the recommended alternative routing to be submitted for your review and approval.

Very truly yours,

JOHN B. FUNK
Chairman-Director

BY: Walter J. Addison, Chief
Planning & Programming Division

WJA:ag

D-1

Enclosures: as noted above

LAW OFFICES OF
PORTER & CULLEN
106-8 W. CIRCLE AVENUE
SALISBURY, MARYLAND
21801

W. EDGAR PORTER
PHONE 749-5177

RICHARD E. CULLEN
PHONE 749-5178

February 19, 1966

Mr. John B. Funk, Chairman
State Roads Commission of Maryland
300 W. Preston Street
Baltimore, Maryland 21201

Dear Mr. Funk:

Pursuant to my promise to you last night, I am sending herewith the several copies of the Petition which I presented containing the 605 names of the people of Wicomico County, principally property owners, who have favored Route E-1 or Eastward toward the Airport as the new by-pass route.

With kindest regards,

Very truly yours,

W. Edgar Porter

W. Edgar Porter WEP

WEP:wlp
Enclosures

165

400 Atlantic Avenue
Salisbury, Maryland 21801
February 18, 1966

Maryland State Roads Commission
Salisbury, Maryland

Gentlemen:

Re: Route #13 By-Pass

I respectfully request that serious consideration be given to the placing of the Route #13 by-pass as far east of the City of Salisbury as possible.

In view of the fact Wicomico County is in the process of obtaining land on the south side of Shumacher Pond for community recreational purposes and that many youth of the community will be reaching these facilities without adult supervision by either walking or riding bicycles, I am concerned for their safety. Therefore feel in the best interests of the community, the route be located as far away from these facilities as possible.

Yours truly,

Hattie M. Gardner

(Mrs. Fred M. Gardner)

D-3

166

BURRAU OF PUBLIC ROADS

206 Federal Building
31 Hopkins Place
Baltimore, Maryland 21201

RECEIVED
JUN 18 1970
ADMINISTRATIVE DIVISION

June 17, 1970

Maryland Project WI 393-1-171
Federal Project F 932-1(2)

Mr. David H. Fisher
Chairman-Director
Maryland State Roads Commission
Baltimore, Maryland 21201

Dear Mr. Fisher:

Thank you very much for your letter of May 19, 1970, whereby you requested approval of a relocation study on the above project.

Approval was delayed while a field inspection of the district office inventory of available housing and rental units was made by members of my staff. The existing inventory was found to be inadequate at the time, but an effort is being presently made to correct this situation as a result of our visit.

The 7b study, as presented, is conditionally approved only for those items as requested by the State's letter of May 28, 1970 and amended by us with an effective date of June 1, 1970. Approval of the complete study will be forth coming when the State can assure this office that a sufficient inventory exists in the district office for the present and anticipated needs.

Future authorization of right-of-way plans on the Salisbury By-pass must, of necessity, be withheld pending submittal of a 7b relocation study on all the property which will be needed.

The timeliness of 7b relocation studies is important from the managerial position, since design approval cannot be granted until a study is approved. Studies should be submitted either prior to or with the design report required by PPM 20-8.

cc: Mr. W. E. Woodford
Mr. H. C. Downs
Mr. N. B. Friese
Mr. A. Bergla

Sincerely yours,

Sgd. R. Ackroyd

Richard Ackroyd
Division Engineer

E-1

January 2, 1970

Re: Contract No. MI-395
F.A. Project Nos. F-932-1(1) thru (7)
Salisbury By-Pass

Mr. Richard Ackroyd
Division Engineer
Bureau of Public Roads
Baltimore, Maryland 21201

Dear Mr. Ackroyd:

Enclosed are three (3) copies of the Notice to the Public that the State Roads Commission of Maryland has requested the Bureau of Public Roads to approve the design of the Salisbury By-Pass as presented to the Bureau of Public Roads in a design study report developed subsequent to the Public Hearing held October 21, 1969.

Please note, this Public Notice was previously sent attached to our letter dated December 19, 1969, but the enclosed was re-advertised by the Daily Times on December 24, 1969.

Very truly yours,

David H. Fisher
Chairman-Director

by: Thomas Hicks
Acting Deputy Chief Engineer
Planning and Safety

THsGRGive
Enclosures (3)

cc: Mr. W. E. Woodford, Jr.
Mr. H. G. Downs
Mr. M. B. Friese

Salisbury Wicomico Economic Development, Inc.

SUITE 502 WICOMICO HOTEL BLDG.
SALISBURY, MARYLAND 21801
(301) 749-1451

October 17, 1969

Mr. Walter J. Addison
Deputy Chief Engineer for Planning
& Safety
Room 209
West Preston Street
Baltimore, Maryland 21201

Dear Mr. Addison,

As the agency charged with the responsibility of Economic Development for Salisbury and Wicomico County, I would appreciate having an official map of the proposed design of the relocation of U. S. Route 13 East of Salisbury. This map will allow us to better answer the questions of potential industry and business.

If there is a charge, please let us know in advance of sending the map. Thank you.

Sincerely,

Robert L. Kiley,
Executive Director

RLK:bf

Enclosure

December 8, 1969

The Daily-Times
Salisbury, Maryland 21801

Gentlemen:

Please insert the following notice, including the accompanying map reduced to appropriate size, in the earliest possible weekday edition of your paper.

PUBLIC NOTICE

Notice is hereby given that the State Roads Commission of Maryland has requested the U.S. Bureau of Public Roads to approve the design of the Salisbury by-pass (relocated U.S. 13) as presented to them in a design study report developed subsequent to the Public Hearing held in Salisbury, Maryland, October 21, 1969.

The project extends from a point 0.5 mi. north of Zion Rd. in a southerly direction to 0.7 mi. north of the Somerset County line.

The proposed construction consists of a dual highway with 2-24' roadways with 10' shoulders on the right and 4' shoulders on the left, separated by a 74' median which includes the 4' shoulders.

Relocated U.S. 13 will be a controlled access highway (Freeway design) with interchanges proposed at the following points:

1. Existing U.S. 13 north of Salisbury
2. U.S. Route 50
3. Md. Route 12
4. St. Lukes Rd.
5. Existing U.S. Route 13 south of Salisbury

Public Hearing E-4 Salisbury Bypass

In addition to the grade separation structures at the above mentioned interchanges, structures are proposed for the following locations:

1. Zion Rd.
2. Baltimore and Eastern R.R.
3. Md. Route 346
4. Md. Route 350
5. A single structure carrying the combined county roads-Johnson Rd., Ward Rd, Schumaker Rd. and Nutters Cross Rd. over relocated U.S. Rte. 13
6. Coulbourne Mill Rd.
7. Meadow Bridge Rd.

Maps, drawings and other pertinent information in support of the request for design approval is publicly available for inspection during normal working hours at the State Roads Commission's District Office, located on West Road, Salisbury, Md.

You may bill us in triplicate for this ad certified just and correct and payment not received to the attention of Mr. Thomas Hicks, Acting Deputy Chief Engineer, Planning and Safety, Room 209, 300 West Preston St., Baltimore, Maryland 21201.

Very truly yours,

Thomas Hicks
Acting Deputy Chief Engineer
Planning & Safety

TH:nd

cc: Mr. Woodford - w/maps
Mr. Downs - w/maps
Mr. Evans - w/maps

December 1, 1969

Mr. Richard Ackroyd
Division Engineer
Bureau of Public Roads
Federal Building- Room 206
31 Hopkins Place
Baltimore, Maryland 21201

Re: Contract No. MI-395- -171
Salisbury By-Pass
From 0.5 Mile North of Zion
Road to 0.7 Mile North of
Somerset County Line

Dear Mr. Ackroyd:

Attached herewith are three (3) copies of the Design Study Report for the Salisbury By-Pass. The Design Public Hearing for this project was conducted on October 21, 1969, and a transcript of the Hearing was furnished your office on November 21, 1969.

Your approval of the Design Study Report as submitted is requested.

Very truly yours,

David H. Fisher
Chairman- Director

By _____
Walter F. Woodford, Jr.
Chief Engineer

WFW,JR/ggs

Enclosures:

CC: Mr. Hugh C. Dorns
Mr. Malcolm D. Phillpot
Mr. Northam B. Pricco

172

November 21, 1969

Mr. Richard Ackroyd
Division Engineer
Bureau of Public Roads
Baltimore, Maryland

Contract No. MI-503- -171
F.A.P. No. F-032-1
Relocation of U.S. Route 13
East of Salisbury

Dear Mr. Ackroyd:

Enclosed are three (3) copies of the transcript of the design public hearing, which was held in the Wicomico Junior High School on October 21, 1969, relative to the relocation of U.S. Route 13 east of Salisbury.

Copies of the exhibits used in conjunction with the hearing presentation as well as all statements received in connection with the hearing are included in the back of the transcript. Copies of maps, drawings, and other data which were made available for public viewing prior to the hearing are available, and we would be happy to furnish you copies should you so desire. A copy of this transcript has also been furnished our district office in Salisbury and will be available for public inspection and copying.

We believe this satisfies the requirements of paragraph 8-c of PPM 20-8 dated January 14, 1969, and would appreciate your early review and concurrence.

Very truly yours,

David H. Fisher
Chairman-Director

By _____
Thomas Hicks, Acting
Deputy Chief Engineer
Planning and Safety

Encl
Enclosure

cc: Mr. Walter E. Woodford, Jr.
Mr. Hugh G. Dodd
Mr. Lisle C. McCord
Mr. William K. Lee, III

(Letter dictated by Mr. Friese)

Transcribed from above:

Enclosed are three (3) copies of the transcript of the design public hearing, which was held in the Wicomoco Junior High School on October 21, 1969, relative to the relocation of U. S. Route 13 east of Salisbury.

Copies of the exhibits used in conjunction with the hearing presentation as well as all statements received in connection with the hearing are included in the back of the transcript. Copies of maps, drawings, and other data which were made available for public viewing prior to the public hearing are available, and we would be happy to furnish you copies should you so desire. A copy of this transcript has also been furnished our district office in Salisbury and will be available for public inspection and copying.

We believe this satisfies the requirements of paragraph 8-c of PPM 20-8 dated January 14, 1969, and would appreciate your early review and concurrence.

MEMORANDUM

November 21, 1960

TO: See Distribution Below

FROM: Norman B. Friese, Chief
Bureau of Program Scheduling and Control

SUBJECT: Transcript of Public Hearing on Relocation of U.S. Route 13 East of Salisbury

Enclosed for your reference and use, is a copy of the transcript of the public hearing, which was held in the auditorium of the Wicomico Junior High School, Salisbury, Maryland, on October 31, 1960, relative to the Relocation of U.S. Route 13 East of Salisbury.

NBF:ecr
Enclosure

cc: Mr. Thomas Hicks

Distribution

Mr. Richard Ackroyd, Bureau of Public Roads (5)
Mr. Walter E. Goodford, Jr., Chief Engineer
Mr. Hugh G. Downs, Deputy Chief Engineer - Development
Mr. Philip B. Miller, Chief, Bureau of Highway Design
Mr. Malcolm D. Philpot, Chief, Bureau of Special Services
Mr. Roland W. Thompson, Chief, Bureau of Location & Surveys
Mr. Jerry L. White, Chief, Bureau of Highway Planning
Mr. William K. Lee III, District Engineer
Mr. James A. Smith, District Right of Way Engineer
Mr. Louis A. Yost, Jr., Chief, Right of Way Division
Mr. Leslie H. Evans, Regional Commissioner, SSA
Mr. Fred A. Grier, Jr., Planning & Zoning Coordinator
Mr. C. Kirk Banks, Roads Engineer
Mr. Henry Berger, Federal Aid Liaison Engineer
Library
Mr A. L. Gould, Asst. Chief Engr. - Design
Mr R H. Dorsey, Bur of Location + Surveys

E-8

Public Hearing
Salisbury
Route

Mr. [illegible] cc
Mr. Friese

STATE OF MARYLAND
STATE ROADS COMMISSION
300 WEST PRESTON STREET
BALTIMORE, MD. 21201
(MAILING ADDRESS P.O. BOX 717, BALTIMORE, MD. 21203)

November 18, 1969

Mr. Carl A. Koone
Route 3
Delmar, Delaware 19941

Dear Mr. Koone:

This will acknowledge receipt of a copy of your letter of October 6, 1969, addressed to Governor Mandel, concerning the Alternate U.S. Route 13 Bypass of Salisbury.

As you have indicated, delays have occurred in the advertising of this project. Unfortunately, the adoption by the Bureau of Public Roads, early in 1969, of a policy requiring that two public hearings (a Corridor Hearing and a Design Hearing) be held on each project resulted in some delay in proceeding with the design and right of way acquisition until we had complied with the requirements of the Design Hearing. Prior to the two hearing policy, only the Corridor Hearing had been required.

With the general acceptance by the community of the presentation at the Design Hearing held several weeks ago, there should be no further delay in completing plans and advertising of projects.

Plans for the full length of Alternate Route 13 are now approximately 1/3 complete and the right of way plats for the section from U. S. Route 13 North of Salisbury to U. S. Route 50 are expected to be completed by the end of December, 1969. It is anticipated that we will advertise for bids on the U. S. Route 13 Ramp Bridge (North of Salisbury) in March, 1970, with the subsequent bridge and roadway projects to be advertised as promptly as programming schedules and funding permit.

Please be assured of our interest in seeing that work is advertised and placed under construction as rapidly as possible.

Very truly yours,

David H. Fisher
Chairman-Director

DHF:vlp
cc: Mr. Leslie H. Evans
Regional Commissioner

E-9

October 23, 1969

Mr. Carl A. Koone
Route 3
Delmar, Delaware 19941

Dear Mr. Koone:

Governor Mandel has noted your letter of October 6th and has asked that I reply on his behalf.

I am taking the liberty of forwarding your comments to Mr. David H. Fisher, Chairman-Director of the State Roads Commission, for his personal attention and further direct reply to you. I have asked that a copy of his letter to you be sent to this office for our information.

The Governor is indeed appreciative of your kind comments. As you know, he is always pleased to have the views of his constituents.

Sincerely,

George E. Burnett, Jr.
Assistant Administrative Officer

GEBJr:lhw

cc: Mr. David H. Fisher

W. R. BRADFORD
SALISBURY, MARYLAND 21801

920 Riverside Drive
Salisbury, Maryland
November 11, 1969

Mr. Walter J Addison, Chief Engineer
State Roads Commission
300 W. Preston Street
Baltimore, Maryland

Dear Mr. Addison:

Attached are two sketches to do with highway design which might contribute in some small way to greater economy, safety and the more efficient movement of traffic.

One of the sketches is a design for a traffic circle, which is not only a simplification of the clover-leaf as concerning safety and finding of direction but more econonical to build. Traffic enters the elevated circle on the perimeter and leaves the circle from the inside ramps. If a driver misses his exit, he gets another chance by simply going around the circle again. No passing would be permitted on the circle; each driver would yield by dropping back of the car ahead and to his right, as all traffic would be moving to the exit ramps at the inside of the circle.

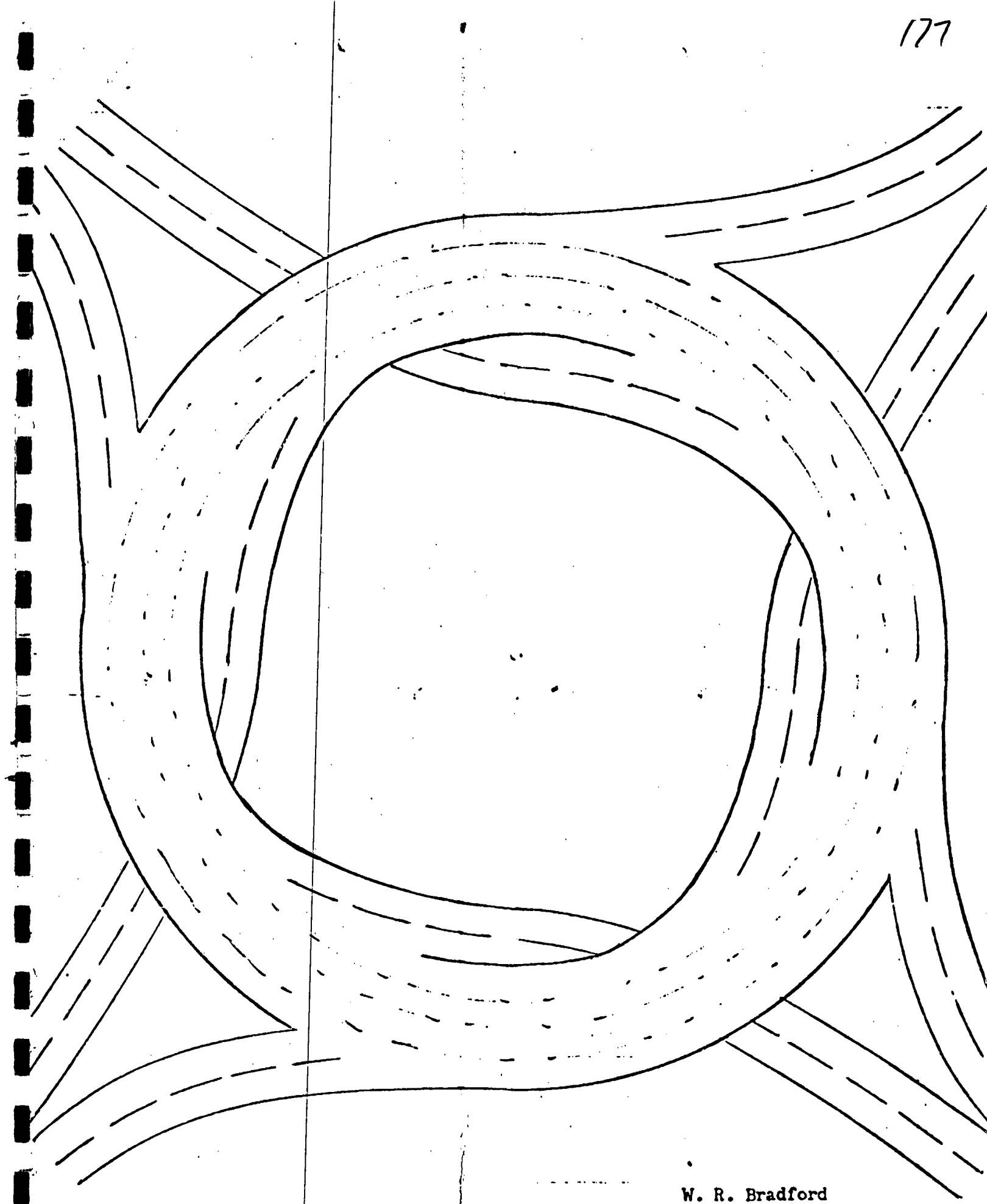
The second sketch shows an arrangement of approaches of secondary roads to expressways whereby the driver is prevented from driving directly onto a high-speed road by a barricade and a turn.

The above was instigated by the discussions, news and editorials regarding the proposed Route 13 Salisbury Bypass. It would be most gratifying if the suggestions helped in developing better interchanges and crossovers and highway construction in general.

Yours very truly,

W. R. Bradford

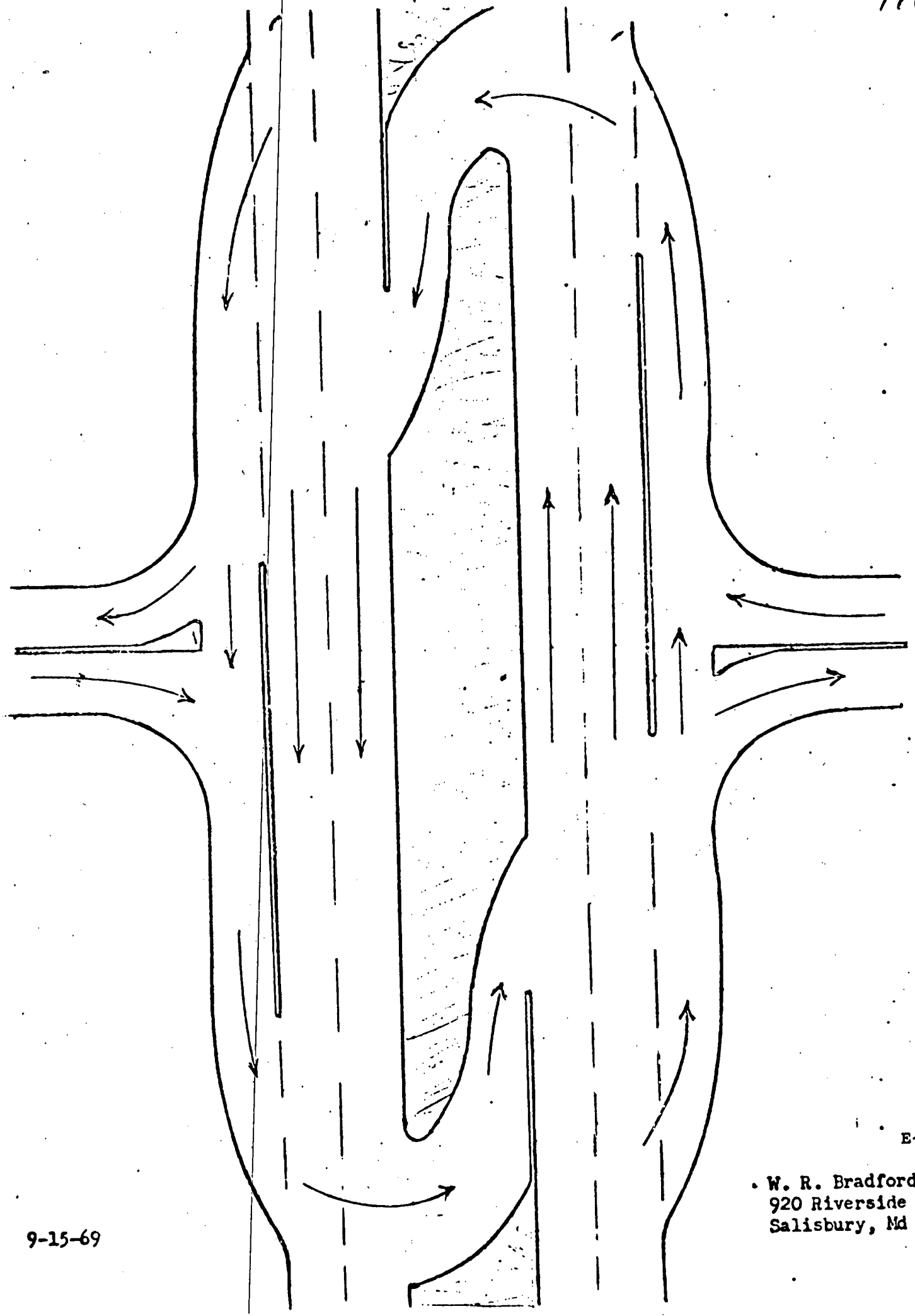
WRB/hs
Enclosure:



9-15-69

W. R. Bradford
920 Riverside Dr
Salisbury, Md 21801

E-12



E-13

W. R. Bradford
920 Riverside Dr
Salisbury, Md 2180

9-15-69

My name is Mrs. Eleanor Stagg, Senior Vice-President, Salisbury Area Chamber of Commerce. The following is the Chamber's position regarding the Route 13 Beltway. A copy of the statement is being left with you.

ROUTE 13 BELTWAY - POLICY POSITION

The Salisbury Area Chamber of Commerce favors the expeditious construction of Route 13 Beltway.

This is a project which has been contemplated by the State Roads Commission for a number of years with numerous delays. The time has come when positive action must be substituted for delay. WHY?

First, traffic on the Peninsula is constantly increasing in volume. There are more visitors than ever to Ocean City during the traditional summer months. With the completion of the Convention Center in Ocean City soon there will be a distinct increase in vehicle traffic on a year round basis.

With U.S. 13 completely dualized in Virginia now, traffic has and will increase.

We have not mentioned the Salisbury area yet for good reason. What happens on U.S. 50 and U.S. 13, and what happens in the communities they directly serve affects Salisbury. Yet Salisbury also makes a substantial contribution to the need for a Route 13 Beltway.

We are a growing area in population. We are a growing retail shopping center. Salisbury State College has the largest student body in its history. In addition there is a professionally guided effort to balance our economy through the addition of selected new industry and businesses to our area.

November 5, 1969

Mr. Victor H. Laws
107 North Baptist Street
Salisbury, Maryland 21801

Re: Contract No. WI-395-171
U. S. Route 13 Relocated
Salisbury By-Pass

Dear Mr. Laws:

This will acknowledge your letter of October 28, 1969, regarding your client, Mr. Harry S. Wolf, Jr., and the problem which you anticipate will develop when the interchange of the Salisbury By-Pass with existing U. S. Route 13 is constructed to its ultimate westerly toward Route 50.

A copy of your letter is being included in the official transcript of the public hearing, which was conducted in Salisbury on October 21, 1969. Copies are also being forwarded to Mr. Walter E. Woodford, Jr., Chief Engineer, Mr. Hugh G. Downs, Deputy Chief Engineer for Engineering Development, and Mr. Leslie H. Evans, Regional Commissioner for the State Roads Commission, in order that your request may be reviewed and fully considered during further development of the project.

Very truly yours,

Northam B. Friese
Chief, Bureau of Program
Scheduling and Control

NBF:eer

cc: Mr. Walter E. Woodford, Jr.
Mr. Hugh G. Downs
Mr. Leslie H. Evans

LAW OFFICES
VICTOR H. LAWS
107 NORTH BAPTIST STREET
SALISBURY, MARYLAND 21801

PIONEER 9-7500

October 28, 1969

Mr. Northam Friese
State Roads Commission
300 West Preston Street
Baltimore, Maryland 21201

Re: New U. S. Route 13
Contract WI 395-171
Interchange at north
intersection of new
Route 13 with present
Route 13.

Dear Mr. Friese:

I represent Harry S. Wolf, Jr., trading as Wolf's Canvas & Upholstery, Old Delmar Road, Salisbury, Maryland. This will confirm, for your record of the October 21, 1969 hearing in Salisbury, my client's problem connected with the above interchange design.

My client and I understand that it is not proposed at this time to construct the future "beltway" section of highway west of present Route 13 toward Route 50; however, this is the ultimate intention and approximate locations of the future construction including Ramp G are shown on your drawing marked "Sheet 18 of 21, Scheme "A".

This future construction will cause a severe practical problem and a heavy economic loss to my client if constructed as presently indicated on such drawing. This is because Old Delmar Road will be severed by Ramp G and the western or "beltway" construction, and my client's property and business will be left in at a cul-de-sac at the extreme end of the southern portion of Old Delmar Road. The distance from my client's property at the dead end, to the intersection of Old Delmar Road and Old Route 13, will be approximately one mile; customers could reach my client only by turning off

Route 13 on to Old Delmar Road at the intersection, going one mile to my client at the dead end, turning around and then retracing their route back one mile to the same intersection. This will be extremely difficult and nearly impossible for the large tractor-trailer trucks which are my client's main customers. Now these trucks can reach my client with no difficulty on Old Delmar Road in both directions. After the contemplated construction, the trucks will have an especially difficult time trying to make the sharp turn from present U. S. Route 13 into Old Delmar Road.

My client's property contains his residence and his business, and represents substantially all of his life savings. His is a one man business and depends entirely on his heavy truck customers, who must bring their trucks to his place of business for measurements, making of patterns for canvas covers, delivery of finished covers, etc. If he is left on this cul-de-sac, his business will be forced to close, and he will suffer a serious financial loss.

In his circumstances this will be an extremely heavy burden and a very unfortunate result. We ernestly request that his property be purchased or condemned for the construction, and not left to wither and die at the end of this long cul-de-sac.

We thank you for your kind attention.

Very truly yours,

VHL:sc

cc: Mr. Harry S. Wolf, Jr.
cc: Mr. Ridgely H. Dorsey
cc: Honorable Leslie H. Evans
cc: J. E. Greiner Company

LAW OFFICES
HEARNE, FOX & BAILEY
COLONIAL BUILDING
SALISBURY, MD. 21801

CHARLES E. HEARNE, JR.
HAMILTON P. FOX
JAMES P. BAILEY
FREDERIC E. WIERMAN
ASSOCIATE

TELEPHONE
749-5144
AREA CODE 301

October 17, 1969

Mr. Walter J. Addison
Deputy Chief Engineer
Planning & Safety
Room 209
300 W. Preston Street
Baltimore, Maryland 21201

Dear Mr. Addison:

This is to advise you that I will desire an opportunity to be heard at the hearing to be held in Salisbury, Maryland, on October 21st at 7:30 o'clock, P.M., concerning the location of U. S. Route 13 By-pass.

I will not be representing a client at this hearing but will be speaking on behalf of myself and others. It will be my suggestion that the Route 13 By-pass should be used as a major access route to the Salisbury Airport which is presently relatively inaccessible to the residents of the surrounding area.

Thank you for your consideration in this matter.

Very truly yours,

Fulton P. Jeffers

Fulton P. Jeffers

FPJ:ibp

SALISBURY AREA CHAMBER OF COMMERCE

A statement from Mr. M. Wilson Snow, 527 Druid Hill Avenue, Salisbury, Maryland, received in the Chamber office on Wednesday, October 8, 1969, at 4 P.M. The below statement of Mr. Snow refers to the construction of the Route 13 Beltway.

Mr. Snow stated that he felt the proposed route of construction for the Beltway brings it too close to Salisbury to allow for the proper expansion of the community to the north and east at the present rate of growth of the community in both these directions.

In addition, he feels the northern terminus of the Beltway should be located at or north of Naylor Mill Road. His reason, there will eventually be a link-up between U.S. 50 and U.S. 13 Beltway and in his opinion this link-up should be constructed in the Naylor Mill Road area as it would effect property that is not as highly developed as in other areas.

MEH:bw

October 17, 1969

In summary the Chamber stresses the following facts in urging the expeditious implementation of Route 13 Beltway construction:

1. Route 13 is the primary North-South Route on the Eastern Seaboard

2. Since 1966 traffic in the concentrated urban area has tripled

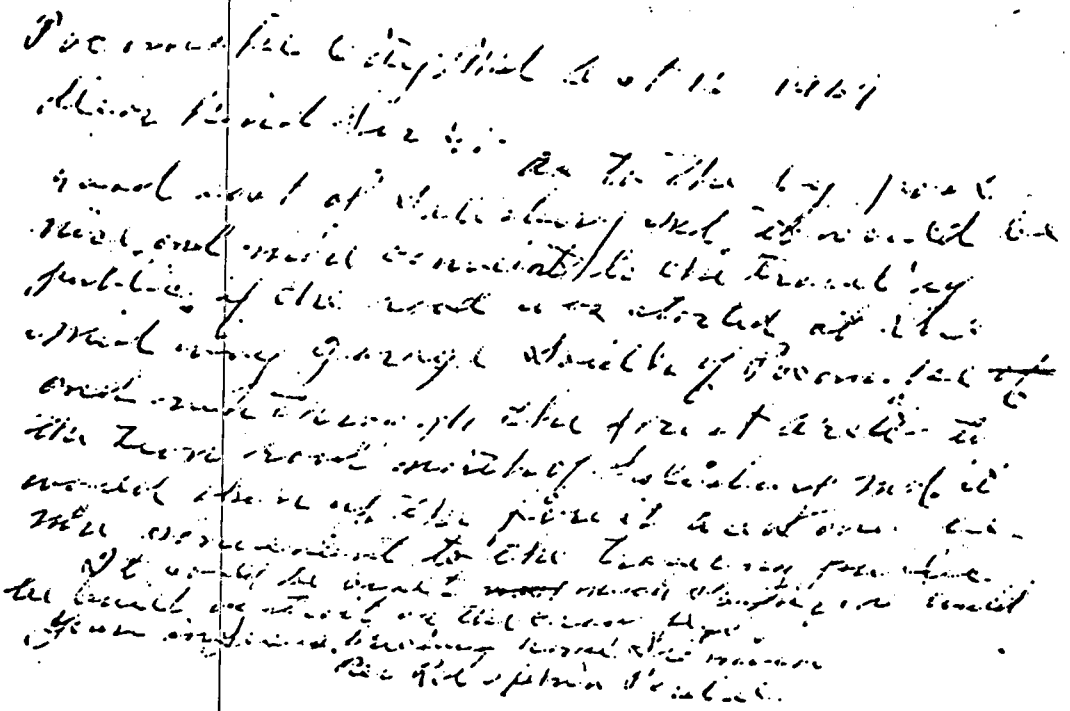
3. Since 1966 Wicomico County has not had any major road construction projects.

4. Since 1966, and as recent as January and August of 1968, several meetings have been held with representatives of the State Roads Commission at which meetings promises have been made that the project would be pushed ahead, yet little has been done.

Based on the above reasons, the Salisbury Area Chamber of Commerce strongly urges the State Roads Commission to expedite the construction of Route 13 Beltway.

Two of our members Mr. Allen, and Mr. Snow have expressed an opinion regarding the location of Route 13 Beltway. Written copies of their opinions are hereby left with you for your consideration.

186



(Transcribed from above)

Pocomoke City, MD Oct 16, 1969

Dear Kind Sirs:

As to the by-pass just south of Salisbury Md, it would be nice and more convenient to the travelling public if the road was started at the midway garage south of Pocomoke and run through the forest area to the Zion Road north of Salisbury Md. It would open up the forest area and be more convenient to the travelling public.

It would be built much cheaper and could be built as straight as the crow flies.

Yours in Jesus,

Rev. R. Coplin Perdue

Per Telephone Conversation:

Mr. Thomas George, Jr., representing Salisbury Chamber of Commerce, requested to be heard at public hearing.

187

TOWN OF FRUITLAND

P. O. BOX 111

FRUITLAND, MARYLAND 21826

RECEIVED

October 10, 1969

State Roads Commission of Maryland
300 W. Preston St.,
Baltimore 1, Maryland

Attn: Mr. Walter J. Addison
Deputy Chief Engineer

Re : The proposed Route 13 bypass hearing

Dear Sir:

This is to advise that the Commissioners of Fruitland and the officers of the Fire Department desire to be heard at the hearing to be held in the Wicomico Junior High School, October 21st. at 7:30 P.M.

Sincerely,

FRUITLAND COMMISSIONERS

By James H. Brown

E-22

A statement from Mr. Richard M. Allen, 1512 Rolling Road, Salisbury, Maryland, received in the Chamber office on Wednesday, October 8, 1969, at 11:30 A.M. The below statement of Mr. Allen refers to the construction of the Route 13 Beltway.

Mr. Allen stated that he felt that the north end of the proposed Route 13 Beltway should join Route 13 north of Naylor Mill Road rather than the proposed junction south of Naylor Mill Road.

In addition he feels that the junction of the Beltway at its northern end should be so designed that there is a major interchange at this point which would permit traffic to go north on both U. S. 13 and west on U. S. 50. This statement is based on the proposition that a modern connection to U. S. 50 will be built to connect with the proposed Route 13 Beltway, and that the current Naylor Mill Road is the logical area to place this connecting link.

October 9, 1969

bw

STATE OF MARYLAND
STATE ROADS COMMISSION
300 WEST PRESTON STREET
BALTIMORE, MD. 21201
(MAILING ADDRESS: P. O. BOX 717 BALTIMORE MD 21203)

September 8, 1969

See WICOMICO COUNTY MAILING LIST, Column #1 for complete list of names that letter and Public Notice was mailed to on September 10, 1969.

This is to advise you that the State Roads Commission of Maryland will hold a public hearing in the Wicomico Junior High School Auditorium on Tuesday, October 21, 1969, at 7:30 p.m. Eastern Daylight Saving Time, at which time interested parties will be given the opportunity to present their views regarding the proposed design of the relocation of U.S. Route 13 East of Salisbury.

For your further information and reference we also are enclosing a copy of the Public Notice which will appear in local news media.

Very truly yours,

Northam B. Friese

Northam B. Friese, Chief
Bureau of Program Scheduling
and Control

NBF:cb

Enclosure

PUBLIC NOTICE

"Notice is hereby given that the State Roads Commission of Maryland will hold a Public Hearing with respect to the proposed design of the relocation of U.S. Route 13 East of Salisbury. The project begins approximately 0.5 of a mile North of Zion Road and ends approximately 0.7 of a mile North of the Somerset County Line. The hearing will be conducted in the auditorium of the Wicomico Junior High School in Salisbury, Maryland, on October 21, 1969, at 7:30 p.m. Eastern Daylight Savings Time.

"All interested persons will be given the opportunity to present their views regarding the proposed design of the project including the social, economic, and environmental effects of possible alternate designs.

"Maps, drawings, and other pertinent information, including written views received prior to the hearing, will be available for public inspection and copying during normal working hours at the State Roads Commission's District Office located on West Road, Salisbury, Maryland.

"Tentative schedules for right-of-way acquisition and construction will be discussed and information regarding relocation assistance programs will be explained.

"Individuals and representatives of organizations wishing to be heard are requested to furnish their name, address, telephone number, and the organization they represent, if any, to Mr. Walter J. Addison, Deputy Chief Engineer for Planning and Safety, Room 209, 300 West Preston Street, Baltimore, Maryland, 21201, no later than October 17th, so their names may be placed on the list of witnesses. Others present at the hearing and wishing to be heard may do so after those on the established list.

"Written statements and other exhibits in lieu of or in addition to oral presentations at the hearing will be accepted at the Office of the Deputy Chief Engineer for Planning and Safety at the above address for a period of ten (10) days after the hearing.

State Roads Commission of Maryland
Walter J. Addison
Deputy Chief Engineer
Planning and Safety"

MEMORANDUM

September 6, 1969

TO: Mr. [illegible] Jost, Chief
Right of Way Division

FROM: Northam [illegible]. Friese, Chief
Bureau of Program Scheduling & Control

RE: Contract [illegible] 395-171
FAP No. F 932-1
US Route 13 Relocated East of Salisbury

A Public Hearing for the subject project has been scheduled for October 21, 1969 at 7:30 P.M. in Wicomico Junior High School, in Salisbury, Maryland.

Please schedule the preparation of the Right of Way Division's presentation accordingly and advise me as to who will handle this presentation. Please note that discussion of relocation assistance programs must be included.

A copy of the Public Notice which will first appear in local newspapers on September 15th is enclosed.

[illegible]/gok

Enclosure

cc: Mr. Walter J. Addison
Mr. [illegible] Evans
Mr. [illegible] Lee
Mr. [illegible] Berger

PROGRAMMING

September [illegible], 1969

TO: Mr. A. Donald Kelly, Chief
Administrative Division

FROM: Northam L. Prigg, Chief
Bureau of Program Scheduling & Control

RE: Salisbury By-Pass
Wicomico County
U. S. Rte. 13
Relocated East of Salisbury

Contract No. [illegible]-[illegible]-171
Federal Aid Project No. F-732-1

A public hearing is to be held on Tuesday, October 21, 1969 at 7:30 P. M. in the Wicomico Junior High School Auditorium.

Please arrange to have an operator attend with the amplifying and recording equipment. We will appreciate receiving confirmation of these arrangements.

For your information a copy of the Public Notice is included.

NW/jek

Enclosure

cc: Mr. W. L. Woodford, Jr.
Mr. W. J. Addison
Mr. A. F. Burek

MEMORANDUM

September 8, 1969

TO: Mr. H. C. Downs
Deputy Chief Engineer
Development

FROM: Norman D. Friese, Chief
Bureau of Program Scheduling & Control

RE: Contract Wi 376-171
FAP No. F 32-1
US Route 13 Relocated East of Salisbury

This is to advise you that the design Public Hearing for the subject project has been scheduled and that the first Public Notice will be published in local newspapers on September 17, 1969.

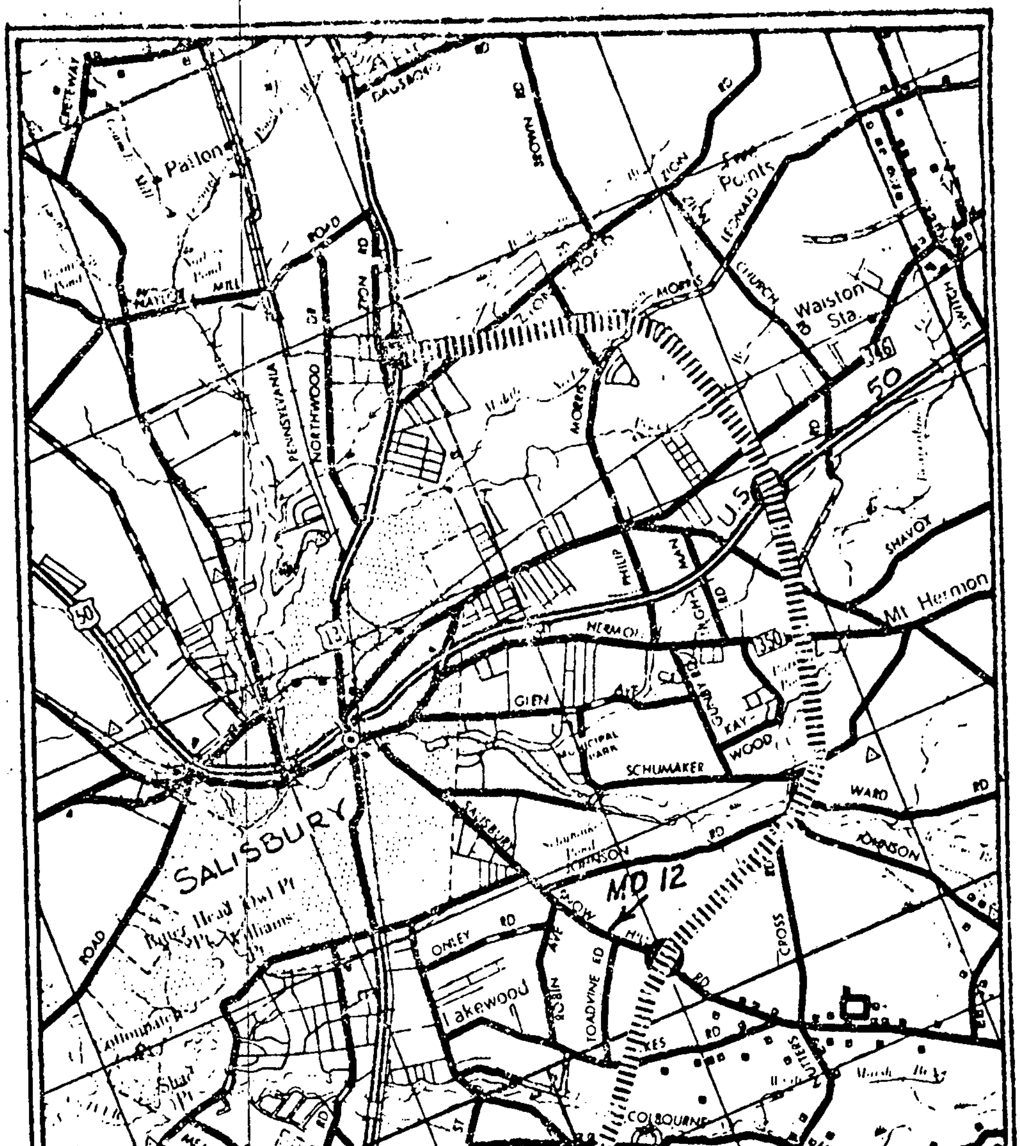
Please arrange to have available in the office of the District Engineer any maps, drawings, plans, etc. developed to date, including any written news, pertaining to the design of the project which may have been received from public agencies, civic groups or individuals. In accordance with Federal requirements this material must be available for public inspection by September 18th.

For your information and reference enclosed is a copy of the Public Notice.

NDF/rok

Enclosure

CC: Mr. W. K. Lee
Mr. M. D. Philpot


Parsons
Pallon
Five Points
Walston Sta.
50
U.S.
Mt Hermon
SHAVOX
HERMON
GLEN
SCHUMAKER
WOOD
KAY
WARD
JOHNSON
SALISBURY
MD 12
ONLEY
Lakewood
TOADVINE RD
COLBOURNE
UNION
CHURCH
OAKLAND
SCHOOL
OLD FRUITLAND
MEADOW BR
SHARPS POINT
ALLEN
CEDAR
DIVISION ST
MOORES
JACKSON
LUKES
PHILIP
McGRATH
ROAD
OLD EDEN
Eden
FLOWER HILL CHURCH
RAILROAD
13

STATE HIGHWAY ADMINISTRATION
P. O. Box 717 / 300 West Preston Street, Baltimore, Maryland 21203

MEMORANDUM

TO: Mr. William F. Lins, Jr., Chief
Bureau of Highway Design

DATE: December 18, 1973

FROM: Andrew M. Schwalier, Chief
Bureau of Relocation Assistance

SUBJECT: Contract: WI 395-5-6-671
Federal Projects: F 932-1(4)
F 932-1(5)
Termini: Salisbury By-Pass
Maryland Route 12 to the
U.S. Route 13 Interchange
General R/W File Nos.: 61310, 61311

RE: Draft Environmental Impact Study

ATTENTION: Mr. James Williamson

In response to your request of November 8, 1973, the following comments on the Draft Environmental Impact Statement are hereby submitted.

The project will displace fourteen (14) families, two (2) individuals, and one (1) business in fifteen (15) dwellings. No farms or non-profit organizations will be displaced. Of those to be displaced, five (5) families are owner-occupants of single family dwellings and one (1) individual is an owner-occupant of a single family dwelling. There are also nine (9) tenant families and one (1) individual tenant. Of the fifty-six (56) people to be relocated, forty-nine (49) are black. Among the blacks, ten (10) people in two (2) families are owner-occupants, while thirty-nine (39) people in nine (9) families and one (1) individual are tenant-occupants.

The owner-occupants are in the low to middle income bracket, and most are elderly and depend on fixed incomes. However, some work full or part-time and the majority own their homes in fee. No unusual problems are foreseen with these families.

The tenant-occupants, who are all black people, are in the lowest possible income group. Nearly all the properties they occupy are substandard, and some are without electricity, plumbing, and adequate heating facilities. The rental range is between $6 per week and $70 per month. The average rent is $42 per month and most pay on a weekly basis. The family income of the majority of

these tenants is unstable. Their income is derived from unsteady daily or hourly wages and some social security. There are two (2) elderly families and five (5) families with a large number of children which have the lowest incomes of the group. The existence of these families may depend upon public assistance in the future in the form of aid from the County Department of Social Services.

Most decent, safe, and sanitary housing in the area begins in the fifteen thousand dollar range and goes higher. We do not feel that the relocation of the owner-occupants will present any unusual problems; but we expect the two (2) elderly owner-occupant families may find relocation very painful and expensive. The financial resources of the tenants makes it evident that none of them will be able to purchase a home despite the fact that they are probably eligible for a two thousand dollar down payment and more, up to $4,000, if they had matching funds. A study of rentals in the area revealed no rentals in the price range which these tenants are able to pay. All of the acceptable rentals which are advertised are above $100 per month, which is beyond the income of the individuals and families to be displaced. Public housing in Salisbury is scarce and there is a waiting list. A public housing project is planned for Fruitland, but will not be available to those displaced by this project. For these tenants, it will be necessary for "Housing of Last Resort", as per PPM 81-1.5, to be utilized, if these families are to be relocated in a reasonable time.

In view of these facts, we feel that at present, there is no neighborhood in the vicinity into which these tenants could move, and most certainly not the large families. The main problem is that if decent, safe, and sanitary housing were found, these tenants could not afford it after they were moved into the neighborhood. If these tenants were moved into an existing neighborhood, their acceptance by the community is doubtful, realizing that these tenants would probably continue to maintain their present standards of living. They would not be accepted in an existing neighborhood, whether it be white or black.

The owner-occupants who will be relocated would be spread over a wide area and thereby cause no unusual impact other than by families relocating for personal reasons. One black property owner is in the process of building a replacement dwelling and is experiencing no difficulties. Another property owner has enough remaining land on which to construct a new dwelling.

No farms will be displaced by this project, however, some agricultural land will be acquired. One business, a driving school, will be partially affected. It will be necessary to relocate the driver education training course. As far as can be ascertained, the driver education school should not experience any difficulty in relocating to an area where a driver training course may be conducted.

There will be no known effect on employment by the project. Adjacent property values are expected to remain stable and increase in the interchange areas. The estimated total annual tax dollar loss will be $7,700. The tax loss for improved property will be $2,735, and the tax loss for the unimproved property will be $4,965. The tax rate for Wicomico County is $2.39 per $100 of assessed value.

At the present, we do not foresee any rehousing problems arising from any federal or state and community programs. The public housing project for Fruitland will not cause any displacements of families nor will it increase the supply of housing for the area. We cannot foresee any available housing from this public housing project for the relocation of families of the project since it is on a one-for-one basis.

I assume that this information is satisfactory for inclusion in the Draft Environmental Impact Statement. Please contact the writer should additional information be required.

A. M. S.

BY: George L. Hester
George L. Hester
Relocation Officer

AMS:GLH:sc

Attachment

cc: Mr. Andrew M. Schwalier
Mr. Peter J. Malloy
Mr. Richard P. Melody
Mr. James A. Genthner

Maryland Department of Transportation
State Highway Administration

Harry R. Hughes
Secretary
Bernard M. Evans
Administrator

November 13, 1974

RE: Contract No: WI 395-5-6-671
F.A.P. No: F 932-1(4)
F 932-1(5)
Salisbury By-Pass--Maryland Route 12 to the U.S. Route 13 Interchange
General R/W File Nos: 61310, 61311

Draft Environmental Impact Statement

Mr. George H. Eichner
Vice President
Greiner Environmental Systems, Inc.
Consulting Engineers
One Village Square
Baltimore, Maryland 21210

Attention Mr. William Kallas

Dear Mr. Eichner:

As discussed at the meeting with the Federal Highway Administration on November 4, 1974, the following changes and/or additions to the memorandum of December 18, 1973, from Andrew M. Schwalier to William F. Lins, Jr., should be made as follows:

1. The second paragraph should be deleted and the following paragraph should be inserted in its place: The project will displace ten (10) families, four (4) individuals, and one (1) business in twelve (12) dwellings. No farms or non-profit organizations will be displaced. Of these families, four (4) are owner occupants, six (6) are tenant occupants, and four (4) are individual tenant occupants. Of the forty-three (43) people that will be required to relocate, eleven (11) are white owner occupants and thirty-two (32) are black tenants. The six (6) tenant occupant families and four (4) individual tenants are members of the minority group.

2. Please add the following sentences to the end of the third paragraph: One (1) family is presently building a replacement dwelling, and housing will be available for the other three (3) families at the time displacement occurs. At the time of the study, thirty-six (36) homes were available in the Salisbury area, south of U.S. Route 50. (A footnote should

P.O. Box 717 / 300 West Preston Street, Baltimore, Maryland 21203

STATE HIGHWAY ADMINISTRATION

be added here referring to Form R/W DP 1, page 3, number 12, 13, and 21 in the Appendix.)

3. On page 2, first paragraph, fifth sentence, a footnote should be added here referring to Form R/W DP 1, page 3, number 12, 13, and 21 in the Appendix. At the end of the first paragraph, page 2, the following sentence should be added: On June 25, 1974, the State Highway Administration received approval from the Federal Highway Administration to incur costs for detailed studies of "Housing of Last Resort" for these tenant families. Also change the last sentence to read as follows: For these tenants, it will be necessary for "Housing of Last Resort" as per PPM 81-1.5, to be utilized; if these six (6) tenant families and four (4) individual tenants are to be relocated.

4. Delete the third paragraph.

5. On page 3, the following paragraph should be added to complete the relocation assistance information: Those persons who will be displaced by the project will be provided all of the benefits and payments required by the "Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970". It is estimated that one year to two years may be required to complete the rehousing of those to be displaced considering "Housing of Last Resort" will be utilized. The Relocation Assistance Program will be administered by the Office of Real Estate, District #1, in Salisbury, Maryland.

Also, the "Summary of the Relocation Assistance Program" should be inserted as discussed in our recent meeting.

I assume this information will be satisfactory for your purposes.

Very truly yours,

Andrew M. Schwalier, Chief
Bureau of Relocation Assistance

BY: George L. Hester
George L. Hester
Relocation Officer

AMS:GLH:pj
Attachment
cc: Mr. John Barroll
Mr. James Williamson

202

MEMORANDUM

TO: Mr. Andrew Schwalier
Attention: Mr. George Hester

DATE: October 22, 1975

FROM: Mr. John Barroll
Relocation Officer

SUBJECT: Contract No.: WI-395-6-171
Termini: Cedar Lane -- South
Division Street to St. Lukes Road
F.A.P. No.: RF-RFG-932-1(5)

I. The community affected, being in the Town of Fruitland, is a rural, lightly populated area. The income level is middle to low with land use mainly confined to gardens and light produce production. The alternate, Cedar Lane, will not disrupt this established community, nor will it affect adjoining areas; business, farm or non-profit organizations. There will be no adverse impact on the elderly or handicapped people. The community facilities and services will be benefited by the new alternate in that the smooth flow of traffic will increase the accessability. There will be no adverse affect on residential, commercial, and industrial development that is existing or planned. There will be no significant change in population density or distribution brought about by the alternate. Property values very likely will be increased by the construction, however, the zoning is not apt to change nor is the development in this area to change significantly.

II. There will be one displacement dwelling situated at the intersection of Cedar Lane, proposed, and South Division Street. This is one family, estimated to be four people, in occupancy at the present time. No minority groups in this instance are affected and the family is presumed to be owner-occupant of the middle and of the low income level. On investigation, it is presumed that this family is operating a small business in raising rabbits. Other than this, there are no businesses or industry affected, though possibly there will be some farm land in the taking, but not of sufficient amount to cause a farming operation to go out of business. There will not be any non-profit organization affected, nor will any functional replacement be deemed necessary.

There is one family in this study that will be affected. It is felt that there will be adequate replacement housing, as in the past, in this general area, that will be within the financial needs of the relocatees. As a result, in this instance, there will be no impact on the neighborhood by this relocation. The family type business involved here will present no problem in availability replacement sites. There are no other Federal, State or municipal projects in progress that will affect this one displacement. Ninety days would probably be required to complete relocation on this project barring unforseeable situations. Those persons to be relocated will be provided with the benefits and payments as required by the "Land Acquisition

Policies Act of 1970 (P.L. 91-646). The Relocation Assistance will be administered by the Office of Real Estate, District #1, in Salisbury.

The area on St. Lukes Road at the end of Cedar Lane, Station 64 + 50 (R & L) and Moonglow Road (relocated), has not been widened, and there are four dwellings and one trailer that may be affected should the Right of Way be widened to 80'. Further, there is a possibility that a mobile home may be affected in the area of the tie-in of Cedar Lane with St. Lukes Road.

By: John M. Barroll
John M. Barroll

JMB:lwl

cc: Mr. Calvin Reese
Mr. R. J. Finck
Mr. Steve Maged

202

Maryland Historical Trust
2525 Riva Road Annapolis Maryland 21401
(301) 267-5087

December 24, 1974

Mr. William E. Kallas
Greiner Environmental Sciences, Inc.
One Village Square
Village of Cross Keys
Baltimore, Maryland 21210

Re: Salisbury By-Pass

Dear Mr. Kallas:

In regard to Greiner's Environmental Impact Statement of the Salisbury by-pass between Maryland Route 12 and U.S. Route 13 south, I have contacted Dr. Robert L. McFarlin, our Wicomico County Committee Chairman; and he feels that there are no known historical structures or sites in the immediate area of this project.

The Maryland Historical Trust reserves the right to comment on the Environmental Impact Statement when it is available.

Thank you for your cooperation.

Sincerely yours,

Jack L. Finglass
Architectural Administrator

JLF:so
CC: Dr. Robert L. McFarlin

APPENDIX II

Public Notice

Transmittal Letter

List of Agencies Receiving Copies of DEIS for Review

204

MEMORANDUM

February 25, 1975

TO: Mr. Eugene T. Camponeschi
Chief, Bureau of Project Planning

Attention: Mr. Donald H. Eckhardt

FROM: William T. Sprague
Chief, Planning Support Section
Office of Planning and Preliminary Engineering

SUBJECT: Contract No. Wi-395-10-171
Draft Environmental Impact Statement
Report #FHWA-MD-EIS-74-08-D
Salisbury By-Pass

Attached, for your information and guidance is a copy of the Public Notice which is being used to advise the public that a Draft Environmental Impact Statement has been circulated for review and comment. The Public Notice and map will be published in the local news media as follows:

Eastern Shore Times	March 6, 1875
Daily Times	March 5, 1975
Salisbury Advertiser	March 6, 1975

WTS:WIS:gs
Enclosure

cc: Bernard M. Evans
Northam B. Friese
Allen W. Tate
Robert J. Hajzyk
William F. Lins, Jr.
William K. Lee, III

1975 FEB 25 AM 9 41
ST. HIGHWAY ADMINISTRATION
PROJECT PLANNING

CAMPONESCHI	HELWIG	JANATA
DORSEY	HOFFMAN	KOLLER
ECKHARDT	HOPKINS	SCHNEIDER
EGE	HOUST	UHL

ACTION ____ INFO ____ COPIES ____
REMARKS:

PUBLIC NOTICE

Notice is hereby given that the State Highway Administration of the Maryland Department of Transportation is circulating, for review and comment, the Draft Environmental Impact Statement Report #FHWA-MD-EIS 74-08-D relative to the proposed highway improvement for the section of the Salisbury By-Pass extending from Maryland Route 12 to U. S. Route 13 in Wicomico County, Maryland. Copies are available for public viewing and copying during normal working hours at the following locations:

Federal Highway Administration
711 West 40th Street
The Rotunda - Suite 220
Baltimore, Maryland 21211

State Highway Administration
Office of Planning and Preliminary
Engineering - Room 209
300 West Preston Street
Baltimore, Maryland 21201

State Highway Administration
District Office
Box 751 West Road
Salisbury, Maryland 21801

Office of Wicomico County Council
Wicomico County Courthouse
Division and Main Streets
Salisbury, Maryland 21801

Office of Fruitland City Community
Main Street
Fruitland, Maryland 21826

Wicomico City Free Library
122 South Division Street
Salisbury, Maryland 21801

Copies of the statement have been made available to public and private organizations and individuals known to have an interest in the environmental impacts involved. Other requests for personal copies will be considered on the basis of the individual's need, and the supply of statements available from the initial printing. A fee covering no more than the actual printing and mailing cost may be invoked.

All requests for copies of the Envinronmental Impact Statement should be directed to Mr. Robert J. Hajzyk, Director, Office of Planning and Preliminary Engineering, 300 West Preston Street, Baltimore, Maryland 21201. Those wishing to express their views relative to the statement should also mail comments to this address, no later than April 21, 1975.

Bernard M. Evans
State Highway Administrator

Maryland Department of Transportation
State Highway Administration

Harry R. Hughes
Secretary
Bernard M. Evans
Administrator

February 26, 1975

RE: Salisbury By-Pass
Relocated U.S. Route 13
North of Maryland Route 12
to the U.S. Route 13
Interchange
Contract No. WI 395-9&10-171
Wicomico County, Maryland

Transmitted for your review is a draft copy of this Administration's "Environmental Impact Statement", dated December 12, 1974 on the above referenced project. The Statement has been prepared in accordance with the Federal Highway Administration's Policy and Procedure Memorandum 90-1 dated August 24, 1971, concerning implementation of Section 102(2)(C) of the National Environmental Policy Act of 1969. Paragraph 6c and d of this directive requires this information be furnished to appropriate Clearinghouse and concerned agencies (Circular BOB A-95).

Those interested in the project are requested to review the enclosed and submit written comments on or before April 21, 1975 to Mr. Eugene T. Camponeschi, Chief, Bureau of Project Planning, State Highway Administration, 300 West Preston Street, Baltimore, Maryland 21201. All responses will be considered in preparing the facility's ultimate design and in developing the "Final Environmental Impact Statement."

At the Corridor Public Hearing held on February 18, 1966, and the Design Public Hearing held on October 21, 1969, public organizations and individuals in attendance were informed of the pertinent project data. In addition, other interested agencies and parties have been contacted and apprised of the project development in order to establish the necessary planning and design coordination.

Very truly yours,

Robert J. Hajzyk

Robert J. Hajzyk, Director
Office of Planning and
Preliminary Engineering

Attachments
Draft Statement
Distribution List

DISTRIBUTION LIST
DRAFT ENVIRONMENTAL STATEMENT

State Highway Administration Contract Wi-395-9 & 10-171
Salisbury By-Pass
Maryland Route 12 to Existing Maryland Route 113

Federal Agencies	No. of Copies
Mr. Richard Ackroyd, Division Engineer Federal Highway Administration The Rotunda 711 W. 40th Street Suite 220 Baltimore, Maryland 21211	16
U. S. Department of the Interior Assistant Secretary for Program Policy Attn: Director, Environmental Project Review Washington, D. C. 20240	7
Regional Director National Marine Fisheries Service Federal Building 14 Elm Street Gloucester, Massachusetts 01930	1
Regional Administrator Department of Housing & Urban Development Curtis Building Sixth & Walnut Streets Philadelphia, Pennsylvania 19106 Attn: Mr. William Kaplan Assistant Regional Administrator	1
Office of the Secretary Department of Agriculture Washington, D. C. 20250	1
State Conservationist Soil Conservation Service, USDA 4321 Hartwick Road Room 522 College Park, Maryland 20740	1
Deputy Assistant Secretary for Environmental Affairs U. S. Department of Commerce 14th & Constitution Avenues Room 3876 Washington, D. C. 20235	3

Federal Agencies	No. of Copies
Department of Health, Education & Welfare Assistant Secretary for Health & Science Affairs HEW - North Building Washington, D. C. 20202	1
Environmental Protection Agency Environmental Impact Statement Coordinator Curtis Building - 6th Floor Sixth and Walnut Streets Philadelphia, Pennsylvania 19106	5
Office of Economic Opportunity Director 1200 - 19th Street, N. W. Washington, D. C. 20506	1
Executive Director of Civil Works Office of the Chief Engineer Department of the Army - Corps of Engineers Washington, D. C. 20314	1
State Clearinghouse	
Local Governments	6
Department of State Planning	4
Department of Natural Resources	5
Department of Budget & Fiscal Planning	1
Department of General Services	1
Department of Economic & Community Development	1
Department of Education	1
Department of Health & Mental Hygiene	5
Interagency Committee for School Construction	1
Maryland Environmental Trust	1
Maryland Historical Trust	1
Maryland Geological Survey	1
Department of Public Safety & Correctional Services	1
Maryland Department of Transportation	
Mr. Michael F. Canning, Director Public Affairs Maryland Department of Transportation	10
Mr. Clyde E. Pyers, Director Division of Systems Planning & Development Maryland Department of Transportation	1
Elected Federal Officials	
Honorable Robert E. Bauman United States Congress House of Representatives Washington, D. C. 20	1

Elected Federal Officials	No. of Copies
Honorable J. Glenn Beall, Jr. United States Senate Washington, D. C. # 20510	1
Honorable Charles McC. Mathias United States Senate Washington, D. C. 20510	1

SENATE OFFICE BUILDING

Elected State and Local Officials	
Honorable Frederick C. Malkus, Jr. State Senator - Wicomico County Spring Street Cambridge, Maryland 21613	1
Honorable E. Homer White, Jr. State Senator - Wicomico County 724 Camden Avenue Salisbury, Maryland 21801	1
Honorable John R. Hargreaves House of Delegates - Wicomico County Route 2, Box 44-L Denton, Maryland 21629	1
Honorable Russell O. Hickman House of Delegates - Wicomico County Whaleysville, Maryland 21872	1
Honorable W. S. Horne House of Delegates - Wicomico County 206 Brookletts Avenue Easton, Maryland 21601	1
Honorable Joseph J. Long House of Delegates - Wicomico County 730 South Park Drive Salisbury, Maryland 21801	1
Honorable Robert Charles Biggy Long House of Delegates - Wicomico County Box 216 Westover, Maryland 21817	1
Honorable W. Henry Thomas House of Delegates - Wicomico County 1009 Radiance Drive Cambridge, Maryland 21613	1

Elected State and Local Officials	No. of Copies
Mr. Elmer Ruark Mayor of Salisbury Wicomico County Court House Salisbury, Maryland 21801	1
Mr. Duffy N. McKenzie, Sr. City Council President City of Fruitland P. O. Box 111 Fruitland, Maryland 21826	1
Mr. Willard L. Pusey, Jr. Director of Public Works City of Fruitland P. O. Box 111 Fruitland, Maryland 21826	1
State Highway Administration	
Deputy Chief Engineer-Development	1
Assistant Chief Engineer-Design	1
District Engineer	1
Bureau of Highway Design	1
Bureau of Bridge Design	1
Bureau of Landscape Architecture	1
Office of Planning & Preliminary Engineering	1
Bureau of Project Planning	1
Bureau of Urban & Regional Liaison	1
Office of Real Estate	1
Bureau of Relocation Assistance	1
Bureau of Acquisition Activities	1
Federal Aid Section-Office of Real Estate	1
District Chief-Office of Real Estate	1
State Highway Administration Library	1

APPENDIX III

Introduction

Comments and Responses to the Draft EIS

INTRODUCTION

This section contains all comments submitted concerning the Draft Environmental Impact Statement for the Salisbury By-Pass. Except for comments by the Mayor of Salisbury, all other comments were submitted by governmental agencies. The comments are numbered and placed in this section in the sequence in which they were received by the Maryland State Highway Administration. An index of these comments and responses is included on the following page.

Where an agency's comment requires a response or clarification, the response or action taken to answer this comment is placed directly following the full text of the agency's comments. To aid in referencing, each response begins with a corresponding comment number.

INDEX OF COMMENTS AND RESPONSES

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE - 4321 Hartwick Rd., Rm. 522
~~College Park, Maryland 20740~~

March 17, 1975

Mr. Eugene T. Camponeschi, Chief
Bureau of Project Planning
State Highway Administration
300 West Preston Street
Baltimore, Maryland 21201

Dear Mr. Camponeschi:

This is in response to your letters dated February 26, 1975 to the Office of the Secretary, USDA, Washington, D. C. and to this office regarding the draft environmental impact statement for the "Salisbury By-Pass from Maryland Route 12 to U.S. Route 13 in Wicomico County, Maryland.

Our area of interest in this project is in erosion and sediment control both during construction and operation of this roadway, as well as provisions for water management. Your discussion on these subjects in the draft is excellent and are sufficient for the final statement.

We appreciate the opportunity to comment on this proposal.

Sincerely,

Graham T. Munkittrick
State Conservationist

cc: Kenneth E. Grant
Office of the Coordinator of Envir. Quality
Council on Envir. Quality (5 copies)

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UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Science and Technology
Washington, D.C. 20230

March 21, 1975

Mr. Eugene T. Camponeschi
Chief, Bureau of Project Planning
State Highway Administration
300 West Preston Street
Baltimore, Maryland 21201

Dear Mr. Camponeschi:

The draft environmental impact statement "Salisbury By-Pass from Maryland Route 12 to U.S. Route 13 in Wicomico County, Maryland," which accompanied Mr. Robert J. Hajzyk's letter of February 26, 1975, has been received by the Department of Commerce for review and comment.

Comment and Response Reference Number

Bench marks, triangulation stations, and traverse stations have been established by the National Geodetic Survey in the vicinity of the proposed project. Construction required for the project could result in destruction or damage to some of these monuments.

The National Geodetic Survey requires sufficient advance notification of impending disturbance or destruction of monuments so that plans can be made for their relocation. It is recommended that provision be made in the project funding to cover costs of monument relocation. 2-1

Thank you for giving us an opportunity to provide these comments, which we hope will be of assistance to you. We would appreciate receiving a copy of the final statement.

Sincerely,

Sidney R. Galler
Deputy Assistant Secretary
for Environmental Affairs

RESPONSE TO COMMENTS BY THE UNITED STATES DEPARTMENT OF COMMERCE

ASSISTANT SECRETARY FOR SCIENCE AND TECHNOLOGY

Comment 2-1

Response - In a memorandum dated May 9, 1975, (copy included on next page) Mr. William Lins, Chief of the Bureau of Highway Design requested that Mr. James Loskot, Chief of the Survey Section for the State Highway Administration notify the National Geodetic Survey of any impending disturbance or destruction of monuments prior to construction, so that plans can be made for their relocation. This is standard procedure on any state highway construction project. Provisions will be made in the project funding to cover costs of monument relocation.

STATE HIGHWAY ADMINISTRATION
P. O. Box 717 / 300 West Preston Street, Baltimore, Maryland 21203

MEMORANDUM

TO: Mr. James F. Loskot, Chief
Survey Section

DATE: May 9, 1975

FROM: Mr. William F. Lins, Jr., Chief
Bureau of Highway Design

SUBJECT: Contract No. WI-395-9,-10-171
Salisbury By-Pass

Re: National Geodetic Survey Monuments

Among the replies relative to review of the Draft Environmental Statement covering the subject Project, was a letter addressed to Mr. Eugene T. Camponeschi, Chief, Bureau of Project Planning from Mr. Sidney R. Galler, Deputy Assistant Secretary, U. S. Department of Commerce, dated March 21, 1975. Mr. Galler informed Mr. Camponeschi that monuments established by the National Geodetic Survey are in the vicinity of the above referenced construction project. It is requested your office, through normal procedures, notify the National Geodetic Survey of any impending disturbance or destruction of monuments prior to construction so that plans can be made for their relocation.

ELH/JAW/ggs

CC: Mr. Eugene T. Camponeschi
Greiner, Inc.
Attn: Mr. W. E. Kallas

Date:

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

This agency has reviewed the above project and has determined that:

1. The project is not inconsistent with this agency's plans, programs or objectives. ______

2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. ✓

3. Additional information is required before this agency can complete its review. Information desired is attached. ______

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ______

Signature: [signature]

Title: Mayor

Agency: City of Salisbury

COMMENT 3

City of Salisbury

MARYLAND

ELMER F. RUARK
MAYOR
PATRICK J. FENNELL
EXEC. SECY.

March 25, 1975

Mr. Eugene T. Camponeschi
Chief, Bureau of Project Planning
STATE HIGHWAY ADMINISTRATION
300 West Preston Street
Baltimore, Maryland 21203

Re: Salisbury By-Pass
Contract No. WI395-9&10-171
Wicomico County, Maryland

Dear Mr. Camponeschi,

I appreciate the opportunity to review your "Environmental Impact Statement" for that segment of the Salisbury Route 13 By-Pass which extends from Snow Hill Road to Route 13 south of my City. I am happy that this EIS has been completed and recommend that it be approved as soon as possible so that construction may begin on this segment of the By-Pass.

I regret that it has taken so long to reach this stage of development in the construction of the By-Pass. My downtown streets are congested with traffic because of the vehicles trying to get through Salisbury on their way north or south on Route 13. The resulting noise and atmospheric pollution plus the hardship of inefficient traffic movement is a burden on City residents and the people from the surrounding region who operate or patronize business in my City.

I would like to see the Route 13 By-Pass completed as soon as possible.

Sincerely yours,

Elmer F. Ruark

Elmer F. Ruark
Mayor

EFR/tag

IN HOUSE 220

CONSULTANT

United States Department of the Interior

OFFICE OF THE SECRETARY
NORTHEAST REGION
JOHN F. KENNEDY FEDERAL BUILDING
ROOM 2003 J & K
BOSTON, MASSACHUSETTS 02203
April 15, 1975

RECEIVED
APR 17 1975
DIRECTOR, OFFICE OF
PLANNING & PRELIMINARY ENGINEERING

ER-75/197

AIR MAIL

Dear Mr. Hajzyk:

This is in response for your request for the Department of the Interior's comments on the draft environmental statement for the Salisbury By-Pass, Wicomico County, Maryland. The draft statement appears to have adequately addressed the environmental concerns of this Department. However, we believe it could be improved by the following:

Comment and Response Reference Number

1. Page 28, D.O. values for Sta.3 range are high and appear to be a duplicate of the turbidity values. 4-1
2. Page 31, 6th line from bottom; insert peak after highway in phrase may result in higher peak and lower base flows. 4-2
3. Page 31, 4th line from bottom; change Major division to Major diversion. 4-3

The subject statement is adequate in so far as fish and wildlife interests are concerned.

However, extreme care should be taken during construction to prevent soil erosion and siltation of Fooks Pond, Tonytank-White Marsh Creek, Slab Bridges Creek and Upper Handy Pond, all of which serve as nesting, rearing and feeding sites for a wide variety of water fowl, shore birds and song birds. 4-4 All these areas are listed in the Maryland Wetlands Survey. Close coordination with the Maryland Department of Natural Resources', Wildlife and Fisheries Administrations should be maintained during construction to provide maximum protection to fish and wildlife resources in the project area.

Sincerely yours,

Roger Sumner Babb

ROGER SUMNER BABB
Special Assistant
to the Secretary

Mr. Robert J. Hajzyk, Director
Office of Planning and
Preliminary Engineering
State Highway Administration
300 W. Preston Street
Baltimore, MD

Follow-up

✓ CAMPONESCHI			
DODSON	HELWIG	JANATA	
DORSEY	HOFFMAN	KOLLER	
ECKHARDT	HOPKINS	SCHNEIDER	
EGE	HOUST	UHL	
ACTION	✓ INFO	FILE	

REMARKS: Note Action Due Date 25

JOHNNY HORIZON '76

Let's Clean Up America For Our 200th Birthday

COMMENT 4

RESPONSE TO COMMENTS BY THE UNITED STATES DEPARTMENT OF THE INTERIOR

Comment 4-1

Response - Table 3 has been corrected in accordance with this comment.

Comment 4-2

Response - The term peak has been added on page 31, 6th line from the bottom, as suggested by this comment.

Comment 4-3

Response - The term division on page 31, 4th line from the bottom, has been revised as suggested to read diversion.

Comment 4-4

Response - As noted in the erosion and sedimentation section of the report, due to the level topography of the area and the reasonable stable qualities of the corridor soils, erosion and sedimentation hazards should be limited to the construction period. Therefore, during this period, erosion and sedimentation controls, which have been incorporated into the project design, should minimize the potential for sedimentation occuring from the project in downstream areas of Fooks Pond, Tonytank - White Marsh Creek, and Slab Bridge Creek and Upper Handy Ponds.

In order to insure that the proper precautions are taken during construction, close coordination with the Department of Natural Resources' Wildlife and Fisheries Administration will be maintained during construction to provide maximum protection to fish and wildlife resources in the project area.

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FILE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
6TH AND WALNUT STREETS
PHILADELPHIA, PENNSYLVANIA 19106

RECEIVED
APR 22 1975
DIRECTOR, OFFICE OF
PLANNING & PRELIMINARY ENGINEERING

April 18, 1975

Mr. Robert J. Hajzyk
Director, Office of Planning and
Preliminary Engineering
Maryland Department of Transportation
State Highway Administration
300 West Preston Street
Baltimore, Maryland 21201

Re: Salisbury Bypass; Maryland Route 12 to U. S. Route 13,
Wicomico County, Maryland

Comment and Response Reference Number

Dear Mr. Hajzyk:

We have reviewed the Draft Environmental Impact Statement for the above project and have classified it as ER-2 in EPA's reference category. You will find enclosed a copy of the Definition of Codes for the General Nature of EPA Comments to provide more detailed description of this rating. While we wish to commend the general scope of coverage and method of presentation in the draft statement, EPA has reservations about those projected noise levels on the preferred alternate which have been identified as exceeding Federal standards.

The methodology and presentation of project-related noise impacts is generally adequate but it is impossible for the reviewer to know how many people are impacted from the descriptions ("migrant workers quarters" and "trailer park") on page 41 of the draft statement. We would suggest quantifying the numbers of people in both noise-impacted facilities. 5-1

The draft statement does not indicate adequately either study or a subsequent commitment to possible techniques to abate standard-exceeding noise levels at the sensitive receptors along the route. The relatively level topography which results in nearly equal elevation at both noise sources and receptors would seem to indicate favorable conditions for consideration of berms or berm/vegetation configurations as effective noise shielding. Alternate noise abatement techniques which incorporate physical modifications in the noise-sensitive facilities should also be addressed in the final statement. In any case we request the opportunity for EPA to review at the same time any request for exceptions to noise standards filed for the Salisbury Bypass with the Federal Highway Administration. 5-2

✓ CAMPONESCHI		
DODSON	HELWIG	JANATA
DORSEY	HOFFMAN	KOLLER
I ECKHARDT	HOPKINS	SCHNEIDER
EGE	✓ HOUST	UHL

1 ACTION ✓ INFO 1 FILE

REMARKS: Follow-up

COMMENT 5

I-11

We would also note that the impacts of construction noise (pages 41, 42 in the draft statement) can frequently be mitigated by the contractor's use of construction equipment with "state of the art" noise suppression devices as well as his adherence to all local, state, and Federal noise regulations. The final statement can insure minimization of construction noise impacts by indicating the contractor will be specifically obligated to the above two conditions. 5-3

We hope this review will assist you in the preparation of the Final Environmental Impact Statement for the Salisbury Bypass. Please contact us if you have further questions.

Sincerely yours,

Nicholas M. Ruha

Nicholas M. Ruha
Chief
EIS and Wetlands Review Section

224

April 28, 1975

Re: Salisbury By-Pass; Maryland
Route 12 to U.S. Route 13
Wicomico County, Md.

Mr. Nicholas M. Ruha, Chief
EIS and Wetlands Review Section
U.S. Environmental Protection Agency
Region III
6th and Walnut Streets
Philadelphia, Pennsylvania 19106

Dear Mr. Ruha:

Your letter of April 18, 1975 concerning the subject project has been received and forwarded to those responsible for preparing the final Environmental Impact Statement (EIS). Your comments will be evaluated and responded to in the final EIS.

By letter dated April 15, 1975 from the Division Engineer, FHWA, the request for an exemption to the Design Noise Levels for Noise Sensitive Area Number 1, a migrant workers' quarters, is approved. Also the abatement measure proposed for the Noise Sensitive Area 3, the trailer park on the north side of Eden Road, is considered satisfactory and is also approved. Unfortunately your comments were received too late for you to be included in our requested review for noise proceedings upon request.

Thank you very much for your response and comments on this subject project. If you have any additional comments to render, your response is welcomed.

Very truly yours,

Robert J. Hajzyk, Director
Office of Planning and
Preliminary Engineering

RJH:RWC:mt

cc: Mr. Hugh Downs
Mr. Eugene T. Camponeschi
Mr. William Lins, Jr.

RESPONSE TO COMMENTS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION III

Comment 5-1

Response - The migrant workers' quarters are comprised of four buildings. Three are dwelling types and one is a storage shed or summer kitchen. The quarters have not been utilized specifically to house migrant workers for the past three years. At present there are two couples and a single man housed in these dwellings. The occupants are year round or permanent dwellers who work, on occasion, for the land owner. These occupants are of a minority group.

The second area, the trailer park, is located along Eden Road. Approximately 38 mobile homes housing approximately 130 persons fall within the 70 dBA contour. These trailers occupy this area on a year round basis. It is possible that some minorities are affected.

Along with these responses, page 41 of the final statement has been modified to quantify the approximate number of persons impacted.

Comment 5-2

Response - In accordance with the provisions of FHPM-7,7,3 a noise exception request report was prepared and submitted to the Federal Highway Administration regarding the migrant workers' quarters.

By letter dated April 15, 1975 from the Division Engineer, FHWA, the request for an exception to the Design Noise Level Standard for the migrant workers' quarters was approved.

Two alternatives are presently being studied regarding the trailer park on Eden Road. These are construction of a noise altenuating berm and relocation of the trailer park or the parts affected.

The above information has been added to the final statement on page 92.

Comment 5-3

Response - The following statements have been inserted in the final statement. "Finally, it should be noted that the impacts of construction noise can frequently be mitigated by the contractor's use of construction equipment with state of art noise suppression devices. The contractor will also be required to adhere to all local, state and federal noise regulations."

226

FILE
IN HOUSE
CONSULTANT

MARYLAND
DEPARTMENT OF STATE PLANNING
301 WEST PRESTON STREET
BALTIMORE, MARYLAND 21201
TELEPHONE: 301-383-2451

MARVIN MANDEL
GOVERNOR

VLADIMIR A. WAHBE
SECRETARY OF STATE PLANNING
MADELINE L. SCHUSTER
DEPUTY SECRETARY

April 24, 1975

'75 APR 25 PM 4 18

Mr. Eugene T. Camponeschi, Chief
Bureau of Project Planning
State Highway Administration
300 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT NOTIFICATION AND REVIEW

Applicant: State Highway Administration

Project: Draft Environmental Impact Statement (EIS) - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

State Clearinghouse Contact: Warren D. Hodges (383-2467)

Dear Mr. Camponeschi:

The State Clearinghouse has reviewed the above Draft Environmental Impact Statement (DEIS). In accordance with the procedures established by the Office of Management and Budget Circular A-95, the State Clearinghouse received comments (copies attached) from the following:

Department of Economic and Community Development, Department of Education, Department of Public Safety and Correctional Services, Department of Budget and Fiscal Planning, and the Director, Public School Construction Program: advised the Draft Environmental Impact Statement is considered adequate in its assessment of environmental impacts.

Department of Health and Mental Hygiene: advised that the DEIS indicates there will be no significant impacts on the air pollution, noise environment or water quality of communities near the proposed project.

Department of General Services, Department of Natural Resources, Wicomico County, and Salisbury: have not responded. Comments will be forwarded if received.

Our staff review determined that the DEIS is adequate in its assessment of environmental impacts. It is believed the EIS would be strengthened by the use of one standard set of criteria for all evaluations and analyses of potential environmental impacts.

✓ CAMPONESCHI			
DODSON	HELWIG	JANATA	
DORSEY	HOFFMAN	KOLLER	
ECKHARDT	HOPKINS	SCHNEIDER	
EGE	HOUST	UHL	
ACTION	✓ INFO	FILE	

REMARKS: COMMENT 6

Sincerely,

Vladimir Wahbe

Encl.
cc: Jerold Gettleman
Percy Williams
Robert Lally
R. Kenneth Barnes
Alford Carey
Donald Noren
Benjamin White
George Lewis
Matthew Creamer
Elmer Ruark

sw

Date: **March 21, 1975**

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

This agency has reviewed the above project and has determined that:

1. The project is not inconsistent with this agency's plans, programs or objectives. X

2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. ____

3. Additional information is required before this agency can complete its review. Information desired is attached. ____

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: Harold Hutchinson

Title: **Director**

Agency: ~~Community Development Adm.~~ **Dept. of Economic and Community Development**

229

Date: March 26, 1975

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

This agency has reviewed the above project and has determined that:

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3. Additional information is required before this agency can complete its review. Information desired is attached. ____

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

DEPT. OF STATE PLANNING
RECEIVED
MAR 31 1975
REVIEWED
ANSWERED

Signature: Percy V. Williams

Title: Assistant State Superintendent

Agency: Maryland State Department of Education

Date: March 12, 1975

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

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1. The project is not inconsistent with this agency's plans, programs or objectives. XX
2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. ____
3. Additional information is required before this agency can complete its review. Information desired is attached. ____
4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: Robert J. Lally

Title: SECRETARY

Agency: Department of Public Safety and Correctional Services

Date:

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

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2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. ____

3. Additional information is required before this agency can complete its review. Information desired is attached. ____

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: [signature]

Title: Budget Analyst

Agency: Dept Budget & Fiscal Planning

232

Date: March 20, 1975

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

This agency has reviewed the above project and has determined that:

1. The project is not inconsistent with this agency's plans, programs or objectives. X

2. The project is not inconsistent with this agency's plans, programs or objectives; but the attached comments are submitted for consideration by the applicant. ____

3. Additional information is required before this agency can complete its review. Information desired is attached. ____

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: Afford R. Carey

Afford R. Carey, Jr.

Title: Executive Director

Agency: Public School Construction Program

Date:

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

This agency has reviewed the above project and has determined that:

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2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. X

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4. The project is not consictent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: _____

Title: Director, Environmental Health Admin.

Agency: Md. Dept. of Health & Mental Hygiene

State of Maryland

DEPARTMENT OF HEALTH AND MENTAL HYGIENE
Neil Solomon, M.D., Ph.D., Secretary

ENVIRONMENTAL HEALTH ADMINISTRATION
201 W. Preston St. • BALTIMORE, MARYLAND 21201 • Area Code 301 • 383-2740

March 12, 1975

Mr. Warren D. Hodges, Chief
State Clearinghouse
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

Dear Mr. Hodges:

RE: State Highway Administration, Draft EIS - Salisbury By-Pass - Wicomico County; Project No. 75-2-535

Thank you for the opportunity to offer our comments on the proposed project. The staff of the Environmental Health Administration has reviewed the information and has the following comments to make.

The subject Environmental Impact Statement offers information that leads to the conclusion that there will be no significant impacts on the air pollution, noise environment or water quality of the communities along the proposed project.

However, the applicant should be advised that storm drainage plans and specifications must be submitted to the Applications and Permit Section, Bureau of Sanitary Engineering for processing and the issuance of appropriate construction permits.

Sincerely yours,

Donald H. Noren, Director
Environmental Health Administration

DHN:bac

Attachment

Date: May 1, 1975

Maryland Department of State Planning
State Office Building
301 West Preston Street
Baltimore, Maryland 21201

SUBJECT: PROJECT SUMMARY NOTIFICATION REVIEW

Applicant: State Highway Administration

Project: Draft EIS - Salisbury By-Pass - Wicomico County

State Clearinghouse Control Number: 75-2-535

CHECK ONE

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1. The project is not inconsistent with this agency's plans, programs or objectives. ____

2. The project is not inconsistent with this agency's plans, programs or objectives, but the attached comments are submitted for consideration by the applicant. X

3. Additional information is required before this agency can complete its review. Information desired is attached. ____

4. The project is not consistent with this agency's plans, programs or objectives for the reasons indicated on attachment. ____

Signature: Anthony F. Abar AFA/PK

Title: Deputy Director

Agency: Water Resources Administration

Paul W. McKee

Paul W. McKee, Assistant Secretary
Department of Natural Resources

COMMENTS ON STATE CLEARINGHOUSE PROJECT NO: 75-2-535
Draft EIS - Salisbury By-Pass - Wicomico County

The Department of Natural Reosurces has reviewed this project and wishes to make the following comments:

Comment and Response Reference Number

The Draft EIS should take into consideration the following:

1. Recognition and evaluation of tidal wetland areas that may be affected by the subject project. 13-1

2. The Maryland Fisheries Administration notes the potential presence of a rare and endangered species and has recommended investigative efforts (see attachment a). The applicant is advised to contact the Fisheries Administration directly for assistance in this matter. 13-2

Memorandum: 4/1/75

To: John D. Twining, WRA

From: W. R. Carter, III, Fisheries Administration

Subject: Clearinghouse control no. 75-2-535 Draft EIS Salisbury bypass, Wicomico County, Wicomico River drainage.

The draft statement is somewhat deficient in that it does not recognize the possible presence of a fish species present in the area which is possibly rare and endangered.

The blackbanded sunfish, Enneacanthus c. chaetodon (Baird.) is present in several loci in the Salisbury area, in the Wicomico River drainage. Schwartz (date unknown) notes its presence in Leonard Millpond, above the study area. Norden (personal communication, 1975) (see attachment 2) shows E. chaetodon in two loci around Salisbury. Persistent undocumented reports have referred to its presence in Tonytank Lake.

Miller (1972) lists E. chaetodon as rare and endangered (actively threatened with extinction) in Maryland. The Office of Endangered Species and International Activities (OES) did not list the species as officially endangered in its published list of May 19,1972. However, OES cites (March 1973) the Endangered Species Conservation Act of 1969, and states that actual numbers of a species is only one criterion for determining which species are threatened with extinction. OES states that species which may still have relatively large populations may face serious threats which could bring about their extirpation, including environmental degradation.

Schwartz (1961) conducted a food habits study (results attached as attachment no. 1). This study indicated that E. chaetodon is a bottom feeder, and that aquatic weed beds are a preferred microhabitat type. It is obvious that bottom organisms are susceptible of sedimentation damage, thereby raising the possibility of interrupting the food chain supporting the species, should it be present in the headwaters of Tonytank Lake. Similarly, turbidity tends to reduce aquatic plant growth, which would thereby reduce areas of preferred habitation.

The Fisheries Administration recommends thatthe sponsors of the project undertake sampling efforts to determine whether or not E. chaetodon is present in the Tonytank headwaters. Results should be presented in the final EIS. Should the species be isolated there, additional specifications for the protection of its habitat should be described. Further, the Office of Endangered Species should be contacted for its most current considerations of the status of E. chaetodon and its recommendations as to methods for its protection.

Literature Cited

Miller, R. R. 1972. Threatened freshwater fishes of the United States. Trans. Am. Fish. Soc. 101 (2): 239-252.

Norden, Arnold. March, 1975. personal communication and unpublished distributional maps.

Office of Endangered Species and International Activities. 1973. Threatened wildlife of the United States. Bu. Sport Fisheries and Wildlife, U.S. Dept. Interior. Resource Publ. 114.

Schwartz, Frank._____. Several Maryland fishes are close to extinction. Maryland Conservationist, May-June_____:8-12

Schwartz, F. J. 1961. Food, age, growth, and morphology of the black-banded sunfish Enneacanthus c. chaetodon, in Smithville Pond, Maryland. Ches. Sci. 2 (1 & 2):82-88

Attachment No. 1.

Enneacanthus chaetodon chaetodon (blackbanded sunfish)

Feeding: (Smithville Lake, Caroline County, Md. Marshyhope-Nanticoke drainage) Schwartz, 1961:

Food item percent by frequency and volume

	July-		November		Total	
	Frequen.	Volume	Frequency	Volume	Freq.	Volume.
Chironomidae	75.0	73.3	12.5	12.5	59.3	58.1
Caddis larvae	6	------	37.5	37.5	9.3	9.3
Dragonfly larvae	8.3	8.3	---	---	6.3	6.3
Gammarids	---	---	12.5	12.5	3.1	3.2
Filamentous alg.	---	---	25.0	25.0	6.3	6.3
Plant leaves	16.7	8.9	---	---	12.5	6.7
Debris	2.0	9.5	12.5	12.5	18.7	10.0
		100.		100.		100.

Chironomids eaten identified as Pseudochironomus (richardsoni) and Tendipes sp.

For E. c. elizabethae (the southern subspecies) foods included chironomids, gammarids, caddis flies, coleopteran larvae, ephemeropterans, odonatans, and trichoptera.

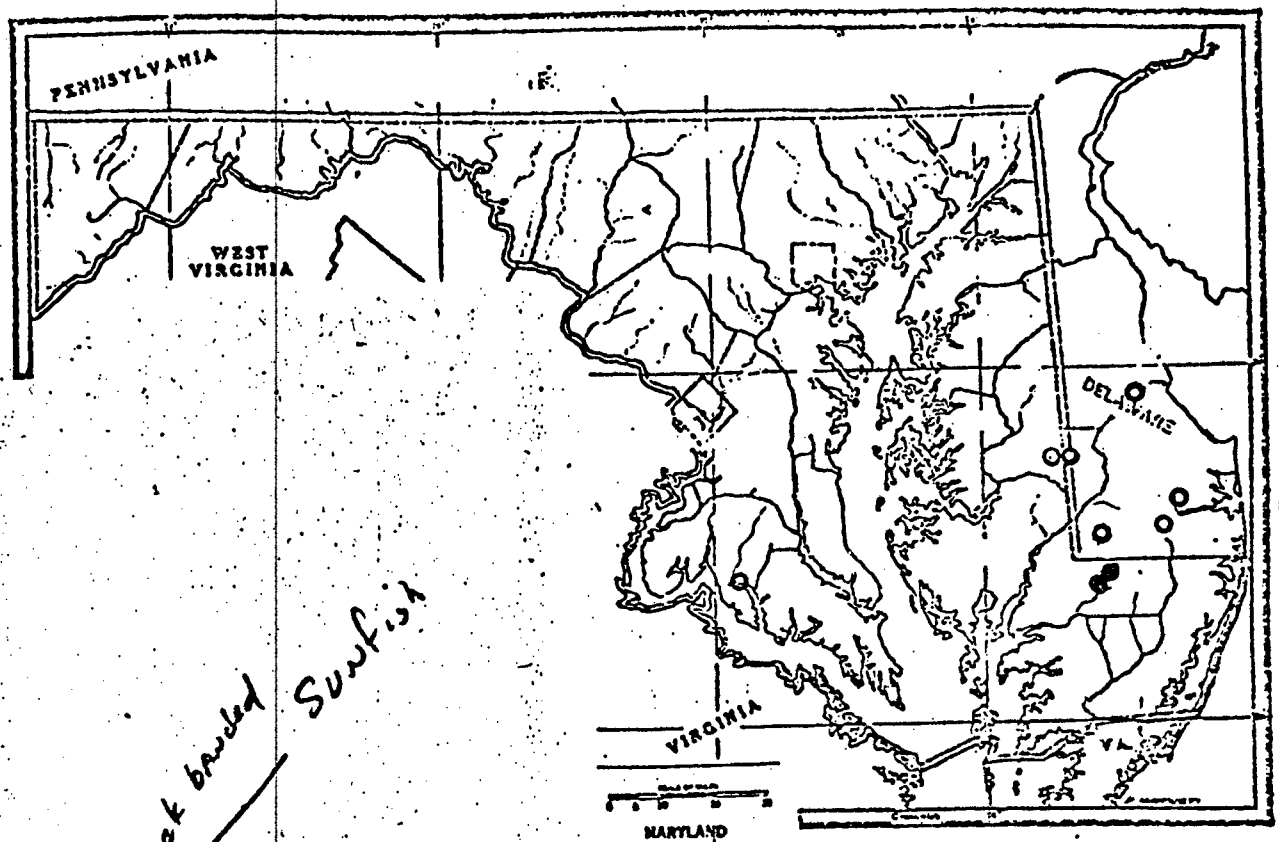
Earlier work on E. C. Chaetodon: chironomids, Cyclops quadricornis daphnia, diatoms, desmids, algae, and the rhizopod Centropyxis aculeata.

Habitat: prefers weedy locations and tends to be a bottom feeder.

Breeding: spawns in March in North Carolina.

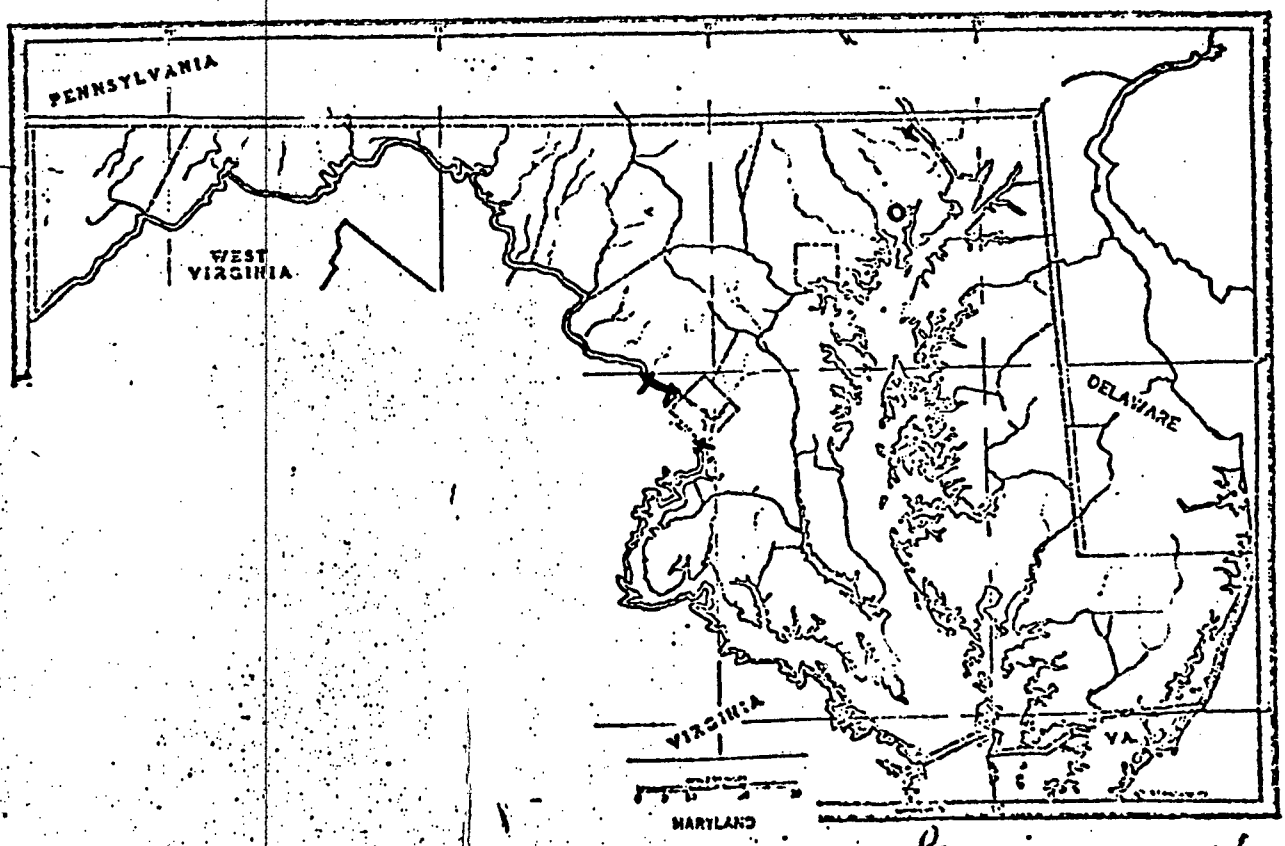
Range: Coastwise streams from New Jersey to Florida.

Schwartz, Frank J. 1961. Food, age, growth, and morphology of the blackbanded sunfish, Enneacanthus c. chaetodon, in Smithville Pond, ~~XXXXXX~~ Maryland. Ches. Sci. 2 (1 & 2):82-88.



Black banded Sunfish

Enneacanthus chaetodon



Percina caprodes

RESPONSE TO COMMENTS BY DEPARTMENT OF NATURAL RESOURCES

Comment 13-1

Recognition and evaluation of non-tidal wetland areas near the project are discussed in the ecology and wildlife sections of the FEIS.

Comment 13-2

Response - Because of the concern raised by the Fisheries and Wildlife Administration over the possible existence of the blackbanded sunfish and the possible adverse impacts which may be caused by construction of the Salisbury By-Pass, FHWA and State Highway Administration officials, along with the consultant, met on May 23, 1975 to determine what course of action should be taken. After consideration of the alternative actions, it was decided that a two day sampling effort, in areas to be designated by the Fisheries Administration, would be undertaken to determine if the blackbanded sunfish was indeed present in these waters.

The sampling effort was made on July 10 and 11, 1975. The blackbanded sunfish was collected in only one pond area approximately a mile and three-quarters from the project.

It was the conclusion of a study that by using the planned erosion and sedimentation control techniques, as outlined in the draft statement, construction of the Salisbury By-Pass would not affect either the food source or the aquatic plant growth in the pond areas to a degree which could, in any way, be detrimental to the continued existence of the blackbanded sunfish in these waters.

The Fisheries Administration has reviewed the report and has stated that, based on the assumption by the Fisheries Administration that adequate sedimentation and erosion control measures would be used, their office would have no further comment regarding this facet of the Draft Environmental Impact Statement.

As noted in Response 4-4 earlier, close coordination with the Department of Natural Resources' Wildlife and Fisheries Administration will be maintained during construction to insure that proper precautions are taken and at the same time provide maximum protection to fish and wildlife resources in the project area.

APPENDIX IV

Results of an Ichthyological Survey of the Tonytank Headwaters

RESULTS OF AN ICHTHYOLOGICAL SURVEY OF THE TONYTANK HEADWATERS

(Project Reference: Draft Environmental Impact Statement Salisbury Bypass)

Prepared by

Greiner Environmental Sciences, Inc.
Baltimore, Maryland

August, 1975

Table of Contents

List of Exhibits

List of Tables

INTRODUCTION

The Draft Environmental Impact Statement for construction of the Salisbury By-Pass was circulated for comments on February 26, 1975. On May 1, 1975, comments were received from the State of Maryland Fish and Wildlife Administration. These comments inferred that a species of fish known commonly as the blackbanded sunfish (Enneacanthus c. chaetodon), which is considered rare and possibly endangered in Maryland, had been reported in areas of the Tonytank Lake adjacent to the proposed alignment of the Salisbury By-Pass. However, these reports had not been documented prior to this time.

The concern over the possible existence of the species near a construction area resulted from a food habits study of the blackbanded sunfish conducted by Schwartz (1961). The study indicated that E. chaetodon is a bottom feeder, and that aquatic weed beds are a preferred microhabitat type. Mr. W. R. Carter III, representative of the Fish and Wildlife Administration, pointed out that bottom organisms could be susceptible to sedimentation damage and thereby raise the possibility of interrupting the food chain which supports the species. He continued to point out that increased turbidities tend to reduce aquatic plant growth and thereby possibly reduce areas of preferred habitation.

As a result of these comments, FHWA and State Highway Administration officials, along with the consultant, met on May 23, 1975 to determine what course of action should be taken. After consideration of the alternative actions, it was decided that a two day sampling effort, in areas to be designated by the Fisheries Administration, would be undertaken to determine if the blackbanded sunfish was indeed present in these waters.

SAMPLING LOCATIONS

General sampling locations, which included both ponds and streams, were suggested from topographic maps and aerial photos of the area at a pre-survey meeting at the Fish and Wildlife Administration by Mr. Carter. These locations are listed in Table 1 and shown on Exhibit 1.

Staff personnel of Greiner Environmental Sciences, Inc. surveyed the proposed sampling locations and found two of the suggested streams (Sites 6 and 11) to be extremely small and stagnant and therefore unsuitable for a sampling effort.

Table 1

Recommendations For Sampling Locations

Tonytank Creek

Site 1A	- Tonytank Pond South
Site 1B	- Tonytank Pond North
Site 2	- Colbourne Mill Pond (formerly Fooks Pond)
Site 3	- Tonytank Creek at proposed crossing
Site 4	- Road Crossing on White Marsh Creek
Site 5 & 6	- Two road crossings on Tonytank - South of White Marsh

Morris Prong

Site 7	- At Union Church

Slab Bridge Creek

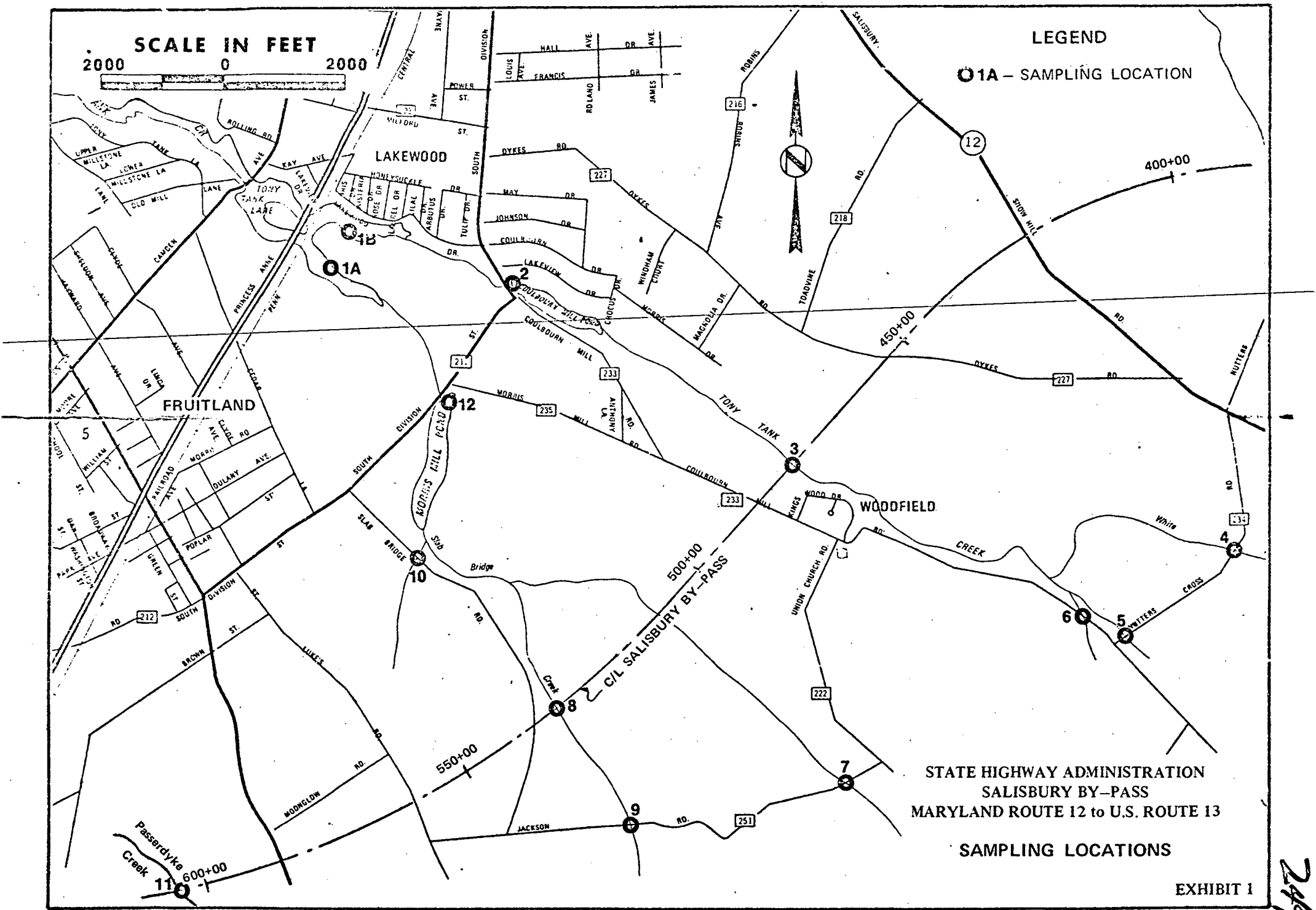
Site 8	- At proposed crossing
Site 9	- At road east of proposed crossing
Site 10	- Road Crossing on Pryor Branch

Passerdyke Creek

Site 11	- Tributary at proposed crossing

Additional Site

Site 12	- Pond below Morris Prong Branch - (Morris Pond)


SCALE IN FEET
2000 0 2000
LEGEND
1A – SAMPLING LOCATION
LAKEWOOD
FRUITLAND
WOODFIELD
C/L SALISBURY BY-PASS
400+00
450+00
500+00
550+00
600+00
1A
1B
2
3
4
5
6
7
8
9
10
11
12
Passerdyke Creek
STATE HIGHWAY ADMINISTRATION
SALISBURY BY-PASS
MARYLAND ROUTE 12 to U.S. ROUTE 13
SAMPLING LOCATIONS
EXHIBIT 1

With the exception of these two sites, all other streams and ponds were determined to be feasible sampling locations. In choosing specific locations on each of the final sites, three parameters were used as criteria for defining a suitable habitat for fish populations. These were a reasonable depth of water, amount of aquatic vegetation, and the amount of protective cover.

All of the ponds sampled exhibited, in certain areas, the type of habitat most preferred by the blackbanded sunfish. However, the streams, although sampled, were not found to provide the type habitat which had been described as preferrable by Mr. Carter and the food habits study previously referred to.

SAMPLING PROCEDURE AND CLASSIFICATION

The sampling effort was conducted by a three-man survey team on Thursday and Friday, July 10 and 11, 1975. The survey team consisted of a biologist and two technicians. Samples were collected using the following equipment:

- 12' x 4' Beach Seine - 1/4-inch mesh
- 100' x 8' Beach Seine - knotless delta mesh 3/16-inch mesh bag and 3/8-inch mesh wings tapered 1-1/2 to 1
- 9" x 20" rectangular mouthed dip net - 1/2 mm mesh
- fish trap - rectangular, two conical openings, 3/8-inch mesh

Streams were sampled using the dip net, fish trap and smaller beach seine. In the large pond areas, the 100' x 8' beach seine was used.

All fish collected were identified by the biologist in charge and counted. The only exception was that in two beach seine repetitions, at Site 12, where the number of juvenile bluegills (Lepomis Macrochirus) was so numerous that an estimate of their numbers had to be made. Any amphibians or reptiles were also identified and counted. Amphibian larvae and shrimp were noted but not counted.

All of the above information is contained in Table 2. Also included in this table are general observation comments and the number of sampling repetitions at each site. Table 3 provides the species list containing the scientific nomenclature for each of the species identified.

Water quality data, which was also gathered during this survey, was obtained using a Hach Chemical Company DR-EL/2 Test Kit. The results of this analysis are included in Table 4.

FINDINGS

Streams

The streams which were sampled, with the exception of one, were located in densely wooded areas. These streams showed no signs of either submergent or emergent aquatic vegetation and therefore presented a much less desirable habitat than would normally be expected for the blackbanded sunfish. The only other stream site, which was located in an open area, contained extensive growths of algae. Neither of these reasons alone, however, would necessarily rule out the possible existence of the blackbanded sunfish in the streams, but neither are they encouraging signs.

Although the sampling in these streams produced numerous types of fish, the blackbanded sunfish was not found.

Ponds

The ponds on the project are quite large. Table 5 describes the four ponds sampled by area, length and average width. These areas provided much more of the type habitat which would normally be preferred by the blackbanded sunfish. Submergent aquatic vegetation was common in all ponds along with sporadic areas of macrophytes. As noted previously, all four pond areas were sampled using the large 100' x 8' beach seine and a row boat. Using this method, the blackbanded sunfish was located in only one of the ponds, that being the southern branch of Tonytank Lake, east of U. S. 13 and the railroad tracks.

In all, five blackbanded sunfish were collected from this portion of Tonytank Lake. Two died before they could be released and were consequently saved for species confirmation and future reference. The other three were released unharmed.

Table 2

Collection Data For Fishery Survey
Salisbury By-Pass

Sample Point Location No.	Repetition No.	Method Used	Pirate Perch	American Eel	Brown Bullhead	Chain Pickerel	Golden Shiner	Creek Chubsucker	Largemouth Bass	Blackbanded Sunfish	Bluespotted Sunfish	Bluegill	Pumpkinseed	White Crappie	Darter	Mosquitofish	Shrimp	Green Frog (Adult)	Eastern Painted Turtle	Stinkpot Turtle	Amphibian Larvae	Comments
1A	1	100' Beach Seine	1					16	19		17	10	3		2	1	X				X	Very weedy, sandy bottom - 0-6 feet deep.
	2	100' Beach Seine					1	3	11	5	7	4	2				X				X	Very weedy, sandy bottom - 0-8 feet deep.
1B	1	100' Beach Seine		1					14			3			1		X				X	Connected to 1A. Less vegetation and deeper than 1A.
2	1	100' Beach Seine							10		18	48					X				X	Weedy - Raining
	2	100' Beach Seine			1				27		30	139	8				X				X	
3	1	12' Beach Seine				1						3										Clear flowing water - four feet deep. No aquatic vegetation, shaded area. Many tree branches in water.
	2	12' Beach Seine	Nothing Collected																			
	3	Dip Net	Nothing Collected																			
	4	Dip Net	Nothing Collected																			
	5	Dip Net	Nothing Collected																			
	6	Trap	3																			

Table 2--Cont'd.
Collection Data For Fishery Survey
Salisbury By-Pass

Sample Point Location No.	Repetition No.	Method Used	Pirate Perch	American Eel	Brown Bullhead	Chain Pickerel	Golden Shiner	Creek Chubsucker	Largemouth Bass	Blackbanded Sunfish	Bluespotted Sunfish	Bluegill	Pumpkinseed	White Crappie	Darter	Mosquitofish	Shrimp	Green Frog (Adult)	Eastern Painted Turtle	Stinkpot Turtle	Amphibian Larvae	Comments
4	1	12' Beach Seine			27													X				Water murky - three feet deep, no aquatic vegetation, very shaded.
	2	12' Beach Seine			5																	
	3, 4, 5, 6	Dip Net										5										
5	1	12' Beach Seine							Nothing Collected													Water murky, many dead branches in water, very shaded, no aquatic vegetation - three feet deep.
	2	12' Beach Seine	1																			
	3	12' Beach Seine	3																			
	4, 5, 6	Dip Net							Nothing Collected													
6									No Water													
7	1	12' Beach Seine						3	4			13				2					X	Water brown, some floating algae and duckweed. No observable flow. Shaded, soft bottom - five feet deep. Many branches in water.
	2	12' Beach Seine										6										
	3	12' Beach Seine							Nothing Collected													

Table 2--Cont'd.
Collection Data For Fishery Survey
Salisbury By-Pass

Sample Point Location No.	Repetition No.	Method Used	Pirate Perch	American Eel	Brown Bullhead	Chain Pickerel	Golden Shiner	Creek Chubsucker	Largemouth Bass	Blackbanded Sunfish	Bluespotted Sunf.sh	Bluegill	Pumpkinseed	White Crappie	Darter	Mosquitofish	Shrimp	Green Frog (Adult)	Eastern Painted Turtle	Stinkpot Turtle	Amphibian Larvae	Comments
8	1	Dip Net										3										Large amounts of algae, only dip net used. 0-12 inches deep, water slightly brown, stream area not shaded.
	2	Dip Net										3										
	3	Dip Net										1										
	4	Dip Net										5										
	5	Dip Net										2										
9	1	12' Beach Seine					1															Water brown, mature forest, many logs in water, slight flow, 2-1/2 feet deep.
	2	12' Beach Seine								Nothing Collected												
	3	12' Beach Seine			1		5															
	4, 5, 6, 7, 8, 9	Dip Net								Nothing Collected												
10	1, 2, 3, 4, 5	Dip Net								Nothing Collected												Clear flowing small stream, 12 inches deep, very overgrown with brush. Could not use seine, very shaded.

Table 2--Cont'd.
Collection Data For Fishery Survey
Salisbury By-Pass

Sample Point Location No.	Repetition No.	Method Used	Pirate Perch	American Eel	Brown Bullhead	Chain Pickerel	Golden Shiner	Creek Chubsucker	Largemouth Bass	Blackbanded Sunfish	Bluespotted Sunfish	Bluegill	Pumpkinseed	White Crappie	Darter	Mosquitofish	Shrimp	Green Frog (Adult)	Eastern Painted Turtle	Stinkpot Turtle	Amphibian Larvae	Comments
11			No Water																			Intermittent stream.
12	1	100' Beach Seine	1		1	1		6	8		40	250*					X		1	1	X	Raining when water samples were taken. Emergent and submergent vegetation.
	2	100' Beach Seine	1						7		20	300*		1			X				X	

X - indicates presence noted.

* - indicates estimated number.

Table 3

Species Identified and Scientific Nomenclature

Pirate Perch	*Aphredoderus sayanus*
American Eel	*Anguilla rostrata*
Brown Bullhead	*Ictalurus nebulosus*
Chain Pickerel	*Esox niger*
Golden Shiner	*Notemigonus crysoleucas*
Creek Chubsucker	*Erimyzon oblongus*
Largemouth Bass	*Micropterus salmoides*
Blackbanded Sunfish	*Enneacanthus chaetodon*
Bluespotted Sunfish	*Enneacanthus gloriosus*
Bluegill	*Lepomis macrochirus*
Pumpkinseed	*Lepomis gibbosus*
White Crappie	*Pomoxis annularis*
Darter	*Etheostoma* sp.
Mosquitofish	*Gambusia affinis*

Table 4

Water Quality Data For Fishery Survey
Salisbury By-Pass

Sample Location	Date	Time	H_2O Temp. (°C)	DO (ppm)	pH	Air Temp. (°C)	Body of Water Description
1-A	7/11/75	1050	24	10.3	7.4	26	Pond
1-B	7/11/75	1220	25	8.7	6.8	27	Pond
2	7/11/75	1500	24	13.0	7.5	26	Pond
3	7/10/75	1407	18	10.3	6.5	31	Stream
4	7/10/75	1230	23	6.8	7.8	30	Stream
5	7/10/75	1315	21	5.0	4.9	30	Stream
6	7/10/75	1400	No Water Present			30	Stream
7	7/10/75	1520	31	10.3	7.8	32	Stream
8	7/10/75	1730	27	10.3	5.3	32	Stream
9	7/10/75	1653	24	4.5	5.7	32	Stream
10	7/10/75	1625	20	11.5	5.2	33	Stream
11	7/10/75	1805	No Water Present			32	Stream
12	7/11/75	1700	27	11.6	7.6	22	Pond

Table 5

Pond Descriptions

Sample Location No.	*Pond Name*	*Average Width (Feet)*	*Approximate Length (Feet)*	*Approximate Surface Area (Acres)*
1A	Tonytank Pond South	200	1200	5.5
1B	Tonytank Pond North	300	1000	6.9
2	Colbourne Mill Pond (Formerly Fooks Pond)	275	2500	15.8
12	Morris Pond	240	2400	13.2

Conclusive species identification confirmation was made by Mr. Stephen Goodbread, Fisheries Biologist at Goucher College in Baltimore, Maryland.

CONCLUSIONS

The area of Tonytank Lake, east of U. S. 13, where the blackbanded sunfish was identified, is the receiving waters for numerous intermittent streams and branches. To fairly evaluate the possible existence and habitat limits of the blackbanded sunfish in the area, a total of 12 different locations were investigated. As a result of this effort, the blackbanded sunfish was found in only one location as noted above.

The purpose of the sampling effort was initially two-fold. First, to ascertain if the blackbanded sunfish did exist in this area, and secondly, if it did exist, how close to the proposed by-pass could it be expected to be found. As a result of these evaluations and assuming the species was identified in the area, the question arose as to whether additional sedimentation and erosion control measures would be required during, and possibly after, the by-pass construction.

Once the species was indeed identified in the lower reaches of Tonytank Lake, the problem became one of evaluating whether construction of the by-pass would cause sediment transport to pollute the water this far downstream.

A second field investigation, in conjunction with other work in the Fruitland area, was made by design engineers from both Greiner Environmental Sciences, Inc. and Greiner Engineering Sciences, Inc. Several important facts were revealed as a result of this second study. It was found that both Colbourne Mill Pond (formerly Fooks Pond) and Morris Pond had outflow structures controlled by vertical standpipe systems with the barrel of the spillway passing under Division Street in both cases. Colbourne Mill Pond ultimately drains to the northern section of Tonytank Lake. Morris Pond drains to the section of Tonytank Lake in which the species was collected. The standpipe system in both of these lakes would immediately rule out upstream migration of fish to these ponds.

Second, as shown on Exhibit 1, the northern branch of Tonytank Lake is located approximately one and a half miles from the project. The southern branch of Tonytank Lake is approximately one and three-quarter miles from the by-pass area using the shortest major drainage path to measure.

Third, Colbourne Mill Pond is about 2,500 feet in length and averages about 275 feet wide. Morris Pond is somewhat smaller being 2,400 feet long, and averaging about 240 feet wide. The upper reaches of these two ponds are located about the same distance from the proposed By-pass at about 3,000 feet.

Fourth, the slope of the terrain in the area is extremely flat as is most of the Maryland Eastern Shore.

Fifth, construction of a brand new apartment complex, known as Canal Village, has just recently be completed. This complex is situated immediately between the two branches of Tonytank Lake discussed in this report. The two lakes have been joined by the construction of a "canal" cut between the complex and the railroad tracks east of U. S. 13. Several observations were made at this site:

- Flow in the newly constructed canal which joined the two lakes, was carried by two 42-inch corrugated metal pipes.
- Sheet piling had been driven along the entire perimeter of the project to form a bulkhead for the site.
- Backfill was sloped from the structure to the top of the bulkhead and had not been stabilized. In fact, no erosion control procedures were in evidence. As a result, a substantial amount of loose material had been washed directly into both segments of Tonytank Lake.

The following conclusions are drawn from the results of the sampling effort and field investigation.

- No evidence whatsoever of the blackbanded sunfish's presence was found during the sampling effort in any of the stream areas. It is therefore concluded that the blackbanded sunfish does not exist in the stream areas.
- Although there is a possibility that the blackbanded sunfish may exist in all four pond areas sampled, the species was only collected in the southern branch of Tonytank Lake.

- The headwaters of the closest pond area is approximately 3,000 feet or over one-half mile from the project. In addition, topography in the area is extremely flat. It is therefore concluded that, by installing the proposed sedimentation and erosion control measures, which are outlined in the Draft EIS, problems with sedimentation in the pond areas will not occur as a result of the By-Pass construction.

- One final point should be noted. The immediate area, in which the blackbanded sunfish was found, has just recently undergone a substantial construction period. This occurred in the area of the new apartment complex called Canal Village. It was necessary, as previously noted, to install a permanent bulkhead along both sides of the complex which is located between the two branches of Tonytank Lake. Although the project is nearly complete, a site investigation failed to reveal any types of sedimentation and erosion control measures being used. There was clear evidence of sedimentation along the headwall in the waters of Tonytank Lake. This would indicate that in addition to siltation problems during construction, there was a definite increase in turbidities. However, the blackbanded sunfish was found very near the end of the new headwall construction. Since the ponds are large and there is a substantial amount of the type habitat preferred by the species, it is concluded that the blackbanded sunfish, at least in this case, was able to survive and relocate to other areas within the lake when these problems occurred.

It is impossible, considering the control methods planned for the by-pass project, and the distance between the ponds and the project, to conceive of siltation and increased turbidities occurring in any of the ponds to the same degree as were witnessed in Tonytank Lake as a result of the recent construction. Yet this is where the blackbanded sunfish was found.

This is not to imply that the blackbanded sunfish was unaffected by the problem which was created downstream, but it does seem to imply that the species is capable of relocating itself to other areas within the pond should these problems occur.

It is our conclusion then, based on the foregoing discussions, that construction of the Salisbury By-pass, as planned, will not affect either the food source or the aquatic plant growth in the four pond areas, to a degree which could be considered as being detrimental to the continued existence of the blackbanded sunfish in these waters.

ASSESSMENT OF SIGNIFICANT ENVIRONMENTAL EFFECTS

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

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

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

	Yes	No	* Comments Attached
A. Land Use Considerations			
1. Will the action be within the 100 year flood plain?	___	X	___
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	___	___
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	___	___
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	___

* For additional information on each question see the appropriate section of the EIS.

	Yes	No	Attached
11. Will the action affect the use of a public recreation area, park, forest, wildlife management area, scenic river or wildland?	___	X	___
12. Will the action affect the use of 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 archaeological or historical site or structure?	___	X	___
B. Water Use Considerations			
14. Will the action require a permit for the change of the course, current, or cross-section of a stream or other body of water?	___	X	___
15. Will the action require the construction, alteration or removal of a dam, reservoir or waterway obstruction?	___	X	___
16. Will the action change the overland flow of storm water or reduce the absorption capacity of the ground?	X	___	___
17. Will the action require a permit for the drilling of a water well?	___	X	___
18. Will the action require a permit for water appropriation?	___	X	___
19. Will the action require a permit for the construction and operation of facilities for treatment or distribution of water?	___	X	___
20. Will the project require a permit for the construction and operation of facilities for sewage treatment and/or land disposal of liquid waste derivatives?	___	X	___
21. Will the action result in any discharge into surface or subsurface water?	X	___	___

	Yes	No	Comments Attached
			265
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	___	___
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	___
26. Will the action preclude future use of related air space?	___	X	___
27. Will the action generate any radiological, electrical, magnetic, or light influences?	___	X	___
D. Plants and Animals			
28. Will the action cause the disturbance, reduction or loss of any rare, unique or valuable plant or animal?	___	X	___
29. Will the action result in the significant reduction or loss of any fish or wildlife habitats?	___	X	___
30. Will the action require a permit for the use of pesticides, herbicides or other biological, chemical or radiological control agents?	___	X	___
E. Socio-Economic			
31. Will the action result in a preemption or division of properties or impair their economic use?	X	___	___

	Yes	No	Comments Attached
32. Will the action cause relocation of activities, structures or result in a change in the population density or distribution?	___	X	___
33. Will the action alter land values?	X	___	___
34. Will the action affect traffic flow and volume?	X	___	___
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	___	___
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	___
41. Will the action affect the ability of the area to attract tourism?	X	___	___
F. Other Considerations			
42. Could the action endanger the public health, safety or welfare?	___	X	___
43. Could the action be eliminated without deleterious effects to the public health, safety, welfare or the natural environment?	___	X	___

	Yes	No	Comments Attached
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	___

G. Conclusion

47. This agency will develop a complete environmental effects report on the proposed action.	___	X	___

47. An Environmental Impact Statement is being prepared in accordance with the National Environmental Policy Act.

F-FG-702-1(7)

GROGAN 268

Maryland Department of Transportation
State Highway Administration

Harry R. Hughes
Secretary
Bernard M. Evans
Administrator

April 9, 1976

RE: Contract No. WI 395-9/10-171
Salisbury By-Pass - From
Maryland Route 12 to U.S.
Route 13 - Archeological
Reconnaissance Report
03-24.2.2

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

Dear Mr. Elinsky:

In accordance with the Federal Highway Administration PPM 20-7, "Archeological and Paleontological Salvage", the State Highway Administration has completed an archeological reconnaissance survey for the subject project.

The examination of the selected alignment, Alternate "E", by a qualified archeologist was recently completed. One possible small site was found approximately one-quarter of a mile from U.S. Route 13 within the proposed right of way; however, the archeologist who performed the survey does not consider the site significant. The formal reconnaissance report is available at the State Highway Administration.

If, during the construction of the project, additional sites are discovered, salvage procedures will be employed in accordance with the applicable federal manuals.

Very truly yours,

Bernard M. Evans
State Highway Administrator

by: Robert J. Hajzyk

Robert J. Hajzyk, Director
Office of Planning and
Preliminary Engineering

BME:RJH:bh

cc: Mr. Hugh G. Downs
Mr. Eugene T. Camponeschi
Mr. Al Kuhl